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Creating A Culture of Mobility: A Quality Improvement Project.

Vincent Samuel

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Creating A Culture of Mobility: A Quality Improvement Project.

Clinical leadership theme

The Clinical Nurse Leader (CNL) is a mastered prepared nurse educated to provide a clinical leadership at the microsystem level to maintain inter-disciplinary collaborative processes that lead to integrated, high-quality care (Bender, Connelly, Glaser & Brown, 2012). In March 2016, the CNL of the medical/surgical unit (7 South) recognized that unit performance for the patient ambulation was 54%, below the organizational target of 65%. A team from the microsystem was formed and charged with developing a new approach to ambulating patients that would improve the process for ensuring that patients avoid the complications of immobility. The team understood that creating a set of strategies and tactics alone was not enough to create a change in the approach to patient mobility within the care team. Changing the culture of mobility required shifting current thoughts, practices, and approaches of the team related to patient mobility within the microsystem (see Appendix C). The CNL applied competencies in nursing leadership and clinical outcomes management to facilitate a process to create a culture of mobility and to improve quality outcomes for patient ambulation within this microsystem (AACN, 2007). The author met with the unit manager to use CNL tools and to motivate staff in developing the unit culture based on use of feedback and a focus on learning and improving quality, and to support a change in culture related to mobility. With the support from the unit manager, the CNL developed a plan using CNL theory of horizontal leadership practices to initiate change, using a new approach to implement change and engage staff in the work of change.

Statement of the problem

Prolonged immobilization of patients results in functional decline, increases the risk of hospital-acquired pneumonia (HAP), and length of stay (LOS) (Drolet et al., 2013; Pashikanti & Von Ah, 2012; Stolbrink et al., 2014). In postoperative surgery patients, there is convincing evidence that suggests that patients should not be kept in bed after surgery and early mobilization is a key to better patient outcomes (Castelino et al., 2016). Ambulation, as a part of the nursing care for the hospital patient, has often been overlooked and has been identified as a missed component of care (Kalisch BJ, 2006). Early ambulation is one of the most effective nursing care interventions to prevent complications of immobility that can begin within twenty-four hours of a patient's hospitalization (Pashikanti & Von Ah, 2012). The development of standards of care for mobility in hospitalized adults results in positive patient outcomes (Padula, Hughes, & Baumhover, 2009). These studies were the guiding principle for the CNL to initially develop a mobility tool to monitor mobility compliance (see Appendix J).

The average ambulation score was 54% of the patients ambulated on the medical-surgical unit (7 South) in the year 2015, below the benchmark of 65% (see Appendix E, Figure E.1). The direct impact of low ambulation score was the increase in patient's length of stay. Recognizing the need for some intervention, the CNL used the Model for Improvement (MFI) from Institute of Healthcare Improvement (IHI), Kotter's eight steps for successful change, and extensive literature review to design the mobility quality improvement project. The CNL led the improvement team to study the current process of patient ambulation, discover the gap in the current process, and develop solutions. The team was successful in improving the ambulation score for the year 2016 to 68%, above the target of 65% (see Appendix E, Figure E.2). The

patient's average length of stay was reduced to three days and below. The new mobility target set by the Organization is 70% for 2017.

It is vital for a microsystem to provide high-quality patient care as well as to develop practice and a framework for implementing the newest evidence based practice. Implementing evidence based practice change can be achieved by creating a culture of democracy, innovation, and support for staff to explore good practice and initiate change.

Project overview

The quality improvement theme of the project is based on the IHI's quadruple aim; improving the patient experience of care, reducing the per capita cost of health care, improving the patient care experience, and the experience of the provider. The early patient mobility project is expected to help patients to achieve a speedy recovery, reduce their length of stay, prevent hospital-acquired infection (HAI), improve patient and family satisfaction, and improve the care and experience of the providers bringing meaning to what they do in the medical field.

The aim of this project is to increase the patients' ambulation rate of the medical-surgical unit (7 South), by creating a culture of mobility, from the average of 65% in the year 2016 to the new set benchmark of 70% and above by December 2017. The process begins with mobility assessment of the patient upon admission. The process ends by ensuring that patients ambulate as appropriate to maintain and restore their highest level of mobility. By working on this process, the unit expects (1) to reduce physical outcomes that include fatigue, pain, deep vein thrombosis; (2) to improve psychological outcomes that include depression, satisfaction, anxiety, and comfort; and (3) to support social outcomes that include independence and quality of life. It is important to work on the project as the team has identified that it improves (1) length of stay,

(2) patient and family satisfaction, (3) reduce cost per admission, (4) mortality rate, and (5) staff satisfaction (Kalisch, Lee, & Dabney, 2013).

Literature review

The search for evidence was initiated by developing a population, intervention, and outcome (PIO) question. In a hospitalized adult medical-surgical unit (P), creating a mobility culture (I) will increase the unit's ambulation rate and decrease patient's length of stay (O) (see Appendix B). Based on the PIO question, an electronic data search was conducted in the Cochrane Database, CINAHL, Pub Med and Ovoid using following terms: early ambulation, mobility protocol, and the length of stay. Search criteria were set to include English only, research that included a report of outcomes related to inpatient mobilization, and published between 2006 to 2016. The search yielded twenty-six articles of which eleven met search criteria and six articles are selected for the literature review. The selected articles were evaluated using Johns Hopkins Evidence-based Practice (JHEBP) research evidence appraisal tool (see Appendix L).

Stolbrink et al. (2014) conducted a randomized control trial (clustered design) to determine whether early mobility aided by physiotherapy reduced the incidence of hospital-acquired pneumonia (HAP) and length of stay (LOS) in patients on medical wards. The study was conducted in two matched wards in a hospital with one receiving "early mobility bundle" (Stolbrink et al., 2014). Patients in the experimental unit who received "early mobility bundle" significantly reduced the incidence of HAP and LOS. This study can be rated as LII B using the JHEBP research appraisal tool.

Castelino et al. (2016) conducted a systematic review on the effect of early mobilization protocols on postoperative outcomes following abdominal and thoracic surgery. Eight studies

were selected using meta-analysis that included six randomized controlled trials and two observational prospective studies. Almost all the studies reported that the LOS in mobilized patients was significantly shorter (Castelino et al., 2016). This study is rated as L1 A using the JHEBP appraisal tool.

Kalisch, Lee, and Dabney (2014) conducted a literature review on current evidence research on the outcomes of mobilizing hospitalized adults. After an extensive search, they identified thirty-six studies for inclusion in the review. Their findings generated four themes of the effect of inpatient mobilization (1) positive physical outcomes, (2) positive psychological outcomes, (3) positive social outcomes, and (4) and positive organizational outcomes (Kailisch, Lee, & Dabney, 2014). This study is rated as LV A using the JHEBP appraisal tool.

Padula, Hughes, and Baumhover (2009) conducted a nonequivalent control group design study to determine the impact of nurse driven mobility protocol on functional decline. The study was conducted in the two units of The Miriam Hospital that were equal in size, similar patient population and nursing staff composition. The nurses in treatment unit were trained to use Geriatric Friendly Environment through Nursing Evaluation and Specific Intervention for Successful Healing (GENESIS) into their model of nursing care delivery. The result of the study confirmed the hypothesis as patient had a shorter length of stay (4.96 days treatment vs 8.72 days' control). This study is rated as LII A using the JHEBP appraisal tool.

Kalisch (2006) conducted a qualitative study to determine nursing care regularly missed on medical-surgical unit and reasons for missed care. She interviewed 200 nursing staff in 25 focus groups. The result of this study revealed that ambulation, one of the important element of nursing care, was missed on a regular basis. This study is rated as LIII A using the JHEBP appraisal tool. Similarly, Doherty-King and Bowers (2013) performed a qualitative study to

explore the relationship between nurses' attribution of responsibility for ambulating hospitalized patients and their decision about whether to ambulate. It was a descriptive, secondary analysis of data gathered for a parent study. The study found that the nurses who claimed responsibility for ambulating patients were more likely to get patients up to ambulate. This study is rated as LIII C using the JHEBP appraisal tool.

Rationale

The mission statement of the medical-surgical unit is "Highest level of care" that aligns with the mission of the organization, which is to provide high-quality, affordable health care services and to improve the health of its members and the communities it serves. The largest population of the unit are patients over the age 65, who have a greater risk of complication from immobility. The primary diagnosis of patients on the unit includes pneumonia, CHF, altered mental status, COPD, sepsis, dementia, GI bleed, alcohol withdrawal, comfort care, and acute renal failure. Patients with these diagnoses are at risk for prolonged immobility. The average length of stay of the patients is between three to four days and the census per day is between 23 – 26 patients.

The ambulation data for 2015 of average 54%, created a sense of urgency to develop a change process. When the process of ambulation was analyzed, the following barriers to patient ambulation were identified; inadequate staffing, unit culture, unavailability of walking aid, lack of time to encourage the patient (see Appendix D). The literature review provided convincing evidence supporting creating a mobility protocol, that helps to mobilize patients early during their admission, promotes the reduction in the incidence of HAI and improves LOS (Stolbrink et al, 2014). Strengths, weaknesses, opportunities, and threats (SWOT) analysis was done to examine the unit's internal strengths and weaknesses, looking for opportunities for growth and

improvement, and to identify the threats (see Appendix H). A stakeholder analysis was performed to determine which department and individuals would be impacted by this quality improvement project (see Appendix G). An individual goal for various stakeholders to resolve barriers to mobilization was agreed upon along with clear role expectations. A mobilization tool (see Appendix J) was created with at least 80% buy-in from all stakeholders, which included unit managers, nursing staff, and patient care technicians.

A driver diagram is set up to plan the process (see Appendix C). The unit team became convinced that change is necessary and the CNL assured them of strong leadership and visible support from the manager. A clear vision is created with the understanding of 'why' it is important. A target percentage of daily ambulation rate of 70% and greater is agreed upon to be achieved in the set time frame. It is also decided to celebrate short-term wins with the staffs and present them with regular data that tracks performance data. Once the success is achieved, it was agreed to build on the successful change and sustain it.

It is projected that cost for staff education and hands-on training for this project will be $ 2,400. The primary benefit of this project is decrease in length of stay of the patients. If an average of one patient in a month reduces their LOS by one day, it represents a total revenue of $42,000 per year based on the cost of patient of $3,500/day. The secondary benefits of this project will be reducing hospital acquired pneumonia and patient satisfaction. The project is expected to generate an initial annual saving of US$ 39,600 (see Appendix A). The profit is calculated without considering the secondary benefits. The analysis of return on investment (ROI) supports the rationale to approve this project (see Appendix A).

Methodology

The CNL utilized the IHI Model for Improvement (MFI) as a framework to guide the mobility project. The assessment of the clinical microsystem is the first step in the improvement journey. The microsystem assessment of the medical-surgical unit was completed using Dartmouth Microsystem Assessment tool (Institute for Healthcare Improvement, 2016), a structured method of inquiring into the anatomy of a clinical microsystem developed by Dartmouth-Hitchcock Medical Center (Nelson, Batalden, & Godfrey, 2007).

The unit currently has a total of 70 staff members that include 45 full-time and part-time RNs (of which three are MSN, forty are BSN, two are ADN, and four medical-surgical certified), eleven per-diem RNs, eleven patient care technicians, and three unit assistants. The process of care starts with admission when admitting nurse and the manager on duty welcome the patient and the family members to the unit. Multidisciplinary rounds occur every morning shift where the team of doctors, together with the primary nurse, case manager, and patient discuss the concerns of the past and the plan of care. At the start of each shift, the staff meets for a huddle to listen to the important announcements and spend few minutes on reflection. The team also has unit committees for falls, safety, best practices, grasp, skin surveillance, policy and procedure committee, wellness, pain management, infection control, and unit based team, who are part of the unit council. These committees meet monthly to review and discuss plans for optimizing patient care and safety. The staff and the management use Yapp (which is a web-based mobile app), staff bulletin board, and monthly newsletter as the means of communication. Unit nurse leaders use direct staff rounding to access the needs of the staff and to emphasize the quality improvement projects of falls and daily ambulation that the unit is focusing.

Kotter's 8-Steps change model is used as a framework to guide in developing mobilization protocol. Kotter provides a systematic 8-Steps change model that starts from

identification of the problem to planning, implementation, evaluation, building successful change and then sustaining it (Kotter, 2014). Creating a mobility protocol is implementing a new practice, and it is important that nursing staff is engaged in current data analysis on ambulation, recognize the problem, do driver diagram analysis and determine the cause, and prepares strategies to address them. Kotter's 8-Steps change model provides a clear path in creating this successful quality practice of mobility protocol (see Appendix I).

Using Kotter's model, a project plan was developed in collaboration with the unit staff who were early adopters of the need for change. The plan included a vision for staff to follow that challenges existing behavior, particularly negative interactions; encouraged staff to contribute to decisions; support access to clinical knowledge and individual skills development, and was designed to sustain efforts through reward and recognition of desired behavior.

The first plan-do-study-act (PDSA) cycle included educating and training PCTs in the correct documentation of ambulation in health connect (see Appendix M). Proper documentation of ambulation in the electronic medical record (EMR) was monitored and validated by the CNL. This process continued for two weeks to establish standardization in the documentation process. The second PDSA cycle included creation of a mobility documentation tool to be used by the PCTs. The plan was that PCT would document patient ambulated during the shift on the paper tool and hand it over to the next shift PCT to continue. The PCTs practiced this process for four weeks. The ambulation score improved but it was observed that the PCTs were spending too much time in documentation as they had to fill the paper tool as well in the electronic medical record. The improvement team decided that since PCT-PCT handoff has become effective, the paper tool could be discontinued to avoid time spent in double documentation. The third PDSA cycle was to train PCTs to use mobility equipment. The plan was to provide every PCT with 30

mins in-service training on how to use various types of mobility equipment and to use them accordingly for the patients needing that equipment. The CNL and the unit's assistant managers observed PCTs using mobility equipment and validated their skills. The PCTs felt confident using the equipment, and the patients felt safe using the equipment. It resulted in great improvement in ambulation score of the unit (see Appendix E, Figure E2).

The unit is moving forward to the standardizing phase of standardize-do-study-act (SDSA) to ensure continuous improvement and create opportunities for employee empowerment. The SDSA cycle starts with determining how the current best practice will be standardized in the daily work of the unit. The CNL will develop and present an education session designed to describe the current performance and evidence-based best practices to reduce the complication of immobility. Data will be obtained from the quality department's MS ambulation statistics, derived from Health Connect audits, and existing electronic data source for all the patients admitted during the day and then calculated to the monthly average.

The current goal of the unit is to implement a revised ambulation protocol to meet the new set target for ambulation of 70% and above by the end of December 2017. The preliminary efforts resulted in improvement in ambulation rates of 54% in 2015 to 68% in 2016. The project charter (see Appendix N) is created to describe the performance improvement rationale, goals, barriers, and anticipated resources to which the team will commit. Building on the success of the initial efforts, the next phase of this project will focus on meeting with the nursing staff and coming up with a unified aim to use best practice to create a revised ambulation protocol designed to increase the patient ambulation rate to 70% and above. The process of this phase will be to create an educational program for the staff (including new hires) in documenting the right level of activities of the patient using Banner Mobility Assessment Tool (BMAT) for nurses (see

Appendix K) upon admission and thereafter assessing it every shift; providing training by super users and physical therapist to use mobility equipment; observations by the CNL to reinforce new practices and therefore support standardization by participating in daily RN-to-RN and RN-to-PCT report at the start of every shift; encouraging nursing staff to inform assistant nurse managers if the patients are not motivated to ambulate so that they can intervene; and to announce previous day's ambulation rate at daily huddle and on the bulletin board to see the daily progress. If SDSA is not working, to meet again with the team to access what is needed to be modified to achieve success.

To evaluate the performance, it is decided that the CNL will do daily chart audits to make sure that patient's current mobility level is documented in Health Connect. Assistant nurse managers will include in their Nurse Knowledge Exchange (NKE) audits RN-to-RN and RN-to-PCT report on patient's mobility, and care board audits during patient rounding to see if the patient's individualized plan includes mobility. The CNL will check daily the ambulation report (MS Ambulation Statistic) sent by the quality department. The report is useful because it contains individualized patient data showing if the patient ambulated during the previous day. If any ambulation intervention is missed, the CNL will audit the patient chart to investigate the shift that patient did not ambulate and talk with that nurse and PCT. The previous day's ambulation score will be announced at daily huddles. There is a commitment made between the management and the team to celebrate short-term wins with the staff. Finally, if successful, to continue building on the change and sustain it.

Timeline

The project was initialized in March 2016 in the medical-surgical unit. The project is in the standardizing and stabilizing stage with more emphasis on early staff education on mobility

and making it as a part of new nurse and patient care technician onboarding checklist. It is expected to be measured and completed by December 2017 (see Appendix F).

Expected result

The mobility project is in the standardizing stage. It is expected that the unit will maintain the patient average ambulation rate to 70% and above by December 2017. The positive outcomes of target ambulation rate can be measured with the patient data in decrease in average length of stay of fewer than three days, and 0% hospital acquired pneumonia.

Nursing relevance

Creating an ambulation program and educating nurses about its positive outcomes on patients will positively impact nurses' knowledge and potentially promote ambulation of patients. It is important for the nurses to understand that patients' ability to ambulate as a structured plan of care to accomplish the ambulation goal. Factors impacting nurses' decision to ambulate patients includes decreasing the perception of risk to mobilize, enhancing opportunities to ambulate, and increasing accountability for ambulating (Doherty-King & Bowers, 2011). It is also important for the nurses to be aware of the importance of including the patient in the mobility plan to promote their day to day activities. Education of nursing staff about ambulation should also include safe patient handling since there is always a risk of staff injury due to improper lifting and transferring, proper documentation, and communication between the team members.

In summary, the review of the literature supports the benefits of mobilizing hospitalized patients and the dangers associated with immobilization. It is important that nursing staffs have knowledge of the dangers of immobility, the importance of mobility, strategies to implement mobility successfully, financial implication of immobility to the organization, and its effect on

patient and family members' satisfaction. This project reiterates the importance of the role of a CNL in the microsystem, such as that of an outcome manager by synthesizing data and knowledge for optimal client outcomes; educator by using right principles and information in educating client and professionals to achieve results; clinician by designing individualizing care for better patient outcomes; and as team manager by delegating and managing the team for success.

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Appendix A

Table A1 Return of investment (ROI)

Description	Calculation per month	Calculation per year
Decrease patient length of stay (LOS).	Expected number of days decrease in a month = 1 day.	Expected number of days decrease in year = 12 days.
Improvement cost	Cost of staff education and training: No. of staff x time x rate per hour. 60 x 0.5 (30 mins) x $65 = $ 1,950.00	Cost of staff education and training in a year: $ 1,950 x 1 = $1,950.00
	Cost for handout material: $450.00	Total cost for handout material: $450.00
		Total annual cost: (1,950 + 450 = $2,400.00)
Calculated revenue (saving per day LOS: $3,500)	Saving per day reduction on LOS: $3,500.00	Total revenue: No. of day reduced LOS in a year x cost per day (12 x 3,500 = $42,000)
Calculated Return of Investment (ROI)		Total revenue – Total cost: (42,000 – 2,400 = $39,600)
		Initial Annual Saving of $39,600.

Appendix B

Table B1 Evaluation Table

PICO question: In hospitalized adult medical-surgical unit (P), creating a mobility culture (I) will increase the unit's ambulation rate and decrease patient's length of stay (O).

Citation	Conceptual Framework	Design / Method	Sample / Setting	Variable studied and their definitions.	Measurement	Data Analysis	Findings	Appraisal: Worth to practice
Stolbrink M, et al. (2014)	None	Randomized control trial (clustered design). Purpose: To determine whether early mobility aided by physiotherapy reduces the incidence of HAP and LOS in patients on medical wards.	Sample: Total N=1179. Intervention N=678. Control N=501. Setting: Two wards (one elderly, one respiratory) received intervention and were compared to control patients on two similar specialty wards at a different hospital. Three hospital sites, Birmingham, UK.	Independent variable: Early Mobility Bundle, and physiotherapy. Dependent variable: HAP and LOS. Criteria: The wards were chosen to attempt matching of patient population. Patients admitted electively or for surgery were excluded from data analysis.	Demographics, comorbidities, LOS, incidence of HAP, and activity level (measured by accelerometer) were collected daily. Monitoring was conducted for 48 h using activity graph. Hospital reporting system were used to back up data collected.	Statistical analysis was conducted using SPSS (version 19) comparing the intervention and control groups. The X^2-test was used for initial analysis of HAP frequency. Mean LOS was compared using Mann-Whitney test.	HAP: the intervention group had lower incidence of HAP (95% CI: 0.22-0.68; P=0.001). LOS: Intervention wards were the lowest LOS quartile (OR: 1.44; 95% CI: 1.09 – 1.89; P=0.009). The study showed that mobility bundle and simple physiotherapy measures can reduce incidence of HAP and LOS.	Strength: real-life design. Large number of patients enrolled in the study. Meets validity and reliability. Limitations: The socio demographics and primary care service differed between two sites. This study can be rated as LII B using the John Hopkins Evidence Based Practice (JHEBP) appraisal tool.
Castelino T, et al (2015)	None	Systematic Review (meta-analysis)	Eight electronic databases to identify studies comparing patients receiving a specific protocol of early mobilization to a control group.	Independent variable: Mobility protocol. Dependent Variables: hospital duration of stay, and postoperative complications.	Studies included in the review with following criteria: (a) adult patients undergoing abdominal or thoracic surgery (b) a specific protocol for early in-hospital mobilization was used as intervention (c) control group receiving no structural mobilization protocol (d)	The review was performed according to PRISMA guidelines.	Almost every study reported length of stay in mobilization group to be significantly shorter.	Strength: 6 RCT's, 1 prospective observational study and 1 retrospective observational study. Limitation: Small number of studies identified. This study is rated as L1 A using the John Hopkins Evidence Based Practice (JHEBP) appraisal tool.

					reported ≥1 of the outcome measure of interest (e) were published in English or French.			
Kailisch B, Lee S, & Dabney B (2014)	None	Systematic Review Purpose: To provide a review of literature related to the outcomes of mobilizing adult patients in acute care settings.	The electronic databases of MEDLINE (Ovid), CINAHL, and PubMed were accessed. After duplicates were removed, 10,528 titles and abstracts were screened for relevance to inpatient mobilization by the authors, of which, 36 studies were selected for inclusion in this review.	36 studies evaluated with quality scores ranged from 7-11. Of the 36 studies, 27 studies tested interventions, of which 26 studies included control groups in their design.	The review was done on studies that met following criteria: (1) empirical research that included a report of outcomes related to inpatient mobilization (2) published in peer review journals between 1999 – 2011 (3) written in English, and (4) whose population consisted of adult inpatients in acute-care hospital settings.	A flowsheet of the search methods is used in determining the articles used in this review. 36 studies were evaluated by the three authors for methodological quality relative to study design, sample size, measurement, and statistical analysis.	The various studies suggested physical benefits of inpatient mobilization, including pain relief, less deep vein thrombosis, less incidence of pneumonia, improved in physical function, quality of life, decrease length of stay, and mortality.	Strength: Of 36 studies, 27 studies received scores of 9-11 which was evaluated as strong, and 9 studies showed moderate quality with scores of 7-8. Limitation: (1) varied sample sizes ranged from 22 – 458 in experimental design studies and from 35 – 532 in nonexperimental design studies. (2) Heterogeneity of samples including patients from stroke, surgery, or ICU units. This study is rated as LV A using the John Hopkins Evidence Based Practice (JHEBP) appraisal tool
Padula CA, et al., (2009)	None	Nonequivalent control group design (Quasi-experimental) Purpose: To determine the impact of a nurse-driven mobility protocol on functional decline in hospitalized older patients.	N=50. Two nursing units served as study units, both were equal in size, cared for similar patient population, and were characterized by similar nursing staff composition. (n=25 each). Setting: The Miriam Hospital, Rhode Island.	Independent variable: mobility protocol within 48 hrs. of admission. Dependent variable: functional status and length of stay. Criteria: Adults 60 years or older admitted with medical diagnoses, LOS of 3 or more days, ability to understand English, without	Demographic data collection sheet to get baseline information. Functional status using modified Barthel Index (BI) and the Up and Go test.	The SigmaStat statistical program used to calculate difference between treatment and control group using inferential statistic.	Functional status scores improved significantly from admission to discharge in the intervention group vs control. Intervention group had significant lower LOS than control (4.96 d treatment vs 8.72 d, P<.001).	Strength: Meets validity, reliability, and applicability criteria. Limitation: Lower functional level of the control group may have been caused by other factors like acuity and disease burden not measured in the study. This study is rated as L II A using the John Hopkins Evidence Based Practice

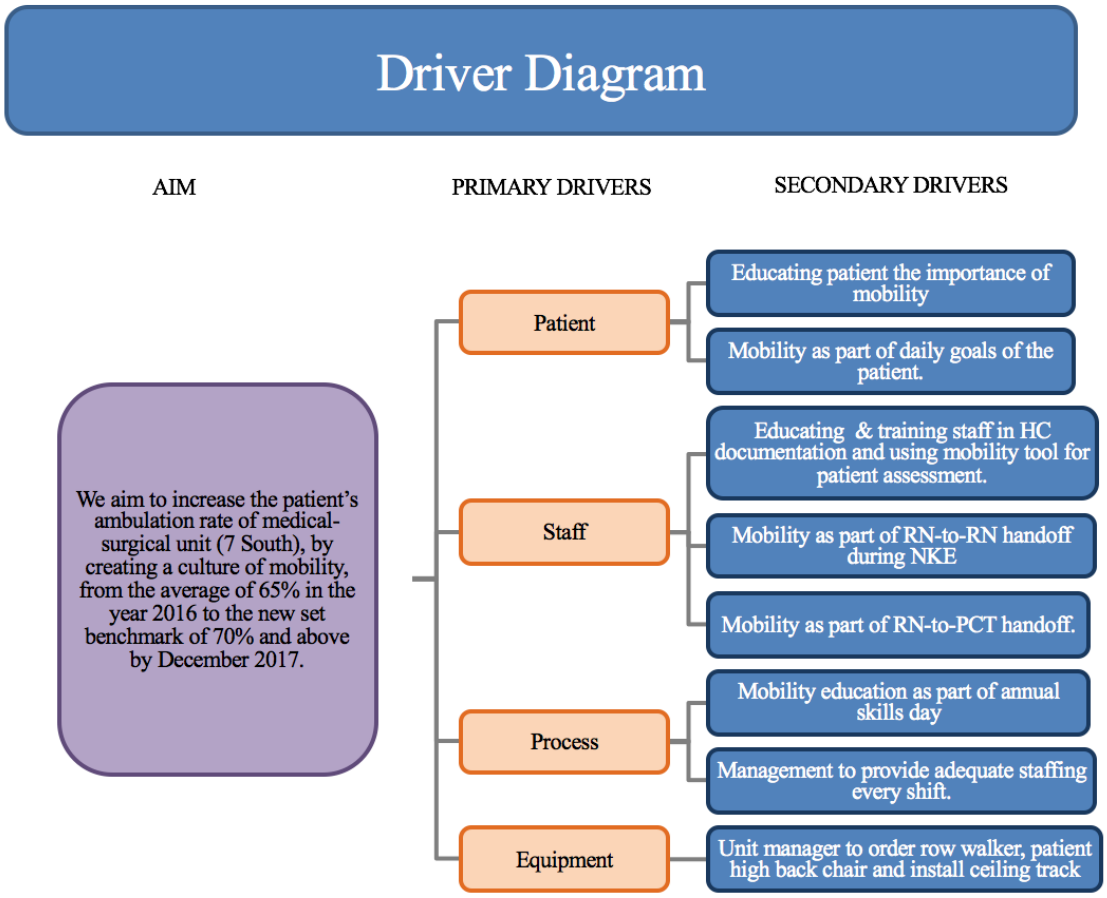
				physical impairment, and cognitively intact and able to participate.				(JHEBP) appraisal tool.
Kalisch B (2006)	None	Qualitative study (focused study group interview).	A total of 107 registered nurses, 15 licensed practical nurse, and 51 nursing assistants working in medical-surgical patient care units were interviewed in 25 focus groups.	The research questions; (a) what nursing care is regularly missed on medical-surgical units in acute care hospitals? (b) what are the reasons nursing staff giving for not completing these aspects of care?	Focus group interview using a semi-structured design.	All interviews were tape-recorded, fully transcribed, and analyzed initially by a research associate. The author then analyzed the interview transcripts independently using NVivo by QRS international, a qualitative analysis software, and applying grounded theory approach by which empirical data are thematically categorized by induction.	The result revealed that important elements of nursing care, like, ambulation is being missed on a regular basis in acute care hospitals on medical-surgical units.	Strength: All interviews were tape-recorded, fully transcribed, and analyzed initially by research associate and then by researcher. Limitation: The study took place in only two facilities. This study is rated as L III A using the John Hopkins Evidence Based Practice (JHEBP) appraisal tool.
Doherty-King, B. & Bowers, B.J. (2013)	None	A qualitative study (descriptive, secondary analysis of data).	The parent study was conducted at two hospitals in south Wisconsin, US. Setting A is a 468-bed hospital and setting B is a 300-bed hospital. Thirteen nurses of the twenty-five nurses' participation were from setting A and the other twelve were from setting B and they had received additional training in care of hospitalized older adults.	A descriptive, secondary analysis of data gathered from prior study which explored how nurses decided whether to ambulate hospitalized older adults.	This analysis focused primarily on nurses' attribution of responsibility for ambulating patients and influence on whether nurses ambulated patients.	Grounded dimensional analysis which combines the key concepts of grounded theory was used. The study focused on a comparison between nurses who claim ambulation as a specific responsibility within the domain of nursing and those who see ambulation as important while attributing responsibility to other practitioners.	Result of this study suggest that when nurses claim responsibility for ambulating patients, they collaborate with physical therapy to promote progression of patient mobility, keep physicians on track with accurate activity orders, and engage patients in ambulation. In contrast, when nurses attribute the responsibility to others they are more likely to wait and not engage	Limitation: The study was a secondary analysis so conducting theoretical sampling to recruit participants to fill in gaps in analysis was not possible. This study is rated as L III B using the John Hopkins Evidence Based Practice (JHEBP) appraisal tool.

							patients in ambulation unless directed.	

Note: HAP: Hospital acquired pneumonia, LOS: Length of stay.

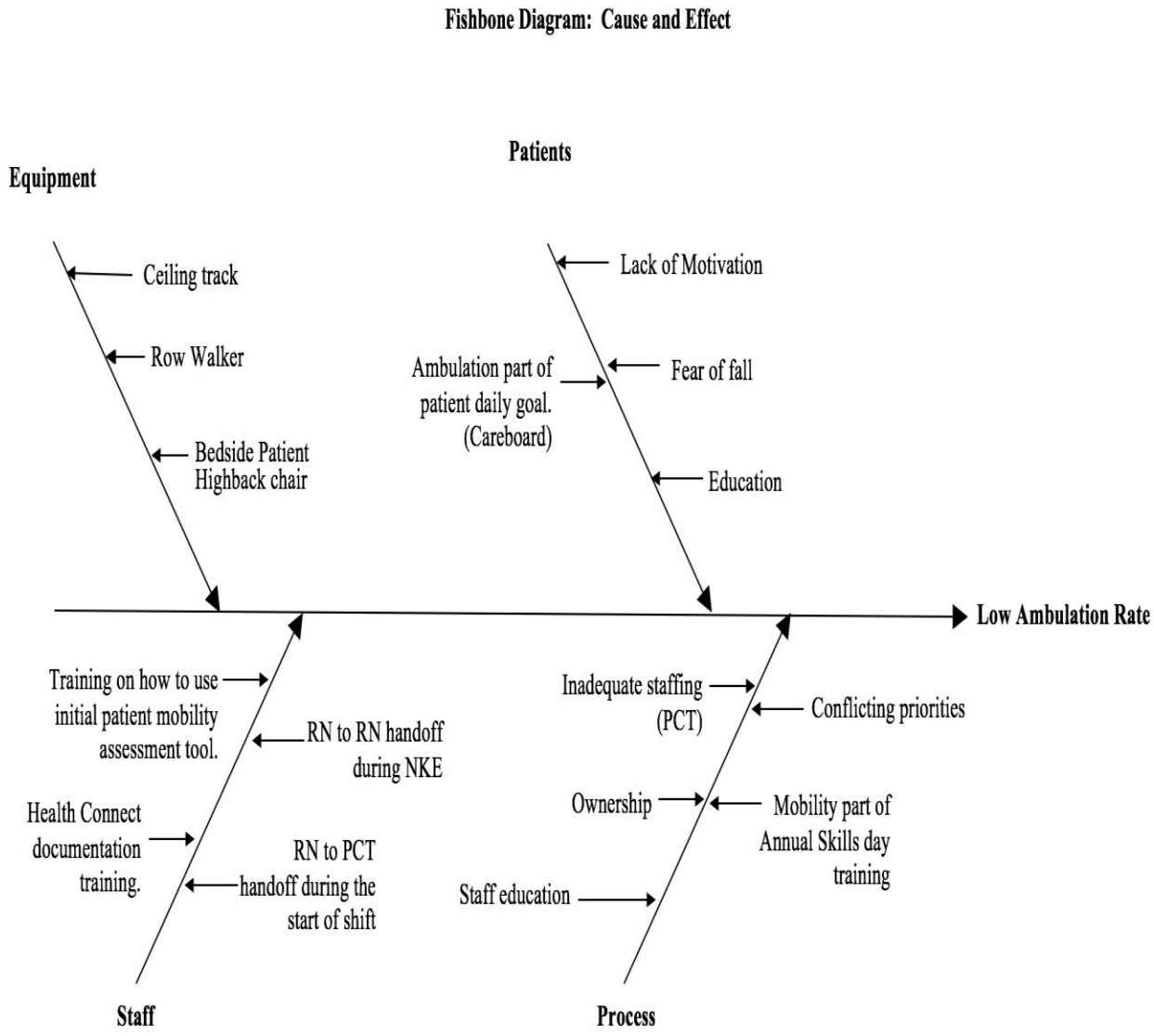
Appendix C

Figure C1 Driver Diagram



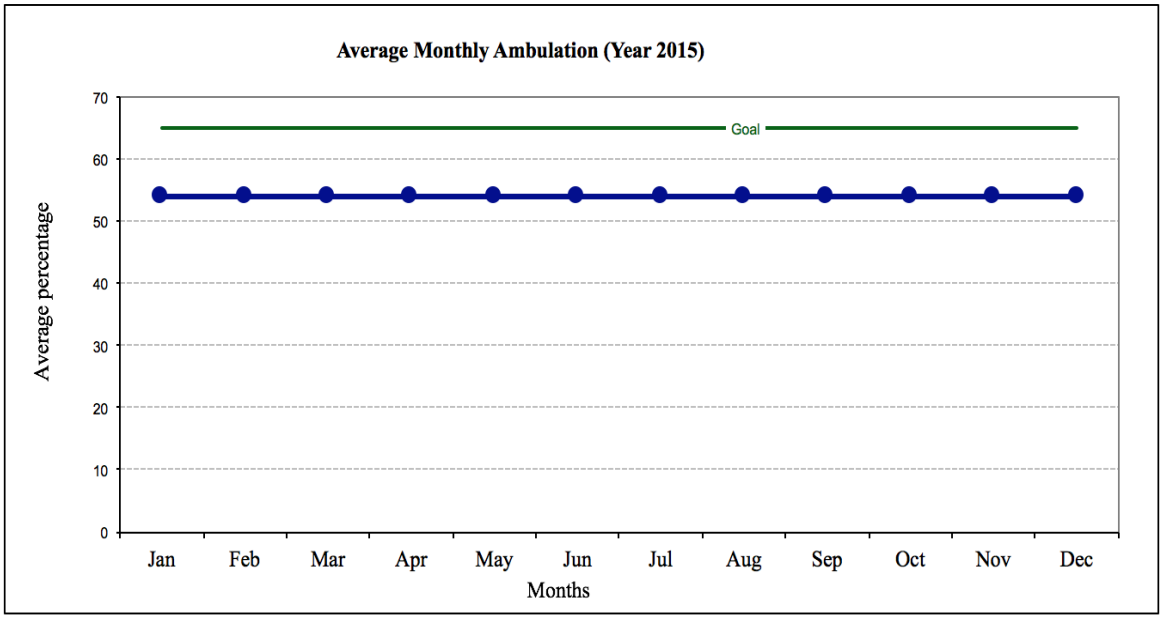
Appendix D

Figure D1 Cause and Effect



Appendix E

Figure E1 Run Chart Year 2015



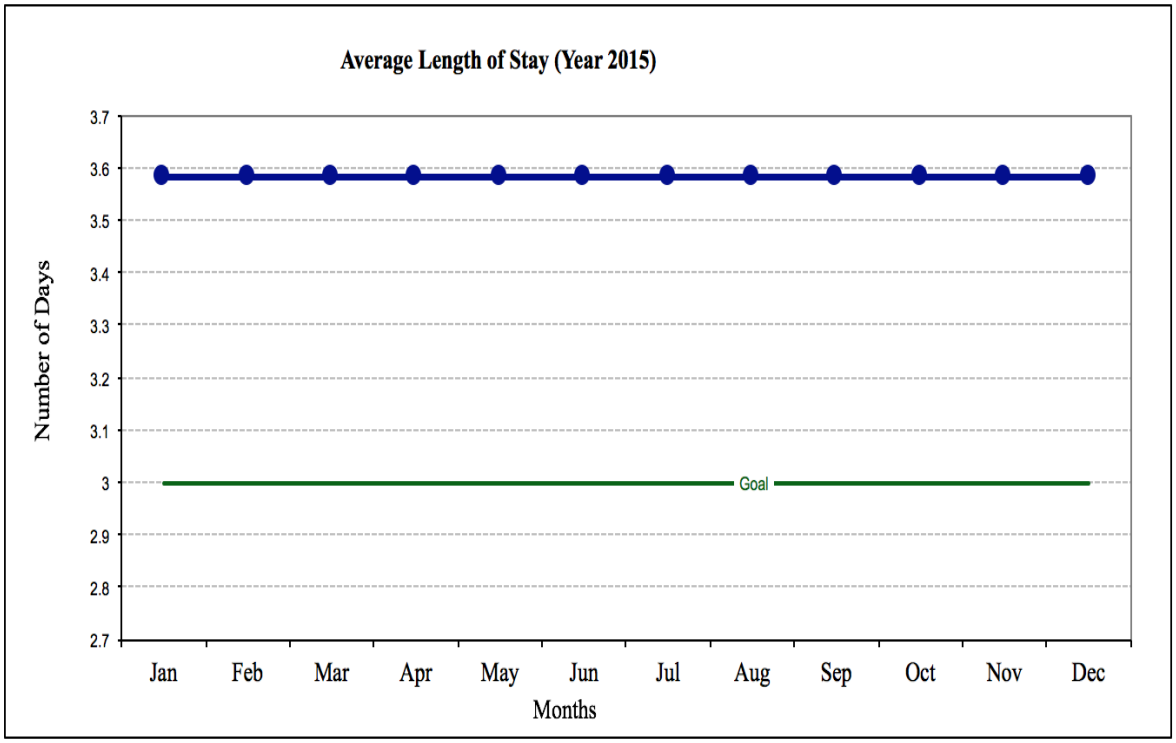
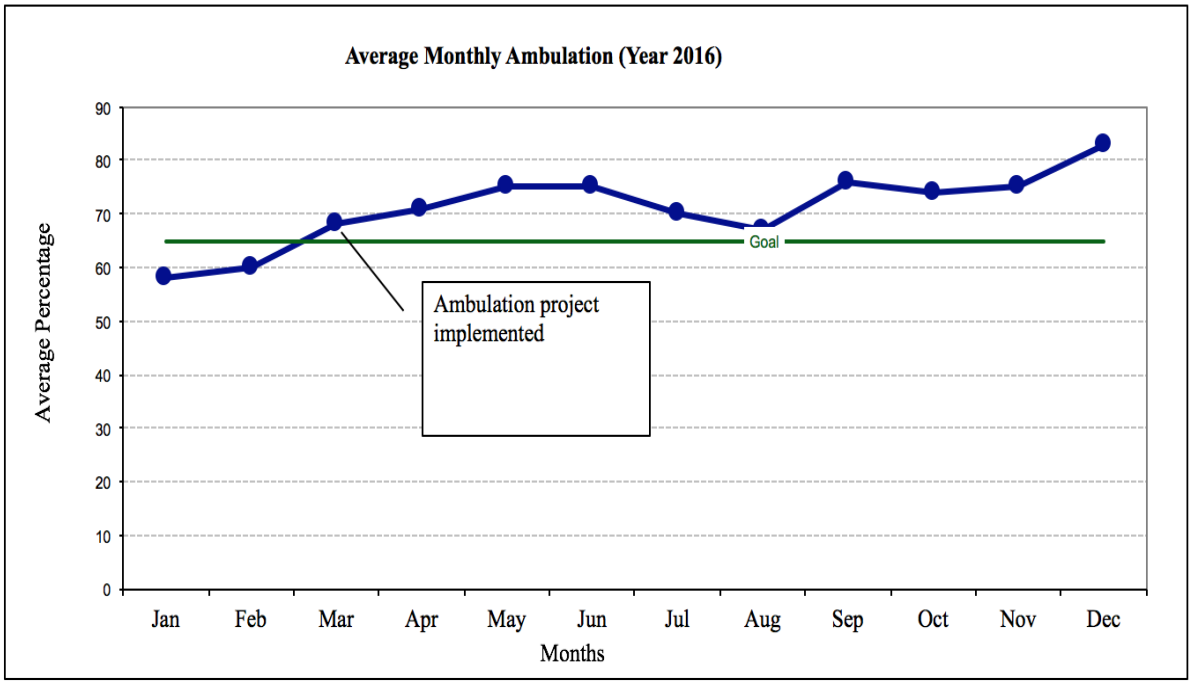
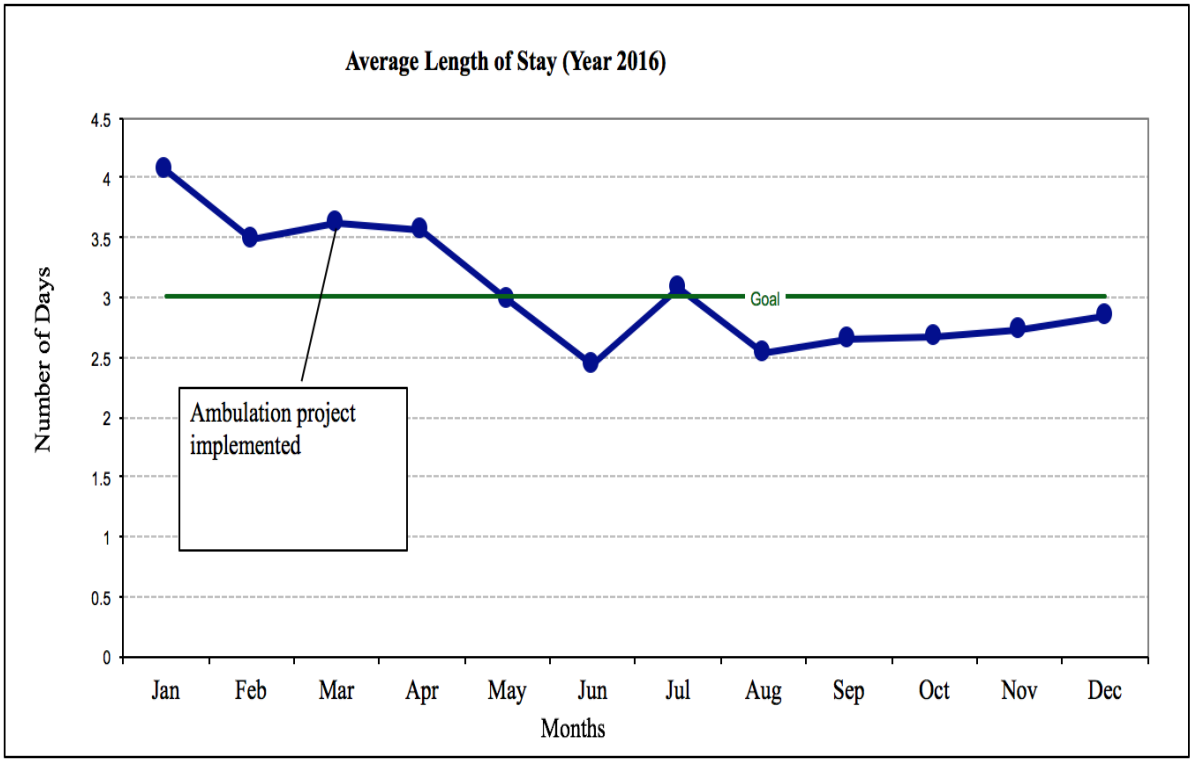


Figure E2 Run Chart Year 2016





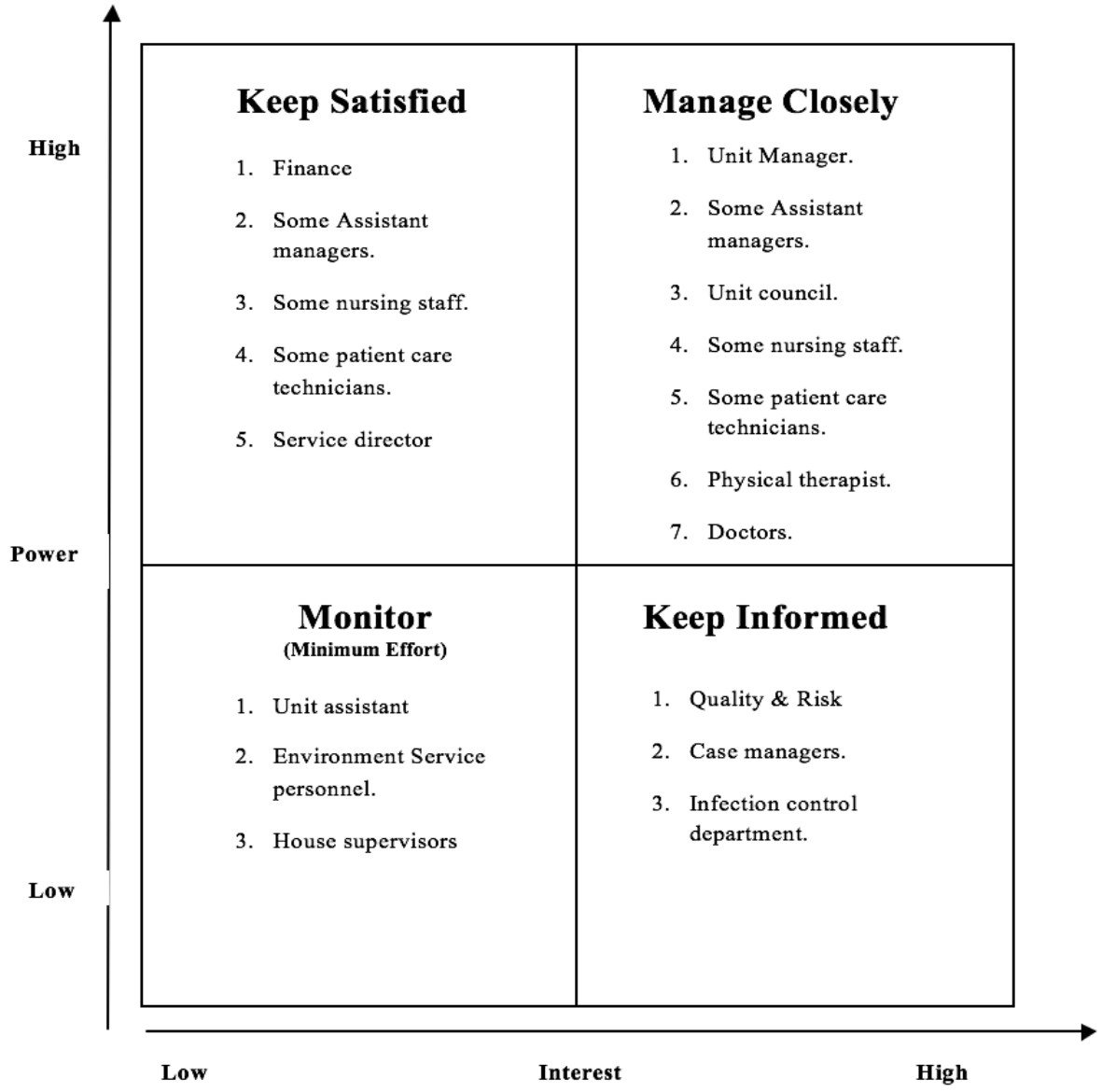
Appendix F

Figure F1 Project Timeline for 2017

Description	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**
Microsystem Assess.								
Define topic								
Aim Statement								
Background								
Measurement Strategy								
Charter-Team								
Sponsor								
Unit presentation								
Changes to test								
Driver diagram								
Start Charter								
Collect Data								
Finalize Charter								
Final Presentation								

Appendix G

Figure G1 Stakeholder analysis



Appendix H

Figure H1 Strengths, weaknesses, opportunities, and threats (SWOT) Analysis

STRENGTHS

- Teamwork and collaboration among RNs and PCTs.
- Willingness to learn.
- Result oriented staff.
- Nurse leaders support
- Data readily available
- Major equipment available.
- Support from Physical Therapists.

WEAKNESSES

- Medical devices, such as drains, chest tubes, and IV lines.
- Staffing inadequacy.
- Not enough patient chair in patient rooms.
- Staff fear of patient falling.
- Lack of patient motivation.
- Frequent float RN and PCTs.

OPPORTUNITIES

- Education
- Increased accountability and responsibility of staff
- Bringing awareness.
- Increased patient-centered care and quality of care
- Increased patient and staff satisfaction
- Making mobility as the unit's culture.

THREATS

- Noncompliance
- Patient falls
- Increase in HAPU
- Missing care of total care patients.

Appendix I

Figure I1 Change Theory

Appendix J

Figure J1 Patient Care Technician (PCT) Tool

Room No.	Bath / Foley		Ambulation		Out of Bed		CHG		Turn Q2H		Belonging List	
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
7406												
7407												
7408 A												
7408 B												
7409 A												
7409 B												
7413 A												
7413 B												
7414												
7416												
7417												
7419												
7421												
7424												
7425												
7427												
7428												
7431												
7432												
7442 A												
7442 B												
7443												
7444 A												
7444 B												
7445												
7447												

Appendix K

Figure K1 Banner Mobility Assessment Tool (BMAT) for Nurses

Banner Mobility Assessment Tool for nurses

Nurses have found that the Banner Mobility Assessment Tool (BMAT) is an effective resource for performing a bedside assessment of patient mobility.

Test	Task	Response	Fail = Choose most appropriate equipment/device(s)	Pass
Assessment Level 1 Assessment of: • Trunk strength • Seated balance	**Sit and shake:** From a semi-reclined position, ask patient to sit upright and rotate* to a seated position at side of bed; *may use bedrail.* Note patient's ability to maintain bedside position. Ask patient to reach out and grab your hand and shake, making sure patient reaches across his/her midline.	**Sit:** Patient is able to follow commands, has some trunk strength; caregivers may be able to try weight-bearing if patient is able to maintain seated balance longer than 2 minutes (without caregiver assistance). **Shake:** Patient has significant upper body strength, awareness of body in space, and grasp strength.	**MOBILITY LEVEL 1** • Use total lift with sling and/or repositioning sheet and/or straps. • Use lateral transfer devices, such as roll board, friction-reducing device (slide sheets/tube), or air-assisted device. ***Note:** If patient has **strict bed rest or bilateral non-weight-bearing** restrictions, **do not proceed** with the assessment; **patient is MOBILITY LEVEL 1.***	Passed Assessment Level 1 = Proceed with Assessment Level 2.
Assessment Level 2 Assessment of: • Lower extremity strength • Stability	**Stretch and point:** With patient in seated position at side of bed, have patient place both feet on floor (or stool) with knees no higher than hips. Ask patient to stretch one leg and straighten knee, then bend ankle/flex and point toes. If appropriate, repeat with other leg.	Patient exhibits lower extremity stability, strength and control. **May test only one leg and proceed accordingly (e.g., stroke patient, patient with ankle in cast).**	**MOBILITY LEVEL 2** • Use total lift for patient unable to weight- bear on at least one leg. • Use sit-to-stand lift for patient who can weight-bear on at least one leg.	Passed Assessment Level 2 = Proceed with Assessment Level 3.
Assessment Level 3 Assessment of: • Lower extremity strength for standing	**Stand:** Ask patient to elevate off bed or chair (seated to standing) using assistive device (cane, bedrail). Patient should be able to raise buttocks off bed and hold for a count of five. May repeat once. *Note:* Consider your patient's cognitive ability, including orientation and CAM assessment if applicable.	Patient exhibits upper and lower extremity stability and strength. **May test with weight-bearing on only one leg and proceed accordingly (e.g., stroke patient, patient with ankle in cast).** **If any assistive device (cane, walker, crutches) is needed, patient is Mobility Level 3.**	**MOBILITY LEVEL 3** • Use non-powered raising/stand aid; *default to powered sit-to-stand lift if no stand aid is available.* • Use total lift with ambulation accessories. • Use assistive device (cane, walker, crutches). *Note:* Patient passes Assessment Level 3 **but requires assistive device** to ambulate or **cognitive assessment** indicates poor safety awareness; ***patient is MOBILITY LEVEL 3.***	Passed Assessment Level 3 **AND no assistive device needed** = Proceed with Assessment Level 4. ***Consult with physical therapist when needed and appropriate.***
Assessment Level 3 Assessment of: • Standing balance • Gait	**Walk:** Ask patient to march in place at bedside. Then ask patient to advance step and return each foot. Patient should display stability while performing tasks. Assess for stability and safety awareness.	Patient exhibits steady gait and good balance while marching and when stepping forward and backward. Patient can maneuver necessary turns for in-room mobility. Patient exhibits safety awareness.	**MOBILITY LEVEL 3** If patient shows signs of unsteady gait or ***fails* Assessment Level 4**, refer back to **MOBILITY LEVEL 3; *patient is MOBILITY LEVEL 3.***	**MOBILITY LEVEL 4** MODIFIED INDEPENDENCE **Passed = No assistance needed to ambulate;** use your best clinical judgment to determine need for supervision during ambulation.

Always default to the safest lifting/transfer method (e.g., total lift) if there is any doubt about the patient's ability to perform the task.

Appendix L

Figure L1 Johns Hopkins Research Evidence Appraisal Tool

Johns Hopkins Nursing Evidence-Based Practice
Appendix E: Research Evidence Appraisal Tool

Evidence Level and Quality:_____

Article Title:		Number:	
Author(s):		Publication Date:	
Journal:			
Setting:	Sample (Composition & size):		
Does this evidence address my EBP question?	☐Yes	☐No Do not proceed with appraisal of this evidence	
Level of Evidence (Study Design)			
A. Is this a report of a single research study? ***If No, go to B.***		☐Yes	☐No
1. Was there manipulation of an independent variable?		☐Yes	☐No
2. Was there a control group?		☐Yes	☐No
3. Were study participants randomly assigned to the intervention and control groups?		☐Yes	☐No
If Yes to all three, this is a Randomized Controlled Trial (RCT) or Experimental Study →	☐ LEVEL I		
If Yes to #1 and #2 and No to #3, OR Yes to #1 and No to #2 and #3, this is Quasi Experimental (some degree of investigator control, some manipulation of an independent variable, lacks random assignment to groups, may have a control group) →	☐ LEVEL II		
If No to #1, #2, and #3, this is Non-Experimental (no manipulation of independent variable, can be descriptive, comparative, or correlational, often uses secondary data) **or Qualitative** (exploratory in nature such as interviews or focus groups, a starting point for studies for which little research currently exists, has small sample sizes, may use results to design empirical studies) →	☐ LEVEL III		
NEXT, COMPLETE THE BOTTOM SECTION ON THE FOLLOWING PAGE, "STUDY FINDINGS THAT HELP YOU ANSWER THE EBP QUESTION"			

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Johns Hopkins Nursing Evidence-Based Practice
Appendix E: Research Evidence Appraisal Tool

B. Is this a summary of multiple research studies? ***If No, go to Non-Research Evidence Appraisal Form.***		☐Yes	☐No
1. Does it employ a comprehensive search strategy and rigorous appraisal method (**Systematic Review**)? ***If No, use Non-Research Evidence Appraisal Tool; if Yes:***		☐Yes	☐No
a. Does it combine and analyze results from the studies to generate a new statistic (effect size)? (**Systematic review with meta-analysis**)		☐Yes	☐No
b. Does it analyze and synthesize concepts from qualitative studies? (**Systematic review with meta-synthesis**)		☐Yes	☐No
If Yes to either a or b, go to #2B below.			
2. For Systematic Reviews and Systematic Reviews with meta-analysis or meta-synthesis:			
a. Are all studies included RCTs? →	☐ LEVEL I		
b. Are the studies a combination of RCTs and quasi-experimental or quasi-experimental only? →	☐ LEVEL II		
c. Are the studies a combination of RCTs, quasi-experimental and non-experimental or non-experimental only? →	☐ LEVEL III		
d. Are any or all of the included studies qualitative? →	☐ LEVEL III		
COMPLETE THE NEXT SECTION, "STUDY FINDINGS THAT HELP YOU ANSWER THE EBP QUESTION"			

STUDY FINDINGS THAT HELP YOU ANSWER THE EBP QUESTION:

NOW COMPLETE THE FOLLOWING PAGE, "QUALITY APPRAISAL OF RESEARCH STUDIES", AND ASSIGN A QUALITY SCORE TO YOUR ARTICLE

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Johns Hopkins Nursing Evidence-Based Practice
Appendix E: Research Evidence Appraisal Tool

Quality Appraisal of Research Studies			
• Does the researcher identify what is known and not known about the problem and how the study will address any gaps in knowledge?	☐Yes	☐No	
• Was the purpose of the study clearly presented?	☐Yes	☐No	
• Was the literature review current (most sources within last 5 years or classic)?	☐Yes	☐No	
• Was sample size sufficient based on study design and rationale?	☐Yes	☐No	
• If there is a control group:			
○ Were the characteristics and/or demographics similar in both the control and intervention groups?	☐Yes	☐No	☐NA
○ If multiple settings were used, were the settings similar?	☐Yes	☐No	☐NA
○ Were all groups equally treated except for the intervention group(s)?	☐Yes	☐No	☐NA
• Are data collection methods described clearly?	☐Yes	☐No	
• Were the instruments reliable (Cronbach's α [alpha] ≥ 0.70)?	☐Yes	☐No	☐NA
• Was instrument validity discussed?	☐Yes	☐No	☐NA
• If surveys/questionnaires were used, was the response rate ≥ 25%?	☐Yes	☐No	☐NA
• Were the results presented clearly?	☐Yes	☐No	
• If tables were presented, was the narrative consistent with the table content?	☐Yes	☐No	☐NA
• Were study limitations identified and addressed?	☐Yes	☐No	
• Were conclusions based on results?	☐Yes	☐No	

Quality Appraisal of Systematic Review with or without Meta-Analysis or Meta-Synthesis		
• Was the purpose of the systematic review clearly stated?	☐Yes	☐No
• Were reports comprehensive, with reproducible search strategy?	☐Yes	☐No
○ Key search terms stated	☐Yes	☐No
○ Multiple databases searched and identified	☐Yes	☐No
○ Inclusion and exclusion criteria stated	☐Yes	☐No
• Was there a flow diagram showing the number of studies eliminated at each level of review?	☐Yes	☐No
• Were details of included studies presented (design, sample, methods, results, outcomes, strengths and limitations)?	☐Yes	☐No
• Were methods for appraising the strength of evidence (level and quality) described?	☐Yes	☐No
• Were conclusions based on results?	☐Yes	☐No
○ Results were interpreted	☐Yes	☐No
○ Conclusions flowed logically from the interpretation and systematic review question	☐Yes	☐No
• Did the systematic review include both a section addressing limitations and how they were addressed?	☐Yes	☐No

QUALITY RATING BASED ON QUALITY APPRAISAL

A **High quality:** consistent, generalizable results; sufficient sample size for the study design; adequate control; definitive conclusions; consistent recommendations based on comprehensive literature review that includes thorough reference to scientific evidence

B **Good quality:** reasonably consistent results; sufficient sample size for the study design; some control, and fairly definitive conclusions; reasonably consistent recommendations based on fairly comprehensive literature review that includes some reference to scientific evidence

C **Low quality or major flaws:** little evidence with inconsistent results; insufficient sample size for the study design; conclusions cannot be drawn

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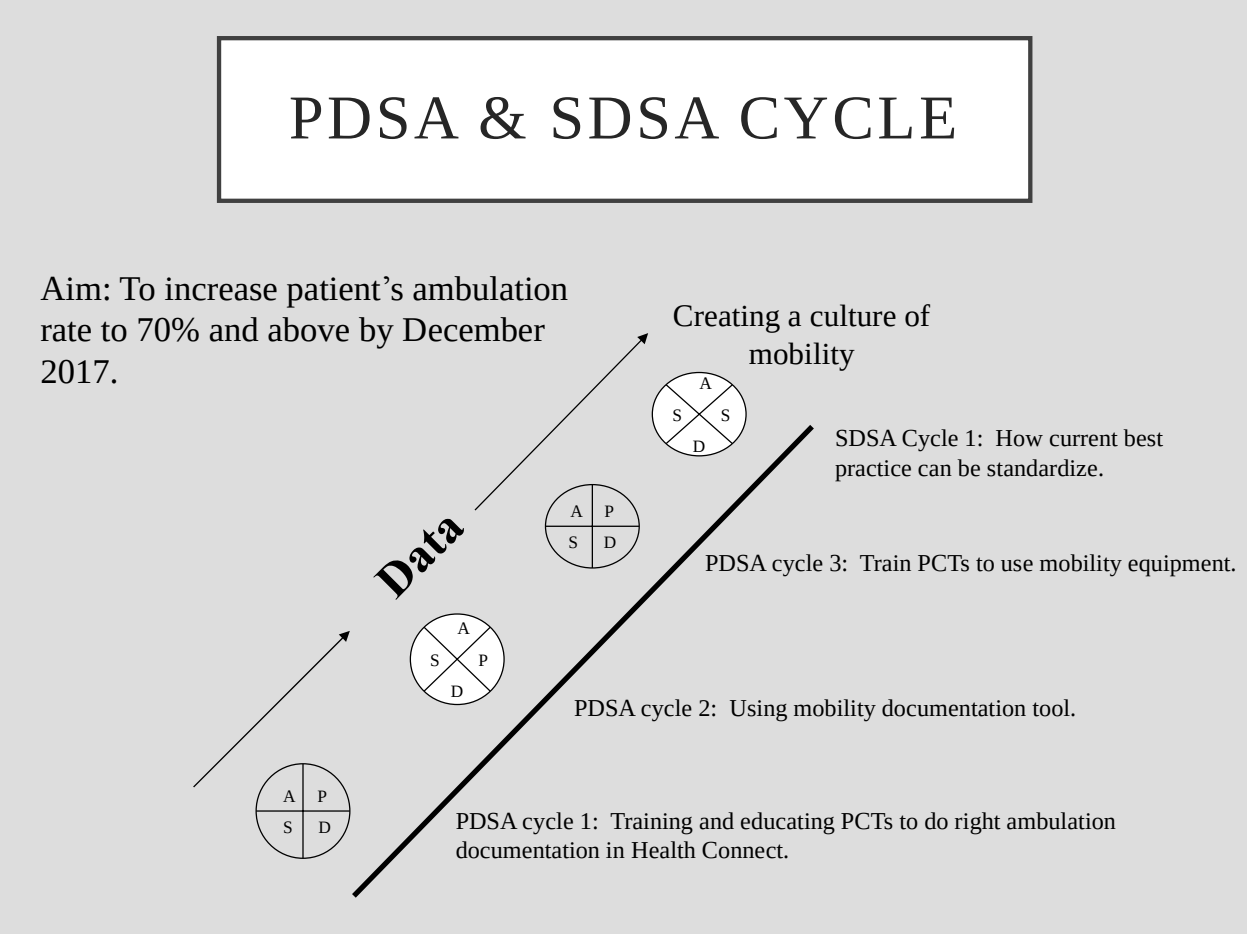
Appendix M

Figure M1 PDSA and SDSA cycle



Appendix N

Figure N1 Project Charter

Introduction

The mission statement of medical-surgical unit (7-South) is “Highest level of care” that aligns with the mission of the organization, which is to provide high-quality, affordable health care services and to improve the health of its members and the communities it serves. While performing the micro-system assessment of the unit, it was discovered that the average age distribution of patient admitted is 12% for patients in the range of 19 - 50 years of age, 26% in the range of 51 – 65 years of age, 28% in the range of 66 – 75% years of age, and 34% in the range of 76 and above years of age. The primary diagnosis of patients on the unit includes: pneumonia, CHF, altered mental status, COPD, sepsis, dementia, GI bleed, alcohol withdrawal, comfort care, and acute renal failure. The average length of stay of the patients is between three to four days and the census per day is between 23 – 26 patients. Patients of this unit are discharged to a variety of settings that include home (32%), home with home health nurse and physical therapist (28%), skilled nursing facility (30%), and other hospitals and rehab centers (10%).

The unit currently has a total of 70 staff members that include 45 full-time and part-time RNs (of which three are MSN, forty are BSN, two are ADN, and four medical-surgical certified), eleven per-diem RNs, eleven patient care technicians, and three unit assistants. The process of care starts with admission when admitting nurse and the manager on duty welcome the patient and the family members to the unit. Multi-disciplinary rounds occur every morning shift where the team of doctors, together with the primary nurse, case manager, and patient discuss the

concerns of the past and the plan of care. Discharge process is done in coordination with the case manager.

At the start of each shift, every working team member meets for a huddle to listen to the important announcements and spend few minutes on reflection. The team also has unit committees for falls, safety, best practices, grasp, skin surveillance, policy and procedure committee, wellness, pain management, infection control, and unit base team, who are part of the unit council. These committees meet monthly to review and discuss plans for optimizing patient care and safety. The staff and the management use Yapp (which is a web-based mobile app), staff bulletin board, and monthly newsletter as the means of communication. Unit nurse leaders use direct staff rounding to access the needs of the staff and to emphasize the quality improvement projects of falls and daily ambulation that the unit is focusing.

Improvement Theme

The improvement theme is based on the IHI's quadruple aim: improving the patient experience of care (early mobility will help patient with speedy recovery, reduce length of stay (LOS), and prevent hospital acquired infection (HAI); reducing the per capita cost of health care (the project will result in saving from reduced LOS, early recovery, and patient's satisfaction), improve the care and experience of the providers as a happy and satisfied patient and family results in happy staff bringing meaning to what they do in the health care field.

Global Aim

The medical-surgical unit (7 South) aim to improve the patient ambulation score for patients on the unit. The process begins with mobility assessment of the patient upon admission in the unit. The process ends by ensuring patient ambulation as appropriate to maintain and restore the patient to the highest level of mobility. By working on this process, we expect (1) to reduce physical outcomes that include fatigue, pain, deep vein thrombosis, etc.; (2) to improve psychological outcomes that include depression, satisfaction, anxiety, and comfort; and (3) to support social outcomes that includes independence and quality of life. It is important to work on the project as we have identified that it improves (1) length of stay, (2) patient and family satisfaction, (3) reduce cost per admission, (4) mortality rate, and (5) staff satisfaction.

Specific Aim

We aim to increase the patients' ambulation rate of medical-surgical unit (7 South), by creating a culture of mobility, from the average of 65% in the year 2016 to the new set benchmark of 70% and above by December 2017.

Background

Prolonged immobilization of patients results in functional decline, increases the risk of hospital-acquired pneumonia (HAP), and length of stay (LOS) (Drolet et al., 2013; Pashikanti & Von Ah, 2012; Stolbrink et al., 2014). In postoperative surgery patients, there is convincing evidence that suggests that patients should not be kept in bed after surgery and early mobilization is a key to better patient outcomes (Castelino et al., 2016). Ambulation, as a part of the nursing care for the hospital patient, has often been overlooked and has been identified as a missed component of care (Kalisch BJ, 2006). Early ambulation is one of the most effective nursing care interventions to prevent complications of immobility that can begin within twenty-four hours of a patient's hospitalization (Pashikanti & Von Ah, 2012). The development of standards of care for mobility in hospitalized adults results in positive patient outcomes (Padula, Hughes, & Baumhover, 2009). The unit had the average ambulation score of 54% in the year 2015, and an average score of 68% in 2016.

Clinical Problem

The review of the literature provides convincing evidence that creating a mobility protocol, that helps to mobilize patients early during their admission, can reduce the incidence of HAI and improving LOS in medical patients. Using Kotter's 8-Steps change model, the Clinical Nurse Leader (CNL), as a change agent and outcomes manager, will develop and present an education session designed to describe the present performance and evidence based best practices to reduce the complication of immobility.

An individual goal for various stakeholders to resolve barriers to mobilization is agreed upon with clear role expectations. A revised mobilization protocol will be created with at least 80% buy-in from all the stakeholders, which include unit managers, nursing staff, physical therapist, and patient care technicians. The team needs to be convinced that change is necessary and will be assured of strong leadership and visible support from everyone. A clear vision will be created with the understanding of 'why' ambulation is important. A target percentage of daily ambulation rate of 70% and greater will be agreed upon. To evaluate the performance, daily ambulation score will be announced at the following day huddles. Commitment to celebrate short-term wins with the staffs will be assured. Finally, if successful, to continue building on the change and sustain it.

Family of Measures

Measures	Data source	Target
<u>Outcome measure</u> • Monthly average percentage of in-patient ambulation.	Quality Department: MS Ambulation Statistics.	70% and above
• Monthly Hospital-acquired pneumonia (HAP).	Quality Department (existing automated data source)	0%
• Monthly average length of stay (LOS) of a patient in the unit	Quality Department (existing automated data source)	≤ 3 days
<u>Process measures</u> • Patient assessed for the level of ambulation during admission and thereafter every shift by primary RN.	Health Connect Audit	100%
• Previous day's ambulation rate.	Quality Department: MS Ambulation Statistics.	70% and above.
<u>Balancing measure</u> • Number of patient fall and hospital-acquired pressure ulcer (HAPU) per month.	Quality Department (existing automated data source)	0%

Team Composition & Sponsors

Manager, Assistant Nurse Mangers, nurses, physical therapist, and patient care technicians (PCT).

Population criteria

Medical-surgical patient admitted to the medical-surgical unit (7-south).

Measurement Strategy

Data will be obtained from Quality department's MS Ambulation Statistics, Health Connect audit, and existing automated data source for all the patients admitted during the day and then calculated to the monthly average.

Data definition

Data element	Definition
Ambulation	Patient activity three times a day to the level or more as recorded on health connect during admission.
Hospital-acquired pneumonia (HAP)	Patient developing pneumonia ≥ 48 hours after admission.
Length of stay	The average length of stay of the patient in the unit per month.
Falls	The number of patients falls/day.
Hospital-acquired pressure ulcer (HAPU)	The number of patients developed pressure sore after 24 hours of admission in the unit

Measure description

Measure	Measure definition	Data collection source	Goal
Ambulation	Percentage of patient ambulated per day	Quality Department: MS Ambulation Statistics	65%
RN-PCT documentation	N= number of activity level documented. D= number of patients assigned	Health Connect Audit	100%
Hospital-acquired pneumonia (HAP)	The number of patients acquired pneumonia during their stay in unit per day.	Quality Department: Existing automated data source	0
Length of stay (LOS)	Average length of stay of patients in the unit	Quality Department: Existing automated data source	≤ 3 days
Falls	The number of patients fall per day in the unit.	Quality Department: Existing automated data source	0
Hospital-acquired pressure ulcer (HAPU)	The number of patients developed pressure sore after 24hrs of admission in the unit.	Quality Department: Existing automated data source	0

Recommendations for changes

The current goal of the unit is to implement a revised ambulation protocol to meet the new set target for ambulation of 70% and above by the end of December 2017. The preliminary efforts resulted in improvement in ambulation rates of 54% in 2015 to 68% in 2016. Building on the success of the initial efforts, the next phase of this project will focus on meeting with the nursing staff and coming up with a unified aim to use best practice to create a revised ambulation protocol to help to increase the patient ambulation rate to 70% and above. The process of this phase will be to create an educational program for the staff (including new hires) in documenting the right level of activities of the patient, using mobility tool, upon admission and thereafter assessing it every shift; provide training by super users and physical therapist to use mobility equipment; CNL to observe mobility being part of daily RN-to-RN and RN-to-PCT report at the start of every shift; encourage nursing staff to inform assistant nurse managers if the patients are not motivated to ambulate so that they can intervene; and to announce previous day's ambulation rate at daily huddle and on the bulletin board to see the daily progress. If the small test of change is not effective, to meet again access what is needed to be modified to achieve success.

Lessons Learned

- To be successful in today's healthcare delivery system, a leader needs to actively pursue collaboration with peers and other healthcare professionals.
- Servant leader delegates authority to engage staff, praises and celebrates staff successes, focuses on staff not self, provides opportunities for staff development and learning, and is committed to the organization.
- Before implementing a solution and changing a process, it is important to understand the current system by using microsystem assessment tool.
- We cannot implement whole system change without testing and measuring small incremental changes.
- A good aim statement can help to motivate people about the project as being something measurable and achievable.
- Once you start the project, it is important to maintain the relationship and engagement with the team by having meetings with a purpose, actions and outcomes of the project.
- Collecting data is important as it tells whether we are making progress or not.

CNL Competencies

The clinical nurse leader accesses the current microsystem and researches evidence-based outcomes to identify specific areas of improvement in a microsystem. The CNL then applies various strategies for implementing the desired change process that will result in achieving the desired quality and patient outcomes. Some of the key CNL competencies utilized in this project are of:

- Clinician: designing and coordinating individualized care for better patient outcomes.
- Outcome Manager: synthesizing data and knowledge for optimal client outcomes.
- Educator: using right principles and information in educating client and professionals to achieve results.
- Information manager: by using information system and putting knowledge at the point of care.
- Risk anticipator: by doing system review to improve quality of client care delivery.
- Team manager: able to delegate and manage the team for success.