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Improving Leadership Communication In Nurse-Physician Dyad Teams

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IMPROVING LEADERSHIP COMMUNICATION IN NURSE-PHYSICIAN DYAD TEAMS

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DEDICATION

To Jesus Christ who is the head of my life whom I depend on for everything and I am nothing without. To my husband Larry, who has consistently been flexible to do whatever it takes to make this a reality for me every step of the way. I am thankful for you from the bottom of my heart. To my princess Lydia, this is especially for you as a reminder that you can accomplish anything you set your mind to. Don't ever give up or compromise your values. To my family, thank you for being there and encouraging me along this journey. Your support and love has made the difference. To my church family, thank you for your prayers and support. You are my inspiration. To my work family, you are the best team ever. "What you permit, you promote."

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ABSTRACT

Background: Changes in the delivery of healthcare services in the United States have been driven by cost containment over the last 20 years. To have a thriving organization within the current healthcare environment, nurses and physicians need to closely collaborate. As healthcare organizations prepare for the value-based era, new leadership models need to be implemented. This project addressed collaboration between nurse and physician leaders with a focused communication strategy to improve team performance, engagement, and quality outcomes in the acute care setting.

Method: A quality improvement project was designed to improve communication between front line team members and the dyad leadership team. The dyad leaders conducted weekly rounds with front line staff using a standardized lean quality improvement tool that supported leaders in improving engagement, coaching, and accountability, thereby improving patient outcomes. Pre- and post-intervention leadership capabilities self-assessment was completed by the dyad leaders. Team members completed a post-intervention engagement question. Data were analyzed using descriptive statistics and control charts.

Results: The results indicated that the physician leaders performed some independent coaching but required increased nurse leader support due to underdeveloped relationships with team members and inexperience with coaching. Physician leaders reported beginning levels of leadership competencies and understanding of organizational

culture compared to nurse leaders. Despite necessary interdependence, both physicians and nurses have limited insight into one another's unique roles. All team members in all three unit reported either strongly agree or always with dyad leader engagement. Team members reported an increased awareness of expectations, self-confidence, and skill level.

Conclusion: Dyad leaders need ongoing concurrent professional development to lead and build high performing teams and improve patient outcomes. Dyad leadership models can be instrumental in improving collaboration, communication, and clinical outcomes.

Implications: Joint (dyad) leader rounding should include: concurrent standardized education, weekly rounding, real-time coaching, standardized change process, and empowerment to hold individuals accountable. Dyad leaders must effectively communicate goals and expectations to promote engagement and accountability. Dyad leaders should continuously collaborate, build relationships with key stake holders, and facilitate interprofessional communication to improved outcomes for patients.

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LIST OF ABBREVIATIONS

ACE..... Acute Care for the Elderly

ACU .....Accountable Care Unit

CAUTI ..... Catheter Associated Urinary Tract Infection

CLABSI ..... Central Line Associated Blood Stream Infection

EBP ..... Evidence Base Practice

FTE ..... Full Time Equivalent

FY ..... Fiscal Year

HIM..... Hospital Internal Medicine

IHI .....Institute for Healthcare Improvement

IRB..... Institutional Review Board

K-Card..... Kamishibai Card

MeSH ..... Medical Subject Headings

MSS.....Medical Surgical Specialties

NICHE ..... Nursing Improving Care for Health System Elderly

PDSA ..... Plan-Do-Study-Act

PU ..... Pressure Ulcer

QI ..... Quality Improvement

SIBR.....Structured Interdisciplinary Bedside Report

SPC .....Senior Primary Care

CHAPTER 1

INTRODUCTION

The United States healthcare industry is experiencing significant changes with the shift in payment models from fee for service to a model based upon payment for improving quality outcomes. This value-based pay-for-performance model is continually driving healthcare to a higher level of performance for patients (Galles & Handmaker, 2016). Transitioning an organization to a care model with a focus on quality requires an assessment of those who provide and manage the care of patients; physicians and nurses.

Healthcare organizations are complex dynamic structures that are constantly working to improve the quality of care and meet regulatory demands. Due to declining reimbursements for healthcare services, service directory methodology is in need of fundamental change (Flicek, 2012). To maximize value and eliminate waste, health care leaders must work together and evaluate processes by accurately assessing the value desired by the end user, typically the patient (Perreault, Vaillancourt, Filion, & Hadj, 2014). Previously, physicians and nurses have not worked side by side in an integrated manner. This integrated collaboration is required to implement evidence-based strategies and identify both challenges and opportunities for improvement (Garber, Madigan, Click, & Fitzpatrick, 2009).

To have a striving organization with the current changes in healthcare, physicians and nurses are realizing the need to work as a team and not in silos. As health care

organizations are preparing for the value-based era, the implementation of new management models must involve physicians and nurses. When the two leaders, such as physician and nurse leader, are assigned to leading together, each bring their own abilities, talents and skills. This model of leadership transforms delivery of care and improves outcomes for all patients (Zismer & Brueggemann, 2010). To reach the desired outcomes as a result of this change, however, can be challenging.

Health care leadership continues to be a challenge for both nurses and physicians. According to (Orlando & Haytaian, 2012), "Physician leadership is necessary to develop high-performance health-care teams that can deliver top -quality care at a reasonable cost." Historically, interactions between physicians and nurses were hierarchical. Traditional relationships between both physicians and nurses were largely characterized by medical dominance and nursing subservience (Tang, Chan, Zhou, & Liaw, 2013). The nurse and physician relationship has been found to be fragmented. Both professions work in silos with the delivery of patient care and leadership within organizations (Stein-Parbury & Liaschenko, 2007).

A new culture of collaborative behavior among nurses and physicians is needed to merge the unique strengths of both professions into opportunities to improve patient outcomes (Nair, Fitzpatrick, McNulty, Click, & Glembocki, 2012). To improve care and address the numerous challenges of the modern health care system, hospital organizations nationwide are reorganizing the clinical leadership structure as a dyad model. This model involves not only the clinical side of healthcare delivery but also the leadership required to oversee and manage the unit (Koethe & Kroft, 2013). Data is used to drive decision making and development of tools to improve outcomes. There is a shared responsibility

for unit success with each partner accountable to the other. Shared leadership provides opportunity to influence improvement in care through a trustful partnership (Rosengren & Bondas, 2010). The physician and nurse leader dyad is a critical model needed in improving leadership, collaboration, and clinical outcomes for the future.

The lean six sigma approach is a popular concept used in manufacturing industries to improve service quality and customer satisfaction by reducing the cost of operation and increasing business revenue (Perreault et al., 2014). Over the last decade, this approach has migrated into the healthcare industry. The customers in healthcare are our patients. They participate in the entire process rather than enjoying the fruits of the end- product like in the manufacturing industry. Therefore, it is important for leaders to implement a tool to improve the efficiency of a workflow process and quality care. This tool can improve patient experience during hospitalization and lead to a greater customer satisfaction (Agarwal et al., 2016).

Description of Clinical Problem

Clinicians that become health care leaders need to understand both the clinical practice and the organizational strategic plan. In many instances, there is not a standardized process for the development of clinician leaders, let alone a dyad leadership model. Under traditional model within hospitals and throughout healthcare, there is a difference in education and training for the nurse and physician with limited knowledge of each other disciplines and responsibilities (Robbins, Bradley, & Spicer, 2001).

Physician and nurse leaders often possess differing leadership skills that are complementary of one another. These leaders can strengthen their partnership by

concentrating on communication skills, trust, and respect (Sanford, 2015). These are the same characteristics of any successful relationship. The dyad model of shared ownership and accountability serves as a strong impetus to this kind of relationship building. Allowing unit and organizational alignment along with movement toward shared goals. It is imperative to success that the dyad model close collaboration and teamwork as they set high expectations for the unit they serve. By modeling this behavior and setting clear expectations, these leaders are promoting a healthy work environment which increases the satisfaction of team members (Ulrich, 2017). When team satisfaction is strong, staff retention increases and creates a high degree of team engagement. This is the desired outcome with a high performing team (Gittell, Beswick, Goldmann, & Wallack, 2015). This is the reason why a change is needed.

Scope of the Clinical Problem

An Accountable Care Unit (ACU) is a geographic care area consistently responsible for the clinical, service, and cost outcomes it produces (Rosengren & Bondas, 2010). The nurse leaders are established on the clinical units and are usually selected based on clinical experience and previous experience of being a charge nurse and/or assistant nurse manager. Physician leaders are recruited and selected by the medical staff. Leadership training and/or classes are not a requirement in the selection process. The nurse leader may have some leadership training from within the organization, but physicians often do not. Lack of structured leadership training for both can lead to ineffective leadership and management of team members (Sanford, 2015).

New processes and best practice initiatives are often implemented with a trained nurse leader, but with an untrained physician leader. Often the success of new processes is facilitated by the nurse leader. Physicians are trained to deliver and manage patient care, while nurse leaders are trained and expected to manage the operational aspects of the unit such as staff performance, education, patient satisfaction, schedules and pay roll with a broad oversight of patient care and service. Both leaders lack the business acumen needed to be participatory in budget, productivity, goal setting, data analysis and other parts of the organization's strategic planning. The obvious difference in training highlights the need for shared training, shared knowledge, and an understanding of each other's competencies that supports the success of the dyad team but also the outcomes of patients on the units (Sanford, 2015).

The leadership dyad model is an effective strategy to facilitate change in today's health care environment (St. Fleur & McKeever, 2014). The excellence, success, and effectiveness of the ACU is dependent on the appropriate leadership and guidance for all members of the team including staff nurses and other physicians working on the unit. One study found that the competencies set for leaders of small units and teams are significantly lower than those set by all other leaders both in nursing and administration (Kvas, Seljak, & Stare, 2013). This points to the fact that leaders at the lowest leadership level are torn between the actual provision of nursing care and leadership, and are not prepared to fully accept the role of the leaders. A new and different approach is needed in terms of the selection and training of nurse and physician leaders prepared to take on the challenge of pay-for-performance health care environment (Kvas et al., 2013).

The hospital system invested in the ACU evidence-based model of care. Within the ACU, dyad leaders, two people with complementary skill sets, were paired by senior leadership of the hospital. Their responsibilities included balancing resources with what the organization needed for current and future success with operational outcomes (Sanford, 2015). There are six ACUs in the hospital system. At one of the Midland's hospitals there are three of these units in a medical surgical department. The Geriatric Unit focuses on senior primary care patients, the medical telemetry unit focuses on family medicine patients, and the medical telemetry unit focuses on internal medicine patients. The majority of the medical director's patients within each ACU are assigned to their designated unit helping prevent fragmented patient care which occurs in traditional hospital units.

On ACU units, there are standard processes and tools such as collaborative cross-checking, quality safety checklist, situational awareness and a shared model of teamwork creating a resilient and consistent model of care (Stein, 2015). There are also structured communication that occur on each unit, including: change of shift huddle, charge nurse report, bedside shift report, nurse/tech rounds, and Structured Interdisciplinary Bedside Rounding (SIBR). Unit leaders are accountable to senior leaders for their teams and their outcomes. The cohesive team works on areas of improvement to reduce unwarranted variation and sustain improved clinical outcomes.

For this project, the three units in the Medical Surgical Specialties (MSS) Department at this hospital are in discussion. The first designated unit was the Acute Care for the Elderly (ACE) Unit. The primary physician teams on the unit are Senior Primary Care (SPC) and Hospital Internal Medicine (HIM). The nurse leader had 11years

of experience and been a nurse manager for 16 months. The medical director had three years of experience in the role, and had been a physician for eight years. The unit had two nurse practitioners and opened as an ACU in April 2014.

Accomplishments within the Geriatric (Unit 1) included: First Nurses Improving Care for Health System Elderly (NICHE) Designation in 2014, 797 days since last CAUTI, decrease length of stay (LOS) by four days, 481 days since last CLABSI, and was the first to achieve SIBR certification. Six months pre-ACU go-live data indicated a total of 14 falls and 9pressure ulcers. After 6 months after the establishment of this ACU indicated similar results (14 falls and 9 pressure ulcers). This indicated that processes were not done consistently. Given time to standardize changes in processes, fiscal year (FY) 15 data indicated 42 falls and 18 pressure ulcers compared to FY 16 data which indicated 27 falls and 13 pressure ulcers. Within one year, there was a 36% reduction in falls and a 28% reduction in pressure ulcers.

The family medicine (unit 2) was established as an ACU in the MSS Department. The primary physician team is a family medicine group. The current nurse leader has four years nursing experience and has been the unit manager for four months. The medical director has 26 years of experience as a physician and has been in the role since it became an ACU. This partnership started in August 2015. Accomplishments in this unit include: first teaching team with residents on an ACU, implemented telemetry monitoring for their patients, decreased CLABSI, no CAUTI for greater than 490 days and revised the supply system that led to saving $23,000 in the first year. Six months pre-ACU go live data indicated a total of nine falls and four pressure ulcers. ACU data after go-live for the last two months of FY15 was two falls and two PU. It was too soon after go-live to be

considered significant. Data for FY 16 indicated 14 falls and seven PU, and FY 17 data for the first two quarters indicated four falls and three PU.

The last unit established as an ACU in the MSS Department was the Internal Medical Surgical (Unit 3). The primary physician team on the unit was the internal medicine group. The nurse leader had 16 years nursing experience and has been a unit manager for 20 months. She had been a manager on the unit when it went live as an ACU. The medical director had been a physician for three years and in this role since the beginning of the ACU. This partnership started in November 2015. Accomplishments included: decreased CLABSI and readmission rates, no CAUTIs to date since opening as an ACU, and successfully piloted an accelerated admission process for patient flow. Six months pre-ACU go live data indicated a total of 13 falls and 9 PU. ACU data after go-live in FY16 indicated 41 falls and 10 PU. For the first two quarters of FY 17 there were 16 falls and 9 PU.

Discussion of Practice Innovation

Healthcare has undergone rapid changes in the last decade. As demand outpaces supply, quality improvement initiatives and tools are beneficial to enhance safe, effective, efficient, and timely care (Berwick & Hackbarth, 2012). Lean methodology is chosen to improve processes and outcomes on the ACUs. Lean management is a continuous improvement process that engages staff, improves patient and employee satisfaction, and increases collaboration among teams to achieve better unit performance (Perreault et al., 2014). These principles were used effectively in manufacturing companies for decades, but are a relatively new concept in health care. This methodology introduces a new way

of thinking and problem solving for leaders. It is critically important that health care leaders use the primary customer to define the value of a service. A perfect process creates precisely the right value for the customer. Every step generates value for the customer, produces an optimal result every time, mitigates delay, is flexible, and links by continuous flow. Failure in any of these dimensions produces some type of waste (IHI, 2016). Leaders can no longer act individually, but need to work collaboratively. In doing so, these leaders will grow and become strong together. As a result of great teamwork, the goals the leaders set will be achieved together (Patel et al., 2015).

Statement of Purpose

The purpose of this project was to support leadership development, through improved communication, of a nurse leader and medical director on three ACUs by using a leader rounding process with a lean quality improvement process tool called Kamishibai Cards (K-Cards) to decrease falls, decrease pressure ulcers, and increase team engagement. Implementing this leader rounding process is intended to assist leaders to gain confidence in rounding, observing, coaching, analyzing data in real-time and in collaborating on a quick Plan-Do-Study-Act (PDSA) process to improve quality outcomes and realize high-performing effective teams.

The K-Cards were recently implemented on the units and help leaders meet their goals by focusing the energy of the team toward the improvement of these bundle indicators. A gap with knowledge of scope and role responsibilities, shared knowledge dimension of relationship development, relationship with team members, and leader experience was an area of weakness (Gittell et al., 2015). Team work is not achieved by

wanting to become better team players. Team work is achieved by engaging in interventions that enable all to understand their interdependence and sustain team work by redesigning organizational structure to support the new behavior (Gittell et al., 2015). (Hill, 2003) stated, "The development of leadership competencies has been cited as a key strategy in dealing with future complex leadership challenges." Usually the developments of leaders take time and culture and is not influenced quickly. Leaders must have consistent positive change, diligence and persistence is needed in focusing on the goal.

PICOT

The PICOT question for this project is: "*within the clinical leadership team of a nurse leader and a medical director in a new model of care on three inpatient units at a Midlands hospital (P), does the implementation of a leader rounding process, using a lean-quality improvement tool that supports the leadership development of both the nurse leader and medical director (I), compared to current leadership training (C) improve falls, pressure ulcers, and team engagement (0) from July 10, 2017, to September 30, 2017 (T).*"

Definition of Terms:

Accountable Care Unit (ACU) – is that shared mental model for teamwork. At the heart of the ACU is team-based rounding model-Structured Interdisciplinary Bedside Rounds (SIBR) – that makes great team out of great professional (Stein et al., 2015).

Leadership - The actions of guiding or conducting by showing the way, route, course; commanding, governing, directing; initiating and guiding for the purpose of achieving a shared goal(s) (Bischak & Woiceshyn, 2016).

Leadership dyad model – is defined as a working relationship between practicing clinicians from different disciplines that integrates blends and complements the skills of each leader.

Best care team model – an intentional interdisciplinary team selected to come together with resources and knowledge to support the needs of the dyad leaders on a unit.

Competency - an ability or skill

Engagement - an agreement to be present at a specified time and place

Teams – a group of people linked in a common purpose.

Teamwork – the combined action of a group of people, especially when effective and efficient.

Evidence Based – denoting disciplines of health care that proceed empirically with regard to the patient and reject more traditional protocols.

Lean methodology – involves elimination of inefficiencies (also called waste) by eliminating non-value added activities from a customer perspective.

Kamishibai – is a process of quick observations to audit processes and standards in a planned/or random routine.

Evidence Based Practice Literature Review

The U.S. healthcare industry is experiencing significant changes with the shift in payment models to those that are value-based (Galles & Handmaker, 2016). Transitioning an organization to a care model with a focus on quality requires an

assessment of the physicians and nurses who provide and manage the care of patients. In the past, these two disciplines have worked side by side but not in an integrated manner. Now is the time for a new model that will allow leaders to assume accountability for a clinical service, department, strategic initiative or operations within a healthcare organization (Sanford, 2015).

The purposes of the literature review is to gather a better understanding of the research related to the PICOT question and knowledge of relevant literature. The PICOT question was used as a guide and keywords were selected. In preparing for the search, the question was considered as the strategy for next steps. The goal of the literature search is to find peer reviewed evidence-based articles pertaining to the nurse-physician relationship. Collaboration, communication, engagement, building effective teams and accountability leads to the leadership skills and allowing each leader to complement the other in managing complex systems. It is only when the two partners learn to nurture their relationship through respect and growth that the two will be successful and lead together. Development of leadership teams of two requires three major attributes that form the foundation of the partnership. These are communication, trust, and respect (Sanford, 2015).

Each article selected that supported the PICOT question was appraised using the Johns Hopkins Nursing Evidence-Based Practice: Model and Guidelines, Appendix E & F: Research and Non-Research Evidence Appraisal Tool (Dearholt & Dang, 2012). The evaluation is done to find strong evidence of high quality that represents best practice of the PICOT question. The evidence table in Appendix A will reflect articles of both research and non-research.

Search Process

The Web of Science, CINHAL, Joanna Briggs Institute, and PubMed were used. Each abstract was reviewed for content that could help answer the evidence-based practice (EBP) question. Search results included literature reviews, case studies, pilot cohort studies, quasi-experimental studies, and a descriptive prospective study.

Due to the large volume of articles identified in each database, a filter was used to limit the range of dates, scholarly articles, systemic review, experimental, random control trial, meta-analysis, and clinical pilots. Reference lists from selected articles were examined for additional references. All articles with a focus on leadership development through communication with high performing teams and/or dyad leadership were further investigated.

Search Terms

The following terms were used in searching the literature, "dyad leadership*", "best care team model*", "best care team model", "physician and nurse manager partnership", "nurse and physician teamwork", "nurse and physician engagement", "nurse and physician collaboration", "nurse and physician leadership development", and "accountable care units." Included articles were published from 2001-2013. I used the rating schemes used in Johns Hopkins Nursing Evidence-based Practice (JHNEBP) process to evaluate the strength and quality of research evidence (Dearholt & Dang, 2012). There are five levels of strength, Levels I – IV, with I being the strongest and there are three levels of quality, A – C, with A being the highest (Dearholt & Dang, 2012).

Inclusion and Exclusion Criteria

Inclusion criteria included evidence based articles shows studies of partnership and relationships between physicians and nurses. Reviewed articles found discussed nurse models of care and team building by leaders who have accepted the challenge of producing outcomes for their units. Articles included from the literature search were evidence based and were published from 2001 to 2016. Exclusion included those articles not supporting the PICOT question and key terms. There was limited research that addressed "dyad leadership." The search terms were changed to "physician-nurse partnership."

Summary of the Evidence

Data was collected in various ways to elicit insight and reflect what the literature supports as to improving communication amongst dyad leaders and collaboration. To start, there was an analysis of data using an IHI self-assessment tool which allowed the leaders to discuss their understanding of the hospital's capability in six key areas as well as their perception of what was needed to be successful (IHI, 2010). There was also a recording of interviews with each set of the dyad leaders together to discuss focus group questions. The focus was on one question in particular, "How did the interprofessional education (K-card) and intervention improve communication amongst your partnership resulting in improving quality care and patient safety?" This will speak to the leaders' perception of the relationship, trust, and respect which ultimately will lead to improving communication. Data was also collected during weekly leader rounding with K-cards that allowed the leaders to validate bundle compliance for pressure ulcers and falls. Data

was collected on the number of team members that were rounded on and coached, and which leader(s) conducted the rounds. Data was also collected on the number of pressure ulcer and falls for each of the three months during the project period. Lastly, data was collected on team engagement. A baseline engagement score was available for each unit to compare. Team members were randomly surveyed on the teamwork driver statement of "I receive the necessary support from the employees in my unit/department to help me succeed in my work." The results were compared to baseline for improvement.

To be successful as co-leaders, there must be a shared understanding of what interdisciplinary leadership is and how joint leadership will be most effective. There must be a clear agreement regarding areas in which shared accountability must be enforced and maintained (Clark & Greenawald, 2013). This model creates a shared vision for care that is evident throughout the unit and it establishes mechanisms that can be used to help in promoting quality care (McComb & Simpson, 2014). A competency model of leaders in nursing was used to define competency profiles for several leadership levels and interrelated professional groups. The results show that the level of competency for leaders at the third leadership level in nursing (leaders of small units and teams) are significantly lower than those set by all other leaders, both in nursing and in state administration (Kvas et al., 2013). Another competency tool in a study was to facilitate the development of future health care leaders using an integrated approach that crosses the continuum of academic graduate education and practitioner training programs. This tool was a result of concern about the lack of preparation of graduates to assume senior positions in this complex healthcare industry (Robbins et al., 2001).

Communication between nurses and physicians is vital to patient care outcomes. All is responsible to improve communication as an interdisciplinary team member (Flicek, 2012). Teamwork among health care professionals is important to providing safe and effective patient care. According to the Joint Commission, nearly two-thirds of sentinel events reported in 2011 had their root cause in communication failures (Weaver, Callaghan, Cooper, Brandman, & O'Leary, 2015). A program was implemented for nurses and medical residents to improve communication and collaboration. Overall improvements in communication, collaboration, patient outcomes, and job satisfaction were noted from the focus group data. The educational program proved to be successful in improving collaboration and communication between nurses and medical residents, which in turn improved patient care (McCaffrey et al., 2010). A Qualitative research technique called focus group methodology was conducted to explore nurse and physician perceptions of effective and ineffective communication between the two professions. There were themes identified that may be useful in designing learning activities to promote effective interprofessional communication (Robinson, Gorman, Slimmer, & Yudkowsky, 2010).

One study indicated that a new model of care which involved changes to how providers delivered care and skill mix changes to support the new processes on a medical unit in a large urban acute care hospital, that models like this one could improve the organization's ability to deliver sustainable, high-quality, patient, and family centered care without compromising quality (Hastings, Suter, Bloom, & Sharma, 2016). In another study there were two models of care on nurses' perception of interdisciplinary communication in general medical surgical wards. It showed a need for effective training

programs to assist nurses in working together within a nursing team and an interdisciplinary ward team (Fernandez, Tran, Johnson, & Jones, 2010).

Another review was done to identify themes characterizing collaboration from the perspectives of nurses and physicians who play complementary leadership roles. This study supports the evidence that indicates nurses and physicians have limited knowledge of the practices, responsibilities, and values of the other and that often differ in beliefs about possible solutions and barriers to progress (Caricati, Guberti, & etal., 2015). Nurse-Physician leadership dyads have the potential to model effective collaboration and influence the professional practice environment. The findings of this study confirm for interprofessional collaboration to be effective and transformational there needs to be the development of deliberate, structured, and articulate interactions (Clark & Greenawald, 2013).

An integrated literature review on collaboration between hospital physicians and nurses was done because of ineffective collaboration has caused work dissatisfaction and compromised quality of patient care. The review sought to explore attitudes of physicians and nurses toward physician-nurse collaboration, factors affecting physician-nurse collaboration, and strategies to improve physician-nurse collaboration. (Tang et al., 2013). At the individual level, job satisfaction and team effective commitment are important factors for retaining staff at the group level. Also, good work collaboration with physicians is instrumental in developing nurses' increased identification with the team (Galletta, Portoghese, Carta, D'Aloja, & Campagna, 2016). Collaboration remains a problematic and serious issue because the stakes are high not only for patients' outcomes,

but also for professional identity. Collaboration is a matter of knowledge and a matter of morality (Stein-Parbury & Liaschenko, 2007).

In a descriptive multiple-case study it was shown how nurse practitioners affect perceptions of team effectiveness. Their role was believed to be important in improving team communication and care coordination. This added value to their role on the team. They also contribute to patient-centered care and can improve quality and safety of the care provided to patients and families. They identified six team processes that included decision-making, communication, cohesiveness, care coordination, problem-solving and focus on patients and families (Kilpatrick, 2013).

Another article describes the Geriatric Floating Interdisciplinary Transition Team works together to deliver transitional care to post-acute settings. Hospitals have a duty to provide patient care until the handoff is complete. It is also important to facilitate the handoff to the primary care provider in a prompt seamless manner and to ensure that there is communication of key information. These factors have the potential to positively affect hospital reimbursement if the model can be shown to reduce avoidable readmissions. The results indicate the team showed slightly higher quality care transitions and greater patient satisfaction with inpatient care (Arbaje et al., 2010).

The literature shows the need for managers to foster a work environment that allows for stronger reciprocal relationships (Wiggins, 2008). The better unit work environments were associated with higher quality of care when controlling various hospital and units and this association persisted among units of different types (Ma, Olds, & Dunton, 2015). One study indicated the absence of interprofessional collaboration may

result in a higher possibility of errors and omissions in patients' care. Nurses and physicians do not share the same views concerning effectiveness of their communication and nurses' role in the decision-making process of the patients' care. Also, the physician did not recognize the nurses' professional role (Matziou et al., 2014).

Another study described the attitudes of nurses and physicians regarding nurse-physician collaboration in a general medical-surgical patient care setting. The Jefferson Scale of Attitudes toward Physician-Nurse Collaboration was used to compare responses. The total scores indicated nurses have more positive attitudes toward nurse-physician collaboration than physicians. The more positive attitude scores on the tool demonstrates nurses' desire for a more collaborative nurse-physician relationship than physicians. It is clear from the literature that professional fulfillment, autonomy, control over practice, and interdisciplinary collaboration help to attract and retain nurses. The results highlight the need for continued efforts to improve nurse-physician collaboration (Thomas, 2007).

Improving the quality of patient care is a priority for healthcare today and the future. There is an increase in the use of lean methodology to stream line processes to improve quality and reduce waste from the system. This will allow value to be added to the customer and cost reduction. In addition, patient satisfaction is expected to rise and staff satisfaction (D'Andreamatteo, Ianni, Lega, & Sargiacomo, 2015). There are several comprehensive literature reviews related to lean methodology.

One review reported competencies and skills on lean health could be introduced in executive management training initiatives dedicated to health professionals, in study curricula of doctors and nurses, in training schemes for health organizations

administrators and managers (D'Andreamatteo et al., 2015). The study reported quality improvement methodologies from the manufacturing industry could be the key to improving quality of care in surgery and at the same time reducing cost (Nicolay et al., 2012). There was a study done with all elective and urgent cardiac catheterization procedures as a quality improvement initiative where there was significant improvement with the selected measures using lean six sigma processes (Agarwal et al., 2016).

Synthesis of Literature

The synthesis of the nursing literature overwhelmingly support that a healthy work environment leads to engaged team members, improved communication and collaboration and improved patient care outcomes (Shirey, 2017). There is a need for a model of health care leadership that is authentic and transformational. There must be shared understanding of each leaders' role and the complex ways in which effective leadership alliances promote care at its best (Sanford, 2015). So this model presents both opportunities and challenges for improve communication and collaboration. Different models of care can improve an organization's ability to deliver sustainable, high quality, patient, and family centered care. Leaders must view team member engagement as an ongoing journey that requires intentional actions to build high performing teams (Sherman, 2017). Effective organizations need effective leadership and leaders who are committed to the improvements necessary to enhance team member engagement. (Lamont, L. 2015). Utilizing a standard process to drive outcome by the leaders has the potential to promote positive work environments and commitment of front-line staff (Ulrich, 2017). This could result in high-quality, safe practices, and outstanding patient outcomes (Hastings et al., 2016).

Communication and collaboration is key between nurses and physicians. All providers of healthcare have a responsibility to improve communication as a vital component of professional practice (Flicek, 2012). It is important that the dynamics of a team built by strong leaders would demonstrate collaboration and innovation that delivers outstanding results. High performing leaders are focused on their goals and can enable its team members to overcome barriers in achieving those goals (Stott, 2017).

Recommendations for Practice Innovation

Based on previous research, organization strategic goals, and challenges with quality outcomes, the proposed strategic innovation plan includes dyad leader rounding with the K-Cards would benefit both the change and leadership frameworks described above. Healthcare leaders need to implement Kotter's eight-stage process of creating major change not only to survive but to thrive in this new environment. It is imperative to create sustainable and effective performance through a lean process. The eight steps in the process of leading change are: (a) establish a sense of urgency; (b) create a guiding coalition; (c) develop a vision and strategy; (d) communicate the vision of change; (e) empower employees for broad based action; (f) generate short term wins (g) consolidate the gains and produce more change; and (h) anchor new approaches in the culture (Kotter, 2007).

Conceptual/Theoretical Framework

Healthcare need leaders with the ability to utilize their influence for a greater purpose rather than themselves. These leaders need to be intentional and deliberate in their decision-making to build teams. It is essential the leaders are selected and developed

to meet the best clinical outcomes for patients. These leaders must possess skill sets that complement one another and with the ability to grow together. Expertise is needed in knowing how to accomplish goals in the organization. This is achieved through relationship building with key stake holders, understanding the workings of bureaucracy, but with a persistent and determined approach. In other words, this partnership requires authentic leadership.

In leadership development for dyad leaders, there is a model that fits this work called the four "Ps" of partnership that both leaders need to understand. These are Power, Persuasion, Politics, and Perception (Sanford, 2015). This model is used in discussing the authentic leader. For dyad leaders wanting to transform healthcare an important attribute to have is authenticity. Authentic leaders are true to self and honest with others about who they are. These are leaders who have potential and purpose. They can identify and admit weaknesses and be transparent with a trusted partner that supports them. They will take what they have learned together in partnership for self-development and growth as leaders (Sanford, 2015).

The first "P" is POWER. Great power is in operation when two dyad leaders unite their skills and abilities. By uniting, the leaders have power to influence their team members. This power may be known or unknown, but the ability to influence is amazing. Leaders need to discern what their team members' value and discover ways to help them maintain or attain what's needed to achieve desired outcomes. For the dyad leader, it is not about utilizing their position or title of power, but is an eagerness to share the power with the team (Sanford, 2015).

The second “P” is PERSUASION. The leaders need this skill to help the team agree with the vision and understand the importance and why change is needed for improvement. The leaders should present the facts and data to establish relationships and bonds. They have influence because of the respect from others and they are known to be authentic and owners of their units (Sanford, 2015).

The third “P” is POLITICS. Politics is a very positive and influential tool in the organization. Politics should not invoke negative connotation or backlash. Dyad leaders know the right thing to do, but consistently strive to get it done the first time. Their decisions are not for personal gain but is to accomplish goals in support of the units. To be successful in the organization, the leaders should possess knowledge of politics, which allows them to maneuver throughout the organization when needed (Sanford, 2015).

The final “P” is PERCEPTION. Perceptions are what people believe about something or someone based on their observations or on other people’s reported observations and opinions (Sanford, 2015). Dyad leaders should desire others to perceive them as being true partners that possess all four “Ps.” The dyad leader should be attentive and learn the organizational culture. Leaders at times need coaching to learn from past experiences and leadership roles, and know that creating relationships and the establishing of trust should be the first objective to be successful (Sanford, 2015).

Leadership in any health care organization is not about one individual (St. Fleur & McKeever, 2014). It is important for the dyad leaders learn the four “Ps” before making change. No matter how high performing and commanding a leader is, health care outcomes are usually produced by a team of dedicated providers who productively

partner with one another and their patients. Developing leaders who can produce and excel at this level is the goal for the future. Committing to the growth and development of the nurse-physician leader team in an accountable care unit is the single, best way to engage talent and groom successful high-performance teams (Zismer & Brueggemann, 2010).

One of the most difficult tasks to confront as leaders is to identify a need for change and leading the way to make that change a reality. Nurse and physician leaders, must share the mental model of knowledge and a focusing of efforts on the improvement of care provided that is both engaging and sustainable.

The importance of leadership in the driving process of leading change is described in an eight step process (Kotter, 2007). Each stage is associated with the eight fundamental errors that undermine transformation efforts. These common errors include: allowing too much complacency, failing to create a powerful guide coalition, underestimating the power of vision, under communicating the vision, permitting obstacles to block the new vision, failing to create short-term wins, declaring victory too soon, and neglecting to anchor changes firmly in the organization culture. The eight steps in the process of leading change are: (a) establish a sense of urgency, (b) create a guiding coalition, (c) develop a vision and strategy, (d) communicate the vision of change, (e) empower employees for broad based action, (f) generate short term wins (g) consolidate the gains and produce more change, and (h) Anchor new approaches in the culture (Kotter, 2007).

The focus of this framework is to change underlying behavior and build empowerment of teams. The idea focusing on a vision while building a strong consistent team to improve patient care. According to, (Kotter, 2007), change requires creating a new system or process which in turn always demand leadership.

Study Design

The project was deemed exempt by both the University and hospital Institutional Review Boards (IRB) and the hospital's Nursing Research Council.

Qualitative data was obtained using the Institute for HealthCare Improvement (IHI) capability self-assessment tool was used pre-intervention by all six leaders. It assessed the leaders understanding of their hospital's capability in six key areas:

- Leadership for improvement – is the capability of the leadership of the hospital to set clear improvement goals, expectations, priorities, and accountability and to integrate and support the necessary improvement activities within the organization.
- Results – is the capability of a hospital to demonstrate measurable improvement across all departments and areas.
- Resources – is the capability of a hospital to provide sufficient resources to establish improvement teams and to support their ongoing work and success.
- Workforce & Human Resources – is the capability of a hospital to organize its workforce to encourage and reward active participation in improvement work, clearly define and establish improvement leadership roles, and ensure that job descriptions include a component related to improvement work.

- Data Infrastructure & Management – is the capability of a hospital to establish, manage, and analyze data for improvement in a timely and routine manner to meet the objectives and expected results of the hospital's improvement plan.
- Improvement, Knowledge and Competence – is the capability of a hospital to obtain and execute on the skills and competencies required to undertake improvement throughout the hospital.

For each of these six areas, the tool provided a brief description of levels of capability ranging from just beginning, developing, making progress, significant impact, and exemplary. See Appendix C for the meaning of each level. The levels are intended to provide a basic indication of the improvement capability of this organization in several domains that are associated with overall improvement success. This tool will help identify the steps leaders need to take to close the current gap and the desired future outcomes.

A leader rounding process to engage team members in continuous quality improvement using a lean methodology tool to engage team members called Kamishibai (K-Cards) to help in improving communication, collaboration, and engagement. It is a process of quick observations to audit processes and standards in a planned and/or random routine (Perreault et al., 2014). A power point presentation was shown to physician leaders to view before the start of the interventions. The nursing leaders assisted the physicians in answering any questions and demonstrated each portion of the bundle for compliance. This took on average 1-2 hours because physician leaders had not seen this level of detail of quality bundles before. The same education was required of nursing to attend a four-hour class.

The K-cards were in place before they were rolled out and used on the units. One side of the card is red with the bundles listed and the other side of the card is green with the bundles listed. Team members were validated through observations and documentation checks. If the staff performs all interventions listed in the bundle correctly, recognition is given immediately by the dyad team and the staff receive a green dot on the board for compliance. If team members missed any part of the bundle intervention, immediate feedback and coaching is provided and a red dot is received on the board for opportunities. This is a non-punitive process and as leaders there is a need to continuously communicate this with staff.

Team members were asked to identify any barriers that prevented them from achieving specific step of the intervention. These barriers were also placed on the board and were annotated with follow-up by specific individuals or departments. The Kamishibai process helps sustain improvement by illustrating whether they are still in place and whether the solution brought to each problem is done right (Perreault et al., 2014). The tool will help with the leaders to coach and provide feedback to their teams on the evidence-based bundles required to improve outcomes.

Data was collected on rounds to show compliance with the bundles, coaching done by the leader, the number of staff members coached, and whether there was harm or not with falls and pressure ulcers. This data will help in demonstrating the collaboration of leaders with team members as it relates to improving harm outcomes.

In addition, there was audio recorded interviews with the nurse leaders and medical directors together designed to elicit insight on their collaboration and

communication as a team. The interviews were transcribed by the primary investigator. For the five standard questions guiding the interviews see Appendix B.

Sample

This organization is one of the largest healthcare resources in the southeast U.S. There are more than 15,000 team members and volunteers, and more than 1,000 physicians throughout the system. There are seven acute care hospitals in the system to include Midlands Hospital East (413 beds), Midlands Hospital West (76 beds), Midlands Hospital Children's (163 beds at PHR), Midlands Hospital North (124 beds at PHR), Midlands Hospital South (649 beds), Midlands Hospital Northwest (301 beds), and Midlands Hospital Southeast (109 beds, joint venture with another regional hospital System). The chosen hospital for this project is a teaching hospital. This facility is where physicians throughout the 23 residency and fellowship programs affiliated with the University School of Medicine.

The participants included the nurse leader and physician leader of each ACU. The three ACUs in the sample had dyad leaders on each which gives a total of six leaders. The number of team members on each unit that needed to be rounded on differs. The Acute Care of the Elderly ACU has approximately 36.2 FTEs of RNs and PSTs. The Medical Surgical ACU has approximately 28.3 FTEs of RNs and PSTs. The Medical Surgical ACU has approximately 34.2 FTEs of RNs and PSTs.

There are six Accountable Care Units (ACU) in the organization; three in Medical Surgical Department, one on the Heart Failure Unit, one in Critical Care on the Stroke

Unit, and one on 5th Long Medical Telemetry. Each unit has a nurse leader and medical director assigned commonly referred to the Leadership Dyad Team.

Data Analysis

Analysis of the data was collected in four parts: (1) Institute for Healthcare Improvement (IHI) pre-intervention leadership capabilities self-assessment completed by dyad leadership teams (IHI, 2010), (2) standardized leadership weekly rounding using k-card methodology performed by dyad leadership team, (3) a five question audio recorded focus group to assess the results of the intervention on leadership communication within each dyad leadership team, and (4) post intervention survey question for team members to assess level of engagement compared to baseline and benchmark. Descriptive statistics will be used for each dyad team and unit. Run charts will be used to develop statistical process control charts to show possible changes in dyad leadership rounding with team members over time.

Outcomes Measured

The outcomes measured in this study were: a) team engagement by the leaders on rounding, b) compliance with the fall and pressure ulcer bundles, and c) quality outcomes.

Feasibility

Potential barriers were identified prior to project implementation that may limit the feasibility of the project were: medical director not committed to their allotted time, being flexible to changing schedules, lack of resources available to conduct the study,

completion of the study within a defined time frame, lack of authority to change procedures or implement new ideas, lack of knowledge and understanding of the lean methodology, and a lack of understanding of the data needed to achieve outcomes. Factors that promote feasibility were: support from the research department on evidence base practice, education on lean methodology, support for change, and ready team members to put change in practice.

The nurse leader and the medical director have a lack of knowledge about research utilization and evidence based practice. The education empowers both parties about their practice and each are receptive to the interventions from the research results. This increases the perception of organizational support (Grant, Stuhlmacher, & Bonte-Eley, 2012). The added advantage is the project is implemented in an academic teaching organization.

Conclusion

The nurse-physician leadership dyad is a model that can be used to transform leadership, evidence-based practice, and patient outcomes. This leadership model, with development, can improve collaboration and communication within teams. Leadership teams need the proper support and resources for success. Through innovation and team work, lean management has proven to be a sustainable method to ensure a high level of patient care. It is important to engage front-line team members in sustainable continuous quality improvement. Dyad leaders can be further developed with additional knowledge and skills to build high performing teams achieve success.

CHAPTER 2

IMPROVING LEADERSHIP COMMUNICATION IN

NURSE -PHYSICIAN DYAD TEAMS

James, L., Hughes, R.G., McDonnell, K.K., and Deas, V., 2017. To be submitted to "Journal of Nursing Administration". (Topic area: Leadership Innovation)

Abstract

Evidence-based practice (EBP) initiatives can be enhanced with application of quality improvement techniques. Within a hospital, the impact of several EBP protocols were enhanced with a focused quality improvement initiative using a dyad leadership team model, rounding with front line staff, and standardized tools. The effectiveness of nurse and physician leaders improves with engagement and increased awareness of expectations, self-confidence, and skill level.

Key Words: Communication, dyad leader, rounding, leadership, coaching

The Need for Change

In a climate of cost containment and improved outcomes within healthcare, there must be a leader model of care that has passion for driving change. There is value in leaders' ownership of change and their possession of the abilities and skills to model the behavior to the team. The responsibility of overseeing the implementation of change should rest with both leaders but not without effective communication and collaboration among its team members.

Within acute care settings, accountability for best practice and evidence-based practice implementation usually lies with nursing. The lack of interprofessional collaboration has a negative effect on outcomes and implementation of decisions or goals (Nair, 2012).

Interprofessional training processes and expectations are not standardized. Leadership at the organizational level did not develop consistent, ongoing education or

performance expectations for these roles to ensure systemic implementation and maintenance. The baseline skills for nurse and physician leaders varies but it's assumed that the physician is the identified leader (Clark, 2013).

Team members must be coached, recognized, and rewarded sincerely by their leaders. Team members must feel valued by their leaders and organization. Building that relationship is what keeps them engaged, gives them courage, gives them motivation, and makes them want to come in and give their best (Macauley, 2015).

Team engagement, improved collaboration, and quality outcomes should be priorities for every health care organization (Lamont, 2015). Nurse-physician disciplines work together, but not in an integrated manner. Given the current changes and challenges in healthcare, physicians and nurses realize the need to work as a team and not in silos (Ulrich, 2017).

Collaborative communication and teamwork are essential elements for improving quality care and patient safety (Matziou et al., 2014). Yet, there are challenges in achieving the desired quality outcomes even on nursing units with formal nurse-physician leader teams working together to achieve mutually agreed upon unit goals.

Improving the Impact of Evidence-based Practice with Quality Improvement Tools

In three such units, a lean tool called Kamishibai (hereafter referred to as K-Cards) was implemented to assist the nursing staff in providing care consistent with a best practice evidence bundle to prevent harm. Upon implementation, the nurse leader conducted K-card rounds with the nursing staff and provided feedback to improve

communication. However, there was an opportunity to further improve upon the current quality outcomes efforts by actively engaging physicians (McCaffrey et al., 2010).

A hospital within the Midlands of South Carolina, part of a six-hospital health system in the southeast region of the United States, afforded a unique opportunity to improve upon the effect of K-care implementation. The health system is a non-profit organization with a long-standing reputation in the community.

In the summer of 2017, nurse and physician leaders on three of five accountable care units identified an opportunity to improve communication through quality improvement. These were established ACUs where the leaders wanted to take their performance to the next level and were also trying to build high performing teams that are needed to achieve the expected quality outcomes.

Improving the Use of Evidence in Practice

The nurse and physician leaders conducted rounding together and utilized the resources of the K-cards to specifically focus on improving pressure ulcers and falls. A couple months before pilot, nurse leaders attended a four-hour training session on K-cards. As is typical with any other educational roll-out or best practice, the physicians were not included. As part of this initiative, the physicians were given the same education as were the nurses via a power point presentation view before the start of the 12-week pilot interventions. As part of the training, nursing leaders answered questions and demonstrated each part of the bundle for compliance. The training took longer for physician leaders because they had not seen this detail of quality bundles before.

Upon completion of the training by the physicians, the nurse and physician leaders began conducting weekly rounds, including data-based metrics, to validate the usage of the K-card bundle to prevent pressure ulcers and falls. This process allowed the leaders to engage in a meaningful discussion on metrics including team performance and root cause analysis data, as well as identified opportunities, and identified what could be done to remove the barriers or change processes. They had real time perspective with the data and adjustments needed weekly using a rapid cycle of PDSA to improve outcomes.

The K-cards had previously been rolled out and used successfully in the children's hospital within the organization when they were rolled out to each of the ACU units. This was the first time that the organization was using the K-card concept as a best practice in the adult world (Satyadi, 2013).

The healthcare system used a controlled, timed, and intentional roll-out process. All nursing team members and patient support techs were trained during the roll-out. Support team members from the Nursing Excellence Department conducted a power point slide presentation to the team. One side of the card is red with the bundles listed and the other side of the card is green with the bundles listed. Team members were observed on the bundle through observations and documentation checks.

The organization's process for using the K-cards involved several steps. To begin, information boards were located in the nurse's station for quick observations and discussions. if the team members completed all interventions listed in the bundle correctly, recognition was done immediately and they would receive a green dot on the information board for compliance. If team members missed any part of the bundle

intervention, feedback and coaching was provided immediately and they received a red dot on the board for opportunities.

Team members were asked if there were any barriers that prevented them from achieving a specific step of intervention. Barriers were also placed on the board annotating follow-up by specific individuals or departments. K-card compliance was monitored for each bundle.

The Kamishibai process helped to sustain improvement by illustrating whether they were still in place and whether the solution brought to each problem was done right (Perreault et al., 2014). The tool helped the leaders to coach and provide feedback to their teams on the evidence base bundles required to improve outcomes.

Results of Leader Rounding and Coaching

A month after implementation of the K-cards, several quality improvement strategies were implemented. Weekly rounds were conducted by leaders using the K-cards allowing coaching of team members. Initially, physicians were not comfortable with coaching team members independently. The physician leader depended on the nurse leader for not only the k-card bundle process but also for coaching, providing feedback, and accountability. Physician leaders performed some independent coaching but required increase nurse leader support due to underdeveloped relationships with team members and inexperience with the coaching process and this aspect of leadership training.

Figure G.1 below shows Family Medicine (Unit 1) Leader Coaching by Type. Nursing initially did the majority of the coaching. The physician coaching was delayed due to the learning curve of the K-Card and their comfortability with the process. Over

time the physicians joined with nursing and rounding steadily improved over time to above 70%. On this unit, the physician leader and residents were rounding with the K-cards also. This resulted in positive feedback from team members.

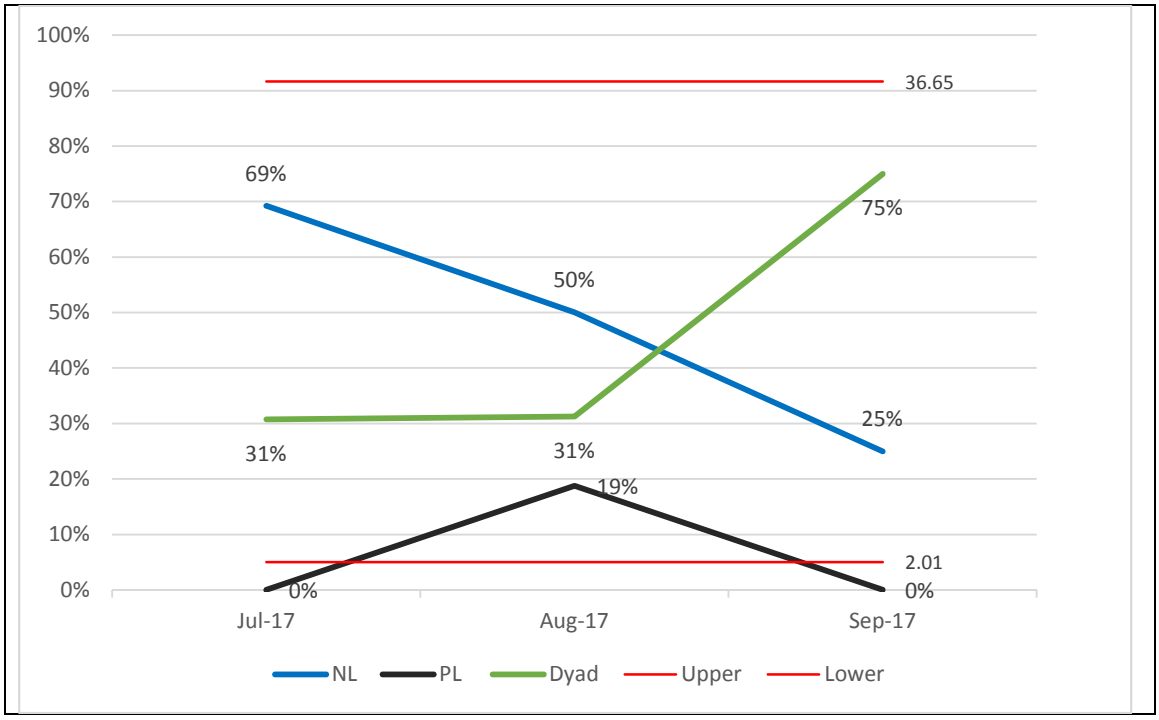

Figure G.1 – Family Medicine (Unit 1) Coaching by Leader Type

Figure G.2 below shows Geriatric (Unit 2) Coaching by Leader Type. This physician leader was very comfortable with rounding. This was the first ACU in the organization. This dyad team received great coaching from a dyad mentor. There were great team building exercises invested at the beginning. Team members were very receptive to feedback and wanted to make a difference in improving outcomes. The relationship has been built and established with team members. Falls have improved but the unit continue to have challenges with the pressure ulcer bundles.

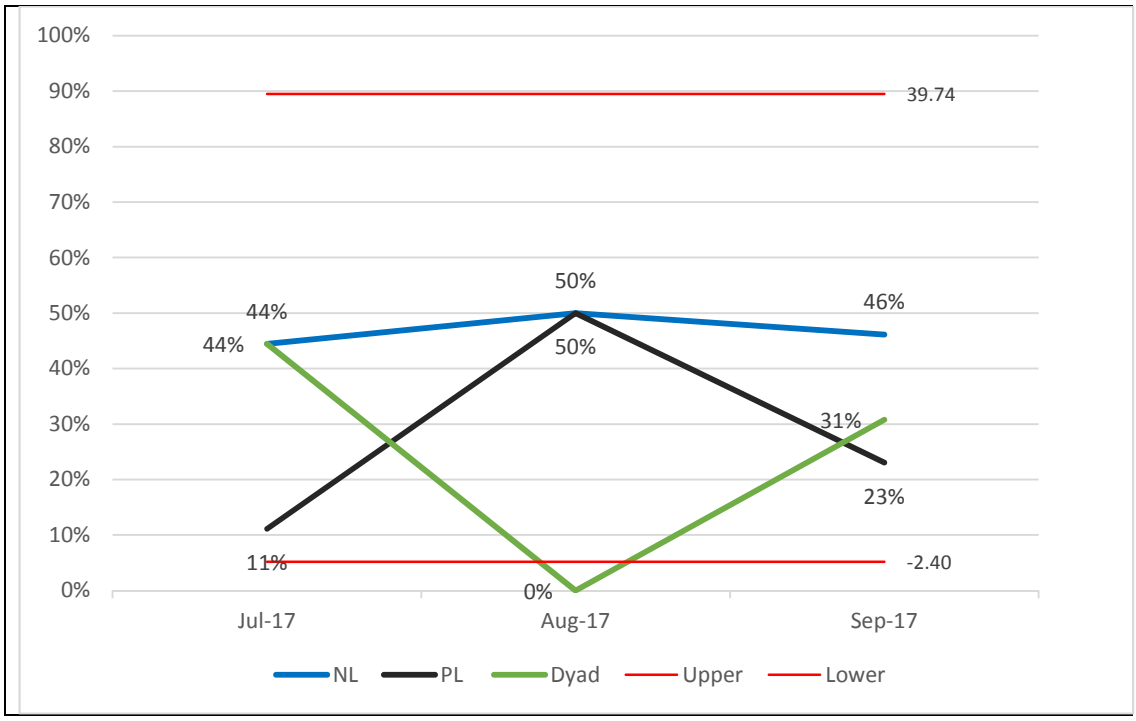

Figure G.2 – Geriatric Medicine (Unit 2) Coaching by Leader Type

Figure G.3 below shows Internal Medicine (Unit 3) Coaching by Leader Type. The physician did not feel comfortable rounding without the nurse leader. After a month, both leaders was able to round together which led to a decrease in falls. Together, they reached a 100% rounding and coaching to team members. This is the second resident ACU, but the residents did not participate.

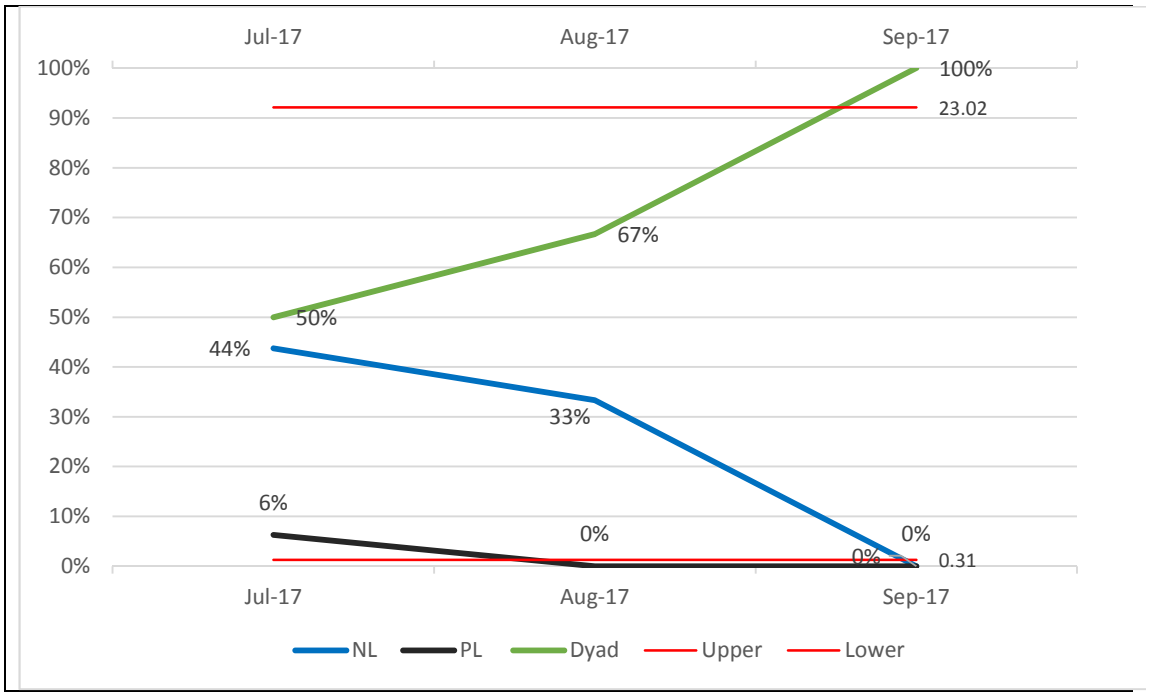

Figure G.3 – Internal Medicine (Unit 3) Coaching by Leader Type

Discussion

Several lessons were learned that should be considered when implementing future projects. The most significant lesson was the value of educating and training physician and nurse leaders concurrently when implementing any quality initiative. There was a significant gap between physician and nurse leader understanding of the operational definitions for bundles. It is important to have shared partnership of a unit so the staff sees both leaders collaborating and communicating to improve quality and patient safety. Physicians must understand the value of a collaborative and supportive relationship with the nurse.

The physicians' ability to coach staff with a nurse leader present was another learned lesson. Before the physician can coach staff, they must take the time to build the relationship and gain better understanding. Also, the nurse had a better understanding of

the organizational strategic plan and goals than the physicians. The nurse and physician had a voice in the planned interventions to achieve these goals and the barriers present in achieving them.

The nurse and physician leaders had several methods of communication deemed effective such as staff meetings which are conducted monthly, and both leaders had the opportunity to present to either nursing staff or residents. There was also structured interdisciplinary bedside rounds (SIBR) which are conducted at the same time each day on the unit Monday through Friday as a collaborative team.

The nurse, physician, pharmacy, social worker, physical therapy, and patient support tech collaborate with the patient and family through rounding. Harm elimination was a meeting held weekly where the leaders had the opportunity to present harm to senior leadership using a fish bone model where key drivers were discussed identifying barriers to preventing harm. This proved to be very effective with lesson learned for best practice spread throughout the organization.

Lastly, The Best Care Team Meetings were held quarterly where the leaders were the facilitators and leaders of this meeting. Key stake holders from documentation specialist, corporate quality, acute care coordinators, research, transition team, and any other support staff were invited. These meeting allowed the leaders two advantages: improving communication and the ability to use their influence with key support areas vital to the success of their units. Some of the leaders meet as often as weekly to monthly to communicate and build relationships. Lastly, these leaders had respect and trust with

each other. They reported how they depended on and supported each other extremely well.

Each of the key lessons learned was shown across each of the three ACUs. There were many moments of discovery by both professional leaders as they focused and collaborated successfully together. It was reported by the physician leaders during the focus group that they depended on nursing for some competency development when it came to building relationships with team members, operationalizing quality bundles, and accountability.

Conclusion

Improved quality outcomes will not be achieved without nurse and physician leaders supporting and understanding the value of team member engagement, collaboration, and communication. It is possible for physicians and nurses to be partners in leading change with the development high performing teams. There is a greater opportunity for the nurse and physician to jointly build relationships during medical and nursing education for the future. However, the development of a strong dyad relationship will not occur without intentionality and deliberate efforts from both professional groups.

CHAPTER 3

RESULTS AND CONCLUSIONS

The weekly rounding conducted jointly by dyad leaders resulted in improved interprofessional communication and collaboration. Together, the dyad leaders enhanced team and leader engagement and improved patient outcomes. Physician leaders performed some independent coaching but required increase nurse leader support due to underdeveloped relationships with team members and inexperienced with coaching process.

Before this project started, physicians reported being in the process of developing as leaders and learning about organizational politics and available resources, compared to nurse leaders who were making process to impact care outcomes (See Table 3.1 below for ratings and comments from the leaders).

Table 3.1 Results of the IHI Self-Assessment Tool

Results from the Physician Leaders		
Area of Capability	**Rating**	**Comments**
Leadership for Improvement	Developing	There is a lack of knowledge when it comes to the strategic goals and expectations across the system. "There is goal setting for inpatient and outpatient separately but are unable to make the connection on the continuum which is what the future of healthcare is all about" and "learning is not shared across the hospital in a systemic way."

Results	Developing	"I do not see locations/departments building on successes and sustaining improvements." "There are scattered successes that are short lived and shared."
Resources	Developing	"Very haphazard resource sharing with silos." "The implementation of the ACU Best Care Team is a great example of bringing resources together."
Workforce and Human Resources	Beginning to Develop	"There are champions in various locations but not a true of culture of improvement incorporated down through the chain of command." "I am not sure who is responsible for overall improvement of work."
Data Infrastructure and Management	Beginning	"We are not fully able to obtain the data needed to assess for improvement in some areas at this time." "Inpatient is where there is an abundance of useful data that at times is used purposefully. There is actually more data than is needed."
Improvement, Knowledge, and Competence	Beginning	"It seems that a lot of improvement projects become nursing-led initiatives. There is opportunity to give accountability to providers as well instead of most everything becoming nursing responsibilities." "I don't see a systematic approach to QI. There are multidisciplinary teams and pockets of attempts."
Additional comments		"I need more education regarding hospital improvement projects because I really don't have a good grasp on all that the hospital is trying to accomplish." "I would also like to understand the roles of the medical group and the medical school in this process to help the medical students to become stronger." "How are providers educated about these six areas?"

Results from Nurse Leaders		
Area of Capability	**Rating**	**Comments**
Leadership for Improvement	Making progress to significant impact	There is confidence in the organization leadership and are aware of the goals and expectations. "The Leadership Institute is a model throughout the region for best practice in leadership." "The dyad leadership team is committed to the growth of the team and accepting accountability and ownership in the care provided."
Results	Making Progress	"Quality data is shared via the harm index across the system." "There is also access to Qlik View to review harmony a unit level and as a system. There is an excess of data to the point you must ask, what am I to do with all of it?"
Resources	Making progress to significant impact	Feel very strongly that the team is fortunate in the amount of resources that the organization provides. "Resources are available on a unit level and system wide. There are online journals, Lippincott's procedure manual and the advisory board just to name a few."
Workforce and Human Resources	Developing to making progress	There are large nursing vacancies not only in this organization but across the country. "The organization tracks retention data, talent acquisition, and vacancy rates which all are struggling at this time." "This is a priority for all leaders in the organization."
Data Infrastructure and Management	Making progress to significant impact	The organization does utilize data in decision making and planning. "The organization has consistently received recognition for advances in technology." "Data has been shared from unit level to senior leadership and the hospital board."
Improvement Knowledge and Competence	Making progress to significant impact	"K-Cards were found to have a significant impact in children's hospital and have been shared across the system to improve quality." "There are leadership academies, learning maps, and toolkits available to help leaders with competency."
Additional comments		"There are pods of untapped talent from team members that the organization has

		not reached." "There seems to be more engagement from physicians regarding reducing harm as well as promoting collaboration among the healthcare team when there is goal alignment." "The organization is headed down the right track with shared governance and the journey to magnet status."

Unit Bundle Compliance

Unit performance improved during leader rounding on the bundles of fall prevention, but the number of pressure ulcers increased. This increase was in part due to factors that occurred beyond the scope of the components of the evidence-based K-Cards, including patient morbidity, patient preferences, and limitations of available resources (see Tables 3.2, 3.3 and 3.4).

Table 3.2 Family Medicine (Unit 1) Bundle Compliance

Falls	
Bundle Element	**Compliance Percentage**
Bed position	100%
Light in reach	100%
Uncluttered path	78%
Lightening	100%
Side-rails	100%
Personal items	100%
Non-skid footwear	80%
Pressure Ulcers	
Bundle Element	**Compliance Percentage**
Turn clocks	78%
Effective turns	51%
Bed less or equal 30 degrees	86%
Linen layers	90%
Pressure relief	90%
Low air loss bed	100%

Table 3.3 Geriatric (Unit 2) Bundle Compliance

Falls	
Bundle Element	**Compliance Percentage**
Bed position	100%
Light in reach	95%
Uncluttered path	100%
Lightening	100%
Side-rails	100%
Personal items	100%
Non-skid footwear	100%
Pressure Ulcers	
Bundle Element	**Compliance Percentage**
Turn clocks	100%
Effective turns	83%
Bed less or equal 30 degrees	100%
Linen layers	100%
Pressure relief	66%
Low air loss bed	79%

Table 3.4 Internal Medicine (Unit 3) Bundle Compliance

Falls	
Bundle Element	**Compliance Percentage**
Bed position	100%
Light in reach	100%
Uncluttered path	100%
Lightening	100%
Side-rails	100%
Personal items	100%
Non-skid footwear	92%
Pressure Ulcers	
Bundle Element	**Compliance Percentage**
Turn clocks	100%
Effective turns	78%
Bed less or equal 30 degrees	100%
Linen layers	83%
Pressure relief	92%
Low air loss bed	75%

Improved Communication among Dyad leaders

When focusing on feedback from the question, "How did the interprofessional education (K-card) and intervention improve communication amongst your partnership resulting in improving quality care and patient safety," physician's stated: "This has totally caught me as a physician out of my comfort zone. I am still learning. The K-cards provided a good interaction opportunity with staff about the quality assurance process. I am by no means familiar with this process." "I have a different appreciation for nursing. This was an eye opener to what goes into preventing harms and the bundle. It raised awareness for everyone to include my residents. I am now asking nursing how we can help to improve harm." "Nurses and physicians operate differently daily. The focus is not the same. There are so many protocols that providers are not aware of that are in the order sets. The K-cards were very interesting. It allowed me to see how things are viewed from the nursing perspective. After reviewing the K-card power point presentation, I had no clue of what any of it meant. In order to understand the K-cards, you must see it through the eyes of a nurse which is different than what I am used to."

Feedback by nurses included: "The K-card process has been good for the team to see both leaders together communicating on how to improve quality patient care. Team members have been very receptive of the rounds." "It created raised awareness with harm prevention. I had to instruct the physician every step of the way." "We both are seen together quite a bit. My physician partner is very involved in quality improvement on the unit already. She did not have a clue to the level of involvement that's required to meet bundles to prevent harm."

Control charts were used to show changes in and examine the variables of processes over an identified period of time. It is a tool to assist in the maintenance of stable process. The average is calculated only after sufficient data is present. The control limits are defined by an upper and a lower control limit. The upper control limit is the maximum value to expect from a process with only common cause variation and the lower control limit is the minimum value with only common cause variation. If all points are within the upper and lower control limits, and there are no patterns, only common causes of variation is present. The process is said to be "in control." Many of the control charts developed are in control but within the threshold state. A process in the *threshold state* is characterized by being in statistical control but still producing the occasional nonconformance. This type of process will produce a constant level of non-conformances and exhibits low capability (Tague, 2005).

Family Medicine (Unit 1)

The consistent, weekly leader rounding and engagement resulted in a drop in harm rate. Initially, coaching was mostly led by nursing until the physician overcame the knowledge gap and build relationships. Over time, the nurse and physician rounding increased together as a team. The feedback from team members concerning the rounds were very positive and engaging.

Overall Harm Rate

Figure G.1 reflects the overall average of falls and pressure during pre- and post-intervention for Family Medicine (Unit 1) ACU. Post ACU the average number of harm rate decreased from an average of 0.277 to 0.234. The cyclic pattern displayed alternates

monthly. After the implementation of the k-cards, the data points begin to consistently meet the average rate calculated for pressure ulcers. This is believed to be from the implementation the k-cards and every step in the process being scripted for the team.

This is a new model and process on the unit and the excitement and collaboration could have been a part of the change. While the implementation of the unit prevalence study, K-cards, and Project K-cards create greater deviations, the cyclic pattern remains which warrants a closer examination of the implementation process. During the intervention of leader rounding the harm rate dropped from 0.575 to 0.396. This could be the result of consistent leader engagement and rounding.

Harms Correlation

Throughout the intervention in Figure G.2, there was consistent collaboration amongst the leaders and team members. The data indicated that the physician leader did some coaching alone, but overall physicians provided coaching with the team or with the nurse leader alone.

For falls, there was an overall coaching compliance of 44% by both leaders, but 42% by the nurse leader and 14% by the physician. For pressure ulcer, the overall coaching compliance was 45% by both leaders, 48% by the nurse leader, and .05% by the physician. This was an increased engagement of the physician in their rounding regarding falls as the project progresses. In addition, for each month of the project, a steady increased progression of both the physician and nurse led coaching of the fall bundle. The overall number of team members coached by the leaders for falls was 14 and for pressure ulcers was 20 during rounds.

Figures F.3 and F.4 shows that prior to implementation of the ACU only common cause variation exists. Two months post-ACU implementation, a special cause variation beyond the upper control limit occurs. This could be related to the establishment of the unit as an ACU, but this type of variation is normally a one-time occurrence. All other points demonstrate control of the process. After the introduction of the project intervention components, the process remains in control from the average.

Engagement

The results of the 2017 hospital wide employee engagement survey for the category of teamwork in the driver statement of, "I receive the necessary support from employees in my unit/department to help me succeed in my work" has a baseline of 87.5% of agree/strongly agree. The benchmark for this unit is 75% of agree/strongly agree. The post intervention results are 100% agree/strongly agree. Some of the comments are "great learning experience and feedback from the leaders to help me improve patient care." "I have learned a lot from the leaders. They care about our team."

Leader Rounding and Coaching

Figure G.1 (Unit 1) shows Leader Coaching by Type. It indicates that nursing initially did the majority of the coaching. The physician coaching was delayed due to the learning curve of the K-Card and their comfortability with the process. Over time the physicians joined with nursing and rounding steadily improved over time to 70%.

Geriatric Medical (Unit 2)

The consistent rounding and dyad leader engagement resulted in a drop in fall rates for the unit. Team members reported an increase in engagement during joint leader rounding. This unit is the first ACU in the organization so the physician leader has been on the unit since conception in 2014 and has built great relationships with team members. The physician was very comfortable with rounding on team members to improve communication and decrease harm.

Overall Harm Rate

Figure G.5 reflects falls and pressure ulcers from pre-ACU to post-ACU. Initially there is an increase in harm on the unit. The average point goes from a harm rate of 0.597 to 0.696. But during November 2016, there is a dramatic drop in harm rate from 0.696 to 0.443. This could be attributed to processes becoming consistent and team member engagement increasing. During a time of the intervention, the harm rate dropped below the average point to as low as 0.252 but quickly returned above the average point to 0.539 rate within 2 weeks. In Figure G.6, the overall average of falls increased during the intervention while the overall average of pressure ulcers started off with a decrease but ended up increasing also. The average point line for falls is 0.236. Figure G.7 shows that there was an overall increase in pressure ulcers. The average point is 0.154 and increased to 0.404 by the end of the interventions. It maintained at the average point for the first two months than spiked during the last month. Figure G.8 shows the overall fall rate. For the first month of interventions it changed to 0.512 probably because of the change in process but for the last two months the number of falls decreased and tapered off at 0.134

Harms Correlation

At the initiation of the project, both the physician and the nurse were 50% compliant in their pressure ulcer rounding; however, this did not occur in the second month. From the second month of the intervention, there was an increase in both the physician and nurse led coaching in both together and separately. In the initial month of July, rounding did not occur. It was during July where the greatest incidence of falls; four occurred during the entire project period. As rounding continued during the second and third month, August and September, the nurse and the physician rounded separately, but there was a decrease in falls for each of those months one. This speaks to communication with one another as well as staff seeing the impact of the visibility of collaboration. A total of 12 team members coached during falls rounding and 20 coached during pressure ulcer rounding.

Engagement

The results of the 2017 employee engagement survey for the category of teamwork in the driver statement of "I receive the necessary support from employees in my unit/department to help me succeed in my work" has a baseline of 85.7% of agree/strongly agree. The benchmark for this unit is 75.1% of agree/strongly agree. The post intervention results are 100% agree/strongly agree. Some of the comments are "My experience has been great because each time that coaching was done my beds has been in the right condition or I was shown how to properly get it right." "This rounding by the leaders make sure that the best care was provided for the patient." "My experience during this rounding was good. Education was provided in areas where improvement was

needed so that I may continue to succeed in my work." "I felt that the rounding was helpful because they brought attention to the details."

Leader Rounding and Coaching

Figure G.2 (Unit 2) shows that the physician leader was very comfortable with rounding. This was the first ACU in the organization. This dyad team received coaching from a dyad mentor from the organization that the model was patterned off of. There were many team building exercises invested at the beginning. Team members reported being very receptive to feedback and wanted to make a difference in improving outcomes.

Internal Medicine (Unit 3)

The consistent leader engagement and rounding has raised awareness and increased engagement on this unit. The overall harm improved for falls but slightly increased for pressure ulcers. The team members reported that it had a positive impact to see the dyad leaders together. The leaders preferred to coach team members together.

Overall Harm Rate

Figure G.9 shows that prior to and post-implementation of the ACU only common cause variation exists for falls and pressure ulcers. Overall harm decreased during the intervention process. This is attributed to the consistent leader engagement and rounding.

In Figure G.10 the number of falls continue to decrease during the start of the intervention but takes a slight increase during the last month. The number of pressure

ulcers continue to rise, but took a sharp drop during the last month as a result of the consistent leader rounding and coaching.

Harms Correlation

The average number of pressure ulcers increased during this period (See Figure G.11). There was a consistent decrease in nurse leader coaching (33%, 25%, 0) and physician led coaching (16%, 0%, 0%) for every month of the project for pressure ulcer rounding but a progressive increase in both leader rounding during the three-month period as well (50%, 75%, 100%).

There was a consistent increase in the auditing compliance for each month of the project with both leaders coaching for falls. The average of falls decreased during the three months of the intervention to 1 from an average of 3.33 in the three months prior to the intervention (See Figure G.12). This would also speak to the impact of the nurse and physician leaders' collaboration and communicating. A total of 14 team members coached during falls rounding and 14 coached during pressure ulcer rounding.

Engagement

The results of the 2017 employee engagement survey for the category of teamwork in the driver statement of "I receive the necessary support from employees in my unit/department to help me succeed in my work" has a baseline of 54.3% of agree/strongly agree. The benchmark for this unit is 75.1% of agree/strongly agree. The post intervention results are 100% agree/strongly agree. Some of the comments are "The rounding was a good experience to be coached on some of the things that I didn't know."

"It was a learning experience to include double checking my patients." "Everything was very helpful from both leaders.

Leader Rounding and Coaching

Figure G.3 (Unit 3) shows that the physician did not feel comfortable rounding without the nurse leader. After a month, both leaders were able to round together which led to a decrease in falls. Together, they reached a 100% rounding and coaching to team members. This resulted in positive feedback from team members.

Recommendations for Future Implementation of Dyad Leadership Teams

The organization strategic plan is to implement two accountable care units a year with dyad leaders. This model has proven to be successful with quality outcomes and best practices. In order to make this successful, it will require significant cultural change and strong leaders with a willingness to develop and coach for success.

As organization adapt dyad leadership models within nursing units, findings from this project would suggest consideration of the following:

- The roll out of quality initiatives and best practice education to both dyad leaders together will level the playing field for knowledge and understanding to be successful.
- Leaders rounding with and coaching team members together will build relationships, trust, and respect that will result in high performing teams.

- Allow the dyad leaders to set explicit expectations and goals for their units to include improving quality.

- Orientation to dyad roles and ongoing interactions with peer dyad leaders allows ongoing opportunities to develop collaboration and relationships.

- Increase knowledge and empowerment by using best care teams led by the dyad leaders. This type of structure allows key players around the table to support the leaders including infection control, clinical practice coordination, case management, acute care coordinators, process engineer, clinical documentation specialist, research support, nursing leadership/administration support, and ACU support.

Conclusion

Improving communication with nurse and physician leadership is done through needed support and development. The dyad leaders can utilize the CLEAR process to decrease falls, decrease pressure ulcers and increase engagement. The obvious difference in training between the two professionals highlights the need for shared training, shared knowledge, and an understanding of each other's competencies that supports the success of the dyad team but also the outcomes of patients on the units (Sanford, 2015).

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APPENDIX A

SEARCH RESULTS WITH KEYWORDS TABLE AND EVIDENCE SYNTHESIS TABLE

Table A.1 Search Results with Keywords

Database-CIHAHL	
Search Terms	**Results**
Dyad leadership* AND Best Care Team Model OR Accountable Care Units	41
Physician & Nurse Manager partnership	3
Leadership development AND dyad team	0
Leadership development AND partnership	53
Partnership AND team engagement AND leadership	2
Team engagement AND leadership	19
Nurse AND physician teamwork	41
Nurse and physician collaboration	141
Nurse and physician engagement	10
Nurse and physician leadership development	0
Kamishibai and healthcare	1
Lean tool and process improvement	160
Database- PubMed	
Search Terms	**Results**
Dyad leadership*	36
Best care team model*	0
Best care team model	600
Best care team model AND accountable care units OR dyad leadership	36
Physician and nurse manager partnership AND accountable care units	0

Nurse AND physician teamwork	0
Nurse AND physician engagement	225
Nurse AND physician collaboration	1458
Nurse AND physician leadership development	192
Kamishibai AND healthcare	3

Database- Web of Science	
Search Terms	**Results**
Best care team meeting model	208
Dyad*	1
Dyad leadership*	420
Dyad leadership* AND healthcare	4
Dyad leadership* AND best care team meeting model* OR accountable care unit	69
Nurse AND physician teamwork	400
Nurse AND physician collaboration	704
Nurse AND physician engagement	172
Nurse AND physician leadership development	0
Database – Joanna Briggs Institute	
Search Terms	**Results**
Nurse AND physician teamwork	1
Nurse AND physician collaboration	643
Nurse AND physician leadership development	9
Nurse AND physician engagement	127
Lean methodology	1

Table A.2 Evidence Table

Brief Reference, Type of study, Quality rating	Methods	Threats to Validity/ Reliability	Study Findings	Conclusions
Article 1 Kilpatrick, Kelley (2013). How do nurse practitioners in acute care affect perceptions of team effectiveness? Journal of Clinical Nursing. 22, 2636-2647. Level - III Quality - Good	Descriptive multi-case study done in two university-affiliated teaching hospitals in Canada. Data sources included interviews (*n*=59), time and motion study, non-participant observation, documents and field notes. Interviews were conducted individually or in groups using a semi-structured interview guide. Data was analyzed within and across the cases to identify similarities and	Validity- the study was undertaken in one jurisdiction and one clinical specialty. The perceptions of patients and families were not included in this study. Threats – other cases can occur to detest the study because one outside variable can change the results.	Team members believed the nurse practitioners improved the team's effective-ness. They identified six team processes believed improved by adding nurse practitioners to the team. The process included decision-making, cohesion, care coordination, problem-solving, communicati on, and focus on patients and families.	Further work is needed in different Contexts and with patients and families to determine their perceptions of team effective-ness. Nurse practitioners improve perception of team effective-ness.

Brief Reference, Type of study, Quality rating	Methods	Threats to Validity/ Reliability	Study Findings	Conclusions
	differences in perceptions of team effectiveness.			
Article 2 Arbaje, A., Maron D., Yu, Q., Wendel, V., Tanner, E., Boult, C., Eubank, K., & Durso, S., (2010). The Geriatric Floating Interdisciplinary Transition Team. JAGS. 58:364-370. Level – II Quality - Good	Pilot Cohort Study- incudes hospitalized patients aged 70 and older on four general medicine services at an academic medical center (N=717).	Validity - Because Geri-FITT did not provide care on weekends, patients admitted or discharged on a weekend were excluded. Non-English-speaking patients with no English-speaking caregiver were also excluded. The pilot was executed at a single site and used a small sample, limiting generalizability of the findings.	The results indicate that Geri-FITT is associated with slightly higher, though not statistically significantly so, quality care transitions and greater patient satisfaction with inpatient care.	The Geri-FITT model has potential to positively affect hospital reimbursement if the model can reduce avoidable readmissions. It includes educating hospital staff about geriatric syndromes provide another potential mechanism for leveraging limited geriatric medicine expertise. Increasing the geriatric competence of the work

Brief Reference, Type of study, Quality rating	Methods	Threats to Validity/ Reliability	Study Findings	Conclusions
				force is a national goal. Geri-FITT and similar models have the potential for improving care transition quality may enhance patient satisfaction. Future research is needed to determine savings accrued are sufficient to offset the cost.
Article 3 Kvas, A., Seljak, J., Stare, J., The use of competency models to assess leadership in nursing (2013). Iranian J Public Health. Vol 42, No. 9, 988-995. Level - III Quality - Good	A survey was conducted among 141 nurse leaders in Slovenia. The respondents were asked to complete questionnaire with 95 leadership behaviors	The sample is limited to nurses employed in hospitals and health centers with at least a three-year higher education qualification and holding a	The levels of competencies set for themselves by leaders at the third leadership level in nursing (leaders of small units and teams) are	In the context of the comparison of competency models, the greatest need for training is observed at the third level of leadership in

Brief Reference, Type of study, Quality rating	Methods	Threats to Validity/ Reliability	Study Findings	Conclusions
	that form the leadership competency model for leaders in nursing. The data was analyzed by ANOVA and Tukey's honestly significant difference test	leadership position.	significantly lower than those set by all other leaders, both in nursing and in state administra-tion. Statistically significant differences were apparent in most areas.	nursing. A comparison of models formulated in this way enables the exchange of good practices among leaders from various professional groups. Training needs are easier to identify for individual groups of leaders in public administra-tion. The proposed concept is designed to significantly simplify and unify the building of competency-based leadership models in public sector.

Brief Reference, Type of study, Quality rating	Methods	Threats to Validity/ Reliability	Study Findings	Conclusions
Article 4 Robbins, C., Bradley, H., & Spicer, M., [2001]. Developing Leadership in Healthcare Administration: A Competency Assessment Tool. Journal of Healthcare Management. 46:3 May/June 2001. Level - III Quality - Good	This qualitative study with a formal literature review. The purpose of this study was to facilitate one part of an integrated approach to leadership development that spans academic and practitioner settings. The approach was to design a competency assessment tool for early careerist who have two to five years of postgraduate experience and who aspire to be senior leaders in a healthcare organization. The study involved many open-	Internal Validity – the comprehensiveness and lengthiness of the tool may be overwhelming to users. External Validity – the tool was developed for use in a provider-based setting; therefore tailoring would be necessary to adapt the tool to other health care sectors. A potential drawback of this tool is its focus on early career development.	The competency assessment tool can aid in three interrelated and complementary functions: (1) career planning and competency development for students and early careerists, in conjunction with guidance from their advisors, preceptors, or mentors, (2) program development and evaluation for directors of and preceptors at administrative fellowship and residency program (3) curricular	The tool can help directors of both academic and practitioner programs identify strengths and gaps in their existing curricula or training programs. By offering specific competencies linked to work experience and graduate courses, the tool is an initial step toward promoting collaborative efforts between academic and practitioner program. This enhances coaching, mentoring,

Brief Reference, Type of study, Quality rating	Methods	Threats to Validity/ Reliability	Study Findings	Conclusions
	ended interviews and key informants to identify and categorize a set of competencies relevant to early careerists.		development and evaluation for directors of and faculty at graduate programs.	and developing future healthcare leaders.
Article 5 Tang, C. J., Chan, S. W., Zhou, W. T., & Liaw, S. Y., (2013). Collaboration between hospital physicians and nurses: An integrated literature review. International Council of Nurses. 60, 291-302. doi:10.1111/inr.12034 Level - V Quality - Good	A literature search was conducted in the following databases: CINAHL, PubMed, Wiley Online Library and Scopus from year 2002 to 2012, to include papers that reported studies on physician-nurse collaboration in the hospital setting.	The listed search strategy might not have identified all the relevant literature. The relatively small number of articles that met the inclusion criteria in this review and their methodological approaches could have introduced bias	Seventeen papers were included in the review. Three articles were qualitative studies and 14 were quantitative studies. There were three themes: 1) physicians viewed physician-nurse collaboration less important than nurses but rated the quality of the collaboration higher than	The review highlights important aspects of physician-nurse collaboration that may be addressed by future research studies. These include: developing a comprehend-sive instrument to assess collaboration in greater depth; conducting rigorous intervention studies to

Brief Reference, Type of study, Quality rating	Methods	Threats to Validity/ Reliability	Study Findings	Conclusions
			nurses, 2) factors affecting collaboration include communication respect and trust, unequal power, understanding professional roles, and task prioritizing, and 3) improvement strategies for the relationship involving inter-professional education and interdisciplinary ward rounds.	evaluate the effectiveness of improving strategies for physician-nurse collaboration; and examining the role of senior physicians and nurses in facilitating collaboration among junior physicians and nurses. Other implications include inter-professional education to empower nurses in making clinical decisions and implementing policies to resolve workplace issues.

Brief Reference, Type of study, Quality rating	Methods	Threats to Validity/ Reliability	Study Findings	Conclusions
Article 6 McCaffrey, R., Hayes, R. M., Cassell, A., Miller-Reyes, S., Donaldson, A., & Ferrell, C. (2012). The effect of an educational programme on attitudes of nurses and medical residents towards the benefits of positive communication and collaboration. Journal of Advanced Nursing, 68(2), 293-301. Level - II Quality – Good	The study was conducted in 2008-2009 at a hospital. A new medical residency program started and nurses had no prior experience working with medical residents. A quasi-experimental pretest, post-test, design was used. The Jefferson Scale of Attitudes toward physician-nurse collaboration and the communica-tion, collaboration and critical thinking for quality patient outcomes survey tool measured the	Without a control group, it is uncertain the educational sessions and group meetings were the entire cause of the improvement in collegial appreciation or effective communica-tion. A small size of both nurses and residents and the differences in presentation of educational materials in an actual class for nurses and a self-learning packet for medical residents. There is a limitation affecting the attitudes of both the nurses and medical residents because this was a new program and no pattern of	The study demonstrates that a formal educational program and follow-up discussions improved the attitudes of both nurses and medical residents on the Jefferson scale (medial residents t=4.68, P=0.001, nurses t=4.37, P=0.001) and on the communicati on scale (medical residents t=4.23, P=0.001, nurses t=4.13, P=0.001).	Continuing education for nurses, medical residents and other healthcare providers may assist in developing positive communicati on styles and promote collegiality and team work.

Brief Reference, Type of study, Quality rating	Methods	Threats to Validity/ Reliability	Study Findings	Conclusions
	attitudes of 68 nurses and 47 medical residents in the areas of positive communication and collaboration.	communication and collaboration had yet been established		
Article 7 McComb, S., & Simpson, V., (2013). The concept of shared mental models in healthcare collaboration. Journal of Advancing Nursing,70(7), 1479-1488. Doi: 10.1111/jan.12307. Level -V Quality - Good	Walker and Avant's approach to concept analysis was employed and, following Paley's guidance, embedded in extant theory from the team literature.	The lack of research available related to shared mental models in the nursing literature may be viewed as a limitation.	Although teamwork and collaboration are discussed frequently in healthcare literature, the concept of shared mental models in that context is not as commonly found but is on the rise. The concept analysis defines shared mental models as individually held knowledge structure that helps team members	This theoretically grounded concept analysis provides a foundation for a middle-range descriptive theory of shared mental models in nursing and health care. Further research concerning the impact of shared mental models in the healthcare setting can result in development and

Brief Reference, Type of study, Quality rating	Methods	Threats to Validity/ Reliability	Study Findings	Conclusions
			function collabora-tively in their environment s and are comprised of the attributes of content, similarly, accuracy and dynamics.	refinement of shared mental models to support effective teamwork and collabora-tion.
Article 8 Wiggins, M. S., (2008). The partnership care delivery model: an examination of the core concept and the need for a new model of care. Journal of Nursing Management, 16, 629-638. doi: 10.1111/j.1365-2834.2008.00900.x. Level - V Quality - Good	A literature search was done in electronic data bases. Concept analysis papers were reviewed and synthesized.	Limitations not considered are system issues of an organization and the willingness by health professionals and patients to develop relationships.	The antecedents, attributes and consequen-ces of partnership are described and linked to the supporting literature and theoretical models.	Engaging and empowering the patient through partnership seem to be crucial to developing a cohesive and effective model of care delivery. Partnerships among patients, their families, physicians, nurses and other clinicians positively impact on

Brief Reference, Type of study, Quality rating	Methods	Threats to Validity/ Reliability	Study Findings	Conclusions
				safety, quality of care, satisfaction, outcomes and job fulfillment.
Article 9 Robinson, P., Slimmer, L., & Yudkowsky, R. (2010). Perceptions of effective and ineffective nurse-physician communication in hospitals. Nursing Forum, 45(3), 206-216. Level - III Quality - Good	A focus group methodology was used with nurses and physicians with at least 5 years of acute care experience to reflect on effective and ineffective interprofess-ional communicati on and to provide examples. Three focus groups were held with 6 participants each (total sample 18). Sessions were audio recorded and transcribed	Data was collected in a large urban medical center with a high percentage of nurses and physicians from countries outside the United States. In every group, participants spoke about not being able to understand colleagues because of poor language skills or difficult accents. The questionnaire was viewed prior to the focus group session enabled forethought and reflection, it may have yielded	The following themes were found for effective communicati on: clarity and precision of message that relies on verification, collaborative problem solving, calm and supportive demeanor under stress, maintenance of mutual respect, and authentic understand-ing of the unique role. For ineffective communicati on: making	The themes may be useful in designing learning activities to promote effective interprofess-ional communica-tion.

Brief Reference, Type of study, Quality rating	Methods	Threats to Validity/ Reliability	Study Findings	Conclusions
	verbatim. Transcripts were coded into categories of effective and ineffective communica-tion.	scripted and socially desirable responses. There were several facilitators who could have added to the richness of data, it could also decrease reliability across groups. The sample size was small and most likely not representative of most institutions.	someone less than, dependence on electronic system, and linguistic and cultural barriers.	
Article 10 Thompson, S., (2007). Nurse-Physician collaboration: A comparison of the attitudes of nurses and physicians in the medical-surgical patient care setting. MEDSURG Nursing, 16(2), 87-104. Level - III Quality - Good	A descriptive prospective study comparing the differences in response of the nurses and physicians, data were collected using the Jefferson Scale of Attitudes toward	The study results cannot be generalized due to the small number of participants. In addition, more nurses participated than physicians. Finally, this study was conducted at one site only, and the working	Results were not statistically significant, trends were shown. Total scores reflected nurses more positive attitudes than physicians regarding nurse-physician collabora-	Results of this study highlight the need for continued efforts to improve nurse-physician collabora-tion, a strategy that may help to recruit and retain more nurses as the profession

Brief Reference, Type of study, Quality rating	Methods	Threats to Validity/ Reliability	Study Findings	Conclusions
	physician-nurse collaboration.	cultural norms of this institution could have been a variable which affect the results.	tion. Related to gender, mean total scores of male nurses and male physicians were 53.3 and 47.4 respectively. Mean total scores of female nurses and female physicians were 52.6 and 48.4, respectively, showing very similar trends.	continues to struggle with persistent shortages.
Article 11 Ma, C., Olds, D.M., & Dunton, N.E. (2015). Nurse work environment and quality of care by unit types: A cross-sectional study. International Journal of Nursing Studies, 52(10), 1565-157. Doi:http://dx.di.org/10.	This is a cross sectional study that uses nursing survey data (2012) from U.S. hospitals nationwide. Data collected on quality of care, nurse work environment,	The identified relationship between unit work environment and quality of patient care was correlational. Studies using longitudinal data are warranted in the future. They may be	Unit quality of care varied by unit types. Estimates from regressions indicated that better unit work environment were associated with higher quality of	Unit type differences exist in the overall quality of care as well as achievement in improving quality of care. The low rates of nurses reporting improve-

Brief Reference, Type of study, Quality rating	Methods	Threats to Validity/ Reliability	Study Findings	Conclusions
1016/j.ijnurstu.2015.05. 011 Level – III Quality - Good	and other work-related information from staff nurses working in units of various types. The unit of analysis was the nursing unit. The final sample included 7677 units of 14-unit types form 577 hospitals in 49 states in the U.S. Multilevel regression were used to assess the relationship between nurse work environment and quality of care.	covariates that have been omitted. Hospitals voluntarily participate in NDNQI for data collection and submission.	care when controlling various hospitals and unit covariates.	ments in the quality of nursing care to patients suggest that further interventions focusing at the unit-level are needed for achieving high care quality.
Article 12 Galletta, M., Portoghese, I., Carta, M. G., D'Aloja, E., & Campagna, M. (2016). The Effect of	This research was a cross-sectional design with self-reported question-naires.	The data consisted of self-reports data obtained from the questionnaires and were not	Managerial strategies to promote nurse-physician collaboration may be	This study reveals that organization-al dynamics are complex. A main element of

Brief Reference, Type of study, Quality rating	Methods	Threats to Validity/ Reliability	Study Findings	Conclusions
Nurse-Physician Collaboration on Job Satisfaction, Team Commitment, and Turnover Intention in Nurses. Research in Nursing & Health, 39(5), 375-385. doi:10.1002/nur.21733 Level – III Quality - Good	Nursing staff recruited were employed in three large urban hospitals from Italy. One was a university hospital and two general hospitals. All were characterized to have different types of units and specialties. A paper questionnaire was administered to 1,215 nurses from 72 units in surgical, pediatric, medical, intensive care, and mixed service area. The association of nurses' job satisfaction and team	supported by additional objective measures such as actual turnover and/or absenteeism data. A convenience sample was used and was unable to generalize results to other settings. Another limitation was the cross-sectional design of the study that prevented the demonstration of casual relationship among the variables.	important to increase nurses' affective commitment to the team. At the individual level, job satisfaction and team affective commitment are important factors for retaining staff, and at the group level, good work collaboration with physicians is instrumental in developing nurses' affective identification with the team.	the shared experience of the nurses of this study was the quality of work collaboration with the team physicians. The results suggest that a good quality of collaboration with physicians at the group-level would make a difference in preventing nurses' turnover intention. It is important that organizations activate management strategies to promote high-quality nurse-physician collabora-tion.

Brief Reference, Type of study, Quality rating	Methods	Threats to Validity/ Reliability	Study Findings	Conclusions
	commitment at the individual level, nurse physician collaboration at the group level, and with individual intention to leave the unit at the individual level.			
Article 13 Stein-Parbury, J., & Liaschenko, J. (2007). Understanding collaboration between nurses and physicians as knowledge at work. American Journal of Critical Care, 16(5), 470-478. Level – III Quality - High	To further analyze the results of an investigation on how intensive care unit culture, expressed through everyday practices, affected the care of patients who became confused. A model of the types of knowledge (case, patient, and person) used in clinical work	Qualitative inquiry is judged on its ability to provide theoretical insights into a phenomenon. Using a model of the types of knowledge used in clinical care to analyze the data from the original study revealed an interesting theoretical understanding that may be applicable not only in other ICUs but also	Breakdown of collaboration occurred because of the types of knowledge used by physicians and nurses. Certain types of knowledge were privileged even when not applicable to the clinical problem, whereas other types were	Viewing collaboration through the conceptual lens of knowledge use reveals new insights. Collabora-tion broke down in the specific context of caring for patients with confusion because the use of case knowledge, rather than patient knowledge, was

Brief Reference, Type of study, Quality rating	Methods	Threats to Validity/ Reliability	Study Findings	Conclusions
	was used to analyze the breakdown in collaboration detected in the original study.	in other clinical settings; the final judgement of qualitative inquiry maybe the transferability of the theory to other settings.	dismissed even when applicable.	prominent in the intensive care unit culture.
Article 14 Hastings, S. E., Suter, E. Bloom, J., & Sharma, K. (2016). Introduction of a team-based care model in a general medical unit. BMC Health Services Research, 16, 1-12. doi:10.1186/s12913-016-1507-2 Level – III Quality - Good	The new model was evaluated approximate-ly one year after implementati on using interviews with staff (*n*=15), surveys of staff (*n*=25 at baseline and at the final evaluation) and patients (*n*=26 at baseline and 37 at the final evaluation), and administered data pulled from organizationa l databases.	Sample size for the staff surveys was smaller than anticipated and results are subject to type I error. Further validation work needs to be done in future evaluations. The findings were generalized beyond the medical units. The original intent was to include both medical and surgical units in two separate hospitals to determine whether the new processes and staffing could work in	Staff interviews showed the new care processes and care teams worked quite well. The unit culture and collabora-tion, role clarity, scope of practice, and patient care had improved. The results from the surveys were positive. Patient satisfaction surveys were positive and the scores were very high.	The model was positive. It showed that interprofes-sional collaboration improves quality of care and patient outcomes. There were also a few positive effects on patient care suggesting that models such as this one could improve the organiza-tion's ability to deliver sustainable, high-quality, patient and family-

Brief Reference, Type of study, Quality rating	Methods	Threats to Validity/ Reliability	Study Findings	Conclusions
		either setting, but due to various delays in implementa-tion, only one medical unit received the full model.	Administra-tive data showed slight decrease in overall length of stay, 30-day readmis-sions, staff absenteeism, staff vacancies, and the overtime rate.	centered care without compromise-ing quality.
Article 15 Matziou, V., Vlahioti, E., Perdikaris, P., Matziou,T., Megapanou, E., & Petsios, K. (2014). Physician and nursing Perceptions concerning interprofessional communication and collaboration. Journal of Interprofessional Care, 28(6), 526-533. doi:10.3109/13561820.2014.934338 Level – III Quality - Good	This descriptive study was designed to investigate nurses' and physician's perceptions about their collaboration and the factors that influence it. Study was conducted on a convenience sample of 197 nurses and 93 physicians from two	The sample size was limited from only two public hospitals in Greece. The sample size was large enough for the purposes of this evaluation and the random sampling of the cohort sought to minimize selection bias. Also, perspectives from other health professionals and patient's	The findings suggest nurses and physicians do not share similar views concerning the effectiveness of their communicati on and nurses' role in the decision-making process of patient care. The study also indicated the	In everyday practice, nurses and physicians should acknowledge the importance of effective communicati on and should develop and implement interprofes-sional teamwork interventions to improve collaboration . Nurses must

Brief Reference, Type of study, Quality rating	Methods	Threats to Validity/ Reliability	Study Findings	Conclusions
	public hospitals in Greece. Data was collected with the "Communication and Collaboration among physicians and nurses" question-naire.	concerning nurse-physician communication and collaboration were not included in the present study.	absence of interprofes-sional collaboration may result in a higher possibility of errors and omissions inpatients' care.	constantly consolidate their role in the decision process and patients' care, especially in countries with limited interprofes-sional collaboration culture.
Article 16 Clark, R. C., & Greenawald, M. (2013). Nurse-Physician Leadership. Journal of Nursing Administration, 43(12), 653-659. doi:10.1097/NNA.0000000000000007 Level – III Quality - High	The objective of this qualitative research study was to identify themes characterize-ing collaboration from the perspectives of nurses and physicians serving in complemen-tary leadership roles in intensive and progressive care hospital units. The method used	This study included a small sample size set in one organization. The findings of the study cannot be generalized. However, the study does support the literature that indicates that systematic, organizational strategies are critical to changing the nature of the interactions among professionals.	The findings identified themes that included the impact of organization al support, shared expectations, relationship, and communicati on	Findings of the study support the need for organization s and professionals to facilitate deliberate, structured interprofes-sional communicati on to advance collaboration between nurses and physicians.

Brief Reference, Type of study, Quality rating	Methods	Threats to Validity/ Reliability	Study Findings	Conclusions
	were taped interviews with nursing leadership and medical unit directors (physicians) were analyzed for themes regarding factors influencing collaboration.			
Article 17 Fernandez, R., Tran, D. T., Johnson, M., & Jones, S. (2010). Interdisciplinary communication in general medical and surgical wards using two different models of nursing care delivery. Journal of Nursing Management, 18(3), 265-274. doi:10.1111/j.1365-2834.2010.01058.x Level – IV Quality - Good	In May 2007, participants were recruited from a tertiary teaching hospital in Australia. The multifaceted Shared Caring in Nursing model of nursing care involved team work, leadership and professional development. In the patient	Small size and the low response rate at follow-up prevent the generalizability of the results. Low response rates at follow-up was due to staff unavailability due to sick or maternity leave. All outcomes were measured using self-reports, leaving the study susceptible to social desirability	Completed questionnaires were returned by 125 participants. At the 6-month follow-up, there was a significant reduction in scores in the SCN group in the subscales relating to communication openness (P=0.03) and communication accuracy (P=0.02)	Effective training programs are needed to assist nurses in collaboration within a nursing and interdisciplinary ward teams. The SCN and the PA models of care find nurses support most aspects of interdisciplinary and intradisci-plinary communicati

Brief Reference, Type of study, Quality rating	Methods	Threats to Validity/ Reliability	Study Findings	Conclusions
	Allocation model one nurse was responsible for the care of a discrete group of patients. Differences in interdisciplinary communication were assessed at the 6-month follow-up.	biases. Most previous interdisci-plinary communication research focused exclusively in critical care settings, this study included nurses on the general medical and surgical wards.	when compared with baseline values. There were no significant differences in the two groups at the 6-month follow-up in any of the other subscales.	on. It is suggested to apply both models of care to wards with nurses with various skill sets. Further studies of larger samples of nurses with various skill sets models of care are required.
Article 18 D'Andreamatteo, A., Ianni, L., Lega, F., & Sargiacomo, M. (2015). Lean in healthcare: A comprehensive review. Health Policy, 119(9), 1197-1209. doi:http://doi.org/10.1 016/j.healthpol.2015.02.00 Level – V Quality - Good	Comprehen-sive literature review was conducted to identify empirical and theoretical articles published up to September 2013. Thematic analysis was performed to extract and synthesis data.	There are different degrees of methodology among the studies reviewed and the papers were intentionally not assessed for their quality. The exclusion of papers for their low quality could have resulted in ruling out themes that are potentially good and relevant. The	243 articles were selected for analysis. Lean is best understood to increase productivity. Hospital is the more explored setting, with emergency and surgery as the pioneer departments. The theoretical works have been focused	Even though lean results appear to be promising, findings so far do not allow to draw a final work on its positive impacts or challenges when introduced in the healthcare sector.

Brief Reference, Type of study, Quality rating	Methods	Threats to Validity/ Reliability	Study Findings	Conclusions
		review only examines English-language studies. Also, some papers from journals not indexed in the searched databases may have been overlooked.	mainly on barriers, challenges and success factors. Sustain-ability, framework for measurement and critical appraisal remain underestimated themes.	
Article 19 Agarwal, S., Gallo, J. J., Parashar, A., Agarwal, K. K., Ellis, S. G., Khot, U. N., . Kapadia, S. R. (2016). Impact of lean six sigma process improvement methodology on cardiac catheterization laboratory efficiency. Cardiovascular Revascularization Medicine, 17(2), 95-101. doi:http://doi.org/10.1 016/j.carrev.2015.12.011	All elective and urgent cardiac catheterize-tion procedures performed between June 2009 and December 2012 were included in the study. Performance metrics utilized for analysis included turn-time, physician downtime, on-time patient	There are limitations related to its single-center nature. The study did not aim to study the change in patient satisfaction with process improvement initiatives. The study did not address the issue of cost-effectiveness of implementation of such a program. The study was an uncontrolled longitudinal	After implementation of lean six sigma in the cath lab, there was a significant improvement in turn-time, physician downtime, on-time patient arrival, on-time physician arrival, on-time start as well as sheath-pulls inside the cath lab.	The current longitudinal study illustrates the impact of successful implementation of a well-known process improvement initiative, lean six sigma, on improving and sustaining efficiency of our cath lab operation.

Brief Reference, Type of study, Quality rating	Methods	Threats to Validity/ Reliability	Study Findings	Conclusions
Level – III Quality - High	arrival, on-time physician arrival, on-time start and manual sheath-pulls inside the cath lab.	study without a comparison group.		
Article 20 Nicolay, C. R., Purkayastha, S., Greenhalgh, A., Benn, J., Chaturvedi, S., Phillips, N., & Darzi, A. (2012). Systematic review of the application of quality improvement methodologies from the manufacturing industry to surgical healthcare. The British Journal Of Surgery, 99(3), 324-335. doi:10.1002/bjs.7803 Level – V Quality - Good	Comprehensive literature review was searched according to the preferred reporting items for systematic reviews and meta-analyses statement. Empirical studies were included that implemented a described QU methodology to surgical care and analyzed a named outcome statistically.	The number of studies that met the inclusion criteria for each methodology was small. The literature is dominated by simple observations without statistical analysis. Only one RCT was included, and thus there is a large element of bias in the results reported. There is a lack of definition as to what makes up a QI methodology. There is also a publication bias, as there maybe studies	Some 34 of 1595 articles identified met the inclusion criteria after consensus from two independent investigators. The most common aims were to reduce complications or improve outcomes (11), to reduce infections (7), and to reduce theatre delays (7). There was on randomized	QI methodologies from industry effects on improving surgical care, from reducing infection rates to increasing operating room efficiency. The evidence is generally of suboptimal quality, and rigorous randomized multicenter studies are needed to bring evidence-based management into the same

Brief Reference, Type of study, Quality rating	Methods	Threats to Validity/ Reliability	Study Findings	Conclusions
		that were unsuccessful in bringing about an improvement and therefore were not published.	controlled trial.	league as evidence-based medicine.

APPENDIX B

FOCUS GROUP QUESTIONS

The following list of questions were used to guide the focus group discussions. When appropriate, the interviewees were asked to expand upon their answers.

1. Describe an actual situation where you had to collaborate to solve the problem that led to a positive outcome.

2. Describe an actual situation where you had to coach a team member to be successful.

3. Describe how a lack of understanding of your partner's unique profession could lead to communication difficulties.

4. How did the interprofessional education (K-Card) and intervention improve communication amongst your partnership resulting in improving quality care and patient safety?

5. What other tools/meetings have you both used as a means to improve communication amongst the team?

APPENDIX C

IHI IMPROVEMENT CAPABILITY SELF-ASSESSMENT TOOL

INSTITUTE FOR HEALTHCARE IMPROVEMENT

IHI Improvement Capability Self-Assessment Tool

Organizations that are serious about achieving and sustaining excellence need to have a clear understanding of where they are in this journey and where they wish to be in a defined period of time (i.e., How good do you want to be and by when?). The IHI Improvement Capability Self-Assessment tool is designed to assist you in your journey. After completing the Self-Assessment tool you will be in a better position to discuss the steps you need to take to close the gap between where you are and where you would like to be. While there are no right or wrong responses to six areas addressed in the Self-Assessment tool, a candid appraisal of your current position on the continuum from Just Beginning to Exemplary will serve as a critical milestone in your quality journey.

GUIDE FOR USERS

Hospital leaders and staff can use the IHI Improvement Capability Self-Assessment Tool in several ways:

- To stimulate discussion about areas of strength and weakness;
- To better understand your hospital's improvement capability; and
- To help you reflect on and evaluate specific improvement efforts.

Note that this tool is not intended for performance management, judgment, or blame if you determine that your hospital's improvement capability is less than you would like it to be.

You can use the tool to assess your hospital's capability in six key areas: 1) Leadership for Improvement, 2) Results, 3) Resources, 4) Workforce and Human Resources, 5) Data Infrastructure and Management, and 6) Improvement Knowledge and Competence.

For each of these six areas, the tool provides a brief description of levels of capability, ranging from Just Beginning, to Developing, to Making Progress, to Significant Impact, to Exemplary.

Your Name: _____

Organization: _____

Email Address: _____

Phone Number: _____

DIRECTIONS FOR USE

I. For each of the six areas, place an "X" below the level of capability that you think best fits your hospital's current improvement capability and briefly describe the data/evidence you used to inform your choice. Descriptions for each level of capability can be found on pages 3-5.

	Levels of Capability					Please provide a brief description of the type of data or other evidence you used to inform your choice.
	Just Beginning	Developing	Making Progress	Significant Impact	Exemplary	
1) Leadership for Improvement						
2) Results						
3) Resources						
4) Workforce and Human Resources						
5) Data Infrastructure and Management						
6) Improvement Knowledge and Competence						

II. Reflect on the results of your assessment:

- Does your assessment suggest one or more specific actions you can take soon to increase your hospital's capability? Note these actions and who you would need to collaborate with to move ahead.
- Does your assessment suggest a need for more information to help you determine specific actions to increase your hospital's capability? Note these needs.

LEVELS OF CAPABILITY

The levels below are intended to provide a basic indication of the improvement capability of your hospital in a number of domains that are associated with overall improvement success. This information is confidential; the more honest the assessment, the more likely the initiatives selected will be aligned with current ability and probability of success.

Leadership for Improvement:

The capability of the leadership of the hospital to set clear improvement goals, expectations, priorities, and accountability and to integrate and support the necessary improvement activities within the organization

Just Beginning	Developing	Making Progress	Significant Impact	Exemplary
There are no clear organizational level improvement goals, expectations, and priorities. Improvement is seen as a department or service responsibility rather than requiring overall organizational leadership. Leadership for improvement is not coordinated across departments or services. Very little, if any learning from improvement activities is shared across the hospital.	The hospital leadership has set clear improvement goals, expectations, and priorities through discussions with department and service leadership. Department or local leaders are held accountable for achieving the established goals without the support required for them to bring about improvement. Hospital leadership does not fully facilitate improvement activities across departments. Some learning from improvement activities is shared across the hospital.	Hospital leadership has prioritized some organizational level improvement goals to actively monitor and support. Hospital leadership focuses on the system of care and supports some local leaders to facilitate coordination of improvement activities across the services involved. Hospital leadership has established a system for sharing the learning from some improvement activities across the hospital.	Hospital leadership is actively engaged in monitoring and supporting most organizational level improvement goals. Hospital leadership focuses on the system of care and supports most local leaders in integrating and supporting improvement activities across the hospital. Hospital leadership has established a system for sharing the learning from most improvement activities across the hospital.	Hospital leadership is actively engaged in monitoring and supporting all improvement goals. Hospital leadership focuses on the system of care and supports all local leaders in integrating and supporting improvement activities across the hospital. Hospital leadership has established a system for sharing the learning from all improvement activities across the hospital. Hospital leadership continually sets clear improvement goals, expectations, priorities, and accountability.

Results:

The capability of a hospital to demonstrate measureable improvement across all departments and areas

Just Beginning	Developing	Making Progress	Significant Impact	Exemplary
Some programs or services in the hospital can demonstrate measureable improvement, but this is not sustained over time and no sustained improvement can be demonstrated in any whole system organization-level measures.*	Although some programs or services in the hospital can demonstrate sustained and measureable improvement over time, very few if any of the whole system organization-wide measures can demonstrate improvement over time.	The hospital has demonstrated sustained improvement over time for a few whole system organization-wide measures.	The hospital has demonstrated sustained improvement over time for most whole system organization-wide measures.	The hospital can demonstrate sustained improvement over time for all whole system organization-wide measures.

**Examples of whole-system organization-level measures are described in a free publication: Martin LA, Nelson EC, Lloyd RC, Nolan TW. Whole System Measures. IHI Innovation Series white paper. Cambridge, Massachusetts: Institute for Healthcare Improvement; 2007. (Available on www.IHI.org). The measures are neither disease- nor condition-specific; rather, they are intended to gauge the overall performance in quality of a hospital, health system, or group practice from a system-level (or "big dot") perspective. The measures are: 1. Rate of Adverse Events, 2. Incidence of Nonfatal Occupational Injuries and Illness, 3. Hospital Standardized Mortality Ratio (HSMR), 4. Unadjusted Raw Mortality Percentage, 5. Functional Health Outcome Score, 6. Hospital Readmission Percentage, 7. Reliability of Care Measures, 8. Patient Satisfaction with Care Score, 9. Patient Experience Score, 10. Days to Third Next Available Appointment, 11. Hospital days per Decedent During the Last Six Months of Life, 12. Health care Cost per Capita, 13. Equity (Stratification of Whole System Measures). For more information:*

Resources:
The capability of a hospital to provide sufficient resources to establish improvement teams and to support their ongoing work and success

Just Beginning	Developing	Making Progress	Significant Impact	Exemplary
Resources are available within only a few services or programs to support the work of improvement teams in these areas. There is no hospital-wide coordination of resource allocation.	Resources are available within most programs or services to provide adequate support to improvement activities focused in these areas. Some processes for allocating resources within programs or services have been established, but these are not coordinated across the hospital.	Resources are available to support a coordinated approach to improvement across a number of services or programs. Some processes for allocating resources across the hospital are in place, but these are not fully coordinated across the hospital.	Resources are available to support improvement activities coordinated across most of the hospital. Some processes are in place to review and coordinate the allocation of resources for improvement across the hospital.	Resources are available to support and promote improvement activities coordinated across the whole hospital. Clear processes are in place to regularly review, prioritize, and coordinate the allocation of resources for improvement across the hospital.

Workforce and Human Resources:
The capability of a hospital to organize its workforce to encourage and reward active participation in improvement work, clearly define and establish improvement leadership roles, and ensure that job descriptions include a component related to improvement work

Just Beginning	Developing	Making Progress	Significant Impact	Exemplary
A few services or programs have identified a person who is responsible for improvement work.	Most services and departments have identified improvement personnel, but they do not report directly to senior hospital leadership.	A plan for a clear chain of improvement accountability, responsibility, and leadership across the hospital has been developed.	All services and departments have a access to personnel who are responsible for improvement activities. The personnel have sufficient seniority to facilitate the changes required for improvement.	The hospital has established clearly defined improvement leadership roles. All staff see quality improvement as an integral part of their everyday work. The hospital encourages and rewards active participation in improvement work, and job descriptions include a component related to improvement work.

Data Infrastructure and Management:
The capability of a hospital to establish, manage, and analyze data for improvement in a timely and routine manner to meet the objectives and expected results of the hospital's improvement plan

Just Beginning	Developing	Making Progress	Significant Impact	Exemplary
The hospital uses data to measure performance, but only a few places use data to support and inform improvement activities. There is limited ability to communicate information across systems.	The hospital uses data to measure performance and to support some improvement work. The hospital is aware of a need to establish effective data systems to communicate across key stakeholders and partners.	The hospital uses data to measure performance and to support most improvement projects. The hospital has established a number of data systems to allow for some cross-system measures.	The hospital uses data to measure performance and to support almost all improvement projects. The hospital has established a number of data systems which it uses routinely to share system-of-care performance information across key partners and stakeholders.	The hospital uses data to drive all improvement measures at both the whole system and sub-system level. Data systems allow for highly effective communication within and across departments and with key stakeholders in a manner that informs the knowledge and actions required to meet the objectives of improvement teams.

Improvement Knowledge and Competence:
The capability of a hospital to obtain and execute on the skills and competencies required to undertake improvement throughout the hospital

Just Beginning	Developing	Making Progress	Significant Impact	Exemplary
Few if any quality improvement projects are under way that are guided by an organization-wide improvement framework and model. The hospital provides training in improvement methods to staff in a limited fashion.	A number of quality improvement projects are underway. Multidisciplinary teams are formed and actively engaged.	A number of quality improvement projects have achieved measureable improvements.	A number of quality improvement projects have achieved sustained improvement. The hospital spreads learning from quality improvement projects systematically across the organization.	The hospital has embedded quality improvement in all areas of the organization. Teams have achieved and sustained measureable improvements. The hospital consistently shares and spreads improvements across all departments and with key stakeholders.

(IHI, 2010)

APPENDIX D

JOHNS HOPKINS NURSING EVIDENCE-BASED PRACTICE EVIDENCE LEVEL AND QUALITY GUIDE

Evidence Levels	Quality Guides
Level I Experimental study, randomized controlled trial (RCT) Systematic review of RCTs, with or without meta-analysis	**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, 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
Level II Quasi-experimental study Systematic review of a combination of RCTs and quasi-experimental, or quasi-experimental studies only, with or without meta-analysis	
Level III Non-experimental study Systematic review of a combination of RCTs, quasi-experimental and non-experimental studies, or non-experimental studies only, with or without meta-analysis Qualitative study or systematic review with or without a meta-synthesis	

Evidence Levels	Quality Guides
Level IV Opinion of respected authorities and/or nationally recognized expert committees'/consensus panels based on scientific evidence Includes: · Clinical practice guidelines · Consensus panels	**A High quality:** Material officially sponsored by a professional, public, private organization, or government agency; documentation of a systematic literature search strategy; consistent results with sufficient numbers of well-designed studies; criteria-based evaluation of overall scientific strength and quality of included studies and definitive conclusions; national expertise is clearly evident; developed or revised within the last 5 years **B Good quality:** Material officially sponsored by a professional, public, private organization, or government agency; reasonably thorough and appropriate systematic literature search strategy; reasonably consistent results, sufficient numbers of well-designed studies; evaluation of strengths and limitations of included studies with fairly definitive conclusions; national expertise is clearly evident; developed or revised within the last 5 years **C Low quality or major flaws:** Material not sponsored by an official organization or agency; undefined, poorly defined, or limited literature search strategy; no evaluation of strengths and limitations of included studies, insufficient evidence with inconsistent results, conclusions cannot be drawn; not revised within the last 5 years

APPENDIX E

LETTER FROM USC OFFICE OF RESEARCH COMPLIANCE

OFFICE OF RESEARCH COMPLIANCE

INSTITUTIONAL REVIEW BOARD FOR HUMAN RESEARCH
DECLARATION of NOT RESEARCH

Lisa James
College of Nursing
1601 Greene Street
Columbia, SC, SC 29208

Re: **Pro00068173**

This is to certify that research study entitled, "***Leadership Development of Nurse-Physician Dyad Teams,"*** was reviewed on **6/16/2017**, by the Office of Research Compliance, which is an administrative office that supports the University of South Carolina Institutional Review Board (USC IRB). The Office of Research Compliance, on behalf of the Institutional Review Board, has determined that the referenced research study is not subject to the Protection of Human Subject Regulations in accordance with the Code of Federal Regulations 45 CFR 46 et. seq.

No further oversight by the USC IRB is required. However, the investigator should inform the Office of Research Compliance prior to making any substantive changes in the research methods, as this may alter the status of the project and require another review.

If you have questions, contact Arlene McWhorter at arlenem@sc.edu or (803) 777-7095.

Sincerely,

Lisa M. Johnson
IRB Assistant Director

APPENDIX F

LETTER FROM PALMETTO HEALTH INSTITUTIONAL REVIEW BOARD

Institutional Review Board

Not Human Subject Research Determination

June 20, 2017

Lisa James
lisaa@email.sc.edu

Dear Mrs. James

On June 20, 2017, the following was reviewed:

Type of Review:	Initial
Title:	Leadership Development of Nurse-Physician Dyad Teams
IRB ID:	**Pro00067695**
Funding:	None
IND, IDE, HDE:	None
Documents Reviewed:	Executive Summary-final.docx last modified 6/4/2017 Background Paper.docx last modified 6/4/2017

The proposed activity is not research involving human subjects as defined by DHHS and FDA regulations.

IRB review and approval by Palmetto Health is not required. This determination applies only to the activities described in the IRB submission and does not apply should any changes be made. If changes are made and there are questions about whether these activities are research involving human subjects, please submit a new request to the IRB for a determination.

Sincerely,

Thomasena Williams, MPH[†]
IRB Administrator

cc: Rebecca Marigliano, Ph.D., Director, Research
rebecca.marigliano@palmettohealth.org

[†]**Electronic Signature**: This document has been electronically signed through the HSSC eIRB Submission System.

APPENDIX G

FIGURES

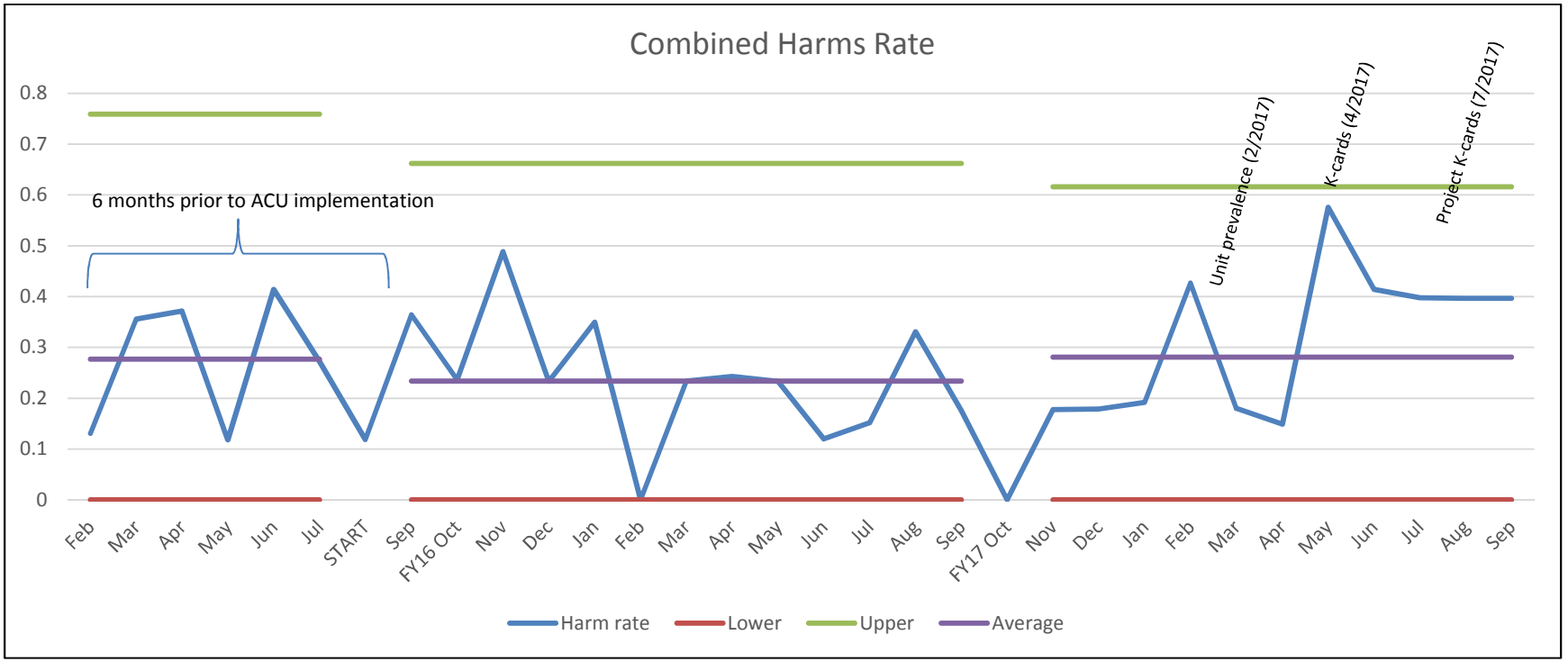

Figure G.4 Family Medicine (Unit 1) Harms Rate

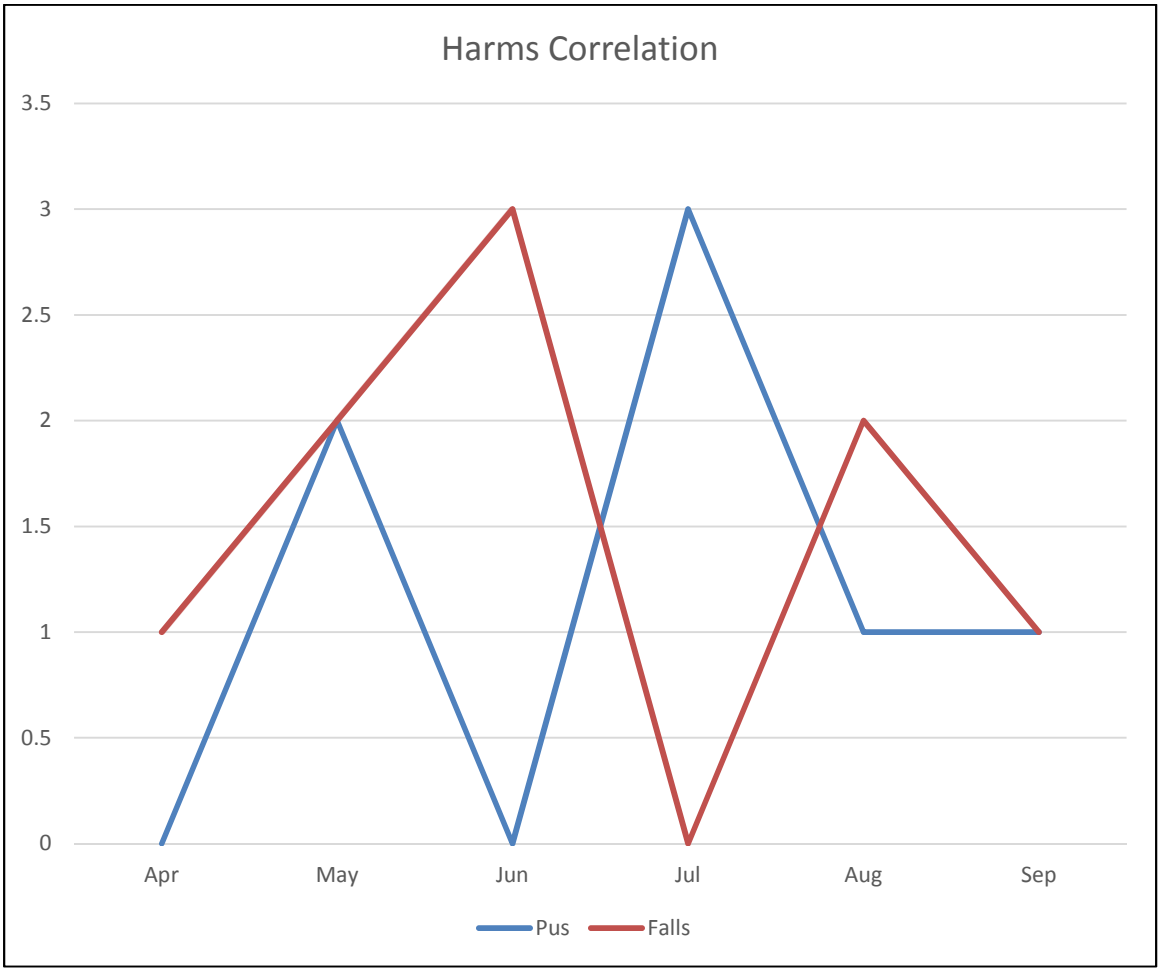

Figure G.5 Family Medicine (Unit 1) Harms Correlation

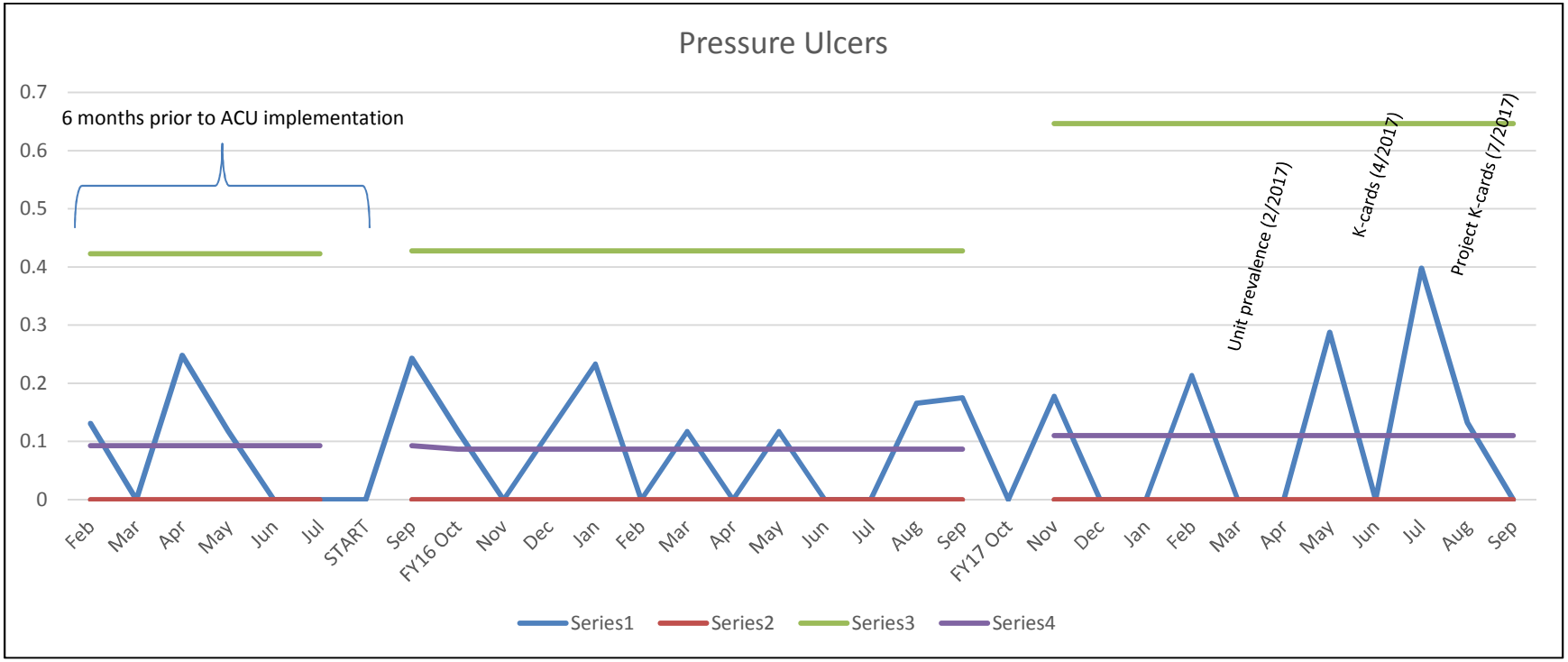

Figure G.6 Family Medicine (Unit 1) Pressure Ulcers

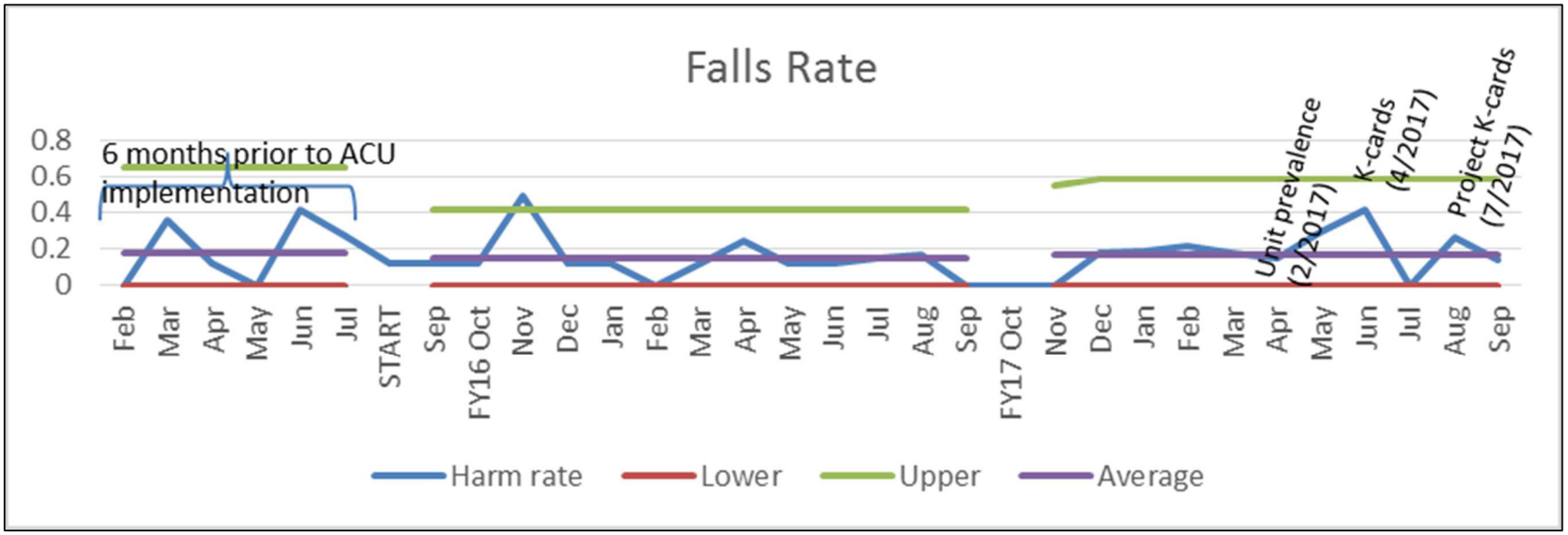

Figure G.7 Family Medicine (Unit 1) Falls Rate

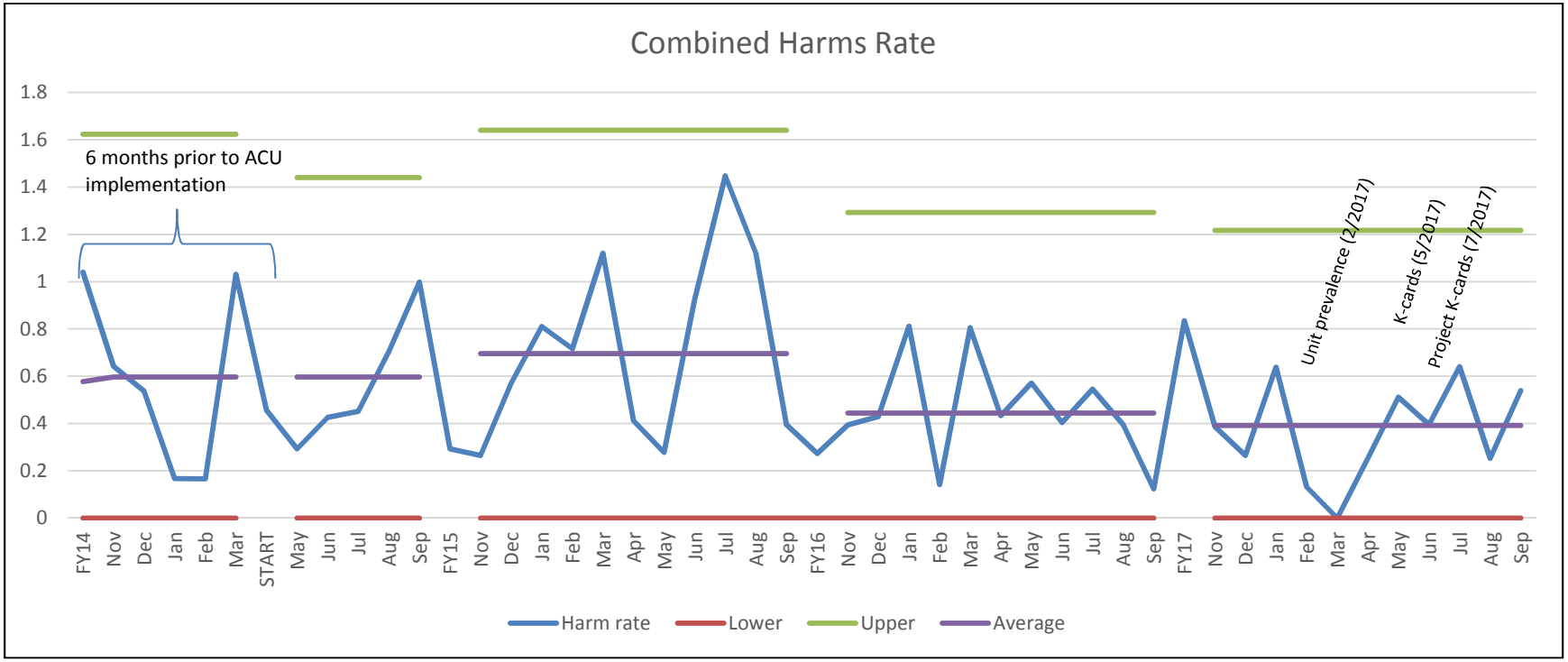

Figure G.8 Geriatrics (Unit 2) Harms Rate

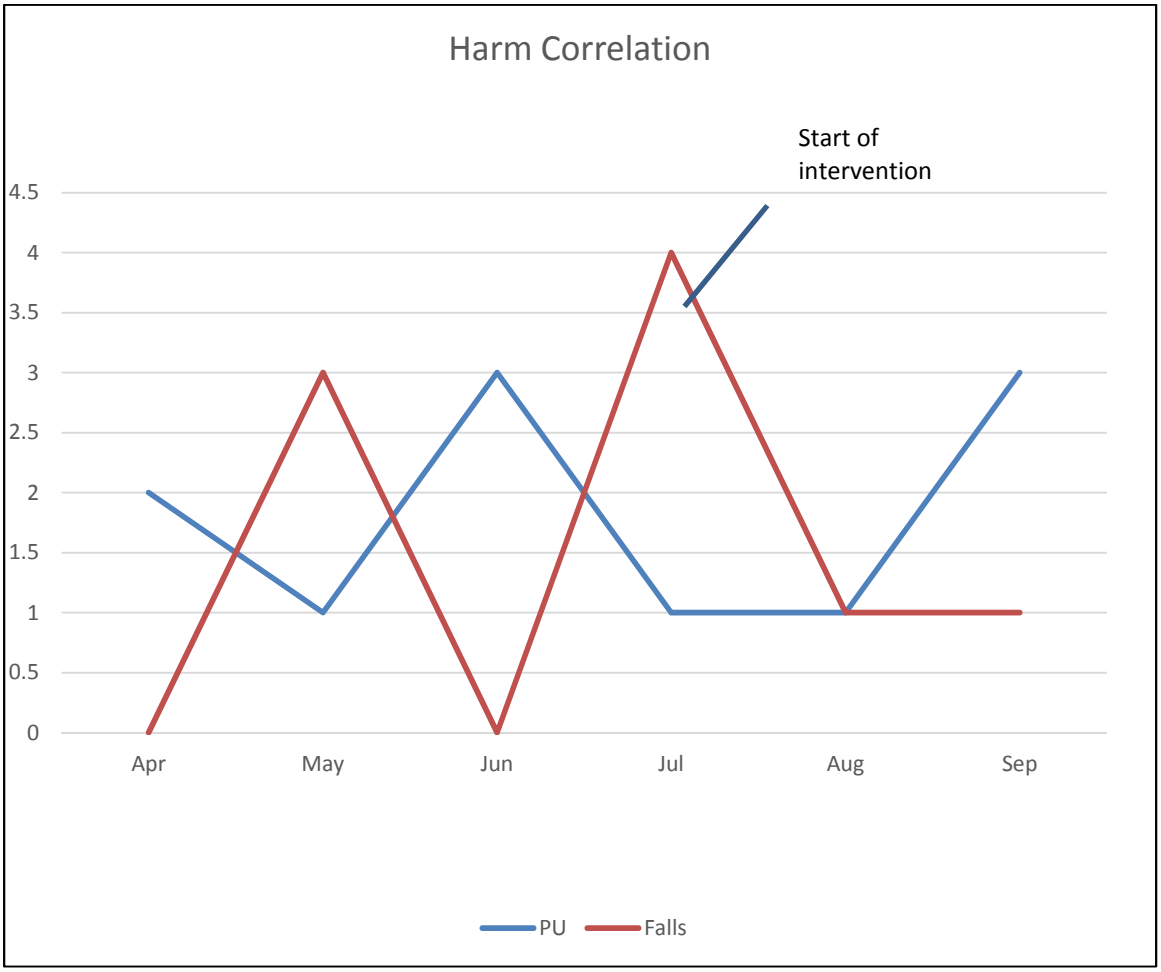

Figure G.9 Geriatrics (Unit 2) Harms Correlation

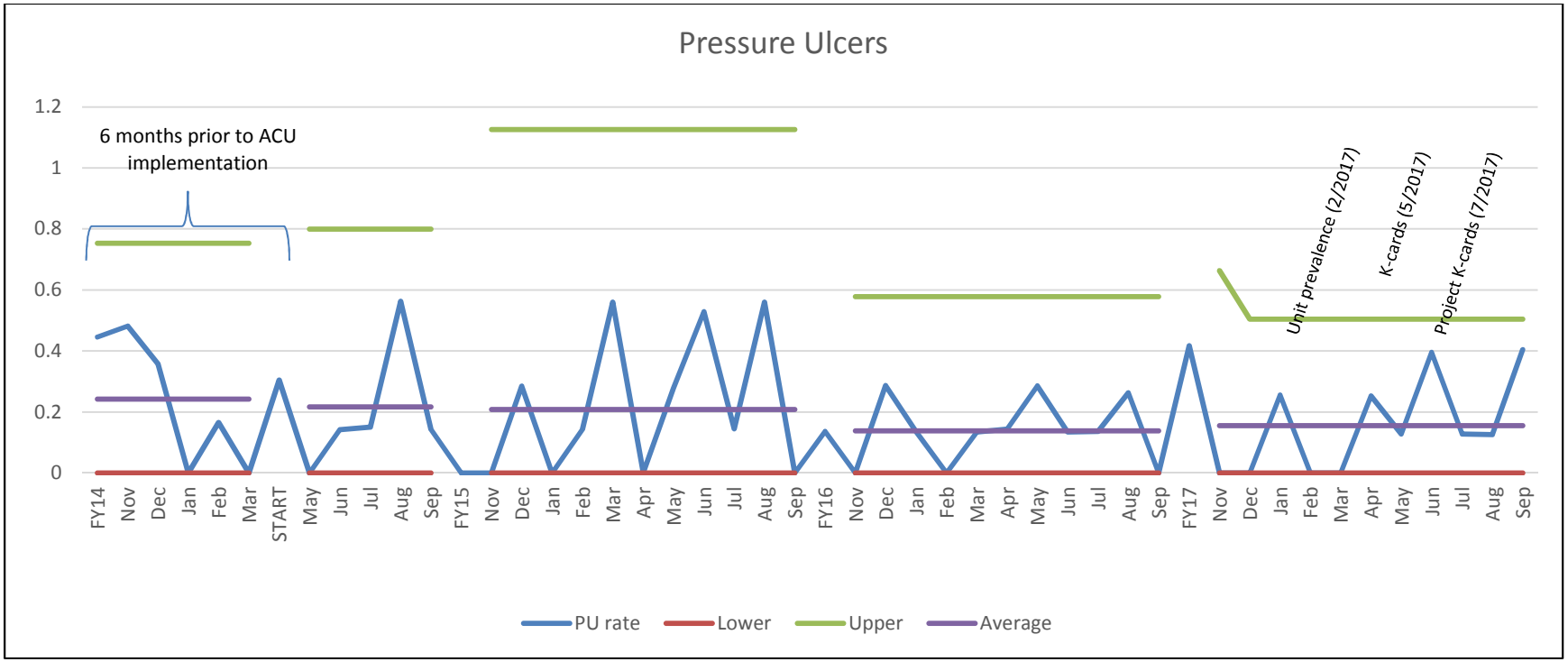

Figure G.10 Geriatrics (Unit 2) Pressure Ulcers

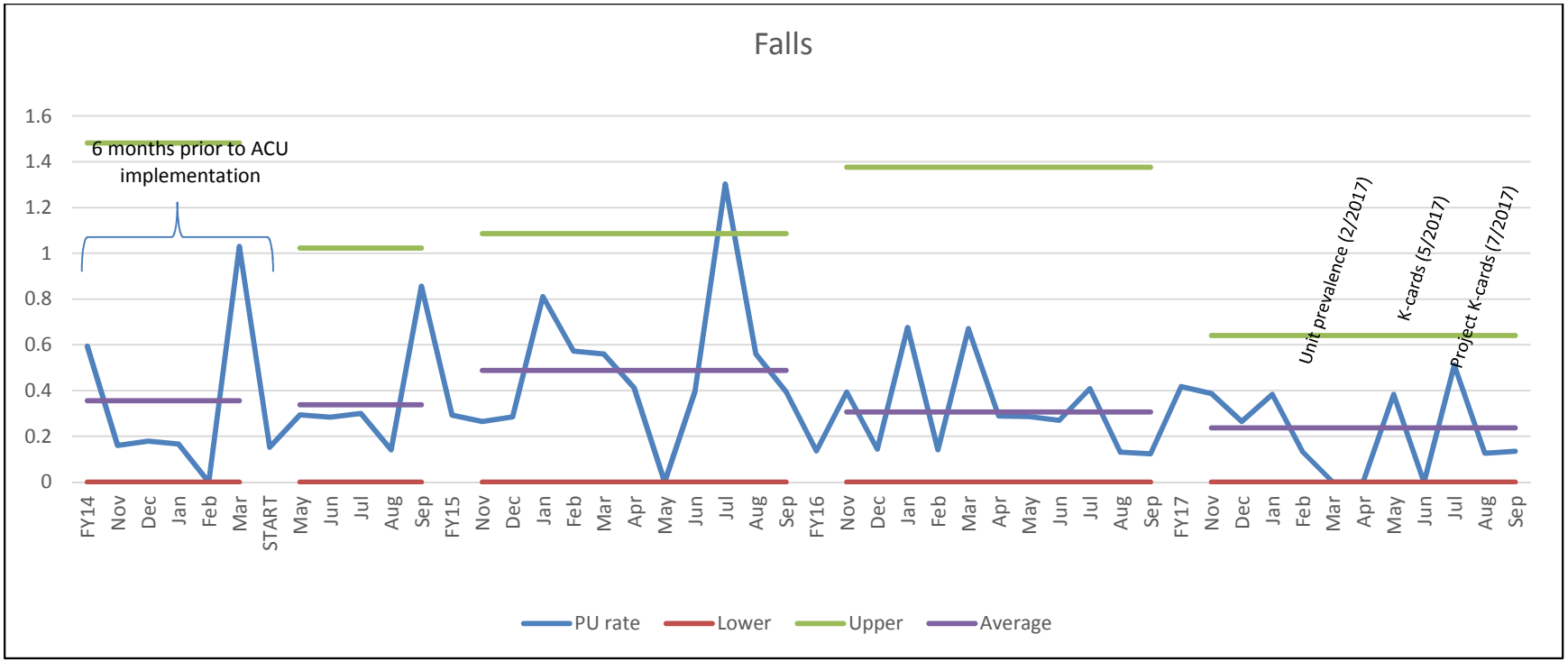

Figure G.11 Geriatrics (Unit 2) Falls Rate

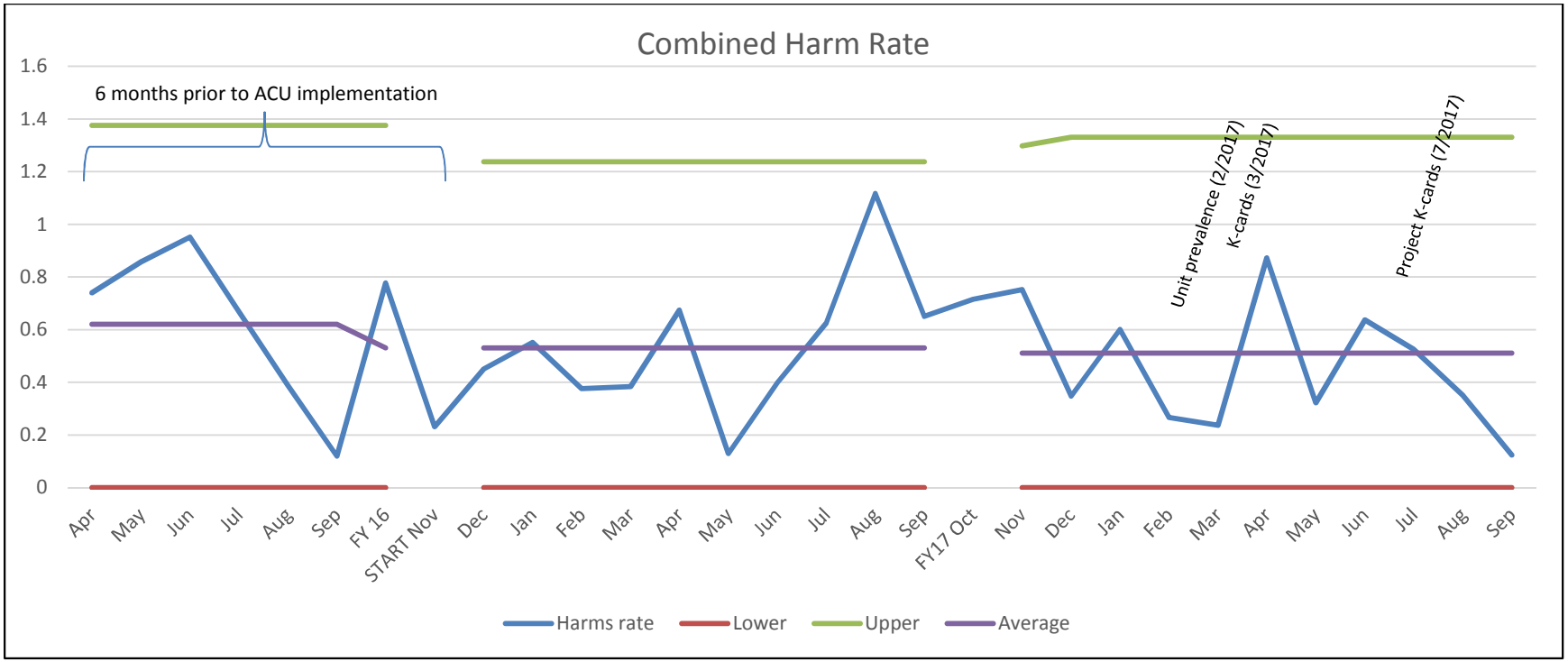

Figure G.12 Internal Medicine (Unit 3) Harms Rate

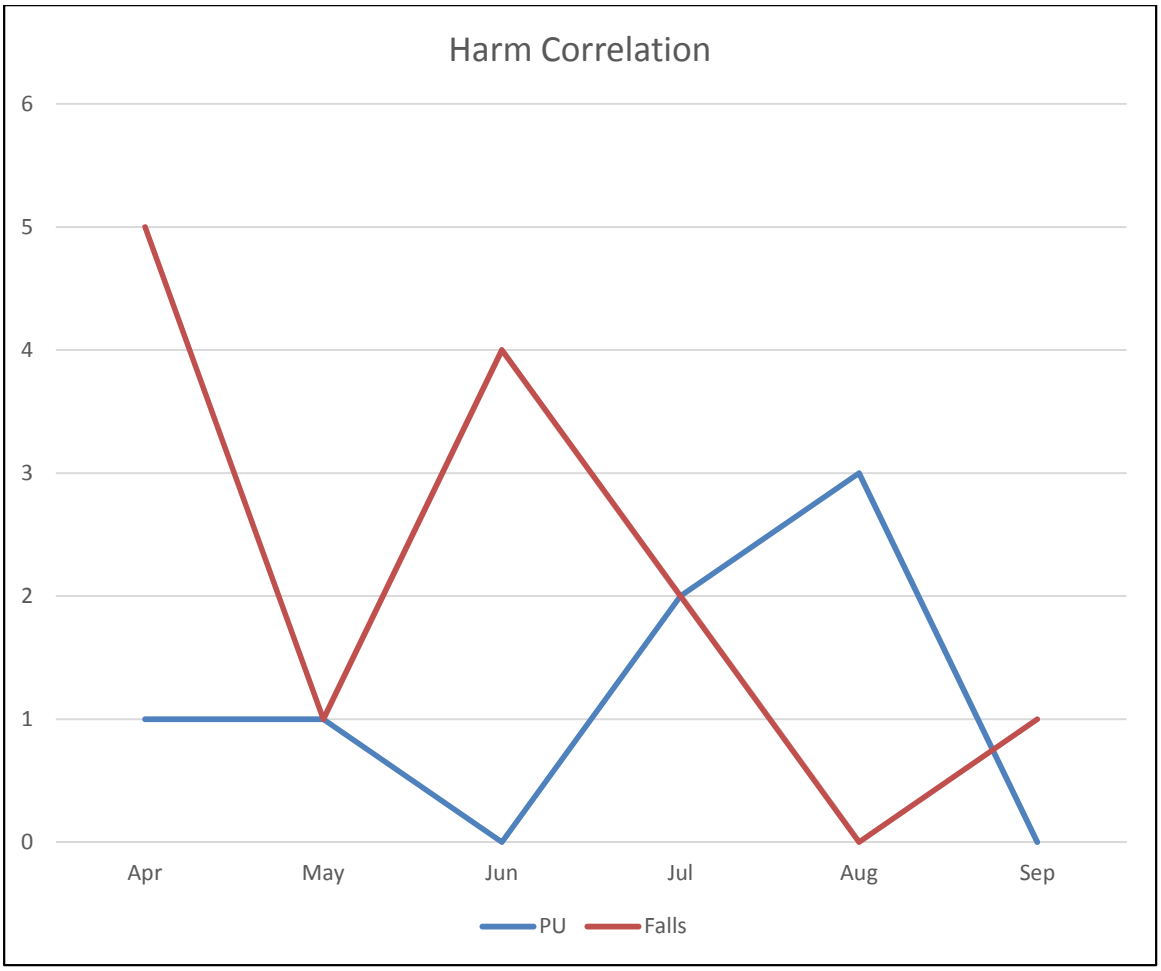

Figure G.13 Internal Medicine (Unit 3) Harms Correlation

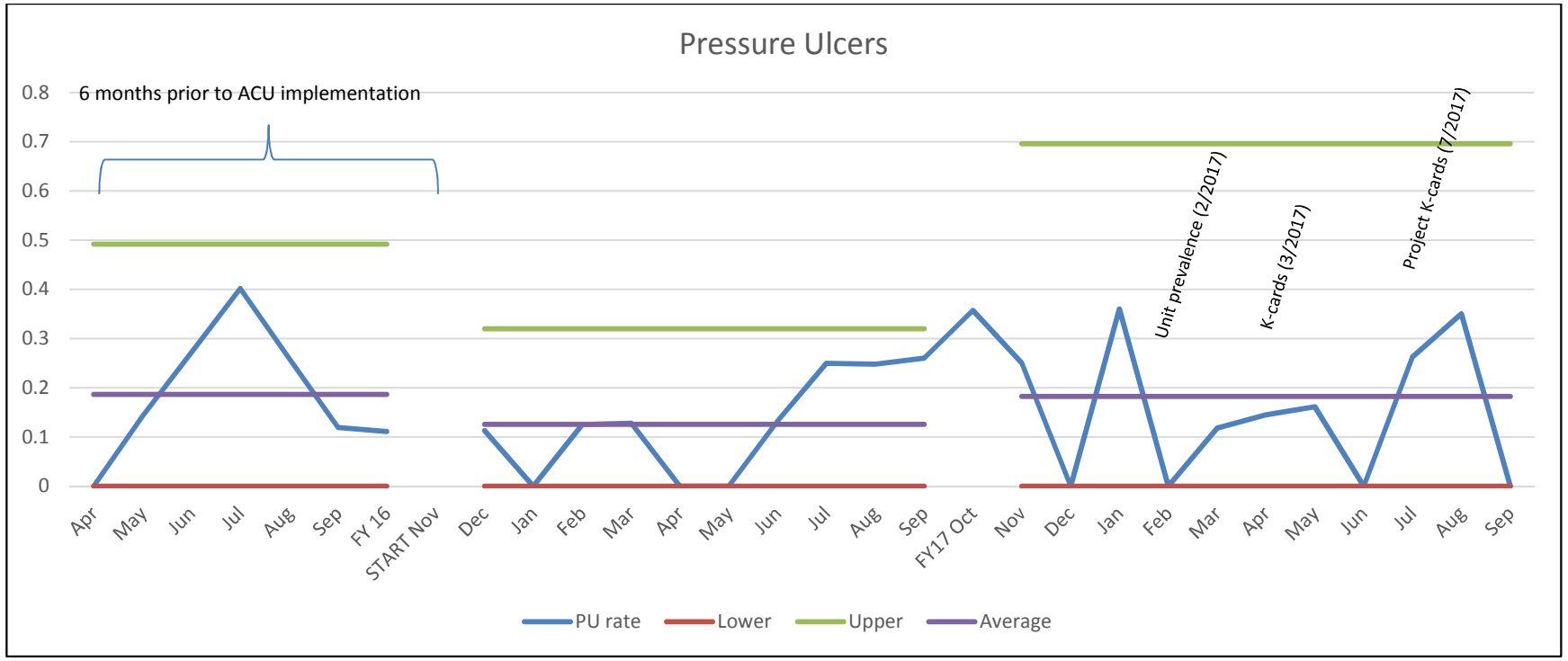

Figure G.14 Internal Medicine (Unit 3) Pressure Ulcers

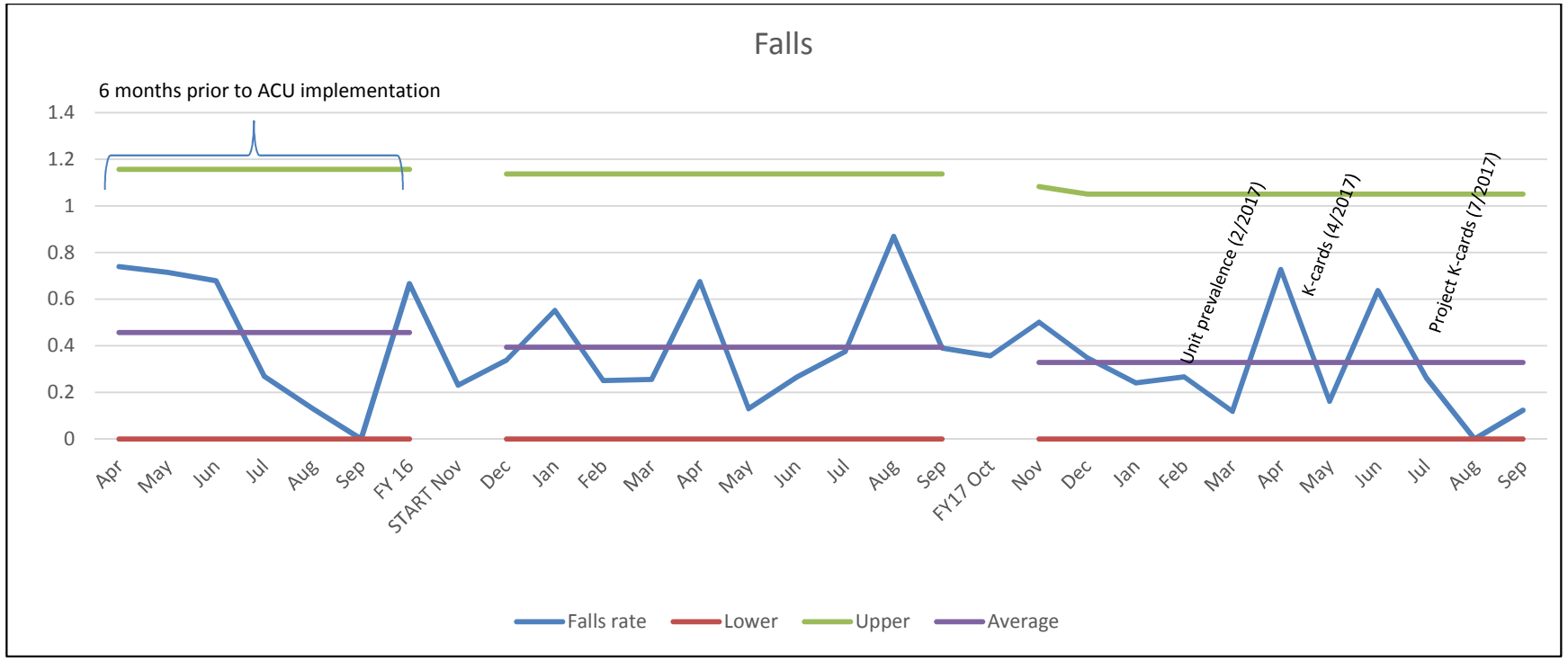

Figure G.15 Internal Medicine (Unit 3) Falls Rate