Impact of a Nurse-Led Early Mobility Protocol in Postoperative General Surgery Older Adults on Medical-Surgical Units

Gerri Harris

College of Nursing

East Carolina University

Doctor of Nursing Practice Program

Dr. Bradley Sherrod

July 16, 2021

Notes from the Author

Dedication

I want to thank God for granting me the endurance and strength through the journey of completing my Doctor of Nursing Practice degree. To my husband and three musketeers, thank you for your patience and love during this journey, may this be a perpetual reminder that you are never too old to learn and reach for the stars. To my parents, you can finally say there is a Doctor in the family!

Acknowledgements

A special thanks to my faculty advisor Dr. Brad Sherrod and site champion Dr. Nancy Loyack for their time and expertise supporting my project. I would like to express my gratitude to the staff at Durham Veteran Affairs Health Care System for their encouragement and participation in making a positive difference in patient care.

Abstract

The older population is rapidly growing due to increased longevity in the United States. With these changing demographics, the healthcare system must be prepared to provide quality care in respect to postoperative mobility for the older adult population undergoing general surgery. Adult patients have a higher risk for complications related to immobility, with adults ages 65 and older requiring special consideration. The objectives of the nurse-led early mobility protocol were to encourage nursing staff to assist with early mobility of general surgery postoperative older adult patients, shorten the length of stay (LOS), and shift responsibility for early ambulation from rehabilitation staff to nursing staff. The staff compliance benchmark goal of 85% was not met, the average was 80.5% during the 6 months period. The mean LOS was 5.9 days with a range from 4.3 to 8.5 days. The nurse-led early mobility protocol left a positive impact on the project unit due to the increase of collaborative work between nursing staff.

Keywords: nurse-led; early mobility protocol; older adults; postoperative; ambulation program

Table of Contents

Section I. Introduction

There is consistent evidence that patients are mostly inactive and in-bed during hospitalization. In order to improve inpatient mobility and progressive activity interventions, there needs to be a way to monitor activity that is accurate, clinically meaningful, and does not increase the heavy burden on staff workloads and documentation requirements (Fazio et al., 2020). Older adults and patients that have undergone surgery are at the greatest risk for complications related to immobility (Teodoro et al., 2016). Patients that are mobilized as early as possible after surgery have shown improvement in health outcomes that include lower rates of delirium, urinary tract infections, pulmonary complications, thromboembolism, and a decreased length of stay (LOS; Dewitt et al., 2019; Growdon et al., 2017; Hoyer et al., 2016).

Background

The older population is rapidly growing due to increased longevity in the United States. The number of individuals ages 65 to 74 will rise from roughly 49.2 million today to 73.1 million by 2030 (U.S. Census Bureau, 2019). According to the American Community Survey, the proportion of older adults with some disability increases with age and showed that nearly half of these adults experienced serious difficulty walking or climbing stairs among ages 85 and older (Roberts et al., 2016). With these changing demographics the healthcare system must be prepared to provide quality care in respect to postoperative mobility for the older adult population undergoing general surgery. The United States Department of Veterans Affairs Surgical Quality Improvement Program (VASQIP) was created to assist the United States Department of Veterans Affairs (VA) hospitals to improve their performance. Since its inception, VASQIP continues to gather clinical data from all VA institutions where major surgeries are

performed, and implementation of the program has resulted in notable improvements in perioperative outcomes across the VA system.

The VASQIP reports that open colectomy and open cholecystectomy (12 days) are above the national average (8 days) for the LOS from the last 12-month period July 2018 to June 30, 2019 (Veteran Affairs National Surgery Office Quarterly report, 2019). The fundamental question to be answered asks: Will the implementation of a nurse-led early mobility protocol in general surgery for older adult patients result in a decrease in the LOS for these patients undergoing open abdominal surgery?

Organizational Needs Statement

More than 200,000 Veterans in a 27-county area of central and eastern North Carolina take part in services offered by this healthcare organization (Department of Veterans Affairs, 2016). This organization is currently applying for entrance into the Geriatric Surgery Verification & Quality Improvement Program. The program is focused on meeting the needs of the growing geriatric population (ages 65 & older) that will undergo surgery. Older adult patients have a higher risk for complications related to immobility, with adults ages 65 and older require special attention (Teodoro et al., 2016). As this population matures, it is important to maintain high quality and patient centered care (American College of Surgeons [ACS], 2020a). One of the many criteria for admission into this program is the implementation of postoperative management standards relating to the mobility and function of the older adult surgical population.

Problem Statement

While the project organization has a commitment to provide quality care for all Veterans, there is special consideration for the geriatric population because of chronic conditions that are

present within the 65 and older age group of (Adams, 2017). At the project site, there is currently no standard of care related to early mobility on the medical-surgical units (Med-Surg) for postoperative general surgery. Nursing staff rely heavily on Physical Therapy (PT) and Occupational Therapy (OT) for ambulation of postoperative patients. This causes a delay of patient care when PT and OT are unavailable based on their caseload. Where the nursing staff does not take responsibility of patient's mobility after surgery, the older adult patients may experience an increased LOS due to mobility delays.

Purpose Statement

The purpose of this quality improvement project was to enhance the experience of care of the postoperative geriatric population through a nurse-led early mobility protocol for general surgery. This project aims to decrease LOS which can reduce health care costs, create a standard of care for early mobility of postoperative older adult patients, and enhance nursing staff workflow.

Section II. Evidence

Literature Review

The two principal concerns of the project: 1) a nurse led early mobility protocol; and 2) postoperative older adult patients, were reviewed through targeted PubMed, ProQuest, and Cumulative Index to Nursing and Allied Health Literature (CINAHL) searches. These searches included full text literature published within the last five years (2015-2020) that supports the need for an early mobility protocol on postoperative general surgery older adult patients. Previously published evidence was used as needed to establish background data metrics. Search terms or phrases are presented in Appendix A. Some of the parameters used to determine relevant evidence included those written only in English, peer reviewed, and originating in the

United States. Of the 221 articles found in these searches, 12 were included in this review. Articles were excluded for two reasons: 1) lack of relevance to proposed quality improvement; and 2) studies that originated outside of the United States. Additional articles were included to support the proposed clinical practice change. The evidence reviewed included systematic literature reviews, quality improvement projects, and randomized clinical trials as presented in Appendix B.

Current State of Knowledge

Most of the existing evidence notes the detrimental effects of immobility of hospitalized patients and demonstrates positive outcomes through early mobility programs implementation of for postoperative patients. In hospitalized older adults, inadequate physical mobility increases the risk for frailty and functional decline (Overcash et al., 2018). Older adults and patients who have undergone general surgery are at higher risk for complications related to immobility. Mobilizing hospitalized patients can decrease the risk for or prevent pneumonia, deep vein thrombi and decrease anxiety and depression (Messenger et al., 2017; Roberts et al. 2018; Teodoro et al., 2016). Growdon et al. (2017) observed that patient immobility in the hospital contributed to undesirable outcomes, such as higher levels of institutionalization requiring long-term nursing care.

The Agency for Healthcare Research and Quality (AHRQ; 2017) offered best practices which include having a team approach to early mobility (e.g. registered nurse, nursing assistant, and physical therapist), implementing rehabilitation protocol 7-days a week starting within 48-hours of hospitalization. These guidelines from published research help to support the benefits, safety, sustainability, and feasibility of early mobility programs in the intensive care unit (ICU). Deficits in physical mobility are often reported during hospitalization. Promoting ambulation has

been defined as getting patients out of bed, including sitting in a chair, standing, and ambulation (Hoyer et al., 2016; Smart et al., 2018). Important factors considered for patients 65 years of age and older include frailty variability and nursing staff confidence in providing postoperative ambulation. Fazio et al. (2020) confirmed that over 80% of hospitalized patients spend most of their time sitting or lying in bed. Enhanced recovery pathway programs that tested their protocol with a small group of patients and/or subset of clinicians were able to demonstrate local effectiveness (Stone et al., 2018).

With a growing older population requiring increased hospitalization, increasing PT/OT frequency per patient is not sustainable or cost-effective in the future (Tipping et al., 2017). After completion of a systematic review and meta-analysis of 14 studies involving 12 unique interventions, the results demonstrate that multicomponent nonpharmacological interventions for delirium prevention are highly effective in decreasing the occurrence of both delirium and falls during hospitalization in older persons (Hshieh et al., 2015). The Hospital Elder Life Program (HELP) uses an interdisciplinary team and trained volunteers to implement practical interventions, including reorientation, early mobilization, and other therapeutic activities to help with prevention of falls (Hshieh et al., 2015).

Current Approaches to Solving Population Problem

Rupich et al. (2018) reported nurse led early mobility protocols allowed nurses more autonomy in patient care and was a catalyst for patient involvement in their own postoperative mobility. Rupich et al. showed a statistically significant decrease of 6.7 hours in LOS for lumbar laminectomy patients in the intervention group as compared with the control group. Compliance with early mobility protocols are linked to improved patient outcomes (Messenger et al., 2017). A systematic review by Messenger et al. (2017) showed that a reduction of overall compliance

with enhanced recovery after surgery (ERAS) protocols was a key predictor of delayed discharge, morbidity, and readmission. This is the first systematic review of factors predicting outcomes from ERAS programs that focuses only on laparoscopic resections. Delays in mobilization and the resumption of oral intake were the individual ERAS elements most frequently identified with a delayed discharge.

Evidence to Support the Intervention

King et al. (2016) developed a program, called Mobilizing Older Adult Patients Via a Nurse-Driven Intervention (MOVIN), that ultimately improved ambulation activities for patients. The findings from King et al. support a rigorous trial of innovative multicomponent interventions to achieve significant changes in nursing practice and unit culture related to patient ambulation. All components of MOVIN were successfully implemented simultaneously. The defined measures of nursing practice and culture change (ambulation distance, ambulation frequency, & numeric documentation) reflected changes during the intervention from the preintervention phase.

Brown et al. (2016) reported that a structured mobility program, involving assistance with ambulation up to twice daily and a behavioral strategy to encourage mobility, was associated with the patients' ability to maintain their prehospitalization community mobility within 1-month following discharge. Early mobility protocols implemented by Brown et al. demonstrated cost reduction of health care through decreased LOS. A study by Smart et al. (2018) suggests the implementation of protocols designed to improve the early implementation of physical mobility activities improves the health outcomes of hospitalized older people as well with costs associated with healthcare utilization being reduced, including hospital LOS.

The most promising early mobility programs were those that quantified mobility through validated measurement tools because the feedback reinforces patient progress and the expected benefits. The Bedside Mobility Assessment Tool (BMAT) is a validated instrument used to assess mobility and guide patient handling. Jones et al. (2019) used this tool for their quality improvement project and found that with proper education and use of the BMAT, nursing staff were in the right position to assess mobility status, implement routine interventions, and advocate for PT consultations regarding complex patients' mobilization.

Evidence-based Practice Framework

The evidence-based practice (EBP) framework by Melnyk et al. (2010) notes a process that involves seven steps. This framework assisted to guide the impact of a nurse led early mobility protocol in postoperative general surgery older adult patients. Step 0 is cultivating a spirit of inquiry. The inquiry of an early mobility in postoperative general surgery patients started while with various older general surgery patients that were unmotivated to move after general surgery. Nursing staff relied and waited for rehabilitation staff to assess these patients for ambulation postoperatively. The question of whether Nursing staff could take a more active role in mobilizing patients postoperatively rather than relying on the rehabilitation staff is one that sparked further investigation.

Step 1 is inquiring using the population, intervention, comparison, outcome, time (PICOT) method. The population for this project is nursing staff, intervention is implementation of an early mobility protocol for postoperative general surgery patients and comparing the results from the nurse led early mobility protocol to the previous year without an early mobility protocol. The outcome is a hopeful decrease in the LOS and staff compliance to documentation of geriatric patient's postoperative ambulation and timing during hospitalization. Step 2 is

searching for the best evidence. Step 3 asks one to critically appraise the evidence with varied research studies reviewed to determine the most relevant and applicable to the clinical question (see Appendix B). Step 4 denotes to interrogate the evidence with clinical expertise, patient preferences, and values. Step 5 warrants evaluation of the evidence-based outcomes of the practice decision. Finally, step 6 is disseminating the evidence-based practice results. Melnyk et al. (2010) seven-step process guided the impact of a nurse-led early mobility protocol for postoperative general surgery older adults at the project site.

Ethical Consideration & Protection of Human subjects

There were no ethical considerations for this quality improvement project. The intervention was applicable to everyone in the geriatric general surgery population on two med-surg units. The nursing staff used their professional judgement for the patients during the implementation phase of this project. There was no potential that anyone was taken advantage of during the initiative. All participants conducted care using a new process of implementing a nurse led early mobility protocol for postoperative general surgery older adult patients.

The approval process required a review of the project by the organization's Service Chief of Surgery Services. After meeting with the Service Chief, it was determined that this project did not require Institutional Review Board (IRB) approval because it was categorized as a quality improvement project and not research. An Organizational IRB approval letter was obtained from the project site (see Appendix C). Faculty reviewed, and the project investigator submitted the IRB proposal using the self-certification tool for approval by East Carolina University IRB. ECU IRB approved the proposal on September 2, 2020 (see Appendix D).

Section III. Project Design

Description of the Setting and Population

The project site was a healthcare network with a long history of conducting innovative research and providing compassionate care to Veterans. This initiative took place in the med-surg units of a 251-bed tertiary care referral, teaching and research facility affiliated with a university school of medicine. The med-surg units consisted of private and semi-private rooms. There were a total of 23 embedded patient and caregiver siderail-controlled hospital beds. The hospital beds had safety features including an automatic contour sleep deck to help prevent patients from slipping to the foot end of the bed and zero-gaps that allow for efficient patient transfers. The units have a total of five private rooms and nine semiprivate rooms. All rooms had ceiling lifts.

One unit serves patients with internal medicine needs along with patients that have undergone major surgeries. The second unit serves patients that have medical and postoperative needs along with underlying cardiac problems that warrant telemetry monitoring. Facilitators of this project included the project leader (PL), the shared governance committees (i.e. Evidence-Based Practice, Performance Improvement & Clinical Professional Practice), and healthcare organization leadership. Barriers to implementation included preoperative older patients with compromised functional level at their baseline, staff unaware of early mobility protocol documentation located within the electronic medical record (EMR), and perceived lack of time to complete documentation.

The targeted population for the early mobility protocol was the staff who monitored patients ages 65 and older that underwent open abdominal surgery (i.e. cholecystectomy, hemicolectomy, total colectomy with ileostomy formation and Whipple procedure). There was a total of 30 registered nurses (RN) and 14 certified nursing assistants (CNA) on one med-surg unit and a total of 30 RNs and 13 CNAs on a second unit. To fill staff positions that were short

and to help fulfill the daily needs for patient care, there were staff that floated to med-surg units that implemented the nurse-led early mobility protocol.

Project Team

The project team, also known as the Early Mobility Workgroup (EMW), consists of two lead RNs, two lead CNAs, PT, RN managers, and the PL. The informatics team assisted with adding the protocol to an existing note in the EMR. The quality management RN assisted with monthly data collection through retrieving information from the corporate data warehouse (CDW). The CDW is a database that stores all pertinent information and streamlines clinical data systems to improve health care quality. Through the CDW, the facility can manage large and unique populations, implement patient safety system-wide and transform the project site to an industry benchmark for health care outcomes. The quality management RN used non-identifiers to gather LOS reports for general surgery older adult patients throughout the implementation phase of the project.

Project Outcome Measures

The objectives of the nurse led early mobility protocol were to encourage nursing staff to assist with early mobility of general surgery postoperative older adult patients, shorten LOS, and shift responsibility for early ambulation from rehabilitation staff to nursing staff. The first defined outcome measured was LOS for general surgery older adult patients that participated in the early mobility protocol compared to patients who did not participate in the early mobility protocol. The data collection period extended from October 2020 through April 2021 and included gathering data from the CDW. The LOS for open abdominal surgery specifically for colectomy is 8-days nationally and for the project site is 12 days.

The second defined outcome measure was staff compliance for completing documentation that recorded patient's ambulation postoperatively. The benchmark of 85% was set by nurse leadership based on their history of tracking various initiatives at the project site. To track staff improvement, the outcome measures helped to demonstrate the impact of a nurse led protocol within General Surgery older adult patients.

Description of the Methods and Measurement

In developing an early mobility protocol for General Surgery postoperative older patients, the EMW used both the acute care unit protocol and reviewed evidence to guide and create an early mobility protocol for General Surgery older adult's patients that transferred to the med-surg units at the project site. Using the Johns Hopkins Highest Level of Mobility Scale (JH-HLM), a Nursing Initial Assessment Shift (NIAS) note was used by the RN to assess mobility and guide safe patient handling. The NIAS note was performed by the RN every shift. In order to improve workflow, the early mobility protocol was embedded within the Nursing Assistant Care (NAC) note for the CNAs (see Appendix E).

Prior to this method, there were various non-uniform ways that staff would document a patient's mobility during hospitalization. Nursing staff ambulated postoperative general surgery patients as needed and relied heavily on the rehabilitation staff (PT/OT). The outcome measure, 85% staff compliance of EMR chart audits of early mobility of General Surgery older patients, was not tracked prior to this quality improvement project.

The VASQIP annual report for surgical quality improvement performance for open abdominal surgeries showed a 4 day increase of LOS compared to the national average. The LOS was collected monthly during the project's implementation from November 2020 through April

2021. The quality management RN ran monthly reports through the CDW during the implementation phase of the project.

Discussion of the Data Collection Process

An Excel spreadsheet titled Early Mobility Protocol Documentation Audit was created to record staff compliance for each patient included in the early mobility protocol. An online application called iAuditor was used for the EBW to track compliance for the two med-surg units. The document included the following information: confirmation that the early mobility order had been placed, admission and discharge date, type of surgery, number of mobility sessions per shift, the documenting individual, pain score per shift, and rehabilitation referral (see Appendix F). During morning huddles, the PL asked staff whether their patients had gotten out of bed, and if a patient had not, further investigation was required. After morning rounds with the General Surgery team, the PL placed a mobility order which required the EMP ambulate patient three times daily. A monthly chart audit was performed to determine compliance with the 85% benchmark goal.

The LOS was gathered by the quality management RN, who used non-identifiers for postoperative general surgery older adults during the monthly LOS surveillance. Throughout the length of the project, there were drop boxes for staff to complete and drop off forms containing any of their comments, questions, or concerns regarding implementation of the early mobility protocol. Flowcharts for staff education were placed within each nursing staff breakroom for continued education regarding the EMP (see Appendix G). Data security was maintained throughout the implementation of the project. The PL and EBW used secure email to send attachments with updated data collection using the iAuditor online template and Excel spreadsheet and the drop boxes were placed in a locked office at the close of each business day.

Implementation Plan

Prior to October 26, 2020, the following steps were completed to better understand the EMP for staff on the two med-surg units. Step 4 of the seven-step process of evidenced-base practice (EBP) helped guide the implementation plan. Melnyk et al. (2010) found that research evidence by itself is not enough to justify a change in practice. The PL was able to integrate the evidence with clinical expertise in general surgery, while requesting that adequate pain relief was addressed before patients were tasked with ambulating three times daily after surgery. The goal was to get patients out of the bed to chair on postop day 0.

The EMW created "Why You Should Walk" brochures to bring awareness of the importance of mobility after surgery. The brochures were distributed to the Pre-operative Screening Unit so that patients received the brochures during their pre-operative appointments in the outpatient setting. This was an active reminder to promote early ambulation after surgery. Inclusion criteria for the early mobility protocol was based on both the type of surgery performed and patient age (i.e. 65 and older). Exclusion criteria included any patient that became medically unstable and complex patients for which the general surgery team requested PT/OT consultation for disposition. Upon arrival at the med-surg unit, patients were assessed for pain control and asked if they would like to ambulate to chair-0 post-operative day (POD). Staff would be notified of the number of patients that fit the criteria at the beginning of the morning shift during huddles. Day shift's goal was to assess for patient's motivation to ambulate within the first 24 hours post-surgery and to ambulate patient from bed to chair with further progression with each day. Evening shift's goal was to ambulate the patient once per shift and have the patient stay upright for at least 2-hours in a chair or, in the alternative, walking in their room. The night shift task was to ambulate patient to chair before service of the breakfast tray.

The PL would make morning rounds with the general surgery team to discuss activity orders. The activity order of Early Mobility Protocol to ambulate three times daily was entered into EMR. Once identified for inclusion, a walking man icon label would be placed outside of patient's room to alert nursing staff that their patient was included in early mobility protocol and they should document appropriately the amount of distance traveled, pain score, and any other comments within the designated note (for RNs the NIAS note and for NAs the NAC note). After three weeks of in-service training offered by the EMW and nurse educator regarding the location of the Early Mobility Protocol within the various notes and working with different shifts to answer all questions or concerns, chart audit review occurred monthly during the implementation period for benchmark goal of 85% staff compliance. Reminders were written on the whiteboards located in the patient's room to monitor the shift goals of patient ambulation during their hospitalization. Mobility champions were identified for each shift and their main role was to encourage staff to document patient's ambulation postoperatively.

Timeline

The inquiry began in November 20, 2019 when the evidence-based committee had various guest speakers promoting the importance of ambulation during hospitalization. At that time, the culture on the med-surg. units regarding patient's mobility was highly dependent upon the availability of the rehabilitation staff. In December 12, 2019, research began into the literature of nurse-led early mobility protocols, involving older adults, and general surgery. On or about February 2, 2020, the EMW was granted approval after the presentation of the evidence-based roadmap of nurse led early mobility protocols to the Evidence-based Practice committee. The next step was to develop an early mobility protocol for med-surg. units. On or about March 4, 2020, the EMW presented early mobility protocol to the Clinical Professional Practice

Committee and then on June 19, 2020 the early mobility protocol was presented to the Nursing informatics team to help to create a template protocol into the EMR. On July 15, 2020, the project site received IRB approval to implement a nurse-led early mobility protocol for general surgery postoperative older adult patients. On September 2, 2020 East Carolina University IRB approval granted. Two months prior to implementation, teaching sessions were done for staff on both units to ensure understanding of the EMP process and flowcharts were created and placed in each breakroom to help staff with taking the lead in early ambulation of General surgery older adult patients. The date of early mobility protocol of postoperative older adults' implementation was November 1, 2020 for data collection. During this time monthly audits were performed, and LOS was recorded by a Quality Management RN. The end date for tracking of compliance and LOS was completed on April 30, 2021.

Section IV. Results and Findings

Demographics

There was a total of 60 RNs and 27 CNAs that participated in the EMP for general surgery older patients. The work experience ranged from 1 year to 25 years of service for the RNs and from 1 year to 15 years of service for the CNAs. The gender composition was 50 women and 10 men represented the RNs; for the CNAs there were 20 women and seven men. The racial/ethnicities were Asian/Pacific Islanders, Black/African Diaspora, and White/European Diaspora. Table 1 highlights demographic data for all staff participants.

Table 1

Staff Demographics

Title	Total	Gender	Total	Duration of Employment	Racial/Ethnic Composition	Total
RN	60	Women	50	Range:1- 25 years Mean: 7 years Mode: 1 year	Asian/Pacific Islander	12
					Black/African Diaspora	18
					White/European Diaspora	20
		Men	10		Asian/Pacific Islander	2
					Black/African Diaspora	5
					White/European Diaspora	3
CNA	27	Women	20	Range:1- 15 years Mean: 5 years Mode: 6 years	Asian/Pacific Islander	1
					Black/African Diaspora	15
					White/European Diaspora	4
		Men	7		Asian/Pacific Islander	1
					Black/African Diaspora	3
					White/European Diaspora	3

Note. The staff comprised of 30 RNs for each unit (N=60) and 13 CNAs for unit A and 14 CNAs for unit B during the period of November 2020 - April 30, 2021 from two Med-Surg units at project site.

Staff Compliance

The project leader was able to evaluate staff compliance of the EMP using chart audits with the benchmark set at 85% staff compliance. The results were as follows: November 2020 (75%), December 2020 (33%), January 2021 (100%), February 2021 (100%), March 2021 (100%), and April 2021 (75%) (see Table 2). The benchmark goal of 85% was not met, the overall average of staff compliance was 80.5% during the 6-month period. During implementation of the EMP, it was important to monitor and evaluate any changes in outcomes so that positive effects could be supported, and negative ones were remedied (Melynk et al., 2010). For the three months with lower staff compliance of the EMP than the benchmark further investigation was warranted. It was discovered that floater staff from different units came to assist with patient care and/or patients were assigned to different units where staff were not familiar with the EMP. There were only 13 cases with staff compliance for the EMP, having a low general surgery case load was an anomaly for general surgery services at the project site due to unforeseen circumstances (i.e. COVID-19 Pandemic).

Length of Stay

After implementation of the nurse-led EMP on postoperative older adults ages 65 and older, it was found that the mean LOS was 5.9 days, with a standard deviation of 1.9 days, and LOS ranged from 4.3-8.5 days for open abdominal surgeries (i.e. open hernia repairs x5, open cholecystectomy x3, exploratory laparotomy x4, & hepatectomies x5; see Table 2). The data showed the LOS range from 4.3 to 8.5 days; the outlier was not calculated in the average LOS due to the unusual circumstances for this case. This patient had an increased LOS due to their comorbidities and being transferred from medicine service to general surgery service for

emergent surgical need during their hospital stay. There was a total of 43 cases from November 2020 to April 2021 under General Surgery Services and 17 cases that fit criteria for the EMP.

Table 2

Early Mobility Protocol Measurable Outcomes

	Nov 2020	Dec 2020	Jan 2021	Feb 2021	Mar 2021	Apr 2021
Staff Compliance for EMP	75% (3 out of 4 older patients)	33% (1 out of 3 older patients)	100% (1 out of 1 older patient)	100% (3 out of 3 older patients)	100% (2 out of 2 older patients)	75% (3 out of 4 older patients)
Average LOS	6.6	4.5	31	4.3	8.5	6

Note. Benchmark target 85% for staff compliance. length of stay (LOS); early mobility protocol (EMP).

Discussion of Major Findings

The positive effects from the EMP included that the nursing staff were active participants in their patient's mobility instead of relying solely on rehabilitation staff to ambulate patients postoperatively. A challenge experienced by the EMP was floating staff to the Med-Surg units did not document patient mobility using the EMP protocol due to lack of knowledge and unfamiliarity, with the EMP protocol for general surgery older patient . These challenges were corrected by communicating with each shift's charge nurses. The suggestions given was to assign patients that meet criteria to the EMP champions instead of floaters to the unit. The EMP champions were familiar with documentation compared to floaters that came to the

participating units. This would help with staff compliance of the EMP with achieving the targeted benchmark in the future.

Monitoring the effect of the early mobility protocol through monthly staff compliance chart audits helped change health care quality by promoting early ambulation of postoperative older patients and increasing positive outcomes for a vulnerable population. The outcomes of staff compliance and LOS can help clinicians spot flaws in implementation and identify more precisely which patients are most likely to benefit. There was a noticeable difference in staff compliance in the months (Jan-Mar). During these months there was a higher census of nursing staff that were able to ambulate postoperative general surgery older patients compared to the months were nursing staff census was low (Nov, Dec, Apr) due to illness and or patients were on different units that were unfamiliar with the EMP. When results differ from those reported in the research literature, monitoring can help determine causes (Melynk et al., 2010).

Section V. Interpretation and Implications

Cost Benefit Analysis

Early mobility programs have been shown to improve patient clinical outcomes. The total net present value over a 7-year time horizon of an EMP for a US hospital with 1000 yearly ICU admissions exceeds $2 million. The yearly cost-of-care savings generated by decreasing LOS for ICU and non-ICU patients, both ventilated and non-ventilated, for a hospital is approximately $927,000 (Bognar et al., 2015). The cost of implementation of this quality improvement (QI) project was minimal due to the allotted funds that are designated for initiatives at the project site. The equipment being used were computers and paper supplies to make brochures and flowcharts. Other supplies include lamination of Walking Man labels and Velcro stickers cost around $3 dollars.

The LOS was the metric being evaluated, for the fiscal year 2019 the cost of hospital bed occupancy per day was General Acute $4173, Medical MICU) $7976, Cardiac(CICU) $7596, and Surgical (SICU) $15,107 at the project site. The QI project would directly affect the Surgical ICU and general acute LOS because of the anesthesia postoperative course. Patients that undergo major general surgery will encounter these two pathways SICU and/or general acute (Med-Surg.) floor unit.

The focus was on the postoperative older adult transferred to the med-surg. unit, the staff would get patients out of bed and into chair, assess for pain and patient's motivation. Nursing staff took the lead for this QI project, because at project site, prior to this QI the Nursing staff relied heavily on rehabilitation staff for mobility postoperatively. The overall cost of the QI would be around $413 dollars (see Appendix H) which is minuscule compared to the benefits it will generate for patients, employees, and the organization.

Resource Management

An EMP is effective if given the right amount of time and resources to implement such an endeavor. During the month of November and December 2020 there were limited staff due to illness. This was one of the reasons why staff compliance was not met for these months. Constantin and Dahlke (2018) acknowledges that there needs to be adequate staffing to have effective mobility programs for hospitalized patients. Allotting for proper education and adequate mobility assistive devices on the units; nurses are equipped to advocate for their patient's mobility postoperatively. A nurse led mobility program has the potential for improving patients' outcomes and improving the culture of early mobilization and safety during hospitalization (Jones et al., 2019).

Implications of the Findings

After reviewing LOS for the months of implementation and staff compliance of the EMP there was a positive impact on patients that met criteria. The geriatric population is susceptible to functional decline due to hospitalization. There was a decrease of LOS and staff compliance of EMP was met for most of the time during the implementation phase. The outcomes from this QI project demonstrate the impact of a nurse-led early mobility for the geriatric population undergoing general surgery. Inadequate physical mobility in hospitalized older patients promotes the risk for functional decline (Smart et al., 2018).

Implications for Patients

Patients benefited from the EMP because it allowed them to be active in their care and promote their general health. Hospitalized patients are at risk for complications such as thromboses, pressure ulcers and or urinary tract infections for every day of bed rest and immobilization (Fazio et al., 2020; Hoyer et al., 2016; Pfeufer et al., 2019). It is difficult to improve functional status once a patient has become deconditioned, while hospitalized ambulation programs can increase physical fitness in frail older adults (Overcash et al., 2018). Patients were ages 65 and older within this EMP and were able to maintain their functional status from admission to discharge. There was a total of 17 older adult patients that were able to participate in this EMP.

Implications for Nursing Practice

Nurses assess for the need to ambulate based off various criteria including purpose of ambulating, risk, opportunity, and the unit's expectation for ambulation (Krupp et al., 2019). The nurse led EMP for postoperative geriatric patients allowed for the standard to be set that nursing staff would be the primary source for ambulation. Staff benefitted from the EMP because it helped to reimagine their role with postoperative patients, instead of the rehabilitation therapists

solely ambulating patients, nursing staff took the lead, which inevitably helped change their mindset while taking part of the EMP. This QI suggests that an EMP for postoperative surgery patients can maintain function status from admission to discharge and nursing staff can take the initiative of patient's ambulation during their hospitalization.

Impact for Healthcare System(s)

The value-based payment system causes hospitals to respond by limiting mobility to prevent falls because there is no longer reimbursement for hospital acquired conditions among them being falls with injury. Routinely hospitals use bed and chair alarms as part of their fall prevention programs which can restrict patient mobility (Lorgunpai et al., 2020). The impact of an EMP for postoperative patients would allow for increase mobility after surgery. The organization benefitted from decrease in LOS, during implementation phase, average LOS 4.3-8.5 days compared to the previous year, had an average LOS 12 days for general surgery. The staff compliance audit fostered more attention on older adult patient postoperatively that initiated the EMP which increased teamwork and shared goals.

Sustainability

This EMP has helped increase the amount of mobility initiatives within the organization. There have been hospital wide educational sessions regarding patient mobility and new documentation that nursing staff will use within the electronic medical records that will continue to promote staff involvement with patient's mobility. This QI project will continue to grow in allowing other surgery services to increase postoperative patient mobility by encouraging the use of the EMP by staff on the various units.

The EMP with staff compliance was a success due to the support of executive leadership, staff, and patients. The EMP committee helped with guiding our steps regarding getting the

stakeholders' buy-in throughout our path to implementation of this QI project. The positive outcomes were increased staff compliance with documentation of general surgery older patient's mobility while inpatient, team spirit among staff grew while implementing the early mobility protocol. From staff comments, there was a sense of comradery to get patient's care needs met instead a competitive nature, between staff (e.g. RN vs. CNA).

Dissemination Plan

The project lead and several members of the EMP team plan to present the major findings with the Evidence-based Practice committee in the month of August 2021 at project site. The project lead will also present findings from this QI through submission to various scholarly and peer-reviewed journals (e.g. Nursing Outlook, The Journal of Nursing Care Quality) for possible publication. The EMP team and project lead will also present the highlights of the nurse-led EMP to the project site's bi-monthly Lunch & Learn series. There is also the opportunity to submit a poster presentation to the annual Nurse Practitioner Annual Symposium that takes place in November.

Section VI. Conclusion

Limitations

An identified limitation included having older surgery patients assigned to different units (e.g. medicine unit) where staff was unknowledgeable of EMP. The LOS of complicated older patients created a longer stay due to complex medical issues; therefore, postoperative ambulation may take longer and require rehabilitation staff to take part in their ambulation. The COVID-19 pandemic caused a decreased surgical case load at the project site. The recommendation by ACS set guidelines for triage of non-emergent procedures based off the patient's risk assessing the real risk of delay and performing surgeries including the expectation of a 6-8 weeks or more delay

required to emerge from an environment in which there was a decrease of COVID-19 prevalence (ACS, 2020b).

Recommendations for Others

There are several recommendations for other organizations. The first would be having supportive leadership that will have nursing staff to take the lead in post-surgical patient's mobility and rehabilitation staff as secondary resources when patients have a higher acuity of needs that nursing staff is unable to meet. Assess for comfort level of staff to ambulate post-surgical patients, which may differ within various Medical-Surgical units (Pottenger et al., 2019). Another recommendation is for organizations that would like to implement an EMP is to allot for extra resources for staffing and training of early mobility (King et al., 2016). Commitment of unit nurse managers and staff to carry out the expectations of ambulating patients. It is important to have patient's commitment to mobility, by addressing essential care needs that should be met like pain control, decreasing sleep disturbances and access to mobile assistive devices (Krupp et al., 2019). There needs to be widespread participation between stakeholders throughout various phases of planning, implementation, and evaluation for an early mobility protocol on med-surg. units to continue pass completion of patient's mobility (Wyatt et al., 2020). It is important to translate big picture goals in meaningful ways to team members at all levels and healthcare transformation requires continuous communication and accountability (Chatfield et al., 2019).

Recommendations Further Study

The support of more EMP champions throughout all units at the project site should be explore for future study. Increase amounts of EMP champions would help for circumstances where transfers come from medicine to general surgery service. This would alleviate the challenge of fragmented knowledge of EMP among staff. This would promote continuity of

care, instead of only staff members on A/B units being knowledgeable of the EMP, all staff would be familiar making the benchmark for staff compliance. Early mobility programs need to be embedded into all aspects of patient care with consistent measurements established for quantity and quality of mobility efforts (Smart et al., 2018).

Incorporating a hospital wide postoperative early mobility initiative has the potential of making mobility programs a priority increasing the culture of safety and early mobilization (Jones et al., 2019). Further study should be conducted to determine the correlation of patient ambulation and the occurrence of other hospital acquired complications such as pressure injuries, blood clots, and the amount of ambulation measured in time (Dewitt et al., 2019). There should be more staff to help with mobility of the postoperative patients. Non-traditional personnel (e.g. mobility aides, tech, and volunteers) can be cost-effective ways to make patient ambulation routine (Pottenger et al., 2019).

Final Conclusion

It was empowering to see staff take the led regarding postoperative mobility of general surgery older adults. After completing the six months implementation phase, the staff's communication with one another improved. Before the project, there was an "us versus them" mentality between the CNAs and RNs. After implementation, there was a shift on how they viewed one another. The nurse led EMP left a positive impact on the project unit due to the increase of collaborative work between nursing staff.

References

Adams, M. L. (2017). Differences between younger and older US adults with multiple chronic conditions. *Preventing Chronic Disease, 14*, E76. doi:10.5888/pcd14.160613

Agency for Healthcare Research and Quality. (2017). *Early mobility in the intensive care unit: Slide presentation*. https://www.ahrq.gov/hai/tools/mvp/modules/technical/early-mobility-icu-slides.html

American College of Surgeons. (2020a). *About geriatric surgery verification.* https://www.facs.org/quality-programs/geriatric-surgery/about

American College of Surgeons. (2020b). COVID-19: Guidance for triage of non-emergent surgical procedures. https://www.facs.org/covid-19/clinical-guidance/triage

Bognar, K., Chou, J. W., McCoy, D., Sexton Ward, A. L., Hester, J., Guin, P., & Jena, A. B. (2015). Financial implications of a hospital early mobility program. *Intensive Care Medicine Experimental*, *3*(1), A758. https://doi.org/10.1186/2197-425X-3-S1-A758

Brown, C. J., Foley, K. T., Lowman, J. D., MacLennan, P. A., Razjouyan, J., Najafi, B Locher, J., & Allman, R. M. (2016). Comparison of posthospitalization function and community mobility in hospital mobility program and usual care patients: A randomized clinical trial. *JAMA Internal Medicine, 176*(7), 921-927. doi:10.1001/jamainternmed.2016.1870

Chatfield, S. C., Volpicelli, F. M., Adler, N. M., Kim, K. L., Jones, S. A., Francois, F., Shah, P. C., Press, R. A., & Horwitz, L. I. (2019). Bending the cost curve: Time series analysis of a value transformation program at an academic medical center. *BMJ Quality & Safety, 28*(6), 449-458. https://doi.org/10.1136/bmjqs-2018-009068

Constantin, S., & Dahlke, S. (2018). How nurses restore and maintain mobility in hospitalized

older people: An integrative literature review. *International Journal of Older People Nursing, 13*(3), e12200-n/a. https://doi.org/10.1111/opn.12200

Dewitt, K., Coto, J. A., Carr, L., Ondrey, M., & Petkunas, H. (2019). Ambulation programs: Decreasing length of stay and improving outcomes. *Medsurg Nursing, 28*(5), 293-295, 302.

Department of Veterans Affairs.(2016, December 28). *About the Durham VA health care system*. https://www.durham.va.gov/about/index.asp

Fazio, S., Stocking, J., Kuhn, B., Doroy, A., Blackmon, E., Young, H. M., & Adams, J. Y. (2020). How much do hospitalized adults move? A systematic review and meta-analysis. *Applied Nursing Research, 51*, 151-189. doi:10.1016/j.apnr.2019.151189

Freeman, R. K. (2015). The theory, practice, and future of process improvement in general thoracic surgery. *Seminars in Thoracic and Cardiovascular Surgery*, *26*(4), 310-316.

Growdon, M. E., Shorr, R. I., & Inouye, S. K. (2017). The tension between promoting mobility and preventing falls in the hospital. *JAMA internal medicine*, *177*(6), 759–760.

Hoyer, E. H., Friedman, M., Lavezza, A., Wagner-Kosmakos, K., Lewis-Cherry, R., Skolnik, J. L., Byers, S. P., Atanelov, L., Colantuoni, E., Brotman, D. J., & Needham, D. M. (2016). Promoting mobility and reducing length of stay in hospitalized general medicine patients: A quality-improvement project. *Journal of hospital medicine*, *11*(5), 341–347.

Hshieh, T. T., Yue, J., Oh, E., Puelle, M., Dowal, S., Travison, T., & Inouye, S. K. (2015). Effectiveness of multicomponent nonpharmacological delirium interventions: A meta-analysis. *JAMA Internal Medicine*, *175*(4), 512-520. doi:10.1001/jamainternmed.2014.7779

Jones, R. A., Merkle, S., Ruvalcaba, L., Ashton, P., Bailey, C., & Lopez, M. (2019). Nurse-led

mobility program: Driving a culture of early mobilization in medical-surgical nursing. *Journal of Nursing Care Quality, 35*(1), 20-26. doi:10.1097/NCQ.0000000000000404

King, B. J., Steege, L. M., Winsor, K., VanDenbergh, S., & Brown, C. J. (2016). Getting patients walking: A pilot study of mobilizing older adult patients via a nurse-driven intervention. *Journal of the American Geriatrics Society (JAGS), 64*(10), 2088-2094. doi:10.1111/jgs.14364

Krupp, A. E., Ehlenbach, W. J., & King, B. (2019). Factors nurses in the intensive care unit consider when making decisions about patient mobility. *American Journal of Critical Care: An Official Publication, American Association of Critical-Care Nurses, 28*(4), 281–289. https://doi.org/10.4037/ajcc2019624

Lorgunpai, S. J., Finke, B., Burrows, I., Brown, C. J., Rubin, F. H., Wierman, H. R., Gartaganis, S., Ling, S.M., Press, M., & Inouye, S. K. (2020). Mobility action group: Using quality improvement methods to create a culture of hospital mobility. *Journal of the American Geriatrics Society (JAGS), 68*(10), 2373-2381. doi:10.1111/jgs.16699

Melnyk, B., Fineout-Overholt, E., Stillwell, S., & Williamson, K. (2010). Evidence-based practice step by step: The seven steps of evidence-based practice. *The American Journal of Nursing, 110*(1), 51-53.

Messenger, D. E., Curtis, N. J., Jones, A., Jones, E. L., Smart, N. J., & Francis, N. K. (2017). Factors predicting outcome from enhanced recovery programs in laparoscopic colorectal surgery: A systematic review. *Surgical Endoscopy, 31*(5), 2050-2071. doi:10.1007/s00464-016-5205-2

Overcash, J. Cope, D. G., & Van Cleave, J. H. (2018). Frailty in older adults: Assessment,

support, and treatment implications in patients with cancer. *Clinical Journal of Oncology Nursing*, *22*(6), 8-18.

Pfeufer, D., Zeller, A., Mehaffey, S., Bocker, W., Kammerlander, C., & Neuerburg, C. (2019). Weight-bearing restrictions reduce postoperative mobility in elderly hip fracture patients. *Archives of Orthopaedic and Trauma Surgery*, *139*(9), 1253-1259. http://dx.doi.org/10.1007/s00402-019-03193-9

Pottenger, B. C., Pronovost, P. J., Kreif, J., Klein, L., Hobson, D., Young, D., & Hoyer, E. H. (2019). Towards improving hospital workflows: An evaluation of resources to mobilize patients. *Journal of Nursing Management*, *27*(1), 27-34. https://doi.org/10.1111/jonm.12644

Roberts, A. W., Ogunwole, S. U., Blakeslee, L., & Rabe, M. A. (2018, October). *The population 65 years and older in the United States: 2016 American community survey reports.* United States Census Bureau.

Rupich, K., Missimer, E., O'Brien, D., Shafer, G., Wilensky, E. M., Pierce, J. T., & Welch, W. C. (2018). The benefits of implementing an early mobility protocol in postoperative neurosurgical spine patients. *AJN, American Journal of Nursing, 118*(6), 46-53. doi:10.1097/01.NAJ.0000534851.58255.41 https://www.census.gov/content/dam/Census/library/publications/2018/acs/ACS-38.pdf

Smart, D. A., Dermody, G., Coronado, M. E., & Wilson, M. (2018). Mobility programs for the hospitalized older adult: A scoping review. *Gerontology and Geriatric Medicine, 4*, 1-18. doi:10.1177/2333721418808146

Stone, A. B., Yuan, C. T., Rosen, M. A., Grant, M. C., Benishek, L. E., Hanahan, E., Lubomski, L. H., Ko, C., & Wick, E. C. (2018). Barriers to and facilitators of implementing

enhanced recovery pathways using an implementation framework: A systematic review. *JAMA Surgery, 153*(3), 270-279. doi:10.1001/jamasurg.2017.5565

Teodoro, C. R., Breault, K., Garvey, C., Klick, C., O'Brien, J., Purdue, T., Stolaronek, A., Wilbur, H. W., & Matney, L. (2016). STEP-UP: Study of the effectiveness of a patient ambulation protocol. *Medsurg Nursing, 25*(2), 111-116.

Tipping, C. J., Harrold, M., Holland, A., Romero, L., Nisbet, T., & Hodgson, C. L. (2017). The effects of active mobilization and rehabilitation in ICU on mortality and function: A systematic review. *Intensive Care Medicine, 43*(2), 171-183. doi:10.1007/s00134-016-4612-0

U.S. Census Bureau. (2019, October 8). *Older people projected to outnumber children for the first time in U.S. History.* https://www.census.gov/newsroom/press-releases/2018/cb18-41-population-projections.html

U.S. Department of Veteran's Affairs. (2016). *Postoperative Outcomes in VA Improved.* https://www.patientsafety.va.gov/PATIENTSAFETY/features/Postoperative_Outcomes_in_VA_Improved.asp

Veteran Affairs National Surgery Office Quarterly Report (2019). *All-Cause Readmission and Postop Hospital Length of Stay: VAMC vs. National.* Data Catalog. https://catalog.data.gov/dataset/veterans-affairs-surgical-quality-improvement-program-vasqip

Wyatt, S., Meacci, K., & Arnold, M. (2020). Integrating safe patient handling and early mobility: Combining quality initiatives. *Journal of Nursing Care Quality, 35*(2), 130-134. https://doi.org/10.1097/NCQ.0000000000000425

Appendix A

Search Strategy

RESOURCE	CONCEPT 1	CONCEPT 2	CONCEPT 3	LIMITS
Major Headings (MH)	Key Words	Key Words	Key Words	
PubMed	"Nurse-Led" "Nurse-Driven"	"Early Mobility Protocol" "Ambulation Programs"	"Post-surgery aging adult" "Post-op older patient" "medicine/surgery unit"	United States English Last 5 years Peer-reviewed Full text
Proquest	"Nurse"	"Early ambulation protocol"	"post-operative complication"	Scholarly review Last 5 years
CINAHL (Major Heading)	"Nurse Personnel"	"Post-operative Ambulation	General surgery	Last 5 years
Results: 221				

Appendix B

Evidence Matrix

Authors	Year Pub	Article Title	Theory	Journal	Purpose and take-home message	Design/Analysis/Level of Evidence	IV DV or Themes	Instr. Used	Sample Size	Sample method	Subject Charac.	Comments/critique of the article/methods GAPS
Rupich, K.; Missimer, Emily; O'Brien, David; Shafer, George; Wilensky, Eileen Maloney; et al.	2018	The Benefits of Implementing an Early Mobility Protocol in Postoperative Neurosurgical Spine Patients	No theory identified (N/A)	The American Journal of Nursing	To establish an NP-led early mobility protocol to reduce uncomplicated postsurgical spine patients' length of stay (LOS) in the hospital and eliminate the variability of postsurgical care.	Level III	concepts and Not stated. (N/A)	N/A	N/A	N/A	Interprofessional leadership model that promotes a multidisciplinary approach to QI. The committee members, including neurosurgery faculty, a nurse manager, a clinical nurse educator, and a charge nurse.	The authors were able to educate and empower nursing staff to initiate the early mobility protocol independently and incorporate it in their practice to improve patient care. Limitations: The compliance barriers were nurses' lack of familiarity with the protocol, no formal early mobility order, indwelling urinary catheters left in place in the OR, and uncontrolled postoperative pain. Usefulness: Implementation of the protocol resulted in a nine-hour reduction in LOS per hospitalization in neurosurgical spine patients who underwent lumbar laminectomies. The protocol allowed nurses more autonomy in patient care and was a catalyst for patient involvement in their postoperative mobility. Synthesis: Analysis of the data demonstrated a statistically significant decrease of 6.7 hours in LOS for the lumbar laminectomy patients in the intervention group compared with the
Smart, D. A., Dermody, G., Coronado, M. E., & Wilson, M.	2018	Mobility Programs for the Hospitalized Older Adult: A Scoping Review	6-Step Framework developed by Arksey & O'Malley (1) Identifying relevant literature (2) Identifying relevant literature (3) Study selection (4) Charting the data (5) Collating, Summarizing and reporting the articles,(6) consulting & translating knowledge	Gerontology & Geriatric Medicine	Describes programs to improve mobility in hospitalized older adults and determines the methods used to measure mobility. The findings suggest that using a multidisciplinary approach being the most effective way to promote	Level I	Not stated. (N/A)	N/A	N/A	Cochrane systematic review	Nurse-Led Mobility Studies (N=6)	The authors found that a multidisciplinary approach seems most effective in promoting mobility in hospitalized older adults and had a positive impact on reducing costs associated with healthcare utilization including LOS. Limitations: Most studies were not able to articulate how physical activity was measured, indicating that more research is needed. Usefulness: The implementation of protocols designed to improve the early and regular implementation of physical mobility
Tipping, C. J., Harrold, M., Holland, A., Romero, L., Nisbet, T., & Hodgson, C. L.	2017	The Effects of Active Mobilization and Rehabilitation in ICU on Mortality and Function: a Systematic Review	No theory identified (N/A)	Intensive Care Medicine	The aim of the scoping review was to summarize hospital-based programs to improve mobility in hospitalized adults and to	Level I	Not stated. (N/A)	N/A	N/A	A PRISMA checklist-guided systematic review and metanalysis of	N/A	The authors found that implementation of protocols designed to improve the early and regular implementation of physical mobility activities were shown to improve the health outcomes of hospitalized older adults. Limitations: Implementing physical mobility protocols or
Growdon, M.E., Shorr, R.I., & Inouye, S.K.	2017	The Tension Between Promoting Mobility and Preventing Falls in the Hospital	No theory identified (N/A)	JAMA Internal Medicine	Practice and policy changes should emphasize the false dichotomy between fall prevention and the	Expert opinion	Not stated. (N/A)	N/A	N/A	N/A	N/A	The author expressed the need for older adults to ambulate within the hospital setting. Hospitalized patient's immobility leads to undesirable outcomes, like increased rates of functional decline and institutionalization. Limitation: Expert opinion on the
Messenger, D. E., Curtis, N. J., Jones, A., Jones, E. L., Smart, N. J., & Francis, N. K.	2016	Factors predicting outcome from enhanced recovery programs in laparoscopic colorectal surgery: A systematic review	No theory identified (N/A)	JAMA Internal Medicine	promotion of mobility. To identify reported factors that predict outcomes of ERAS programs following laparoscopic colorectal resection by systematically reviewing the published literature.	Level I	Not stated. (N/A)	N/A	N/A	A PRISMA checklist-guided systematic review and metanalysis of randomized and controlled	N/A	literature regarding mobility and risk of falls. Usefulness: The authors found reduced Enhanced Recovery After Surgery (ERAS) protocol compliance is the most frequently reported factor for adverse LOS, morbidity, and readmission. Limitations: ERAS programs focused only on laparoscopic resections. Usefulness: This evidence identified the individual ERAS elements and protocol compliance that were linked with
Hshieh, T. T., Yue, J., Oh, E., Puelle, M., Dowal, S., Travison, T., & Inouye, S. K.	2015	Effectiveness of multicomponent nonpharmacological delirium interventions: A meta-analysis.	No theory identified (N/A)	JAMA Internal Medicine	The current focus on prevention of hospital-based complications and improved cost-effectiveness of care, this meta-analysis supports the use of these interventions to advance acute care for older persons.	Level I	Not stated. (N/A)	Hospital Elder Life Program (HELP)	N/A	the study followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) flow diagram and checklist	N/A	outcomes. Reduced overall compliance with ERAS protocols was the authors completed a systematic review and meta-analysis of 14 studies involving 12 unique interventions demonstrate that multicomponent nonpharmacological interventions for delirium prevention are highly effective in decreasing the occurrence of both delirium and falls during hospitalization in older persons. Limitations: The final number of included studies is small, many of them had limited sample sizes, and less than one-third of the interventions evaluated were RCTs. Usefulness: Studies examining the following outcomes were included: delirium incidence, falls, length of stay, rate of discharge to a long-term care institution (institutionalization), and change in functional or cognitive status. Synthesis: Delirium, an acute disorder with high morbidity and mortality, is often preventable through multicomponent nonpharmacological strategies. The Hospital Elder Life Program (HELP) uses an interdisciplinary team and trained volunteers to implement practical interventions, including reorientation, early mobilization, therapeutic activities, hydration, nutrition, sleep strategies, and hearing and vision adaptations.
King, B. J., Steege, L. M., Winsor, K., VanDenbergh, S., & Brown, C. J	2016	Getting patients walking: A pilot study of mobilizing older adult patients via a Nurse-Driven intervention.	Systems Engineering Initiative for Patient Safety model	Journal of the American Geriatrics Society	To develop a system-based intervention including 5 components that target barriers to nurse-initiated patient ambulation.	Level IV (Pilot Study)	Not stated. (N/A)	MOVIN	Twenty of 32-unit RNs volunteered, 18 of whom completed the training.		MOVIN is an investigator developed, nurse-driven intervention compromising 5 components: psychomotor skills training to increase RNs self-efficacy in	The authors showed promise for changing nursing practice through Mobilizing Older Adult Patients Via a Nurse-driven intervention (MOVIN), ultimately improving ambulation activities for patients. Limitations: This study was conducted on a single unit in a single hospital, as well as brief periods of determining whether it is safe for preintervention and intervention data.

Authors	Year Pub	Article Title	Theory	Journal	Purpose and take-home message	Design/Analysis/Level of Evidence	IV DV or Themes	Instr. Used	Sample Size	Sample method	Subject Charac.	Comments/critique of the article/methods GAPS
Jones, R. A., Merkle, S., Ruvalcaba, L., Ashton, P., Bailey, C., & Lopez, M	2019	Nurse-led mobility program: Driving a culture of early mobilization in medical-surgical nursing	No theory identified (N/A)	Journal of Nursing Care Quality	To determine the effect of a nurse-led mobility program in adult, hospitalized medical-surgical patients on promoting a culture of safe & early mobilization, preventing complication related to immobility, and	Quality Improvement Project	concepts and Not stated. (N/A)	Bedside Mobility Assessment Tool (BMAT)	Convenience sample of patients admitted to 5 medical surgical units during the project period.	104 RNs across all 5 units	Baseline data for documentation of patient mobilization by nursing staff, retrospective chart audit on all med-surg admissions Feb 2017-Jan2018	The authors found that multifaceted interventions aimed at creating a culture of safe & early ambulation resulted in significant improvement of patient mobility. Limitations: Staff was conflicted and would default to keeping patient in bed in leu of strategizing with multidisciplinary team. Additional practical hands-on education to certified nursing assistants on how to safely mobilize patients. Also lack of compliance with consistent documentation of all mobility completed by the patient.
Stone, A. B., Yuan, C. T., Rosen, M. A., Grant, M. C., Benishek, L. E., Hanahan, E., . . . Wick, E. C.	2018	Barriers to and facilitators of implementing enhanced recovery pathways using an implementation framework: A systematic review	Consolidated Framework for Implementation Research (CFIR)	JAMA Surgery	To examine the body of literature on enhanced recovery pathways(ERP) to assess how authors describe barriers and facilitators of ERP implementation and identify, the best practices that should be considered utilizing the Consolidated Framework for Implementation Research.	Level I	Not stated. (N/A)	N/A	N/A	PRISMA flowchart for study selection	Classified the facilitators of implementation, and barriers of implementation according to the 5 major CFIR domains	The authors examined factors that affect ERP implementation, which can be defined as the process of gaining targeted organizational members' skillful, consistent, and committed use of a practice. Limitations: Few high-quality studies on the implementation process are needed. All settings faced the challenges of changing long-standing surgical & anesthetic practices and accelerating the long-noted delay in translating evidence into practice. Usefulness: Most of the studies came from Europe, followed by the United States. Enhanced recovery pathway programs that tested their protocol within a small group of patients or subset of clinicians before large-scale implementation were able to demonstrate local effectiveness with preliminary data. Synthesis: Enhanced recovery pathways are complex quality improvement interventions that have the potential to improve surgical outcomes on a global scale.
Teodoro, C. R., Breault, K., Garvey, C., Klick, C., O'Brien, J., Purdue, T., . . . Matney, L.	2016	STEP-UP: Study of the effectiveness of a patient ambulation protocol	No theory identified (N/A)	MedSurg Nursing	To improve ambulation in hospitalized patients compared to usual care with no organized emphasis on ambulation.	Level II (pretest/posttest randomized controlled trial)	Not stated. (N/A)	pedometer (ShrinkQ Model 304, Sportline, Hazleton PA)	48 patients (n=22 ambulation program, n=26 usual care)	Sample size was determined a priori based on power analysis with an effect size of 0.7 (moderate), power of 0.80, and Cronbach's alpha of 0.05	Subjects were drawn from patients admitted to an inpatient medical surgical unit.	An ambulation program could be incorporated easily into clinician's practice routines significantly improved ambulation in hospitalized patients. Limitations: Different results may occur with longer educational programs and/or different methods for goal setting and reinforcement. Usefulness: This study found a practical ambulation program that could be easily followed. These findings support the engagement of patients in the need to increase ambulation during hospitalization. Synthesis: The amount of ambulation for the ambulation program group and the ambulation for the usual care group was a significant difference between the amount of ambulation for the two groups on the posttest day two.
Hoyer, E. H., Friedman, M., Lavezza, A., Wagner-Kosmakos, K., Lewis-Cherry, R., Skolnik, J. L., Byers, S. P., Atanelov, L., Colantuoni, E., Brotman, D. J., & Needham, D. M	2016	Promoting mobility and reducing length of stay in hospitalized general medicine patients: A quality-improvement project	QI framework	Journal of Hospital Medicine	To increase patient mobility using preexisting unit staffing ratios of clinicians and support staff and reduce hospital length of stay (LOS).	Quality Improvement Project	Not stated. (N/A)	Johns Hopkins Highest Level of Mobility (JHHLM) scale -is an 8-point ordinal scale that captures mobility milestones	3352 patients were admitted during the QI project period	N/A	On 2 general medicine units in a large academic medical center.	Active prevention of a decline in physical function that commonly occurs during hospitalization may be achieved with a structured QI approach. Limitations:this a single-site study in 2 general medicine units of a large acedic hospital, further research is needed to determine if this structured QI intervention and its benefits can be generalized to different settings and different patient populations. Usefulness: Mobility promotion in the acute hospital setting is feasible, can reduce LOS and can be applied to a diverse population vulnerable medical patient with comorbidities and the elderly. Synthesis: A structured QI process can improve patient mobility and may contribute to reduction in LOS, particularly for more complex patients in this setting.
Dewitt, K., Coto, J. A., Carr, L., Ondrey, M., & Petkunas, H	2019	Ambulation programs: Decreasing length of stay and improving outcomes.	The Institute for Healthcare Improvement Model for Improvement	MedSurg Nursing	To develop a mobility program that could be hardwired on the medical surgical unit to improve patient quality of care and shorten hospital LOS.	Quality Improvement Project	Not stated. (N/A)	N/A	108 patients spending more than 2 midnights on med-surg unit in community medical center in the midwestern United States	N/A	All qualified patients admitted Aug -Oct 2017 were placed on the mobility plan.	This nurse-driven mobility QI led to decrease LOS and improved patient outcomes. Limitations: Nurse bias was considered because the project was completed on the med-surg unit of the primary nurse author. Pearson's r for correlation relationship was significant but did not determine causation. Usefulness: Designing and implementing ambulation protocols is one way to increase efficacy of ambulation and possibly prevent common complications. Synthesis: Results suggest structured mobility plans driven by nurses can reduce LOS in older adult patients from whom loss of independent mobility and ADLs during hospital admission are likely to be affected. There was strong correlation between participation in the ambulation plan and wellbeing of patients as measured at time of discharge.

Appendix C

Organizational IRB Approval Letter

[redacted]

Memorandum

Date: July 15, 2020

From: Jennifer Melvin Pifer, DNP, MBA, RN, NEA-BC, VHA-CM

Subj: Review of "The Impact of a Nurse-Led Early Mobility Protocol on Postoperative General Surgery Older Adult Patients on Medical-Surgical Units"

To: Gerri M. Harris

1. "The Impact of a Nurse-Led Early Mobility Protocol on Postoperative General Surgery Older Adult Patients on Medical-Surgical Units" has been reviewed and determined to be a non-research, operations activity. The project does not require review or oversight from the Durham VAHCS human research protections program committees or sub-committees.

2. This proposed quality improvement project/degree program requirement project is designed to to implement an early mobility protocol for the Medical-Surgical units in hopes to improve length of stay for general surgery (open abdominal cases (i.e., open cholecystectomies, inguinal hernia repairs, and or colon resection). I would like to improve patient outcomes and enhance Nursing staff's work flow by providing standardization of care regarding ambulation of postoperative General Surgery patients (focusing on patients ages 65 and older) on the Medical-Surgical units.

3. As currently described, this quality improvement project is designed and implemented for VA purposes and the activity is not designed to produce information that expands the knowledge base of a scientific discipline.

4. Should the project be modified in any way, a second review is required.

Jennifer R. Melvin-Pifer 368305
Digitally signed by Jennifer R. Melvin-Pifer 368305
Date: 2020.07.15 14:16:44 -04'00'

Jennifer Melvin Pifer, DNP, MBA, RN, NEA-BC, VHA-CM
Chief Nurse: Mental Health, Recruitment/Retention & Surgery

Appendix D

ECU IRB Approval

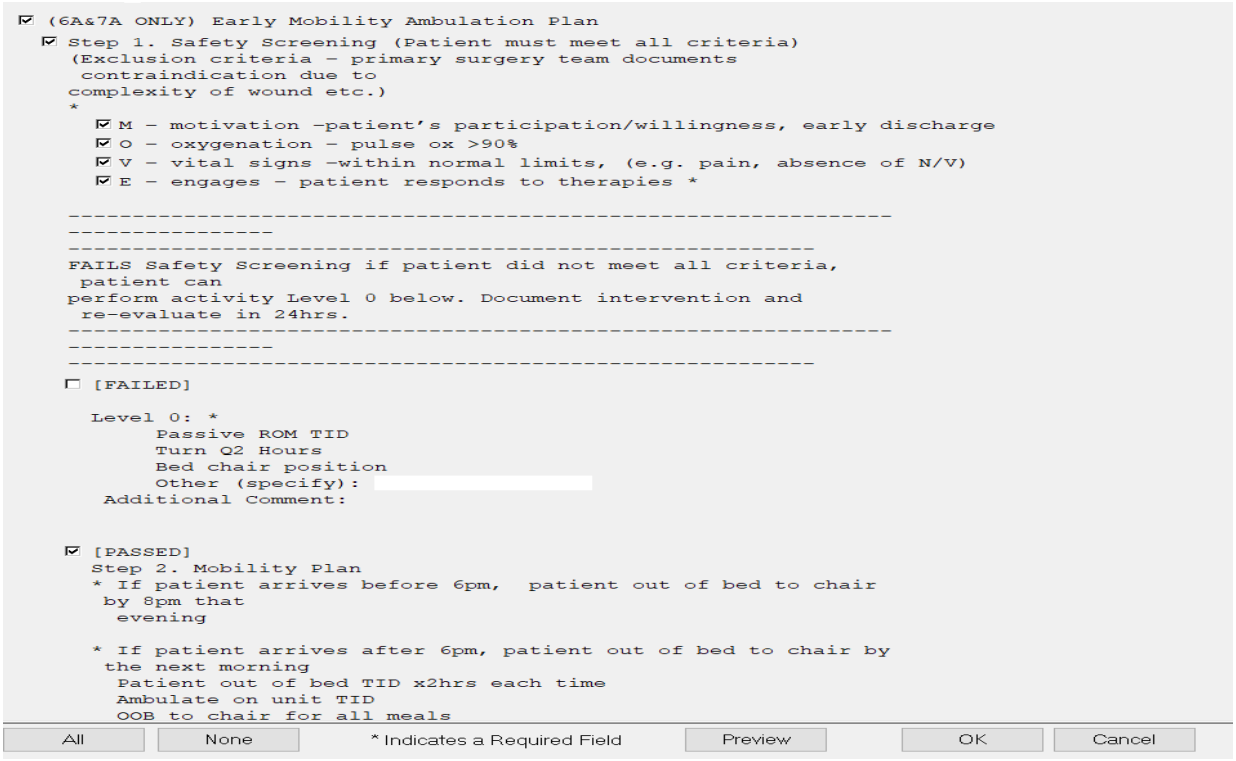
Based on your responses, the project appears to constitute QI and/or Program Evaluation and IRB review is not required because, in accordance with federal regulations, your project does not constitute research as defined under 45 CFR 46.102(d). If the project results are disseminated, they should be characterized as QI and/or Program Evaluation findings.

Finally, if the project changes in any way that might affect the intent or design, please complete this self-certification again to ensure that IRB review is still not required. Click the button below to view a printable version of this form to save with your files, as it serves as documentation that IRB review is not required for this project. 9/2/2020

Appendix E

Electronic Documentation Notes

For RN



☑ (6A&7A ONLY) Early Mobility Ambulation Plan
☑ Step 1. Safety Screening (Patient must meet all criteria)
(Exclusion criteria – primary surgery team documents contraindication due to complexity of wound etc.)
*
☑ M – motivation –patient's participation/willingness, early discharge
☑ O – oxygenation – pulse ox >90%
☑ V – vital signs –within normal limits, (e.g. pain, absence of N/V)
☑ E – engages – patient responds to therapies *

FAILS Safety Screening if patient did not meet all criteria, patient can perform activity Level 0 below. Document intervention and re-evaluate in 24hrs.

☐ [FAILED]

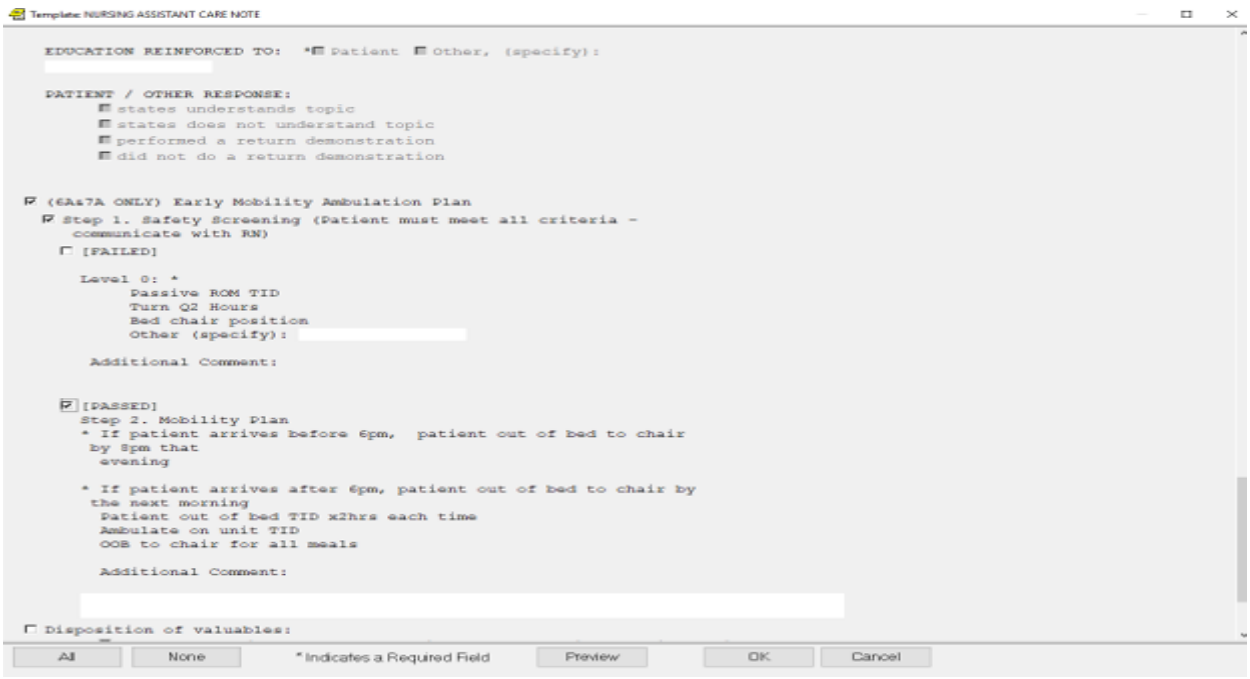
Level 0: *
Passive ROM TID
Turn Q2 Hours
Bed chair position
Other (specify):
Additional Comment:

☑ [PASSED]
Step 2. Mobility Plan
* If patient arrives before 6pm, patient out of bed to chair by 8pm that evening

* If patient arrives after 6pm, patient out of bed to chair by the next morning
Patient out of bed TID x2hrs each time
Ambulate on unit TID
OOB to chair for all meals

All | None | * Indicates a Required Field | Preview | OK | Cancel

For NA



Template: NURSING ASSISTANT CARE NOTE

EDUCATION REINFORCED TO: *☐ Patient ☐ Other, (specify):

PATIENT / OTHER RESPONSE:
☐ states understands topic
☐ states does not understand topic
☐ performed a return demonstration
☐ did not do a return demonstration

☑ (6A&7A ONLY) Early Mobility Ambulation Plan
☑ Step 1. Safety Screening (Patient must meet all criteria – communicate with RN)
☐ [FAILED]

Level 0: *
Passive ROM TID
Turn Q2 Hours
Bed chair position
Other (specify):
Additional Comment:

☑ [PASSED]
Step 2. Mobility Plan
* If patient arrives before 6pm, patient out of bed to chair by 8pm that evening

* If patient arrives after 6pm, patient out of bed to chair by the next morning
Patient out of bed TID x2hrs each time
Ambulate on unit TID
OOB to chair for all meals
Additional Comment:

☐ Disposition of valuables:

All | None | * Indicates a Required Field | Preview | OK | Cancel

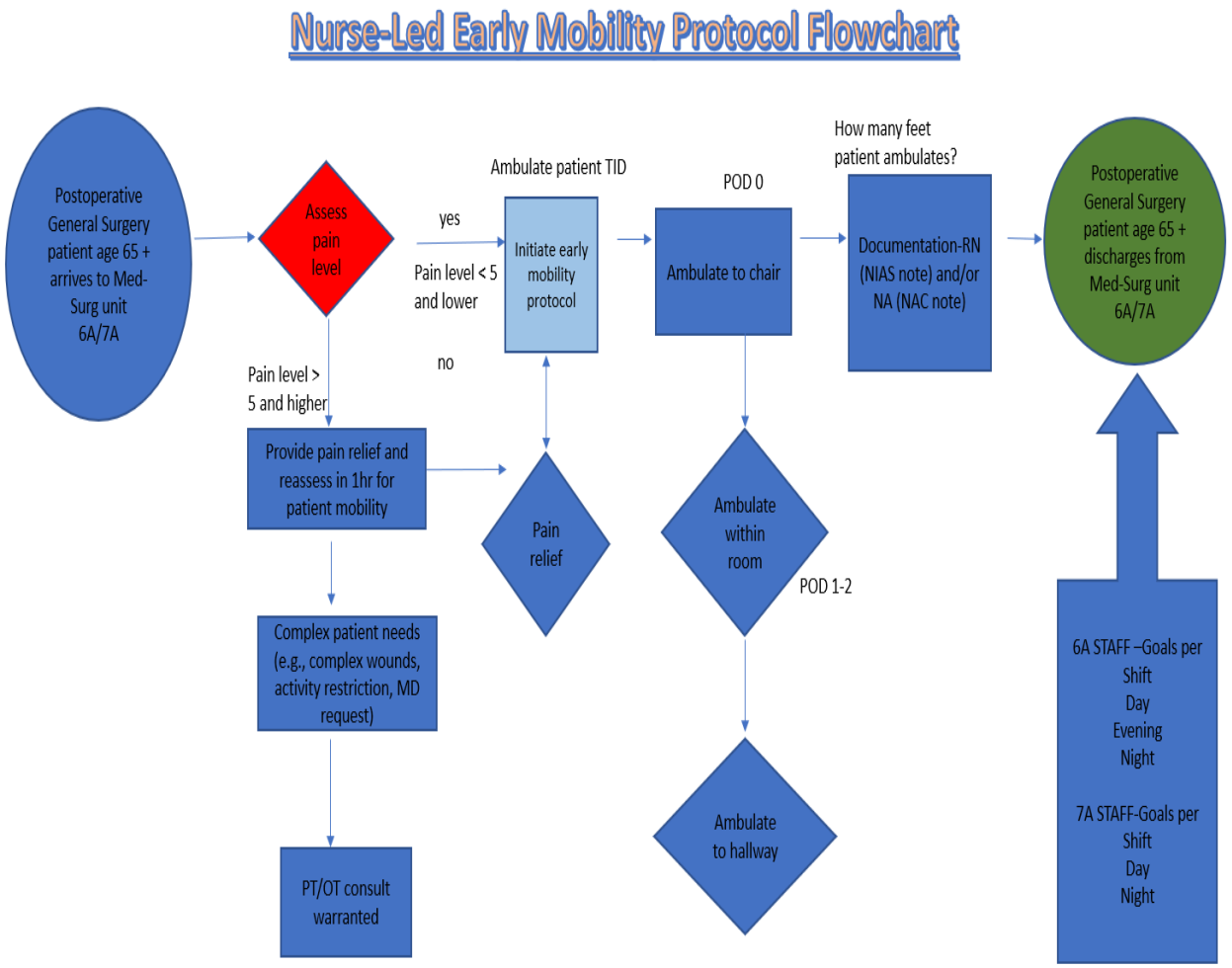
Appendix F

Staff Chart Audit Form

Early Mobility Protocol Documentation Audits

Last Name, F.I.	Last 4 S.S.	Admis./Disch. Date	Type of Surgery	Pain Score/Shift	Mobility x per Shif	taff Note:RN vs.N	PT/OT Referral

Appendix G


Nurse-Led Early Mobility Protocol Flowchart
Postoperative General Surgery patient age 65 + arrives to Med-Surg unit 6A/7A
Assess pain level
yes
Pain level < 5 and lower
Ambulate patient TID
Initiate early mobility protocol
POD 0
Ambulate to chair
How many feet patient ambulates?
Documentation-RN (NIAS note) and/or NA (NAC note)
Postoperative General Surgery patient age 65 + discharges from Med-Surg unit 6A/7A
no
Pain level > 5 and higher
Provide pain relief and reassess in 1hr for patient mobility
Pain relief
Ambulate within room
POD 1-2
Complex patient needs (e.g., complex wounds, activity restriction, MD request)
PT/OT consult warranted
Ambulate to hallway
6A STAFF –Goals per
Shift
Day
Evening
Night
7A STAFF-Goals per
Shift
Day
Night

Appendix H

Project Budget

Name of Project: A Nurse-Led Early Mobility Protocol for Postoperative Older Adults

Expense Items	Quantity	Unit Cost	Total Cost
Equipment			
Computer	3	$220.00	$220.00
Project Supplies			
20 Count- Box of Pens	1	$2.25	$2.25
200 copies of Importance of Walking Pamphlets	200	$.075	$165.00
8 Count-Velcro Sticker labels	1	$1.00	$1.00
25 laminated Walking Man Signs	25	$1.00	$25.00
			$413.25

Appendix I

Project Timeline