Implementation of Nurse-Driven Early Mobility Protocol in an Inpatient Medical-Surgical Unit

by

Adwoa Amponsah-Poku

Under Supervision of

Bridgitte Gourley, DNP, FNP-BC

Second Reader

DeNiece Bennet, DNP, MSN-Ed, RN

A DNP Project Manuscript
Submitted in Partial Fulfillment of the Requirements for the
Doctor of Nursing Practice Degree

University of Maryland School of Nursing
May 2022

Abstract

Problem: In a 30-bed Medical-Surgical Unit at a community hospital, a lack of early mobility practices led to prolonged immobility and poor patient outcomes. The unit struggled to reach the hospital's benchmark goal of 80% for early mobilization. There was no formal early mobility protocol in place to guide the nursing staff in assessing and managing patients' mobility. **Purpose:** This quality improvement project implemented and evaluated the effectiveness of a nurse-driven early mobility protocol using the Johns Hopkins Highest Level of Mobility (JH-HLM) scale with defined goals to increase mobility documentation and decrease the length of hospital stay. **Methods:** Mobility documentation and length of hospital stay data were collected through chart audits for three weeks before project implementation to establish a benchmark. The nursing staff was educated on admission screening and how to document in the electronic health record (EHR). An early mobility provider order and a nurse-driven early mobility protocol using JH-HLM were developed and implemented over 12 weeks. Weekly audits were done by the project lead and champions. **Results:** After 12 weeks of implementation, mobility documentation increased from 60% to 93%, with a mean of 89. Length of hospital stay baseline data showed an average of five out of 30 patients stayed in the unit for one to five days. During the initial phase of the implementation period, an average of 21 (70%) out of 30 patients met the benchmark, staying for one to five days. Only nine (30 %) patients stayed beyond five days. This showed significant improvement in the length of hospital stay. **Conclusions:** The results indicate that the nurse-driven early mobility protocol using JH-HLM increased mobility documentation. The length of hospital stay showed significant improvement until the unit was converted into a COVID-19 unit, demonstrating the effectiveness of this tool with the usual population served in this unit.

Implementation of Nurse-Driven Early Mobility Protocol in an Inpatient Medical-Surgical Unit

According to the Agency for Healthcare Research and Quality (2017), hospitalization, especially among older persons, may contribute to functional deterioration and decreased mobility. Patients are not supposed to be on prolonged bed rest, yet prolonged immobilization is a common problem among hospitalized patients, which often leads to risks like falls, hospital-acquired infections such as pneumonia, and extended hospital stays (Pashikanti & Von, 2012). A decline in mobility throughout hospitalization can lead to sensory deprivation, malnutrition, and even dehydration (AHRQ, 2017). Functional decline entails the incapability to effectively carry out everyday activities due to decreased muscle strength, weaknesses, and reduced capacity to perform exercises. Notably, this is apparent, particularly among older persons who comprise approximately half of the medical-surgical inpatient population. The functional decline has been cited as a major hospitalization complication among older persons (Smart et al., 2018). People may lose up to 5% of muscle mass every day without adequate mobilization (AHRQ, 2017). The solution to this problem is early routine mobilization, aiming to reduce a patient's hospital stay while improving the patient's independence and muscle strength (Dickinson et al., 2018). With these benefits, patients become functional and require no additional hospitalizations, which means better health outcomes and healthcare delivery efficiency.

The prevalence of immobility is higher in a 30-bed medical-surgical unit in a mid-sized community hospital compared with other units in the hospital. The project unit struggled to reach a benchmark of 80% for early mobilization (A Weekley, personal communication, November 10, 2020). The hospital's benchmark for the length of stay is three to five days. According to the weekly electronic health record (EHR) audits, delays in patient mobility increased the length of

hospital stay by about 50% in the project unit. Competing priorities often impeded the ability of nursing staff to ensure timely patient mobility. Hence early ambulation duties were relegated to the physical therapy (PT) team. Yet delays were experienced with requests for PT consultation, given the number of patients the PT team had to attend to within a day. Due to the importance of early mobilization during patients' admission to the unit, the nursing staff must take a more active role in ensuring patients are mobilized early. Therefore, a standardized nurse-driven early mobility protocol mobility program was needed to guide the staff, help improve early mobility in the unit, overcome hospital-acquired complications and decrease the length of hospital stay.

This quality improvement project aims to implement and evaluate the effectiveness of a nurse-driven early mobility protocol using the Johns Hopkins Highest Level of Mobility (JH-HLM) scale with defined goals to increase mobility documentation and decrease the length of hospital stay.

Evidence Review

It is argued that early mobilization is one of the successful interventions that can inhibit complications linked to immobility and be utilized to achieve optimal patient outcomes. An integrated literature review that examined the impacts of early mobilization protocol on a medical-surgical inpatient population (Pashikanti &Von, 2012) supported the effectiveness of early mobilization to decrease hospital stay among patients suffering from community-acquired pneumonia and enhance results among patients suffering from serious conditions such as deep vein thrombosis. Santos et al. (2017) had similar findings among patients who underwent cardiac surgery in systematic review of a randomized controlled trial study. They found that patients in the experimental group were likely to have enhanced improvements in the Richard Campbell Sleep Questionnaire, reduced hospital stay, and reduced complications following surgery

compared to patients in the control group. A quasi-experimental design study with a control group was also concluded that early mobilization decreases the length of hospital stay after cardiac surgery (Yayla & Ozer, 2019).

A different quasi-experimental design study (Klein et al., 2018) in a medical-surgical intensive care unit provides evidence on the effectiveness of the administration of nurse-driven early mobility protocol in the first seventy-two hours of hospital admission helped decrease hospital-associated complications. On the other hand, identifying variables related to utilizing a program, tool, or technique to measure physical activity in intensive and non-intensive care settings, a scoping review study concluded that using a multidisciplinary approach may be the most effective way to encourage mobility among hospitalized older adults (Smart et al., 2018).

Furthermore, Messer, Comer, and Forst (2021) used evidence-based methods to select the optimal interventions that can be used on elderly inpatients. This included hospital-based programs like nurse-led therapies, multidisciplinary-led therapies, and physical-led therapies. They identified that the nurse-driven mobility programs were more important to the elderly patients in the intensive care unit. The mobility programs included simple ways of promoting physical mobility like getting the patients out of bed, helping them to sit on a chair, and helping them to stand. Still, nurses struggle to find time to ambulate patients during busy shifts.

Theoretical Framework

The practice theory selected for the implementation of this project is Albert Bandura's self-efficacy theory. According to Lopez-Garrido (2020), Albert Bandura's self-efficacy theory describes how well a course of action can be executed. It is about an individual's beliefs, especially in their ability to handle a given situation. Using this theory, nurses emphasized peer modeling, sought feedback, and encouraged participation while allowing patients to make their

own decisions and choices of what they would like to do (Lopez-Garrido, 2020). It was assumed that after peer modeling, patients in the surgical unit would ultimately be encouraged to implement strategies that would improve mobility for their own good. The self-efficacy theory could be used to implement and maintain healthy habits based on the inpatient medical-surgical unit's requirements. Nurses in this unit were familiarized with a useful patient mobility instrument to encourage their patients to be confident in their abilities to be active and increase their functionality even in their most vulnerable states. As the self-efficacy level can encourage one to stick to a fitness routine, so should the nurses encourage the patients in the medical-surgical unit to participate in early mobility for a better outcome.

Aside from peer modeling, contextual factors like management buy-in and support and equipment availability in the implementation setting play a critical role. Hence, the complex innovation implementation framework was also considered for the project. This conceptual framework centers around the implementation climate. The climate of the project unit favors the implementation of the nurse-driven early mobility protocol. The organization values patient safety and satisfaction. Management support is one of the determinants of implementation effectiveness (Helfrich et al., 2007). The organizational management, especially the Quality Patient Experience Vice President (QI CSR), supports patient safety innovations such as this quality improvement project. There is a policy on early mobility in place, but the staff nurses find it very complex to use. The management is open to any revised policy to ensure patient safety. There will be little to no financial burden on the project unit since the unit has safe handling equipment for mobility. According to Helfrich et al. (2007), another implementation climate factor is the availability of technology resources. The annual computer base competency through HealthStream can help educate the nursing staff, especially the newly hired, on how to

use the Johns Hopkins Highest Mobility Level (JH-HLM) assessment tool to make sure all staff are on the same level. The nurse mobility champions on the project team will promote the protocol and help implement the nurse-driven early mobility protocol to exceed the organizational mobility benchmark and decrease the length of hospital stay.

Methods

The project was implemented in an adult inpatient medical-surgical unit in a community hospital with 30 private patient rooms. Often used as a step down for the Intensive Care Unit (ICU) for patients who are still very sick but do not require an ICU bed. The average unit census per week was 30. The unit had a 1:5 patient-nurse ratio. There were 48 registered nurses (RNs) and 22 certified nursing assistants (CNAs) in the unit (day and night shifts) who were educated to implement the practice change. The unit had eight hospitalists and one nurse manager.. The RNs and CNAs served as the frontline champions since they were convinced that it would improve outcomes for their patients. Special consideration was given to the most vulnerable populations, including the cognitive impaired, non-English speaking patients, morbidly obese patients, and patients on surgical and medical drains, or feeding tubes. Interpreter service was used for the non-English speaking patients allotting more time for screening.

The evidenced-based intervention implemented was a nurse-driven early mobility protocol in a medical-surgical unit in a community hospital. An early mobility provider order and a nurse-driven early mobility protocol using the Johns Hopkins Highest Level of Mobility (JH-HLM) scale were adopted and implemented. The nursing staff screened patients on admission for activity baseline and eligibility to ambulate. A patient mobility goal was set using a patient door card created by Johns Hopkins (Appendix B). The nursing staff documented the

highest level of mobility (HLM) goal at least once per shift. With each mobility attempt, the observed HLM would be documented in the EHR.

Several implementation strategies and tactics were found to be helpful in making the practice change happen. One of the most useful implementation tools during this quality improvement project was instructional education of the nursing staff. Through one-on-one encounters and in small groups using charts and algorithms; the clinical staff was acquainted with the utilization of this tool. Also, the identification and preparation of champions were very helpful during the initial phase of the nurse-driven early mobility protocol implementation period. They motivated and inspired the nursing staff to their patients. The champions also reminded, reinforced, and served as resource persons for the nursing staff. Moreover, early discussion and information sharing about the new protocol with the Clinical Site Representative, the Unit Director, and the PT department of the hospital played a vital role in getting their support to move the project forward. A weekly site visit was made for reminders and feedback to and from the implementation team. Incentives such as snacks also helped motivate the nursing staff to move their patient.

The data collection was a continuous and ongoing process until the end of the implementation period. Weekly audits were performed in EPIC to notate if patient mobility efforts and needs were documented. The project leader recorded all documented patient mobility using a data collection sheet (Appendix C). The data was transferred from the audit sheets to password-protected excel documents using code keys to protect patients' privacy. All paper documents were kept in a locked cabinet in the manager's office. The data collection tool was embedded in the EHR to help minimize the risk of breaching confidentiality to safeguard patient privacy. The data collection sheet contained no patient identifier. Personal Health Information (PHI) of the patients was not collected during this project.

Results

Prior to the implementation phase, that is during the pre-implementation period, 100% of the nursing staff members were educated and oriented to the JH-HLM Tool. The mobility documentation encompassed the collection of two series of data - the pre-implementation data and implementation data. The pre-implementation data incorporated all the patient mobility documentation data collected from August 1 to August 30, 2021. The pre-implementation mobility documentation rate was 60%, whereas the mobility documentation rate during the implementation phase (September 2021 to November 2021) increased to a total of 93% (Figure 5). The results indicate an upward trending mobility documentation by clinical staff which showed that after 12 weeks of implementation, mobility documentation increased from 60% to 93%, with a mean of 89 (Figure 5).

In terms of the length of hospital stay, the data were classified into three different categories, including the pre-implementation, implementation, the post-implementation data.

Pre-Implementation

During the pre-implementation stage, five out of 30 patients admitted to the unit stayed within the hospital's benchmark length of stay of five days. This implies that 25 (84%) patients overstayed the benchmark. Fourteen of the 25 patients were on admission for six to10 days, while 11 stayed at the hospital for over 11 days. (Figure 6).

Implementation

The implementation stage had groundbreaking implications for the project. During the project implementation period, 21 (70%) out of 30 patients met the benchmark, staying at the hospital for one to five days. Only nine (30 %) patients stayed at the hospital beyond five days.

Eight of the nine stayed for six to10 days, and only one patient remained on admission for 16 days (an outlier*)* (Figure 6).

Post-Implementation

At the post-implementation stage, following the project implementation, two out of 30 patients, accounting for less than 7% (6.6%), met the benchmark of being discharged after one to five days. Twenty-eight patients stayed at the hospital for over six days (Figure 6). The dramatic increase in patients' hospital stay beyond the benchmark could be explained by the fact that the project implementation unit was converted to a COVID-19 unit. That meant a change in patient morbidity characteristics. However, when the surge was over, the unit started to see improvement in length of stay as evidence by data showed numbers similar to during the implementation period.

Discussion

The QI project successfully increased nurse-driven patient mobility. The outcome of the study has implications for two fundamental themes. The first theme regards mobility documentation. As illustrated in the QI project, the mobility documentation between September 21 and November 29, 2021, was 93% compared with 60% at baseline. The increased JH-HLM documentation plays a significant role in enhancing the safety of the patients and preventing adverse outcomes. Studies have shown that mobility screening and documentation is one of the fundamental steps in the overall assessment of the welfare and wellbeing of older patients. Existing evidence has shown that a change in mobility can be a significant risk for frailty and even falls. In novel research conducted by Bergbower et al. (2020), improvements in JH-HLM scores played a vital role in determining decisions such as discharge. Therefore, an increase in the mobility documentation from 60% to 93% was more likely due to the training and sharper

focus the project brought to the issue within the organization, more importantly, an empirical way of assessing an improvement in mobility.

The other major thematic assessment aspect evaluated in the project regards the length of hospital stay. The project was broken down into three phases, including a phase prior to the implementation, during the implementation, and after the implementation, respectively (Fig. 6). As illustrated in the outcome, the JH-HLM scale implementation led to a reduced length of hospital stay. Research has shown that inpatient mobility initiatives play a significant role in reducing hospital stays. In addition, these interventions decrease the risk of additional hospital-related complications and have a positive effect on a patient's mental and emotional health. In summarizing the study's outcomes, the authors found that several fundamental aspects improved. Key among the areas that saw an improvement include a 30-day readmission rate, individual patient mobility, length of stay, and the patient outcomes" (Bergbower et al., 2020). Another study by Pashikanti et al. (2012) established that the greatest impact is achieved when mobility protocols are well-defined. Therefore, this demonstrates the importance of the implementation phase. The stage is critical in acquiring all the necessary resources and using them in a manner that aligns with the needs of the identified patients.

From an overall perspective, the research has shown that organizations must develop a well-structured and fully functioning QI approach. In similar research conducted by Hoyer et al. (2016), the researchers concluded that with a systematic QI strategy, active prevention of a loss in physical function that usually happens after hospitalization is possible. A well-conducted QI endeavor is closely associated with patient mobility. An increase in mobility reduces the amount of time that a patient stays in the hospital. Therefore, this research has reminded individuals of the importance of implementing a QI procedure that meets all the specific needs of the project.

However, several limitations concerning this exercise should be noted. Notably, a high nursing staff turnover adversely impacted the project's data collection. Nurses who were initially educated on the design and method of this project left (resigned from their position with the hospital) the unit during implementation. Adjusting to the change, the project lead arranged to educate and orient-new nurses hired to the unit. Additionally, exclusively focusing on the older population (average age of a patient was 65 years old), for the project, restricted the tool's potential to promote early mobilization in the younger population. The conversion of the project unit into a COVID-19 unit during the emergence of the Omicron variant adversely affected the internal validity of the project. This is because the patient population in the unit assumed completely different morbidity characteristics from those envisaged for the project. Nonetheless, the hospital can adopt several steps from this project to ensure the tools remains current. Mobility must be made an interdisciplinary project. A seven-person dedicated mobility team, including transporters can be created. PT team can develop competences to educate and orient the new team in safe patient handling. The mobility team would be tasked with maximum assists, involving nurses and therapists depending on the acuteness of the mobility issues. The tool can also be integrated into the EMR for new hire education and annual education for clinical staff. PT would complete the assessments and determine whether nursing, PT or the mobility team ambulate a patient. Last but not least, distance markers can be provided at certain points of the floors, encouraging patients and the interdisciplinary team to track and record mobility in a personalized patient journal.

Conclusion

From the project, it is clear that the proper mobilization of patients has enormous importance in our healthcare system, and it should be given appropriate attention, particularly in facilities dealing with older and at-risk patients. The project demonstrated both patient and organizational benefits. The successful improvement of ambulation rate using the JH-HLM scale can be used in other units in the healthcare organization. More importantly, interventions such as JH-HLM have positive effects on the quality of the patient experience by enhancing their assessment throughout the organization, improving mobility, and reducing the length of hospital stay. However, more training is needed to ensure that the process becomes successfully embedded and sustainable. For instance, unit clerks need additional training on how to perform weekly audits. The tools created will enable them to continue with the auditing process. The project has significant implications for practice. Nurses are provided with a new strategy to enable them to improve mobility and leverage the overall quality of care, especially when working with older patients. The standardized protocols and the additional education acquired here are critical for nurses as they seek to achieve their mobility objectives with patients. The next plans should focus on spreading the QI project outcomes to a different part of the organization to ensure that all nurses understand the effects of early mobility. As a patient-centered approach, the benefits of patient mobility should not only be limited to facility settings. Thus, appropriate counseling is provided to families to practice patient mobility after discharge from the unit.

References

Agency for Healthcare Research and Quality. (2017a). Introduction and evidence for early mobility: A protocol to get patients out of bed faster: Facilitator guide. https://www.ahrq.gov/hai/tools/mvp/modules/technical/intro-early-mobility-fac-guide.html

Agency for Healthcare Research and Quality. (2017b). Nurse-driven early mobility protocols: Facilitator Guide. https://www.ahrq.gov/hai/tools/mvp/modules/technical/nurse-early-mobility-protocols-fac-guide.html

Bergbower, E. A. S., Herbst, C., Cheng, N., Aversano, A., Pasqualini, K., Hartline, C., ... & Fuscaldo, J. (2020). A novel early mobility bundle improves the length of stay and rates of readmission among hospitalized general medicine patients. *Journal of Community Hospital Internal Medicine Perspectives*, *10*(5), 419-425. doi: 10.1080/20009666.2020.1801373

Helfrich, C.D., Weiner, B.J., McKinney, M.M. & Minasian. L. (2007). Determinants of implementation effectiveness adapting a framework for complex innovations. *Medical Care Research and Review, 64*(3), 279-303 doi:10.1177/1077558707299887

Hoyer, E. H., Friedman, M., Lavezza, A., Wagner-Kosmakos, K., Lewis-Cherry, R., Skolnik, J. L., & 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. doi:10.1002/jhm.2546

Klein, L. M., Young, D., Feng, D., Lavezza, A., Hiser, S., Daley, K. N., & Hoyer, E. H. (2018). Increasing patient mobility through an individualized goal-centered hospital mobility program: A quasi-experimental quality improvement project. *Nursing Outlook*, 66(3), 254–262. https://doi-org.proxy-hs.researchport.umd.edu/10.1016/j.outlook.2018.02.006

Lopez-Garrido, G. (2020). Self-Efficacy Theory | Simply Psychology. https://www.simplypsychology.org/self-efficacy.html

Melnyk, B. M., & Fineout-Overholt, E. (2005). Evidence-based practice in nursing & healthcare: A guide to best practice. Philadelphia: Lippincott Williams & Wilkins.

Messer, A., Comer, L., & Forst, S. (2015). Implementation of a progressive mobilization program in a medical-surgical intensive care unit. *Critical care nurse*, 35(5), 28-42. https://doi.org/10.4037/ccn2015469

Pashikanti, L., & Von Ah, D. (2012). Impact of early mobilization protocol on the medical-surgical inpatient population: An integrated review of literature. *Clinical Nurse Specialist*, 26(2), 87–94. http://doi.org/10.1097/NUR.

Santos, P. M. R., Ricci, N. A., Suster, É. A., Paisani, D. M., & Chiavegato, L. D. (2017). Effects of early mobilisation in patients after cardiac surgery: a systematic review. *Physiotherapy*, 103(1), 1-12. https://doi.org/10.1016/j.physio.2016.08.003

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, 2333721418808146. https://doi.org/10.1177/2333721418808146

Table 1

Evidence Review Table

Klein, L. M., Young, D., Feng, D., Lavezza, A., Hiser, S., Daley, K. N., & Hoyer, E. H. (2018). Increasing patient mobility through an individualized goal-centered hospital mobility program: A quasi-experimental quality improvement project. *Nursing Outlook*, 66(3), 254–262. https://doi-org.proxy-hs.researchport.umd.edu/10.1016/j.outlook.2018.02.006					Level III
Purpose/ Hypothesis	Design	Sample	Intervention	Outcomes	Results
The research aimed to create goal-centered mobility programs in the hospitals	A quasi-experimental design	**Sampling technique:** Involved nurses and inpatients **Eligible participants**: The research involved patients with activity orders. **Excluded**: Patients on strict bedrest.	**Intervention Protocol**: Patients in 2, 24-bed general medicine units underwent the nurse-driven mobility protocol. **Treatment Fidelity**: Ambulation was recorded on participants before and after the mobility protocol. Nurses completed a training program to guide the study. The study used an embedded algorithm to	**Dependent Variable**: Ambulation, which entails the act of walking or moving self from point A to point B using a mobility algorithm **Measurement**: Nurses collected and recorded ambulation data and patients' prospective and retrospective charts. The nurse manager reviewed daily ambulation reports to evaluate patients' activity levels.	**Statistical results**: The percentage of patient-days in which patients ambulated (JH-HLM ≥6) increased from 43% to 70% ($P < 0.001$), and the percentage of patients who experienced an improvement in their mobility scores between admission and discharge increased from 32% to 45% ($P < 0.001$). In the sensitivity analysis imputing missing daily JH-HLM scores and

			conduct nurses' evaluation of patient activity levels.		comparing the ramp-up versus post-QI phases, the results were similar to the primary analysis; the percent of patient-days where patients ambulated increased from 60% to 78% ($P <$ 0.001), and the percent of patients who experienced an improvement in their mobility scores increased from 26% to 48% ($P < 0.001$).
Citation: Messer, A., Comer, L., & Forst, S. (2015). Implementation of a progressive mobilization program in a medical-surgical intensive care unit. Critical care nurse, 35(5), 28-42. https://doi.org/10.4037/ccn2015469					**Level III**
Purpose/Hypothesis	Design	Sample	Intervention	Outcomes	Results

The study aims to investigate the effect that education for a progressive mobilization program has on intensive care nurses on knowledge and performance.	A pretest-posttest evaluation	**Sampling Technique**: Simple Random method **Eligible**: The participants included are the nurses caring for adult patients critically ill and who have socio-economic and are racially diverse. The nurses care for patients with a wide range of acute illnesses like renal failure, pneumonia, sepsis, etc. **Excluded**: The nurses who do not work in the ICU department **Accepted**: 41 nurses worked in an ICU to care for older adults with acute care conditions like	**Control:** Educational session involving the didactic classroom focusing on evidence-based significance and limitations to the mobility **Intervention:** Physical therapists came with a range of motion practices, using helping devices and transferring to chair. **Intervention fidelity**: There was mobilization and dandling along with a rise in ambulating and getting clients up to the seat.	**Dependent Variable**: The researcher surveyed nurses in an ICU to determine the effect of education for a progressive mobilization program has on intensive care nurses on knowledge and performance. **Measurement tool:** (reliability), time, procedure: The researcher measured the depended Variable through a chart review that they performed from time to the other before implementing any educational intervention and after to determine the changes.	**Statistical Procedures(s):** the researcher used narrative analysis to evaluate the results and present the outcome from the data collected. **Results:** The results obtained show a rise in the nurses' knowledge of the dangers of immobility. Scores after the educational intervention were significantly higher than scores before the intervention ($t = 2.02$; $P < .001$). Overall mobilization ($P = .04$) and dangling ($P = .01$) increased significantly after

		renal failure and face socio-economic challenges. **Control**: All 41 nurses in the ICU got involved in the study **Intervention**: No participant got lost during the study. **Power analysis**: Not applicable to the study **Group Homogeneity:** the control is homogeneous because the group shares similar characteristics.			the education. No significant increases occurred in ambulating or getting patients up to a chair.
Citation: Pashikanti, L., & Von Ah, D. (2012). Impact of early mobilization protocol on the medical-surgical inpatient population: an integrated review of the literature. *Clinical Nurse Specialist*, 26(2), 87-94. doi:10.1097/NUR. http://doi.org/10.1097/NUR.					Level I
Purpose/Hypothesis	Design	Sample	Intervention	Outcomes	Results

The purpose of this integrated literature review involves examining the efficacy of an early mobilization practice on medical-surgical inpatients during the hospital stay.	Comprehensive literature search	**Search Strategy**: The research team searched for literature materials from PubMed, Ovid, and MEDLINE, databases using search terms like; length of hospital stay and early ambulation. The researcher reviewed the studies depending on the inclusion and exclusion criteria. **Eligible Studies:** 9 empirical reviews met the inclusion guidelines. The studies involved practical quantitative approaches and were written in English (Table) **Excluded:** Studies that were published before 2000 and after 2011.	**Control:** Controls were different depending on each study **Intervention:** The studies in the integrated review of the literature used differed interventions.	**Dependent Variable:** The detailed review studies whose primary outcome was mobility or activity. **Measure:** The empirical studies used different approaches to explain patient mobility.	**Level of Measurement:** The studies used various mobility protocols and mobility interventions to measure the efficacy of an early mobilization practice on patients. **Outcome Data Retrieval:** Researchers gathered evidence from all selected studies. **Analysis:** the studies indicated that early mobilization programs improved patient functional ability and reduced older adult hospitalization length.

		They included: 9 empirical quantitative studies where five included patients with the medical diagnosis while four involved clients with surgery. **PRISMA:** Not applicable to the study.			
Citation: Santos, P. M. R., Ricci, N. A., Suster, É. A., Paisani, D. M., & Chiavegato, L. D. (2017). Effects of early mobilisation in patients after cardiac surgery: a systematic review. Physiotherapy, 103(1), 1-12. https://doi.org/10.1016/j.physio.2016.08.003					**Level I**
Purpose/Hypothesis	Design	Sample	Intervention	Outcomes	Results
The article evaluates the effects of mobilizing the patients earlier after they undergo cardiac surgery on hospital stay, operational capacity, and postoperative problems.	A systematic review, of randomized controlled trials (RCTs)	**Sampling Technique:** Simple random sampling **Eligible:** patients who underwent cardiac surgery and stayed in the hospital for a more extended period	**Controls:** The controls varied the studies including Medline, CINAHL, Embase, PEDro, Cochrane Central Register of Controlled Trials	**Dependent Variable:** The dependent Variable entails the early mobilization of clients in hospitals after undergoing cardiac surgery. **Measurement tool:** (reliability), time, procedure:	**Statistical Procedures(s):** Investigators were applied when analyzing the data; thus, it did not depend on any statistical procedure. **Results:** The researcher got

		Excluded: Other patients undergoing minor surgeries and who did not have any complications after the surgery **Accepted:** the study involves nine randomized control trials which explained patients undergoing cardiac surgeries. **PRISMA:** the article included PEDro scale to appraise each item eligible for the research. **Power Analysis:** It did not apply to the systematic review method used.	and Web of Science **Intervention:** The interventions in the research on this topic came from the systematic review and many sources got appraised by PEDro scale	Two investigators were considered when conducting the review to measure the depended Variable while the third investigator provided a consensus for the information.	information from the nine articles used and analyzed them. The results show that early mobilization is critical when preventing postoperative problems.

Citation: 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, 2333721418808146. https://doi.org/10.1177/2333721418808146					Level I
Purpose/ Hypothesis	Design	Sample	Intervention	Outcomes	Results
The study's purpose entails describing programs to enhance mobility in older adults during the hospital stay and determining methods of measuring mobility.	A scoping review	**Search strategy**: the researchers and the university librarian use search terms like "Physical mobility and hospitalized older adults". The team reviewed articles' references using snowball sampling and identified 1,128 studies, five conference proceedings and 20 dissertations. **Eligible studies**: Studies with older adults admitted to an acute care hospital and intensive care and non-intensive care settings. Studies whose sample constituted of 40%	**Control**: The studies indicated that various care provided involved in mobility programs.? **Intervention:** mobility programs increased mobility, and the improvement of patients' functional outcomes was a strong focus of nurse-driven mobility program.	**Dependent variable**: The study uses mobility to explain the physical activities necessary to maintain a patient's functional ability like; ambulation and strengthening exercises. **Measure:** use of hospital mobility protocol, multiple disciplines and adequate monitoring and documentation of patient activity to improve mobility in the older adults during the hospital stay.	**Level of Measurement:** Studies identified outcome measures or variables related to the utilization of a program, tool, or technique for measuring physical mobility in older patients. **Outcome data retrieval:** Reviewers gathered information from selected articles. **Analysis:** The results propose that using a multidisciplinary approach may be the most effective way to encourage mobility among

		older adults. The research also involves studies that identified variables related to utilizing a program, tool, or technique to measure physical activity. **Excluded**: Studies conducted in rehabilitation hospitals, those not retrievable in full text, and studies published more than 20 years ago. **Included**: the sample involves 26 articles that; had adults as their target population, identified a physical mobility program and determined the outcomes and used a notable measurement for physical mobility.			hospitalized older adults. Most studies did not explain how researchers measured physical activity.

		PRISMA: explained descriptive decision-making criteria for retaining/excluding studies from the review. **Power analysis:** Not applicable in a scoping review.			
Citation: Yayla, A., & Özer, N. (2019). Effects of early mobilization protocol performed after cardiac surgery on patient care outcomes. International Journal of Nursing Practice, 25(6), e12784. https://doi.org/10.1111/ijn.12784					Level III
Purpose/ Hypothesis	Design	Sample	Intervention	Outcomes	Results
"This study aimed to determine the effects of an early mobilization protocol performed in patients who underwent cardiac surgery on post-operative outcomes".	Quasi-experimental design with control group	Sampling Technique: # Eligible: 109 patient who underwent cardiac surgery # Accepted: 102 patients # Control: fifty-one patients who underwent cardiac surgery	Control Intervention: Early mobility after cardiac surgery will decrease length of hospital stay Intervention fidelity (describe the protocol): Post-operative day 0	DV: Scores of the Richards-Campbell sleep questionnaire (RCSQ), duration of hospital stay, and complication status Measurement tool (reliability), time, procedure: - The RCSQ assesses the depth of night-time sleep, sleep onset latency, number of	Statistical Procedures(s) and Results: When studying the difference between groups, a significance level of.05 was used, and $P < .05$ was considered to be statistically significant.

		#Intervention: 51 patients who underwent cardiac surgery Power analysis: Group Homogeneity:	- Patients were allowed to sit on the edge of the bedside or the bed inclined to give a sitting position for 15 minutes two times a day. Post-operative day 1 - The patients were allowed to walk 150 steps in the ICU two to three times a day. Post-operative day 2 - The patients were allowed to walk 250 steps in the ICU or in the room three to four times a day. Post-operative day 3 and 4 - The patient was allowed to walk 400 steps in the hallway four times a day.	awakenings, time spent awake, overall sleep quality, and the level of noise in the environment -The patients were given pedometers (OMRON HJ-320-E Walking style One 2.0) to determine the number of daily steps. The pedometer used in the present study is worn clipped to the waistband.	The study results revealed that patients in the experimental group had better improvement in RCSQ scores, shorter duration of hospitalization, and fewer late complications after surgery than patients in the control group.

Rating System for Hierarchy of Evidence

Level of Evidence	Type of Evidence
I (1)	Evidence from systematic review, meta-analysis of randomized controlled trails (RCTs), or practice-guidelines based on systematic review of RCTs.
II (2)	Evidence obtained from well-designed RCT and/or reports of expert committees.
III (3)	Evidence obtained from well-designed controlled trials without randomization.
IV (4)	Evidence from well-designed case-control and cohort studies
V (5)	Evidence from systematic reviews of descriptive and qualitative study
VI (6)	Evidence from a single descriptive or qualitative study
VII (7)	Evidence from the opinion of authorities

Table 2
Synthesis Table

Rating Scale for Quality of Evidence (Newhouse)		
High (A)	Scientific	Consistent results with sufficient sample size, adequate control, and definitive conclusions; consistent recommendations based on extensive literature review that includes thoughtful reference to scientific evidence
	Summative Review	Well-defined, reproducible search strategies; consistent results with sufficient numbers of well-defined studies; criteria-based evaluation of overall scientific strength and quality of included studies; definitive conclusions
	Experiential	Expertise is clearly evident

Good (B)	Scientific	Reasonably consistent results, sufficient sample size, some control, with definitive conclusions; reasonably consistent recommendations based on fairly comprehensive literature review that includes some reference to scientific evidence
	Summative Review	Reasonably thorough and appropriate search; reasonably consistent results with sufficient numbers of well-defined studies; evaluation of strengths and limitations of included studies; fairly definitive conclusions.
	Experiential	Expertise seems to be credible.
Low Quality (C)	Scientific	Little evidence with inconsistent results, insufficient sample size, conclusions cannot be drawn
	Summative Review	Undefined, poorly defined, or limited search strategies; insufficient evidence with inconsistent results; conclusions cannot be drawn
	Experiential	Expertise is not discernable or is dubious
Newhouse, R. (2006). Examining the source for evidence-based nursing practice. JONA.Volume 36, Number 7/8, pp 337-340		

Figure 1

Theoretical framework diagram

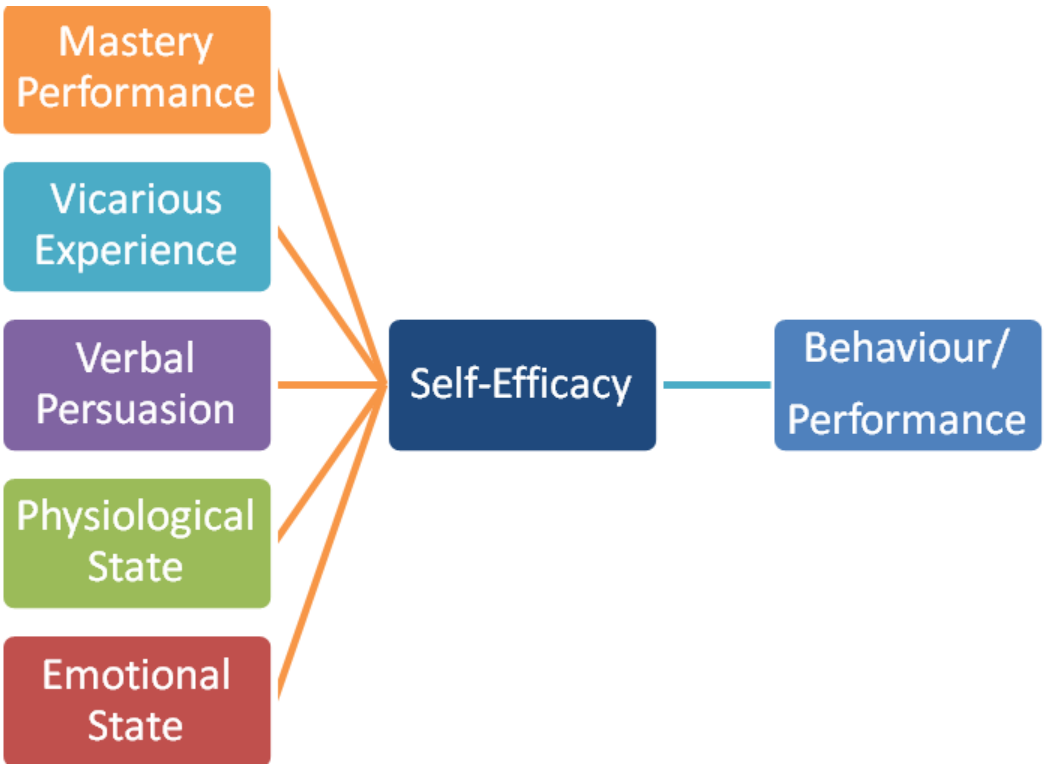
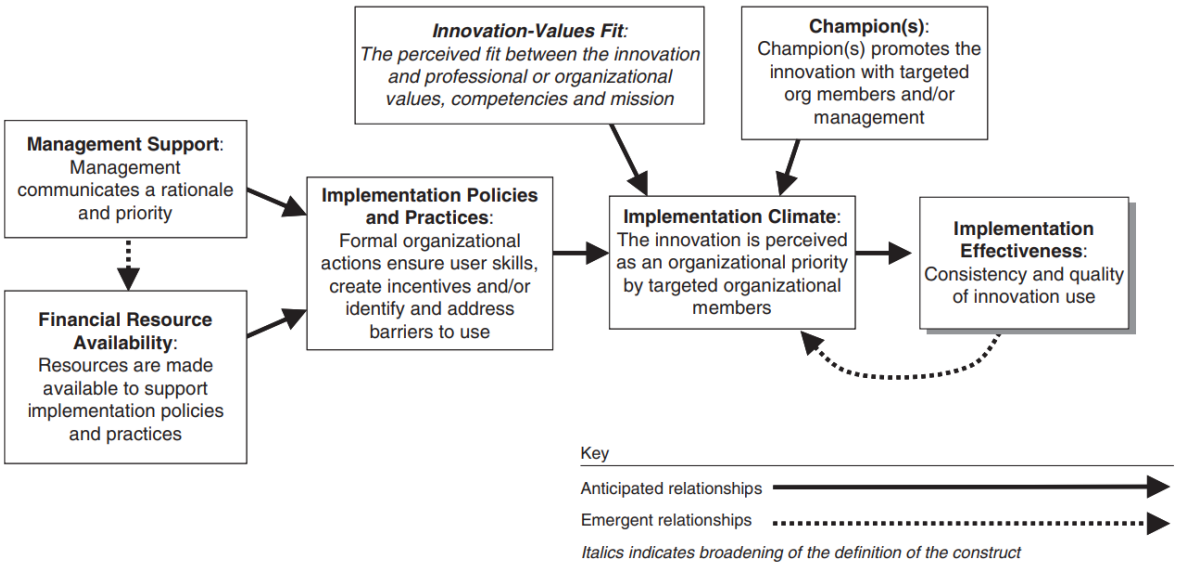


Figure 2

Implementation Process Framework

Figure 1
Conceptual Framework of Complex Innovation Implementation



Source: Adapted from Klein and Sorra (1996, 1056).

Figure 3

Current Mobility Process Map

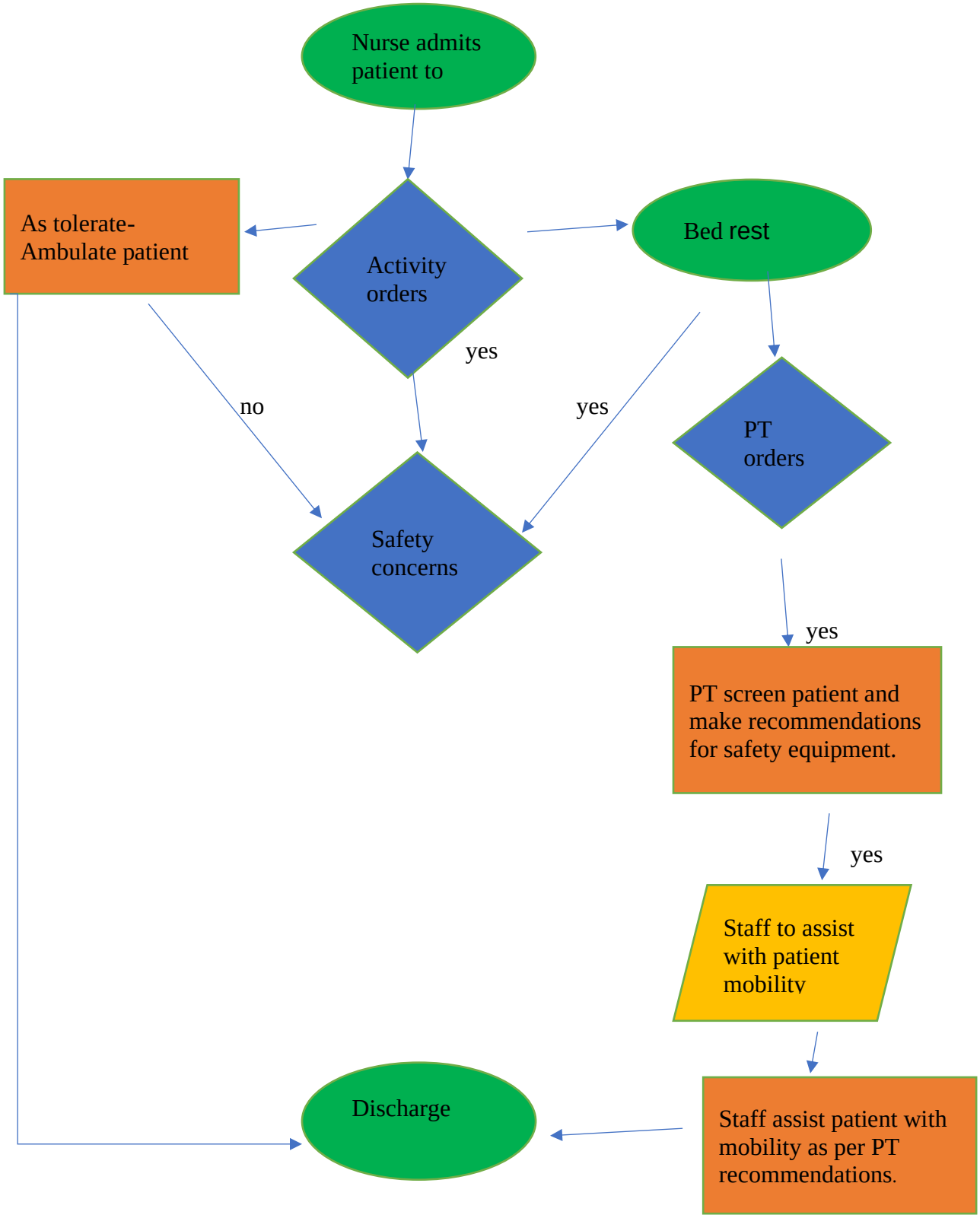


Figure 4

Staff Education

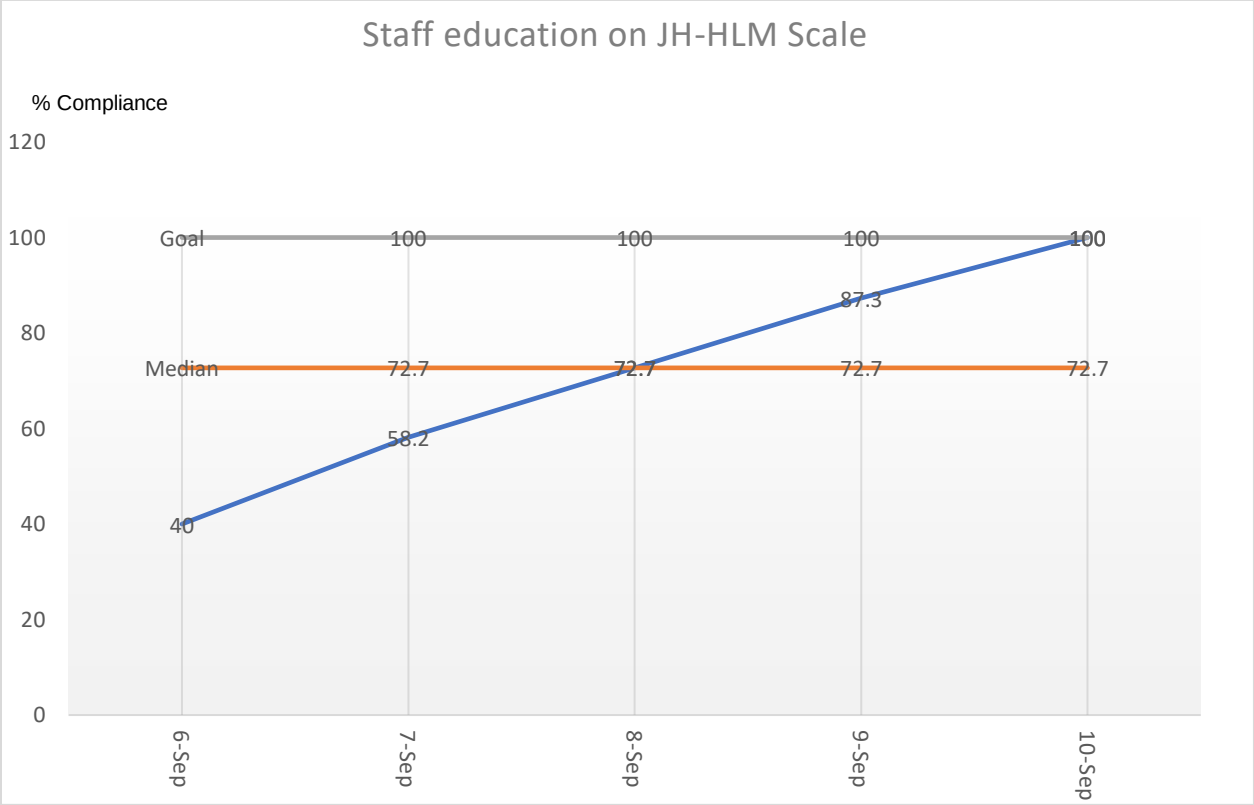


Figure 5

During implementation mobility documentation

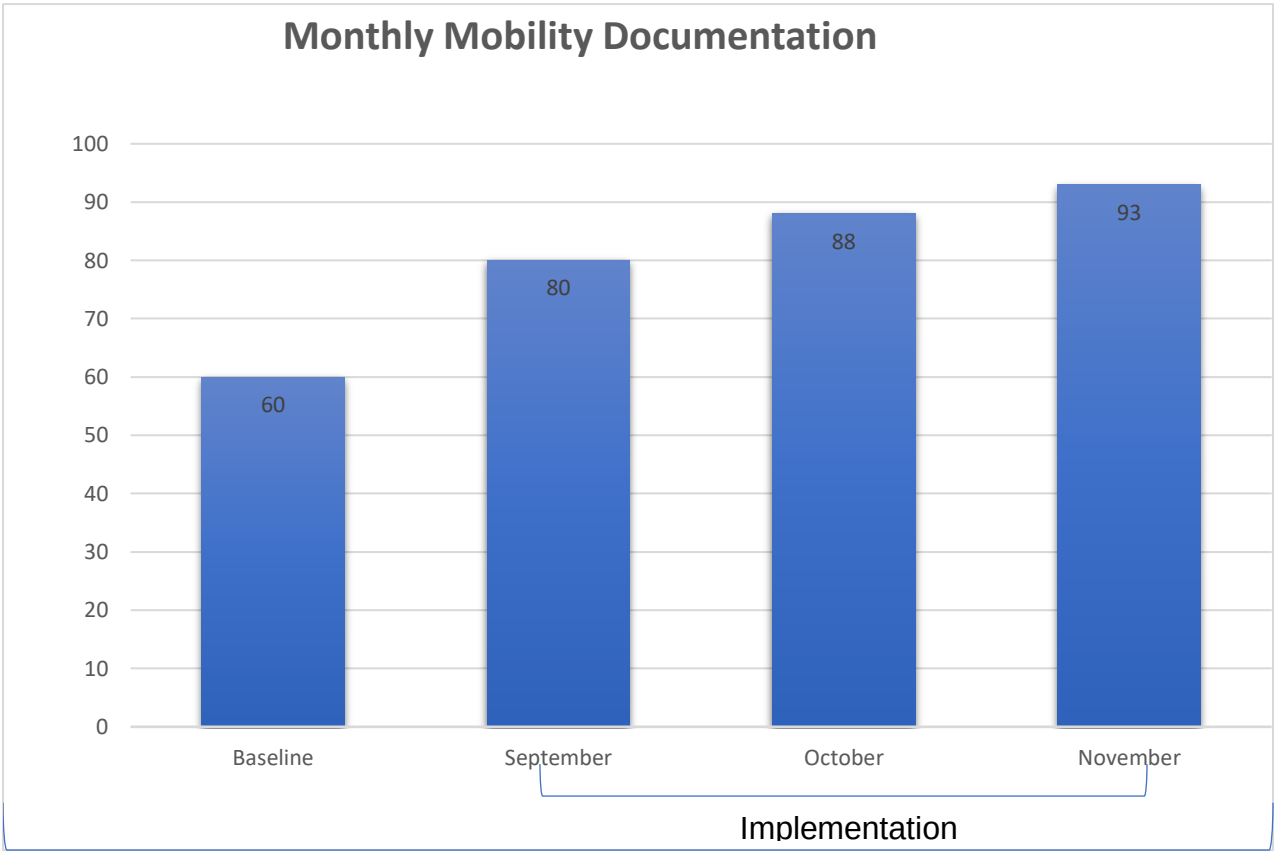
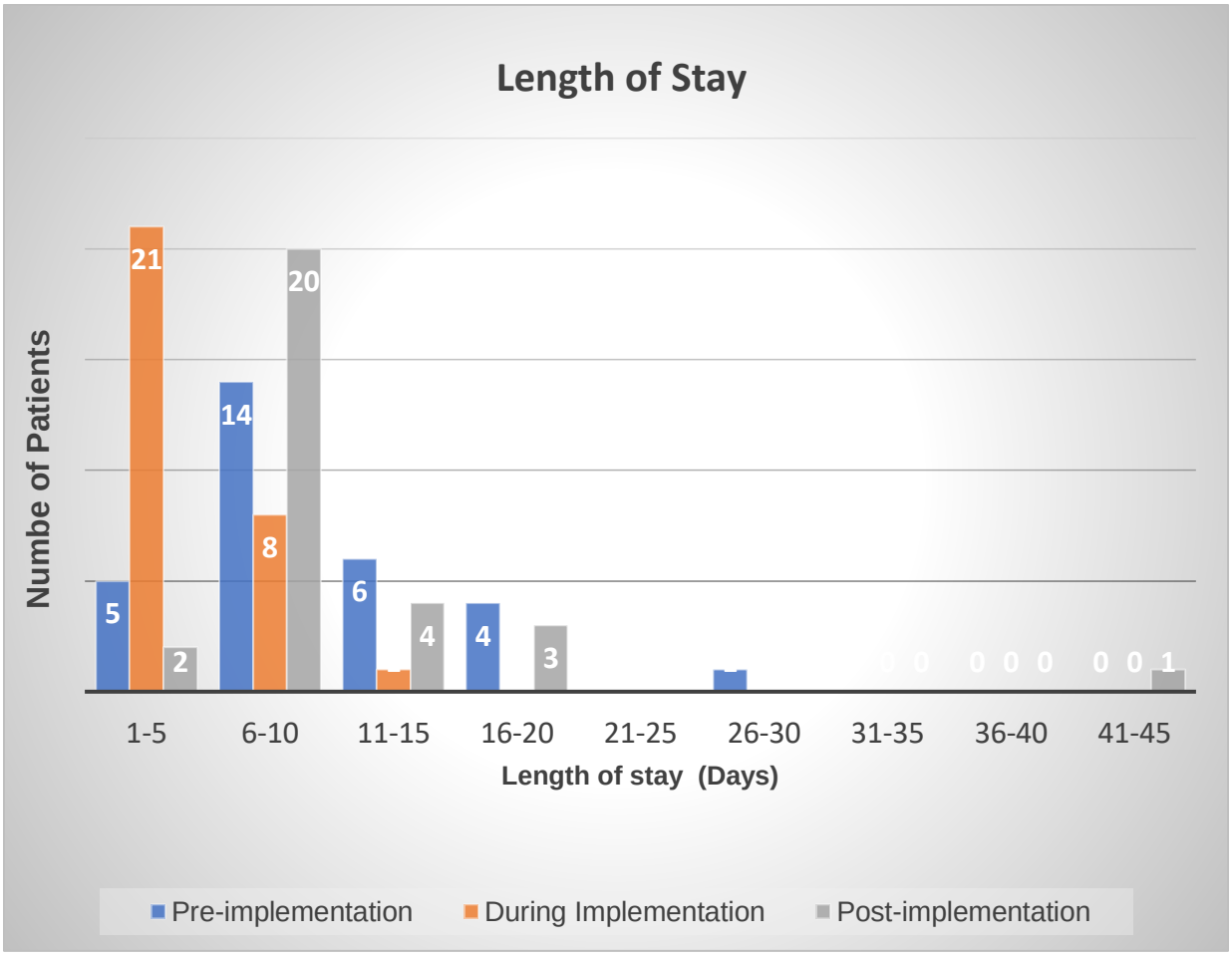


Figure 6

Length of Stay



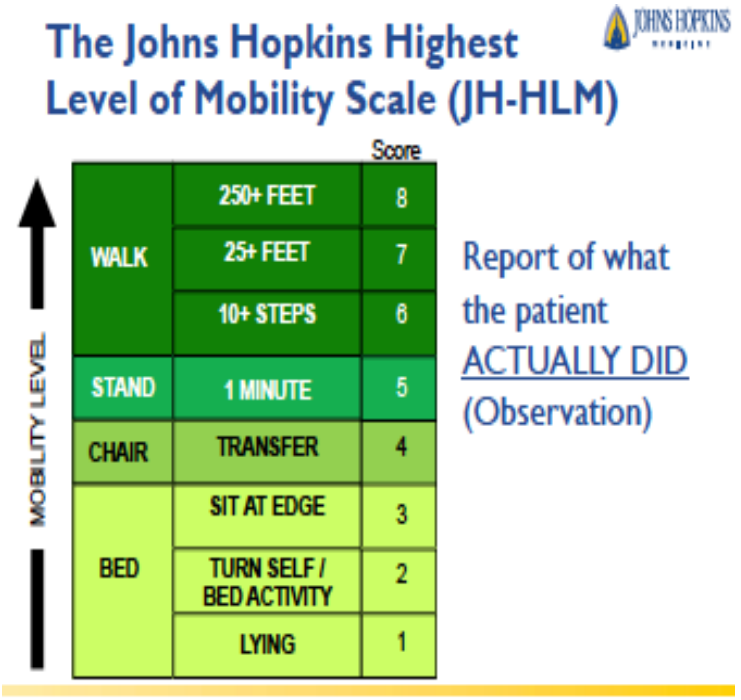
Appendix A

Patient mobility process

Mobility

Documentation:

- Highest level of mobility (HLM) goal will be documented once per shift by the NURSE.
- HLM observed will be documented with each mobility attempt.



- **A patient with a score of 1-3 should**:
    - Be positioned fully upright for all meals (i.e. chair position in bed, sitting edge of bed, or upright in chair).
    - Transfer to chair at least once per shift via lift if patient unable to transfer. Will remain up to chair 1-2 hours as tolerated to protect skin integrity.
- **A patient with a score of 4-5 should**:
    - Attempt mobility at least 2-3 times per day.
    - This could include standing activities (i.e., for hygiene), transferring to a chair/commode, or attempting ambulation.
    - Use a bedside commode for all toileting with no use of bedpan.
- **A patient with a score of 6-8 should**:
    - Walk in the hall at least 2-3 times per day.
    - Use bathroom for all toileting.

Appendix B

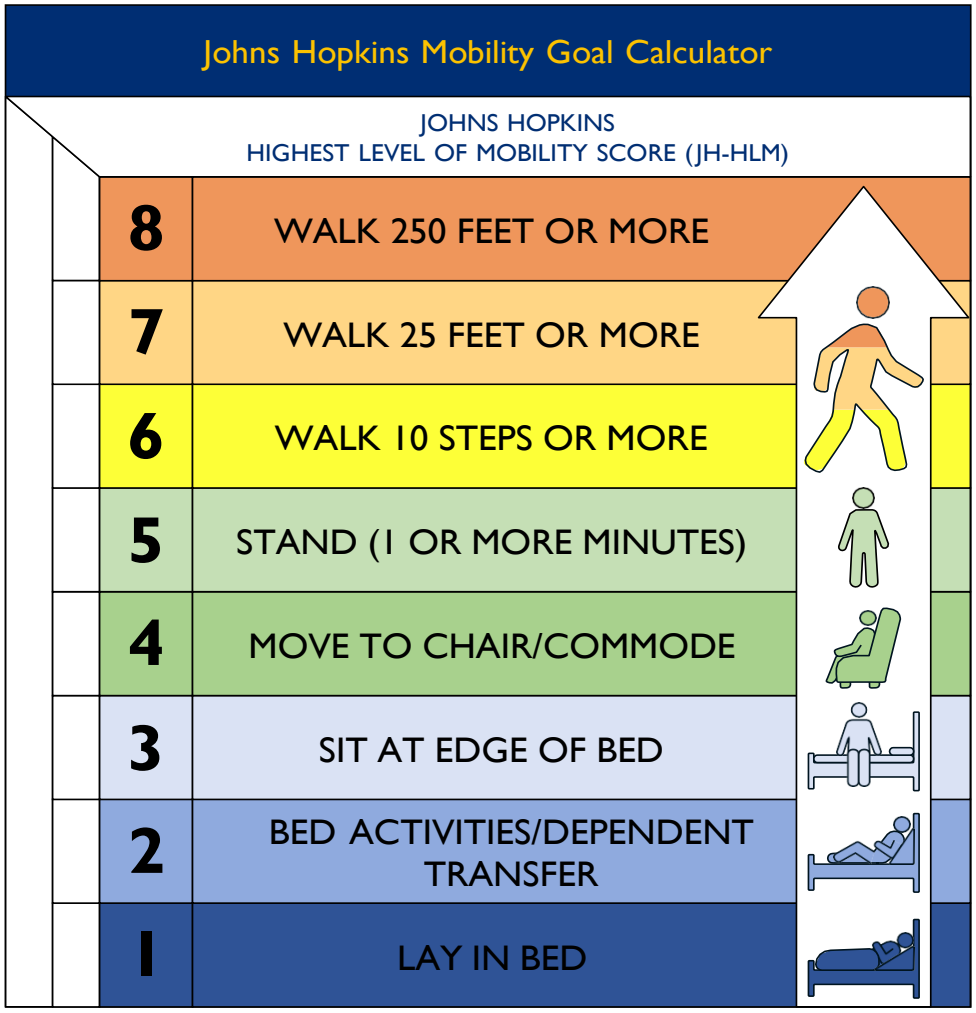
Patient Goal Door Card

PATIENT GOAL

Current JH-HLM: _____

Goal JH-HLM: _____

Date: _____ AM / PM



Appendix C

Med Surg Mobility Audit tool

Room #	**Date of admission**	**De-Identified Patient ID**	**The highest level of mobility (HLM) goal documented (Yes = 1)**	**The highest level of mobility (HLM) goal not documented (No = 0)**