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Closing the Loop: The Effects of Scheduling Patients' Follow-up Prior to Emergency Department Discharge

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CLOSING THE LOOP: THE EFFECTS OF SCHEDULING PATIENTS' FOLLOW-UP PRIOR TO EMERGENCY DEPARTMENT DISCHARGE.

By

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Abstract

Background: A large percentage of serious medical errors involve miscommunication during the hand-off of patients between medical providers. In addition, care providers do not effectively or completely communicate important information among themselves, to the patient, or to those taking care of the patient at home in a timely fashion. The communication method whether verbal, recorded, or written has proven to be ineffective. As healthcare disparities increase with healthcare complexity, it is important to extrapolate the best evidence based practice and bring these practices to the front line.

Literature Search: A comprehensive literature search using the Cumulative Index to Nursing and Allied Health Literature (CINAHL) and MEDLINE was performed. Medical Subject Headings (MeSH) were used in various combinations including key terms: emergency department, care coordination, and follow-up compliance. The search was limited to dates from 2004 to present, English language, Evidenced Based Medicine (EBM) reviews, Systematic Review (SR), Randomized Controlled Trials (RCT), and Human related. Selected studies demonstrated that scheduling patients' follow-up prior to emergency department discharge has shown to be an effective method in increasing patient follow- up compliance. Several other beneficial outcomes including: increased patient satisfaction, decreased unscheduled visits to the emergency departments, possible avoidable costly hospital admissions, and an overall decrease in unnecessary health care expenditures have also been noted.

Methodology: Patients who need follow-up within 30 days of emergency department discharge may be selected for enrollment. The intervention group will have follow-up scheduled for them prior to emergency department departure. The standard group will be given the hospital's standard discharge instructions and make their own follow-up appointment. Outpatient provider offices will be contacted at 30 days following departure to ascertain if patients followed up. Selected descriptive and inferential statistics will be used as appropriate to examine follow-up compliance between groups, as well as socio-demographic factors that may impact follow-up compliance.

Objective: The purpose of this research is to contribute to the growing body of knowledge supporting the transition of patient care. The project will evaluate the effects of scheduling patients for follow-up prior to emergency department discharge on follow-up compliance. There has been a continual growth of high level evidence that needs to be further developed and applied to the discharge of the emergency department patient.

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Chapter One-Introduction and Overview of the Problem of Interest

Introduction

In 2010, approximately 130 million visits were made to United States (U.S.) Emergency Departments (ED); of those visits, 82% percent resulted in discharge from the ED (Centers for Disease Control and Prevention [CDC], 2010). It is during discharge when a key process in healthcare occurs. Transition of care is defined as the transfer of information, responsibility, and authority as patients move along the healthcare continuum. Delivering high-quality patient centered health care requires crucial contributions from many clinicians and staff across the continuum of healthcare and requires that healthcare systems breakdown the so called 'silos' operated by various disciplines. The Institutes of Medicine [IOM] (2001) depicts 'silos' as those independent practices that do not fully participate in interdisciplinary collaboration. Supporting research shows that poor coordination of care across settings often results in avoidable re-hospitalizations. Re-hospitalizations account for nearly one third of the total $2 trillion spent on healthcare in the U.S. each year. (Fazzi, Agoglia, Mazza, & Glading-DiLorenzo, 2006). Effective transitions of care across the health continuum is vital. Inadequate transitions of care can lead to critical errors, especially if healthcare providers receive incomplete and inaccurate information. The Joint Commission on Accreditation of Healthcare Organizations (JCAHO) (2012) estimates that poorly communicated handoffs lead to 80% of serious preventable medical errors and are the leading cause of sentinel events, that is, those events that lead to death or serious physical or psychological injury, or the risk thereof. Poorly executed transitions of care can negatively affect a patient's

health, well-being, family resources, and generally increase health care costs overall. Previous research has shown that hospitalizations resulting from poorly executed transitions of care are avoidable. The current literature in relation to medical handoffs has not supported any single method of standardization as being effective. However, the literature has suggested several means of improving patient transitions and closing the loop in practice. Patients typically seem to frequent the ED when outpatient care coordination fails. Limited efforts to reduce the frequency of patients returning to the ED within a short period of discharge have emerged. Closing the loop and scheduling patients prior to ED discharge demonstrate promising insight.

Background (problem and supporting information)

In general, follow-up rates of patients discharged from the ED are infamously poor. Current strategies to improve follow-up care have met with variable success. Research has shown follow-up compliance rates as low as 30% to 50% in some U.S. urban and suburban hospitals (Straus, Orr, & Charney, 1983). Recent studies investigating compliance with recommended follow-up have shown that the U.S. healthcare system continues to perform poorly, with rates estimated to be as low as 26% to 56% (Kyriacou, Handel, Stein, & Nelson, 2005). Low patient follow-up compliance is a problem for both the ED, and the ED patient. The chaotic unpredictable environment of the ED poses a plethora of challenges in the communication process.

JCAHO (2012) has identified three primary root causes of ineffective transitions of care: communication breakdowns, patient education breakdowns, and accountability breakdowns. Communication breakdowns occur when care providers ineffectively

communicate pertinent information amongst themselves. Confounding expectations between clinical messages sent and received, differing healthcare cultures, lack of time provided for successful transition, and lack of standardized hand off procedures all contribute to communication failures. Patient education breakdowns include various aspects such as: lack of understanding of condition, the receipt of conflicting recommendations, confusing medication and discharge instructions, and the lack of knowledge or skills to follow-up among many others. Patients often do not become invested in the importance of their follow-up care plan. Finally, another disheartening fact, is that accountability breakdowns occur when no clinical entity takes responsibility to ensure that patients' health care coordination among various settings and disciplines is successful.

Delays in follow-up can have a significant negative effect on follow-up compliance, especially when early re-evaluation is suggested by the ED provider who strongly believes that follow-up is imperative (Magnusson, Hedges, Vanko, McCarten & Moorhead, 1993). Some of the barriers related to follow-up stem from poor interdisciplinary collaborative practice (IDCP). Effective IDCP necessitates a change in health professionals' values, socialization patterns, and workplace organizational structures (Orchard, Curran, & Kabene, 2005). Orchard et al. (2005) note that power imbalances among professionals must be lifted. Power imbalances lead to a lack of shared decision making around patients. It is important for health professionals to respect and value the roles of other professionals. Improved IDCP promotes the development of trusting relationships among its members, and power sharing where there is a willingness

to share power regardless of educational or professional preparation. Systems that effectively foster improved IDCP will improve patient care sub-sequentially. Proper IDCP, is fundamental in making follow-up appropriations including resource allocation, as well as, determining appropriate follow-up.

The lack of follow-up compliance following ED discharge has been noted across patients' lifespans. An older retrospective study by Magnusson et al. (1993), noted a significant ($p<.002$) relationship between compliance rates and increasing age; suggesting young adults should be a targeted population in intervening with follow-up compliance. A more contemporary systematic review by Hastings, Mitchell, & Heflin (2005) identified that as many as 24% of elders discharged home from the ED returned for a repeat visit within three months. In addition, return ED visits at six months were as high as 44%, this suggests the longstanding nature of problems with follow-up. Prior research suggests that the elderly population also has unsatisfactory ED follow-up; the need to target the elderly population with interventions to increase follow-up compliance has been demonstrated (Jones, Young, LaFleur, & Brown, 1997). A randomized controlled trial (RCT) performed by Baren, Brenner, Rowe, & Camargo (2006) revealed the same disparity among the pediatric population. The researchers were able to identify that providing targeted interventions to the pediatric population significantly improved ED discharge follow-up compliance rates. It seems evident that whatever the ailment, and whatever the age, ED efforts to increase follow-up compliance by arranging follow-up visits have been shown to be beneficial. Not only was increased follow-up compliance achieved, but other beneficial outcomes including increased patient satisfaction,

improved health outcomes, decreased unscheduled ED return visits, decreased unnecessary and often costly hospital admissions, and potentially a nationwide decrease in healthcare expenditures have been associated with increased ED discharge follow-up compliance. Timely follow-up after ED visits allows providers to be more active participants in overall disease management. What happens at the first healthcare provider visit following discharge is likely to vary according to patient and provider, as well as disease or injury processes (Baren et al., 2006). However, the important fact is that follow-up has occurred.

Significance (why the problem needs to be addressed)

As President Obama's Patient Protection and Affordable Care Act (ACA) released in 2010 continues to be implemented, healthcare purchasers, both private and public, consumers, and lawmakers have begun to look critically at readmission rates and have introduced payment policies designed to discourage them. Section 3025 of the ACA (2010) includes provision for the Centers for Medicare and Medicaid Services (CMS) to reduce its payments to hospitals with high readmission rates. This information is alarming, considering that the Congressional Budget Office (CBO) (2011) has estimated nearly 32 million Americans in 2016, and about 34 million Americans by 2021, will enter the U.S. healthcare system. As this influx of patients continues to increase among the healthcare spectrum, the amount of patients that will require appropriate follow-up care will continue to increase. Reducing unnecessary readmissions could potentially save billions of dollars from hospital stays that could have been avoided, and moreover, patients certainly benefit from fewer hospitalizations (Center for Healthcare Quality and

Payment Reform [CHQPR], 2011). Despite the overwhelming amount of evidence-based research, hospital and ED discharge procedures have not been standardized. On the importance of re-examining transitions of care, hospitals often lack adequate institutional systems to ensure the data are transferred to appropriate subsequent caregivers. Further escalating the dilemma, care coordination is not currently a key element of Emergency Medicine training or ED staffing. Many ED providers may protest that adding additional care coordination tasks to their already overwhelmed shifts, is an unrealistic expectation, without some type of compensatory initiative. The overwhelming evidence on the need to reform care coordination in the U.S. healthcare system should prompt ED providers and administrators to prepare for the impending future, which, through payment reforms, compensation will be influenced by care coordination efforts. ED discharge instructions and summaries frequently lack critical data and are not sent to Primary Care Providers (PCPs) in a timely fashion. Under many circumstances, ED information may not reach the PCP or follow-up provider at all. In many situations, patients are left unprepared at discharge and lack understanding of their discharge medications or even their discharge diagnosis. It is understood that these deficiencies in the transition of care lead way to poor patient outcomes, unnecessary costly hospital utilization, and a general increase in national healthcare costs. In countries that utilize universal healthcare like Canada, follow-up rates following ED discharge are higher. Outpatient follow-up from Canadian EDs has been documented to be as high as 86% (Murray & LeBlanc, 1996).

Scientific research has recognized that human behavior is often influenced by situational circumstances (Curley & Vitale, 2012). Understanding human behavior and

patient perception, will aid the healthcare sector in shifting the existing paradigm to a model of patient-centered care determining the behavioral pathway leading to unscheduled returns to the ED. It is crucial that healthcare professionals understand and consider the patient perspective. Population based research has shown society that behaviors account for a significant proportion of health related processes and individual decisions, therefore, preventative and proactive measures should be utilized. Patients' have multiple reasons for returning to the ED; many of which can be addressed by the proposed quality improvement project. Previous research has identified reasons for return such as: individuals wanting more tests, people who felt their complaint was not addressed, patients returning due to fear and uncertainty, and those who felt their condition was worsening. Scheduling timely follow-up could alter some of these perceptions. In terms of the discharge process, patients often had a problem understanding, felt rushed out of the department unprepared, and that explanations related to their testing and diagnosis were limited. Many patients report difficulty making a follow-up appointment with the PCP and specialists. In addition, patients reported that they had difficulty contacting their PCP or specialist and some thought that the wait was too long (Rising et al., 2014). The above are just a few patient perspectives among many. It is important to note that a majority of the previously mentioned perceptions could be easily addressed with the implementation of the simple task of arranging patients' follow-up prior to ED departure. It has been determined that even simple barriers can impede the desired behavior of increasing follow-up compliance. Developing standard discharge procedures, such as patient scheduling prior to departure, can aid in removing these

avoidable barriers. It has been postulated and shown that removing patient follow-up barriers results in fewer steps for the patient. The removal of these barriers has been shown to increase the likelihood that a patient will follow-up (Baren et al., 2001; Zorc et al., 2003).

The American Association of Colleges of Nursing's (2006) Essentials of Doctoral Education for Advanced Nursing Practice can be directly associated with this call for practice change. Using scientific underpinnings for practice the Advanced Practice Nurse (APN) can help lead the force dedicated to quality improvement related to ED discharge. The organizational leadership reflected by the APN will help guide other healthcare sectors in improving standards of care within a patient centered approach. Understanding that current healthcare policy is trending toward developing safer more effective standards of care, the advanced practitioner recognizes the movement and should begin to develop, through interdisciplinary collaboration, more competent standardized discharge processes and procedures from the ED, improving patient and population health outcomes.

Question Guiding Inquiry (PICO-T)

Healthcare research has shown that a large proportion of the population seeks care in EDs. Observational research has demonstrated the costly reality associated with unscheduled ED returns. Evidence based research, although sometimes fragmented in relation to the ED discharge processes, has shown that there are more effective methods in decreasing unscheduled ED return and potentially costly hospital admissions. With a focus on patient centered transitions of care the guiding question is: *In patients*

discharged from the emergency department, how does scheduling a care visit with a follow-up clinician prior to emergency department discharge, in addition to the standard verbal and written discharge instructions affect patients' follow-up care visit compliance, compared to standard verbal and written instructions alone?

System and Population Impact

Hospital administrators may believe that the additional task of scheduling patients prior to ED discharge is not cost effective. In addition, they may falsely predict that decreasing ED unscheduled visits will contribute to a decrease in the hospital's overall income. It should be noted, that the outcome is in fact, just the opposite. Evidence-based research shows that unscheduled ED visits cost hospitals and organizations more money (Boutwell et al., 2009; Jack et al., 2009; Schall et al., 2013). It is well-known that patients who return to the ED unscheduled are often uninsured or underinsured (Baren, et al., 2001; Boutwell et al., 2009; Jack et al., 2009; Magnusson et al., 1993). As previously noted, recent changes in CMS reimbursement regulations will now limit or decrease insurance payments for unsatisfactory and ineffective care coordination.

Recently, the Reengineered Discharge (RED) randomized controlled trial performed at Boston Medical Center in Massachusetts demonstrated a 33.9% lower observed cost in the intervention group who had a nurse discharge advocate (DA) facilitate care coordination. In the RED trial, the difference between study groups in total cost, which combined actual hospital utilization cost and estimated outpatient costs, for 738 participants, was $149,995 (Jack et al., 2009). If this figure was extrapolated across the nation, billions of dollars could potentially be saved by simply providing more

efficient standardized ED discharge procedures and services. The STate Action on Avoidable Rehospitalizations Initiative (STAAR) (2009) sponsored by the Institute for Healthcare Improvement (IHI) discusses that avoiding unnecessary re-visits is warranted for the following reasons: 1.) the burden of harm and thecost of millions of re-hospitalizations is evidentially high; 2.) a significant portion of evidence based research suggests several concrete ways to avoid unnecessary re-visits and readmissions; 3.) several at risk populations and outcomes have been identified and are quantifiable; and 4.), hospitals, politicians, and stakeholders are focused on reducing unnecessary returns and are practicing quality improvement and care coordination techniques across the healthcare continuum (Boutwell, Jencks, Nielsen, & Rutherford, 2009).

Purpose, Aims/Objectives

One of the primary purposes of this project is to assess the effect of making follow-up appointments for patients in a general ED population. Some other secondary evaluations will be to assess socio-demographic characteristics as possible factors that may represent barriers to outpatient follow-up compliance. This quality improvement project should also help to demonstrate which disease ailments are more likely to be positively impacted by improved follow-up compliance rates. The proposed quality improvement project will also help to identify system barriers, and community barriers that impede follow-up compliance. It is expected that this project will contribute to the existing body of knowledge that supports improved transitions of care (Kyriacou et al., 2006; Magnusson et al., 1993; & Thomas el al., 1996). The proposed project may provide ED staff with data that can be used in quality improvement audits, and it may help in the

development or revising of post ED visit discharge protocols. Finally, it is expected to result in the improvement of patient satisfaction with the care received in the ED. Throughout today's evolving healthcare system, providers are pressed to implement strategies for information delivery at discharge. The goal in this information exchange is to effectively address patient's needs and to ensure processes that are feasible and sustainable in the ED setting. Effective information and communication transfer to outpatient clinicians immediately, allows clinicians to assume accountability and responsibility for patients discharged from the ED. In addition, this could help decrease time spent requesting records, or the amount of money spent on duplicate testing, as well as, lessen the amount of unnecessary visits back to the ED. Scheduling patients prior to ED discharge may also generate increased outpatient clinician awareness of ED visits, further enhancing coordination of care, prompting patients' follow-up and patient education (Limpahan, Baier, Gravenstein, Liebmann, & Gardner, 2013). Additionally, ED relationships with outpatient centers will be fortified. The U.S. healthcare system reflects a fragmented, complex system that leads to significant variability in the quality and effectiveness of cross-setting communication outside of the hospital system. The Institute of Medicine (IOM, 2001) defines healthcare quality as the extent to which services are consistent with evidenced based knowledge and that help to make healthcare safer, equitable, effective, efficient, timely, and most importantly, patient centered. The fee-for-service, episodic, acute care oriented, U.S. healthcare system falls short on its focus on patient preferences and experiences. Avoiding re-hospitalizations and unnecessary ED visits is a patient centered goal. Post-discharge support will require

healthcare providers to reach beyond the walls of the hospital. Effective post-discharge support will require multidisciplinary collaboration between ambulatory providers, home health agencies, and patients and their families.

Chapter Two: Review the Evidence/Literature

Methodology

The initial literature search was performed using all databases without limiters using the Medical subject headings (MeSH) terms: “emergency department”, “emergency department discharge”, “discharge planning”, “transition of care”, “follow up”, “follow up compliance”, “care coordination”, “hospital readmissions”, “primary care follow up”, “barriers to primary care”, “patient compliance”, “emergency medical services”, and “outpatient services in hospitals”. These terms were trialed in several different combinations and yielded far too much unrelated material as follows: emergency department=186,189; emergency department and discharge=11,255; emergency department and discharge planning =406; emergency department and follow up compliance =120; follow up compliance =2540; emergency department and transition of care=332; emergency department and care coordination=348; emergency department and hospital readmissions=508; emergency department and primary care follow up=240; emergency department and barriers to primary care=114; emergency medical services and follow up=2156; outpatient services and follow up=2558; outpatient services in hospitals and follow up=324.

A more focused search used the Cumulative Index to Nursing and Allied Health Literature (CINAHL) and MEDLINE was performed, key terms were meshed in various combinations. The key terms “Emergency Department” and “Care Coordination” were searched without limiters and had 225 hits. The search was further limited from 2004 to present, and resulted in 193 hits. Further advancing the search, the following limiters

were placed: English language; Evidenced Based Medicine (EBM) reviews; Publication type- Systematic Review; Human related. Following the advanced search one result was captured. Katz, Carrier, Umscheid, & Pines (2012) performed a Systematic Review (SR) titled *Comparative effectiveness of care coordination interventions in the emergency department: a systematic review.* The researchers systematically reviewed literature related to care coordination during or following ED discharge. SRs are rated as the highest level of evidence, level I evidence. Katz et al. (2012) was screened for relevance and was directly related to the proposed Quality Improvement (QI) project. A publication date of 2012 is relatively recent which will review the latest materials available related to the subject topic.

The next significant search, using the MeSH terms "Emergency Department" and "Follow up compliance" without limiters resulted in 72 hits. The limiters "Evidence-Based Practice", and "Randomized Controlled Trials (RCT)" were then applied with 53 hits resulting. Abstracts where screened for research relevant to the proposed project topic. Three RCTs were deemed as supportive, with one RCT determined to be highly supportive. According to the evidence hierarchy pyramid, RCTs are level II evidence. In 2005, Kyriacou, Handel, Stein, & Nelson published the RCT titled *Factors Affecting Outpatient Follow-up Compliance of Emergency Department Patients.* This RCT was directly related to the subject of interest. The trial was performed within the last decade which will provide the most recent relative information.

In an effort to find a supporting guideline, a standard Google search was performed using the key word phase "reducing hospital readmissions". The first several

non-ad hits listed several government and nongovernment website links. A How-to guide from the Institute for Healthcare Improvement (IHI) was selected. The IHI is a leading innovator in health and health care improvement worldwide. The IHI has partnered with a growing community of visionaries, leaders, and frontline practitioners around the globe to spark bold, inventive ways to improve the health of individuals and populations. The IHI seeks out innovative models of care, and aims to spread proven best practices. The IHI is dedicated to optimizing health care delivery systems and building improvement capability. In 2013, Schall, Coleman, Rutherford, & Taylor published the *How-to Guide: Improving Transitions from the Hospital to the Clinical Office Practice to Reduce Avoidable Rehospitalizations,* a comprehensive guideline directly linked to the PICO question proposed.

Landmark Studies- Systematic Reviews

Overview Methodology

Katz et al. (2012) performed a SR examining the effectiveness of ED care coordination interventions. The primary goal of this study was to identify common themes about which interventions are more or less effective in improving quality by reducing return visits to the ED, and increasing follow-up visits with primary care providers (PCP). The researchers effectively describe their methodology for data collection. The investigators used well-known databases such as Medline, CINAHL, Web of Science, Cochrane controlled trials register, and Scopus. Katz et al. (2012) describe their search terms using the keywords: emergency department, emergency medical services, emergency room, care coordination, patient care planning, continuity of care,

and care transitions. The researchers describe that given the heterogeneity of designs, interventions, and outcomes; a qualitative SR was more appropriate than a quantitative meta-analysis. The researchers did comment that a quantitative meta-analysis would have been preferred given the nature of its higher level of evidence. Katz et al. (2012) describes that their final definition of ED-based care coordination interventions was pooled from 12 nationally recognized leaders in ED care for input and refinement. The researchers refined their inclusion criteria to studies that provided care coordination services with measurable interventions. Studies chosen had to quantify the transfer of information reported on clinical outcomes. Any interventions must also have been compared to the control or comparison group. The authors described four separate care coordination definitions that were pooled as follows: 1) Ensure incorporation of information from previous healthcare visits into the current ED visit. 2) Provided ED-based educational services or continuing care needs after discharge. 3) Developed a post ED treatment plan and next steps for obtaining appropriate aftercare. 4) Transferred information about the current ED visit to continuing care providers. The authors also describe that criteria for exclusion included studies that reported data on care coordination created or administered in the community, primary care office, or hospital inpatient setting. They also excluded studies without a measurable intervention and studies that reported on patient's subjective perceptions and attitudes that had no objective clinical outcomes.

Findings

Katz et al. (2012) describes that initially 19 studies were included for review. Bibliographies of the included studies were cross-referenced, and four additional studies were added for a total of 23 articles. Fourteen of these studies were RCTs and nine were quasi-experimental studies using a pre-and-post design. Nineteen studies developed a post discharge ED care and treatment plan, or steps for obtaining follow-up. The researchers describe that 12 of the 19 studies described interventions that were effective in improving their primary outcome, seven of these studies were RCTs. In four of the seven RCTs, researchers had made follow-up appointments on the patient's behalf while they were still in the ED. They also identified that in three of five quasi-experimental studies, researchers made follow-up appointments for patients while they were still in the ED. As noted, Katz et al. (2012) isolated several studies which demonstrated that scheduling patients for follow-up prior to ED discharge was an effective means in increasing outpatient follow-up compliance, further fortifying the proposed project's intervention.

Limitations

The authors describe several limitations to their research. The first limitation that they identified was that their narrowed definition of care coordination may have missed certain studies that could have fit within a broader definition. Second, researchers noted that given the heterogeneity of the interventions and outcomes throughout the research it was challenging to draw definitive conclusions. Many of the studies had one or two primary outcomes, however, multiple studies had several secondary outcomes which were also important. This made a difficult to compare studies. Third, the authors note that

the majority of the studies were performed at a single center institution; this may reduce the generalizability and effectiveness of interventions carried out at other institutions and locations. Fourth, Katz et al. (2012) commented that many of the studies reviewed lacked a theoretical framework which may explain why some of the study results reviewed were negative. Fifth, principal researchers note that publication bias may also play a role, negative study results are particularly prone to non-publication when related to care coordination. Sixth, investigators assigned each RCT a Jaded score. The Jaded score is a previously validated tool that rates RCTs from one to five, with five being the optimal score. This tool can be used in SRs to assess the validity of individual studies. They note that there has not been a tool developed to assess the validity of quasi-experimental studies.

Conclusions

The qualitative SR demonstrated mixed evidence about the effect of ED-based care coordination interventions. Katz et al. (2012) SR identified that there is not one particular care coordination intervention that is more effective than the other. In contrast, the authors did define some continuity among care coordination efforts. The investigators also noted that some studies demonstrated a paradoxical increase in ED visits after patients were exposed to care coordination interventions. They believe that this was related primarily to patients without an ongoing relation with their PCP. Some of the reviewed literature led the authors to believe that this paradoxical increase was related to a nurse follow-up call, which may have sensitized patients to their healthcare needs and sub sequentially may have caused some patients, particularly those without access to

outpatient physicians, to return. The investigators concluded that more research is needed to better understand what activities related to care coordination interventions will have the greatest effect. They also note that, in the future, hospitals reimbursement may also be affected by ED revisits. Katz et al. (2012) note that care coordination is a major goal of healthcare reform and future studies will be needed to determine which interventions are most effective. Among the care coordination interventions discussed Katz's et al. (2012) SR did reveal that scheduling patients for follow-up prior to ED discharge has been proven effective. Additionally, this is likely the most feasible tactic consuming very little time and man hours. The proposed intervention, is a practical approach for a short term QI project.

Validity

The researchers note that the strength of the evidence reviewed especially related to RCTs was suboptimal. They note that assigning a Jaded score, which requires blinding, caused many of the randomized controlled trials to have a suboptimal score of 3. Additionally, they note that it is difficult to blind patients to a care coordination intervention. The search strategy was well-organized and thorough. The authors noted that the only limitation to their search strategy was a potentially narrowed definition of care coordination. The investigators noted that professional librarian was consulted during the data extraction strategy. Data was collected and processed initially by a single reviewer who was trained through a series of meetings with the study group to discuss the purpose of the studies, the search terms, and the inclusion/exclusion criteria to be used. Several full text example articles were reviewed by the study team to ensure that the

reviewer understood and could accurately screen articles for inclusion and exclusion. Investigators followed guidelines created in the Preferred Reporting Items for Systematic Review and Meta-Analysis statement to create a four- phase flow diagram. Tables were clearly presented in an organized fashion and easily deciphered.

Reliability

All of the actual results from the data extraction were included. This included the year and author, the practice setting, inclusion criteria, intervention/goal/objective, outcome assessment, number of patients, and results. The information pulled from selected research studies was comprehensive, and directly related to the goal of the research, which was to identify effective care coordination interventions from the ED. The authors clearly describe the conclusion of their review.

Applicability

The majority of the studies selected for review were obtained from single center institutions. Some evidence suggests that this makes generalizability and applicability difficult. On the other hand, the single center institutions ranged from a variety of settings including urban, suburban, and rural facilities which can help strengthen the SRs generalizability. Although the study did not depict a single intervention that was greater than the other, it did demonstrate that arranging follow-up visits prior to ED discharge, has demonstrated effectiveness.

Methodology

A SR by Hastings & Heflin (2005) was performed to evaluate the evidence for interventions designed to improve outcomes for elders discharged from the ED. This

study was established after a call for research by the American Geriatric Society on whether alterations in the process of ED care may improve the outcomes of older ED patients. ED outcomes not only depend on the care received in the ED but also on the successful transition of care from the ED. The purpose of this study was to better understand the evidence supporting interventions aimed at improving outcomes for elders discharged from the ED.

Hastings & Heflin (2005) systematically reviewed articles indexed in MEDLINE and CINAHL. The researchers used key terms in varying combinations including: “geriatric”, “older adults”, “seniors”, “health services for the aged”, “emergency”, “emergencies”, “emergency service”, “hospital”, and “emergency treatment”. Bibliographies of the retrieved articles were then crossed referenced for additional resources. The researchers independently reviewed titles and abstracts to select citations that seemed to describe interventions that improved outcomes for senior adults discharged from the ED. Articles were then selected for further review. Authors excluded studies that described and/or tested interventions limited to patients with a single presentation or diagnosis, or delivered only to patients who would have otherwise been hospitalized. The writers discussed that an assessment of methodological validity of the relevant clinical trials was performed based on the following parameters: 1) Random assignment of subjects to treatment groups; 2) Analysis of patients in the group to which they were randomized; 3) Blinding of outcome assessors to group allocation; and 4) Completeness of follow-up. Once again, the authors described that a meta-analysis was determined to be infeasible due to the heterogeneity in designs, interventions, and

outcome measures. Of the initial 669 citations, 57 articles were identified as potentially relevant and were to undergo further review. After review, a total of 26 articles were judged to be relevant to the aims of the study. Final articles included 19 observational studies, two non-RCTs, and six RCTs.

Findings

The researchers organized interventions and summarized findings according to research type in table format. The interventions selected from observational studies and program descriptions were studies that included: telephone follow-up, trained nurse/team in ED, rapid home-based services, health visitors, and staff education programs. Clinical trials including RCTs and non-RCTs were organized in a table format. For each of the selected studies a table was produced and described: population, setting, intervention, outcome variables, and results. The SR revealed that a variety of interventions exist related to ED discharge for elders. Interventions included staff education programs, comprehensive geriatric assessment and referrals, summary of ED visit sent to the PCP, nurse case management with follow-up phone calls, short-term follow-up with a home care agency, routine notification sent to PCP, and review of ED discharge with a multidisciplinary team. The researchers identified that there was a large proportion of unmet home care needs in this population. Hastings & Heflin (2005) note that three of the four RCT's designed to measure functional outcomes showed improvements in the functional status of elders who were enrolled in the studies' interventions. These included the use of a specialty trained nurse to perform geriatric assessments and a component of home based care which was initiated in the ED. Similar to the SR by Katz et al. (2012),

there were some studies that demonstrated a paradoxical increase in ED utilization following the intervention. Once again, the authors note that some interventions may have prompted patients to return to the ED.

Limitations

There are a few potential limitations to the SR. Identification of relevant studies for selection may have been incomplete. Additionally, the authors noted potential publication bias, similar to the previous SR by Katz et al. (2012). The writers again note that quantitative analysis was difficult to achieve due to the heterogeneity of the reviewed research. Finally, Hastings & Heflin (2005) concluded that the generalizability of their findings may be limited, as many of the studies were performed in very different healthcare systems and settings. On the other hand, some may view this as a potential to increase generalizability.

Conclusions

Hastings & Heflin (2005) concluded that interventions during the ED discharge process, specifically for the elderly, have demonstrated positive outcomes. The authors were not able to isolate one specific intervention that preceded the others. Furthermore, the researchers depict the need for high-quality studies to evaluate communication between the ED and PCP. Hastings & Heflin's (2005) SR confirmed that functional decline in elders can be reduced by using various intervention models following the ED visit.

Validity

Validity of the study was strengthened by a systematic search strategy. Studies that meant selection criteria were then reviewed by both researchers which helps to decrease bias. Keywords used during the search process where appropriate and reflected search terms used by many other studies. The database MEDLINE and CINHAL are reputable databases. The authors use of tables also help strengthen validity. Tables were well organized, well formatted, and easy-to-read.

Reliability

Hastings & Heflin (2005) reported all results accurately. The writers pooled data from research review and specifically listed the population, setting, intervention, outcome variables, and results in the form of tables. Tables included all conclusions from literature review in a clear organized format.

Applicability

In relation to the proposed QI project, this SR has demonstrated that programs designed specifically for ED discharge have been proven beneficial and can result in decreased unnecessary ED utilization, increased patient satisfaction, and improved patient outcomes. Although this SR did not specifically address the concept of scheduling patients prior to ED discharge, it did demonstrate that referrals made for home care during ED visit proved to be beneficial. The process of scheduling home referrals prior to ED discharge is similar to the process of scheduling patients for follow-up care prior to ED discharge. Though this study was particularly designed to target the elderly population, it continues to support the concept that developing a well-organized ED

discharge process is fundamental in patient care and sub sequentially improves outcomes and decreases unnecessary ED utilization.

Landmark Studies- Randomized Controlled Trials

Methodology

Kyiacou, Handel, Stein, & Nelson (2005) designed a study to more definitively assess the effect of making follow-up appointments for patients in a general adult ED population. Using an RCT design, the investigators sought to compare the effects of two ED discharge instructional methods on outpatient follow-up compliance, as well as, to evaluate whether socio-demographic characteristics affected outpatient follow-up compliance. Investigators chose ED patients 18 years of age and older. Patients had to have had a discharge diagnosis with a medical condition requiring follow-up within one month in the outpatient setting, as determined by the ED clinician. Participants were selected consecutively during normal business hours (8 AM – 4 PM). Patients had to live in the Chicago area, have had an institution affiliated PCP, and/or be willing to be referred to an institution affiliated PCP. Patients were excluded if they had a history of psychiatric problems, substance abuse, scheduled to return to the ED for short-term follow-up, were admitted to the hospital, or had a language barrier. 287 eligible subjects were identified. 250 subjects agreed to participate, 119 subjects were assigned to the intervention group, and 131 subjects were assigned to the standard group. The authors mentioned that there were no significant differences between the standard group and the intervention group in relation to age, gender, race/ethnicity, education level, distance from the outpatient clinic, disease category, and insurance status. Subjects in the

intervention group had an outpatient appointment scheduled with their PCP or referral provider prior to ED discharge. Subjects in the standard group were asked to schedule follow-up with their PCP, or with the hospital referral physician recommended to them.

Findings

Follow-up status for all subjects was determined by contacting the patients' referral provider's office. The study found that the overall compliance follow-up rate was 59% in the intervention group, and 37% in the standard group ($P < .001$). The authors concluded that the intervention was much more effective in the subgroup of patients that did not have a PCP (53% vs. 17%, $P < .001$). The researchers found that patients seen during weekday hours in the ED were significantly more likely to comply with outpatient follow-up instructions if their appointment was booked prior to discharge.

Limitations

The authors note several limitations to their study. One limitation was that subjects were selected during normal business hours. It is difficult to extrapolate the effect to weeknight and weekend patients. The second limitation was that the study was performed at an urban teaching hospital, leaving question for generalizability. The third limitation to the study was that the study size was too small to definitively assess the effects of socio-demographic characteristics. Finally, the authors note that the study did not evaluate the effect that individual ED providers had on outpatient follow-up compliance.

Conclusions

Despite the limitations previously mentioned it is reasonable to conclude that ED patients who have their outpatient follow-up appointment made prior to ED discharge are more likely to comply with outpatient follow-up care, henceforth, decreasing unnecessary ED utilization.

Validity

Subjects were randomly assigned to the intervention group and standard group by a research assistant based on the last digit of their medical record number. Attending physicians, nurses, and residents were blinded to this method. Odd numbers were assigned to the intervention group, and even numbers were assigned to the standard group. The writers commented that because subjects were required to provide written consent, it was difficult to maintain blindness to the intervention. Although the study did not provide the actual number representing the power analysis the researchers did comment that the study had adequate power to show the effect of the intervention, which was the authors' primary intention. The authors also stated that there were no significant differences in the intervention group verses the control group at baseline. The authors did not comment on any intention to treat analysis.

Reliability

Cross tabular univariate analysis with chi-squared tests were conducted to estimate the crude relative risk measures for the effects of the intervention on the outcome of outpatient follow-up compliance, this was also performed on the socio-demographic variables. Poisson multivariate regression modeling was used to estimate

adjusted relative risks and confidence intervals. The authors used Stata Statistical Software. The use of computerized statistical software helps to increase reliability and reproducibility. All relevant findings were supported by statistical support. Outcomes were supported by *P* values organized and listed in the form of tables.

Applicability

Kyriacou et al.'s (2005) RCT provides strong support to the proposed QI project. The method for obtaining outcome compliance is easily reproducible. Although this study was performed at an urban teaching hospital during normal business hours in a primarily adult population, it seems fairly evident a similar study could easily be performed at other institutions in other settings and across the lifespan. The socio-demographics characteristics used in this study are very similar to the proposed QI project. Kyriacou et al.'s (2005) intervention of scheduling patients prior to ED discharge will be implemented. However, the intervention group will not be limited to location, or in network providers only. One benefit of this strategy is that results may help to identify barriers to care, or areas where transition from the ED may need improvement. The outcome measures are similar to the proposed PICO question, follow-up compliance will be measured in the same format via telephone with the addition of computerized confirmation for in-network providers.

Methodology

In 2006, researchers Baren, Boudreaux, Brenner, Cydulkea, Rowe, Clark, & Camargo, performed a *Randomized Controlled Trial of Emergency Department Interventions to Improve Primary Care Follow-up for Patients With Acute Asthma.* The

primary objective of this trial was to compare the effects of two ED interventions on primary care follow-up. Participants ages 2 to 54 years were eligible for selection if they met the following criteria. Participants had to have a current asthma exacerbation, including those individuals with a new diagnosis of asthma made by the emergency provider. Patients were selected if the decision by the emergency provider was to discharge them with prednisone. Patients had to have the ability to give informed consent. Patients had to have access to a telephone, cellular-phone, or pager with availability at two days and 30 days post ED visit. Patients who could not speak English were excluded. Subjects were selected from the hours of 7 AM until midnight while research assistants were present. Investigators were located at nine separate ED's. Patients were enrolled for a median of six weeks. The majority of sites were tertiary care teaching hospitals, serving poor urban populations, as well as, sites that served suburban or rural populations. Initially researchers identified 992 patients who were eligible for enrollment. After refusals and missed patients, a total of 384 individuals were enrolled. 126 patients in group A, 126 patients in group B, and 132 patients in group C. Group A patient's served as control subjects and received the usual discharge care from the treating provider. For groups B and C, the intervention groups, subjects were provided a five day course of prednisone and two transportation vouchers prearranged through a local taxi service. The prearranged taxi vouchers were to only be used to travel to and from PCP. Group C patients completed a preference for appointment form to assist in arranging their follow-up. Group C patients were then given a scheduled appointment, made by research assistant who contacted primary care offices, during the same or next

business day. The primary outcome for the study was to assess whether patients presented to their PCP for asthma follow-up within 30 days of the initial ED visit. Investigators, who were blinded to the group assignment, contacted each patient's PCP at 30 days to confirm appointments. Secondary outcomes were obtained approximately 12 months after the initial ED visit. 12 months following the initial visit, patients were contacted by callers blinded to the study group. Investigators obtained information including: how many times the patient sought care for asthma in the ED, how many times they sought care for asthma in their PCP's office, how many times they were hospitalized for asthma, the use of asthma medications in the past 24 hours, and functional limitation due to asthma in the past two weeks.

Findings

The researchers' main outcome, which was follow-up with the PCP at 30 days, was more common in group C patients, compared to groups A and B. Subjects in group C were significantly more likely to have a follow-up visit completed (P <0.001). The researchers used multivariate logistic regression to adjust for other important factors influencing follow-up including age, sex, race, insurance status, prior relationship with PCP, and a history of smoking. Following adjustment, the intervention for group C remained statistically significant.

Limitations

Some limitations where noted in the research. The authors report all identified limitations which helps to strengthen the reliability of the investigation, as well as, identify areas where future research could be tailored. No attempt was made to

standardize the definition of usual discharge care. For group C patients, and because of the nature of the intervention, it was neither desirable nor possible to blind patients to the study intervention. One of the limitations of this study was the potential for selection bias. Lack of complete follow-up for all subjects may also be viewed as a limitation. The scholars note that enrollment was nonconsecutive and that it is unknown whether other patients would have been more or less likely to have primary care follow-up. The researchers denote that it was not possible to completely blind subjects to which group they were assigned, however, the type of treatment was concealed. In addition, the lack of 100% PCP verification follow-up was also a limitation. The final limitation was that researchers did not attempt to determine whether patients relapsed and presented for asthma care at any institution outside of the participating sites.

Conclusions

In summary, researchers found that the three-part intervention significantly increased the likelihood that asthma patients discharged from the ED complied with a follow-up appointment. Researchers found that even after accounting for demographic differences, follow-up compliance remained statistically significant among group C patients, those patients that had follow-up appointments arranged for them prior to ED discharge.

Validity

Patients were randomly assigned to one of three groups based on consecutive study packets in stock at participating sites. To ensure randomization each packet was numbered with a three digit code on the outside. This three digit code was also located on

the inside of the packet and was followed by the letter “A,” “B,” or “C.” Group A patient’s served as control subjects and received the usual discharge care from the treating physician. For groups B and C, the intervention groups, subjects were provided a five day course of prednisone and two transportation vouchers prearranged through a local taxi service. The prearranged taxi vouchers were to only be used to travel to and from the PCP. Group C patients completed a preference for appointment form to assist in arranging their follow-up. Researchers who gathered outcome information from the PCP were blinded to the study groups. Baren et al. (2006) did discuss that data was analyzed on an intention to treat basis. Investigators pointed out that demographic and clinical characteristics of enrolled patients did not differ.

Reliability

Baren et al. (2006) clearly indicated statistical measures used. The scholars analyzed data using statistical software increasing the reliability of outcomes. Data was presented as proportions with 95% confidence intervals, means standard deviation, or medians with interquartile ranges. The association between intervention groups and other factors was examined using chi-square test, as well as, Wilcoxon and Kruskal-Wallis rank tests as appropriate. The authors also state that they used multivariate logistic regression models to evaluate demographics such as age and sex. Odds ratios were presented with 95% confidence intervals. All *P* values are two-tailed with ($P < 0.05$) considered to be statistically significant.

Applicability

The above study has several similarities related to the proposed QI project. Although this study was performed in patients with asthma, other supporting research has demonstrated increased follow-up compliance across other discharge diagnosis. The researchers found that the results of their study were similar to other supporting studies, whereas, appointment making was a successful part in achieving follow-up compliance. One of the benefits of this study that supports the current proposed QI project, is that statistical significance was maintained across all age populations, demonstrating that specialty populations, such as pediatrics, obstetrics, and the elderly could also benefit from the proposed intervention. Additionally, the study was performed across multiple ED settings which help strengthen its generalizability and applicability. The proposed QI project will use similar socio-demographics characteristics for targeting patients. Baren et al. (2006) analyzed two separate intervention groups and a third control, the proposed project will only implement the use of one control group and one intervention group.

Methodology

Scheduling follow-up for patients prior to discharge has shown to be beneficial in increasing compliance with outpatient exercise stress testing as well. Richards, Meshkat, Chu, Eva, & Worster (2007) composed the study *Emergency department patient compliance with follow-up for outpatient exercise stress testing: a randomized controlled trial.* The study was performed in three urban academic EDs, in Hamilton Ontario. The objective of this study was to determine if compliance with follow-up for exercise stress testing is higher in patients for whom the test is ordered at the time of ED discharge,

compared with the standard group of patients who were advised to arrange testing through their PCP. Patients selected had to be 18 years or older, have a telephone number for follow-up contact, have a PCP, have normal cardiac markers, be 6 to 8 hours from onset of symptoms, have no history of ischemic heart disease, and have the ability to perform an exercise stress test. Subjects were eligible if they did not have a specialty consultation in the ED and were being discharged to home for management by their PCP. Of the 238 patients randomized in the study, 231 were included in the final analysis.

Findings

Exercise stress test was performed within 30 days in 87 of the 120 patients in the intervention group (72.5%), and 60 of the 107 patients in the control or standard group (56.1%). There was a 16.4% difference in the compliance rates between the two groups. Chi-squared analysis demonstrated statistical significance (P <0.001). The researchers state that because four patients were lost to follow-up, sensitivity analysis was completed assuming that all four control patients had been compliant. The adjusted absolute compliance rate of 14.8% remained statistically significant (P <0.001).

Limitations

The authors clearly depict limitations of the study. Convenience sampling can be viewed as a potential limitation. The authors note that they used this method because limited resources precluded enrollment of all eligible patients presenting to the ED during the study period. Another limitation was that compliance characteristics may have varied across different times and days of ED presentation; the researchers understood that this may have resulted in selection bias. The writers also noted that their randomization

technique using envelopes, was vulnerable to tampering if unsupervised. Lastly, the investigators reported that they did not assess reasons for noncompliance using a standardized questionnaire.

Conclusions

The conclusion of this study was that if ED staff booked exercise stress tests following the investigation of potential acute coronary syndrome prior to ED discharge, patients were more likely to complete the test. This RCT demonstrated statistically significant outcomes related to scheduling patients prior to ED discharge and their said follow-up compliance. The researchers also performed telephone follow-up, interestingly, 60.6% of the patients in the intervention group and 65.1% patients in the control group said that they did not follow-up because they did not feel they had a heart problem and that the exercise stress test was unnecessary. The authors distinguished that other responses for noncompliance included difficulty taking time off from work, family or other time barriers, transportation difficulties, and forgetfulness. Although these findings were not statistically significant, they do suggest the importance of emergency providers emphasizing follow-up. The authors described the task of scheduling follow-up as relatively simple, they also depicted that scheduling patients for their follow-up decreases potential barriers.

Validity

It has been stated that the baseline characteristics were similar between the two groups. Baseline characteristics of each group were clearly listed in the form of a table. Subjects were randomized into one of two groups using a series of shuffled, then

numbered, opaque envelopes. Power analysis was performed based on a previous pilot study and the appropriate number of subjects were enrolled to reach a power of 90%. Data analysis was conducted on coded data with an analyst blind to the allocation group. The study found that when exercise stress test arrangements were made by ED staff, patients were more likely to comply with exercise stress testing. The researchers estimated that 6 to 7 exercise stress tests would have needed to be booked through the ED, for each additional compliant patient beyond a PCP arranged booking approach.

Reliability

The difference in compliance rate was assessed using chi-squared analysis. The authors also calculated for worst-case sensitivity analysis so that all patients who were appropriately enrolled were included in the analysis. The researchers noted that those individuals lost to follow-up in the intervention group were assumed to have been non-compliant, and those individuals lost to follow-up in the control group were assumed to have been compliant. Summary measures were presented as proportions, with relative risk at 95% confidence intervals and the number needed to treat to achieve the additional compliance of one patient. All data analysis were performed using SPSS version 11.

Applicability

The above referenced RCT measured the effects of scheduling patients for exercise stress testing prior to ED discharge. Although the outcome measures vary from the proposed QI project the concept of scheduling patients prior to discharge remains congruent. It seems applicable that if scheduling patients for testing prior to discharge is effective, then scheduling patients for follow-up prior to discharge should also be

effective. Some arguments can be made that the applicability of this RCT is limited because it was not performed in the U.S. It should be noted that standards of care remains the same across most developed countries who practice evidence-based medicine. Overall, it seems that this RCT can be directly linked to the proposed QI project where the intervention will be scheduling patients prior to ED discharge.

Landmark Studies- Non-randomized studies

Methodology/Overview

Magnusson, Hedges, Vanko, McCarten, & Moorhead (1993) performed a retrospective review study titled *Follow-Up Compliance after Emergency Department Evaluation*. The primary objective of this study was to identify factors associated with outpatient follow-up post ED visit. The study was performed at Oregon Health Sciences University, an urban teaching hospital with an ED census of approximately 30,000 patients per year. The authors sought to determine which factors (i.e. consultant contact, insurance status, patient age) were associated with patients' compliance with clinical follow-up. Researchers also sought to determine whether the scheduling approach used by the clinician was associated with follow-up compliance in a university hospital system. Researchers enrolled subjects between 18 and 75 years old. Patients had to be released to outpatient care with instructions specifying a university hospital clinic or ED follow-up, and the time period within which this appointment was to occur. Subjects were excluded if they were referred to obstetrics or gynecology because it is said that these clinics used a different approach to scheduling follow-up. Exclusion criteria also consisted of patients who were instructed to obtain follow-up outside the University

hospital system, as well as, patients who were instructed to obtain follow-up only of problems developed. Lastly, patients were excluded if they had been admitted to the hospital before the recommended follow-up visit. Subjects were enrolled into one of three groups. Group 1 patients were asked to return to the ED on a specific day. Group 2 patients were given a specific clinic appointment. Group 3 patients were given the clinic telephone number and instructed to call for an appointment. Approximately 4500 charts were screened by the reviewer's, 587 of these met study criteria.

Findings

Magnusson et al.'s (1993) study found that patients given a specific clinic appointment, those patients in group 2, had the highest follow-up compliance rate at one month (71%). 53% of the patients in group 3, those patients who were asked to make their own appointment, followed up within one month of the recommended date ($P<0.001$). Analysis was performed using the desired outcome of follow-up within one week of the recommended date for follow-up. The authors noted that seven statistically significant variables were identified in predicting increased patient follow-up rates ($P<.005$) and were as follows: older age, referral back to an established clinic, evaluation by a consultant in the ED, and the use of a specific follow-up clinic appointment at the time of the ED visit. Referral to a clinic without consultant contact, no insurance, and no physician before ED visit were associated with decreased follow-up within seven days of the recommended date. Each type of follow-up scheduling was assessed for effect on compliance. Scheduling of a clinic appointment before ED release was associated with improved compliance ($P<.005$). The practice of having the patient call for appointment

was associated with a reduction in follow-up compliance (*P* <.001). This study provided several other key takeaways including an association between follow-up and increasing age (*P* <.002). Interestingly, the use of ED consultation was associated with increased follow-up (chi-squared=50; *P* <.00001).

Limitations

Magnusson et al. (1993) recognized, that because of the retrospective nature of this study, certain limitations exist; only statistical associations between compliance and the documented confounding factors and types of clinical follow-up could be made. Retrospective studies cannot prove causation but can identify important relationships. In addition, because a selected population was studied, the results of this research may not apply to patients that were referred to their private physicians, or to patients that sought follow-up care at clinics associated with other systems or other university hospitals. There was potential for selection bias, as treating physicians may have selected a particular type of follow-up in anticipation of poor compliance. This practice would blunt the effect of those follow-up methods thought to improve compliance. Lastly, the authors believed that the appointment method used for each patient was determined by the prevailing method of the referral clinic, noting that this may bias follow-up results as well.

Validity

Enrolled subjects did not differ with respect to mean age or rank order for distance from the hospital. Researchers noted that significantly fewer men were in the patient group instructed to call for their own appointment. Unfortunately, there was no

randomization in this retrospective study. In addition, due to the nature of this study, there were no power calculations, intention to treat analysis, or blinding.

Reliability

Statistical analysis were performed using the NWA STAT-PAK statistical software for univariable analysis. For univariable analysis, unpaired t-test, chi-squared analysis, and Mann Whitney *U* test were utilized. In group comparisons, the authors utilized randomized one-way analysis of variance, the Kruskal-Wallis test, and chi-squared analysis for continuous, ranked, and categorical variables. The Regression Analysis of Time Series software was used for multiple logistic regression analysis. Significance level of alpha = .05 was used throughout all analysis. The authors noted that the reliability of the results of this research study were supported by the consistency of results of prior investigations.

Applicability

Although this is a retrospective study ranking lower on the hierarchy of evidence pyramid, it still has a contributory affect. It is said that a well performed, quasi-experimental trial can provide investigators with more sound information than a poorly performed RCT. This study is important to the proposed PICO question because it directly demonstrates increased follow-up compliance when appointments are scheduled prior to ED discharge. Similar to previous studies, the researchers noted that the study setting may limit its generalizability and that the effects of the interventions may differ across variable settings. Another important association found in this study, was that contact with consultants either by telephone, or by having the consultants evaluate the

patient in the ED, increased follow-up compliance. The proposed QI project seeks to measure follow-up compliance among all disciplines, including primary care and specialty services.

Landmark Studies- Clinical Guideline

Overview

Schall, Coleman, Rutherford, & Taylor (2013) in a response to the initiative of the Commonwealth Fund and the Institute for Healthcare Improvement have designed the *How-to Guide: Improving Transitions from the Hospital to the Clinical Office Practice to Reduce Avoidable Rehospitalizations*. The primary objective or aim of this guideline is to support office practice-based teams and their community partners in co-designing and reliably implementing improved care processes to ensure that patients who have been discharged from the hospital have an ideal transition back to the care team in the outpatient office practice setting. All guideline developers are listed in the beginning of the report. Many of the authors and contributors are members of the Institute for Healthcare Improvement (IHI). The IHI is a leading innovator in health and health care improvement worldwide. The co-authors and contributors are members of many disciplines including: nursing, medicine, public health, business administration, research, and education. The targeted users of the guideline are noted to be clinicians and their ancillary staff, primary care practices, hospitalist, and hospital-based clinicians. Although there has not been direct implementation of this specific guideline by users, the guideline clearly identifies similar pilot programs that are strongly related. This guideline has been created based on results of other similar guidelines.

Validity

Although the guideline was developed based on research, specific details of the strategy used to search for evidence was not provided. The report does however, support all recommendations with research citations. The report did not include search terms used, or specific dates of literature search. The criteria for including/excluding evidence was not identified. Clear-cut evidence selection criteria was not appreciated. Readers of the guideline can easily make inferences as to how recommendations were formed. The guideline does provide readers with possible risks to patients and organizations that do not follow the intended recommendations. This guideline was developed in an effort to increase health benefits to patients. The authors describe explicit links between the recommendations and the evidence on which they were based. Each recommendation is linked with a reference list on which it is based. Although reference lists following each recommendation would have been preferred, instead, references are listed in entirety at the end of the document. The guideline also provided readers with a list of expert reviewers from various disciplines. A specific review process was not appreciated. Schall et al. (2013) did provide utilizers with processes for making changes to the guideline, as well as, guideline updating.

Reliability

The entire guideline is not explicitly related to the PICO question previously mentioned. Rather, there are specific sections of the guideline that are directly related to the PICO question. Guideline recommendations provided concrete thorough descriptions of which managements are appropriate, as well as, situations in which managements were

appropriate for. This guideline is not recommended for specific conditions, but rather provides its users with variable options for use. All recommendations are clearly identified and easily deciphered. One of the more beneficial aspects of this guideline is that it provides users with several tools for implementation and application. Tools for specific recommendations are listed following the recommendation creating an ease-of-use.

Applicability

The guideline provides users with potential organizational barriers in applying the recommendations throughout the guide. Schall et al. (2013) provides a specific section designated to address the typical failures associated with the related systems of care. The economic implications of applying the recommendations have been considered. In addition, the authors provide CPT codes for billing purposes. The *How-to Guide* presents key review criteria for monitoring and audit purposes. Measuring adherence to the guideline was clearly identified and review criteria was derived from the key recommendations of the guideline. The authors of the guide clearly identify suggested measures for each recommendation and how to test changes. Users are also provided with tests to increase process reliability, as well as, tips for sustaining improvements.

Conclusion

Overall, this guideline has demonstrated its strong relation to the proposed PICO question. The recommendations provided throughout the guideline were very thorough and provided extensive resources for implementation. The guideline is very applicable and can be used across healthcare settings in the U.S. The recommendations provided by

the guideline are clear and quite practical evidence-based guidelines. Many of the applications proposed would likely require little additional resources. In addition, many of the resources are already available in many health systems. Implementation of the guideline would likely only require a redistribution of these resources.

A previously validated instrument, the Appraisal of Guidelines for Research and Evaluation (AGREE) tool was utilized to evaluate the clinical guideline. Although, the AGREE tool was intended for use by multiple reviewers, single reviewer scores ranked highest in Stakeholder Involvement (92%), Clarity of Presentation (92%), Scope and Purpose (89%), and Applicability (89%). The lowest scores were found to be Rigor of Development (62%), and Editorial Independence (50%). Low scores found in Rigor of Development, were primarily due to lack of clear-cut evidence selection methodology. Editorial Independence scored low because the authors failed to address possible conflicts of interest. Overall the AGREE tool was very effective in critically analyzing the supporting guideline. Analysis revealed a very strong applicable guideline to support the proposed QI Project. A complete breakdown of the guideline using AGREE instrument can be found in Appendix G.

Chapter Three: Organizational Framework of Theory or Conceptual Model

Introduction

In developing evidence based practice change, clinical scholars may find the use of a conceptual framework helpful in identifying and categorizing the various components of a project (Moran, Burson, & Conrad, 2014). The purpose of a conceptual framework is to assist scholars in organizing focus, developing a rationale, and providing a tool for incorporation and understanding of information. Conceptual frameworks aid in the development of the project's structure; defining project variables, as well as, providing a framework for examining outcomes. A good theoretical framework helps to define relationships around phenomena of interest. The United Kingdom's Royal College of Nursing Institute has accumulated experience, as well as, knowledge in the implementation of practice change (Rycroft-Malone, 2004). Through research, practice development, and quality improvement they have developed the Promoting Action on Research Implementation and Health Services (PARIHS) framework. This is a multidimensional framework developed in light of the complexity of the change process, a process which brings evidence based research into practice. The PARIHS theoretical model describes successful research implementation as functions of the relationships among three key elements: *evidence*, *context*, and *facilitation* (Rycroft-Malone, 2004). For evidence-based research implementation to be successful, there needs to be clarity about the nature of the *evidence* being used, the quality of the *context*, and the type of *facilitation* needed to ensure that the process change is successful. The PARIHS model further defines each of the three primary elements with sub-elements that are rated as

high or low. When sub-elements of each of the broader definitions are rated as high, change is more likely to be successful.

Evidence

In the PARIHS model, *evidence* is determined to be knowledge derived from a variety of sources. Knowledge that has been subject to testing is found to be more credible. Further defining evidence, the model describes that it is a collection of the four sub-elements of *research*, *clinical experience*, *patient experience*, and *local data/information* (Rycroft-Malone, 2004). Well-conceived and conducted *research* is rated as high. Based on the literature review, it has been determined that the evidence currently available supports the intervention of scheduling patients for follow-up prior to ED discharge as a means of improving transitions of care. Several high level evidence studies have supported the proposed practice change.

High *clinical experience*, is clinical experience that has been made explicit, verified through critical reflection, critique, and debate (Rycroft-Malone, 2004). To ensure a high level of clinical experience there must be consensus within similar groups. This is also made apparent in the literature review, where research from similar settings and healthcare sectors has demonstrated the effectiveness of scheduling patients for follow-up prior to ED discharge. The evidence related to increasing post ED discharge follow-up is reputable. Specifically, the research related to scheduling patients for follow-up prior to ED discharge has statistically demonstrated it's effectiveness and is, therefore, valued evidence.

Patient experience is high when a patient centered approach is used, that is, patient preferences are identified and used in decision-making process (Rycroft-Malone, 2004). Scheduling patients prior to ED discharge for follow-up is a patient centered concept. Various sources conclude that barriers to follow-up following ED discharge are challenging. Overcoming these barriers, on behalf of the patient, has shown to be an effective technique.

Lastly, *local data/information* is conceived as high when it has been collected and evaluated systematically and considered in the decision-making process. Information collected has been systematically analyzed throughout the previously discussed research. Conclusions of the research have noted the effective intervention of scheduling patients prior to ED discharge. This evidence has significant value related to quality transition of care of patients into the outpatient setting.

Context

Context, the second of the three key elements, occurs when researchers reconnect research with its pair, practice. Context is a compilation of the environment and/or setting in which people receive healthcare services. The PARIHS model depicts that contextual sub-elements fall under three schemes: *culture*, *leadership*, and *evaluation*. Teaching organizations are often more conducive to facilitating change. This type of setting, is fostered by learning *cultures* that pay attention to individuals, group processes, and organizational systems (Rycroft-Malone, 2004). The proposed project implementation site is based at a teaching organization which helps to facilitate a learning culture. There is consistency in the roles and values of individuals employed by the organization. Shared

power and authority exists among members of the organization, with a unified goal of providing the best possible patient care techniques. The proposed QI project is in line with the organizations initiatives and patient centered approach. The organization setting of the proposed QI project has abundant resource, both in the hospital setting, as well as, the outpatient setting.

One of the key roles of *leadership* is transforming cultures, therefore, the leader influences the molding of context that is ready for change. Leaders must be transformational rather than lead by command or control (Rycroft-Malone, 2004; Porter O'Grady & Malloch, 2014). The transformational leader is more conducive and inspiring to staff, having a shared vision for evidence based practice implementation and change. This transformational style of leadership helps the leader to transform the scientific component of healthcare practice, in conjunction with the translation of different forms of practice knowledge, into caring actions. This transformational leadership is congruent with Porter O'Grady & Malloch's (2014) model of leadership. It also reflects the objectives of the American Association of Colleges of Nursing's (AACN) Essentials of Doctoral Education for Advanced Nursing Practice (2006).

Evaluation and measurement are additional components of the environment that have a role in shaping its readiness for the implementation of evidence-based practice. Evaluation generates knowledge, this knowledge is used to help gauge whether or not changes to practices are appropriate, effective, and/or efficient (Rycroft-Malone, 2004).

Context characteristics are key to ensuring a fostering environment in getting evidence into practice. Successful implementation becomes more likely when high rated

context is present. When context is strong there is said to be clarity of roles, decentralized decision-making, valuing of staff, transformational leadership, and the reliance on multiple sources of information on performance (Rycroft-Malone, 2004).

Facilitation

It is said that the role of the facilitator is important when working with practitioners to make sense of the evidence being implemented (Rycroft-Malone, 2004). *Facilitation* is a technique in which one person makes things easier for another. Developing a quality improvement project that is easily implemented, is key in the facilitation process. It is the principal investigator's role to also play the role of the facilitator. Facilitators should have appropriate skills and knowledge to help individuals or teams of individuals.

In the PARIHS model, high facilitation relates to the presence rather than the absence of appropriate facilitation (Rycroft-Malone, 2004). The principal investigator of the project aims to be available for participating individuals as much as possible. The key factors of facilitation can be further broken down into three subcategories including *purpose, role, and skills and attributes*.

It is said that the *purpose* of facilitation can vary from a focused approach, providing help on individual levels and specific tasks, to a more complex holistic approach (Rycroft-Malone, 2004). The holistic approach is the process of enabling teams to analyze, reflect, and change their attitudes, behaviors, and ways of working. In the proposed quality improvement project the principal investigator will use a holistic approach. This is fundamental in the ED, where most providers have not had the

appropriate education and view the proposed intervention as extra work for which they are not compensated for (Katz et al., 2012). It is a role of the facilitator to make sense of this proposed practice change for the individuals and teams involved. They should implement an adult learning approach, as well as, sustain partnerships with participating staff. The principal investigator's role, or facilitator's role, is that of enabling the development of reflective learning by helping to identify the needs of learners, as well as, guide group processes and encourage critical thinking (Rycroft-Malone, 2004).

The *skills and attributes* of the facilitator may vary in different practice settings. Therefore, facilitators require a catalogue of skills and attributes. For skilled facilitation to occur, an individual should possess the qualities that allow them to adjust their role and style at different phases of implementation. Furthermore, the fundamental role of the facilitator is one that supports practitioners in practice change. In supporting practitioners in practice change, the facilitator aids in the transformation of the practice environment so that the implementation context is conducive to change (Rycroft-Malone, 2004). The facilitator will utilize co-counseling and critical reflection during the practice change process. The ability of the facilitator to develop the meaning of the proposed project to participating staff is pivotal in helping staff and key stakeholders to develop a sense of realness to the project's interventions and goals.

The above mentioned theoretical model is intended to aid in the success of the proposed QI implementation. When sub-elements of evidence, context, and facilitation are rated as high, successful practice change is more likely to occur (Rycroft-Malone, 2004). In summary, evidence should be robust and congruent with professional consensus

and patients' needs. Context that is sympathetic to culture, utilizes strong leadership, and has appropriate evaluation systems which will be more conducive to change. Lastly, high facilitation establishing purpose, roles, and skills will help to satisfy the theoretical framework and sub sequentially pave the road for successful practice change.

Chapter 4: Project Design, Data Collection Tools, Resources Needed, Budget Justification

Introduction

A thoroughly examined and well thought out project design is a key factor in facilitating the DNP project outcome. Moran, Burson, & Conrad (2014) write that designs and methods should be harmonious with the purpose and goals of the project. Poor care coordination efforts lead to increased medical errors, increased cost second to duplicate testing, increased unnecessary avoidable hospital readmissions, and less than satisfactory patient health outcomes (CHQRP, 2011; JCAHO, 2012). The simple task of scheduling patients prior to ED discharge for outpatient follow-up has been associated with increased follow-up compliance, decreased duplicate testing, a decrease in unnecessary costly hospital readmission, and improved patient satisfaction (Schall et al., 2013). A detailed description of the evidence based QI project of scheduling patients prior to ED departure to increase outpatient follow-up compliance and improve health outcomes by closing the loop in transitions of care is presented.

Project Design

The desired number of patients was determined in collaboration with the Director of the Research institute and based on a previous randomized controlled trial (Kyriacou, Handel, Stein, & Nelson, 2005), the difference in the proportion of treatment versus control group patients who complied with follow-up care was 22%. A minimum of 81 patients per group is required based on this estimated effect size, at beta = .80 and =

alpha = .05. Approximately 90 patients will be enrolled in both groups to allow for ten percent of patients who may be lost.

If agreeable, ED patients will be presented with the opportunity to participate in the proposed project and will sign the pre-approved consent to treatment form and project consent form following the standard ED process. The initial MU project consent (Appendix B) form had to be translated into a pre-formatted consent provided by, and at the request, of SLUHN's research department (Appendix C). Upon discharge, those patients identified as warranting a follow-up appointment with either a primary care provider or ED consultant within 30 days will be eligible for selection. If the provider wishes to schedule patients for follow-up prior to discharge, verbal permission will be obtained from the enrolled patients and/or designated guardians. The provider will then write the patients' medical record number on the preprinted index card and fill it out accordingly. The provider will then drop the index card into a safe deposit box stored in a secure location at each of three potential sites, accessible only by the project leader and Network Chairperson of Emergency Services and department chiefs. Deposit boxes will be checked weekly. Thirty or more days after a patient's visit, the patient's intended follow-up provider will be contacted. Follow-up within the hospital network will be verified through the electronic health record on a limited access computer with password restriction. If the provider is outside the network and requires a separate patient confidentiality attestation form (Appendix F), a universal patient privacy form will be faxed along with the patient's signed consent. Once the follow-up status is verified via telephone, St. Luke's Physician Web Portal, or AllScripts, it will be noted accordingly.

At that point the index card will be placed in secure hospital shredding bins. The ONLY patient identifier will be discarded at this point. A flow chart of project is listed in Appendix A.

Data Collection Tools

Data collection sites will include St. Luke's Allentown Emergency Department, St. Luke's Anderson Emergency Department, and St. Luke's Miner's Emergency Department. Initial data will be collected on a prewritten index card and will include the following: Does the patient's discharge diagnosis warrant follow-up within 30 days? Was follow-up scheduled prior to ED discharge? If so, the proposed date. Was follow-up guaranteed by another clinician during ED visit? Did the patient receive the standard written instructions to follow-up? The follow-up clinician's name/discipline. The approximate number of minutes used to arrange follow-up (i.e.1-2min, 3-5min, 5-7min, >7min). The scheduler's discipline will also be completed, that is, whether they were a physician, advanced practitioner, nurse, or ancillary staff.

The information selected to include on the index card was carefully chosen in order to satisfy the primary intention of the project, as well as, perhaps provide some beneficial information to the hosting facility. It was important to keep index cards simple to ensure ease of use and encourage participation. Creating a project which is easily implemented will facilitate physician participation, which has been identified as a possible barrier to care-coordination efforts, primarily a result of shortcomings in education and the lack of focus on care-coordination efforts (Kyriacou et al., 2005) Verifying the need for follow-up within 30 days was important, as this was a primary

characteristic required of enrollees. It was deemed important to know that all patients enrolled received the standard discharge instructions, this would serve as the principle characteristic of the standard group. Determining whether the follow-up was scheduled prior to ED discharge was the primary intervention of the QI project. Inquiring whether follow-up was guaranteed by another clinician during the ED visit, the follow-up clinician's name and discipline, the length of time used to make appointments, and what discipline performed the intervention are all secondary goals. Index cards would be dropped into the secure lock box at this time.

Collection of the index cards and signed consent forms occurred on a weekly basis. The collected cards and consents were stored in a secure location at the designated facilities. Only the principle investigator and Chief Network Chairperson of Emergency Services had access to the information. The principle investigator was responsible for performing follow-up inquiry. Once follow-up status was determined, the information was entered onto a SPSS file along with several descriptive characteristics including age, race, gender, insurance status, PCP status, and repeat ED visits to the network with the same or similar complaint within 30 days. This would be verified through the SLHUN electronic health record. The principle investigator was the only individual to have access to this secure file. Access to this information could have been requested by the Chief Network Chairperson and IRBs, on an as needed basis. At this point, the index cards were discarded into a designated hospital shredding bin. Any possible connection to the patient would be discarded at this time.

Resources Needed

An organization assessment was performed prior to project implementation and is a key component of a successful project. An organizational assessment should answer the following questions: What are the values of the organization in which the project will be conducted? Are the values or the organization consistent with the values of the project and the project leader? To what extent is the mission of the project consistent with that of the organization in which the project will take place? (Zaccagnini & White, 2015). Simply stated, the organization's values and mission are consistent with the principal investigator's, fostering an environment that aims to develop and utilize evidence based practices to provide the best possible patient care. Several resources would be needed to complete the proposed quality improvement project. The resources needed, and available, are consistent throughout the project implantation sites and include such items as: adequate space and facilities, computers and programs, inter and intranet applications, and telecommunications, including facsimile. Facilities and space available for the QI project at each site was determined to be available by permission of St Luke's University Hospital Network (SLUHN) IRB (Appendix D) and verbal permission from the Chief Network Chairperson of Emergency Services with a letter of support presented in the original IRB applications (Appendix E). Additionally, SLUHN offers a variety of internal support through their research institution, which includes online education related to research in general and the protection of human subjects education. MU also offered similar services. Each entity offers a variety of online education, workshops, seminars, and even one-on-one mentoring. Yang (2012) depicts that resources and facilities should

be conducive to research, as well as, supportive of the success of the project and/or research. SLUHN's director of the research institute was, at several points, contributory to the success of the project through emailed communication and one-on-one meetings. Notably, MU provided full support of project implementation throughout the Doctor of Nursing Practice (DNP) Program, a key characteristic of a successful collegiate program. Key internal stakeholders included: the MU DNP program director, Director of SLUHN Research Institute, Network Chairperson of Emergency Services, Medical and Nursing directors, the Service Line Administrator, physicians, advanced practitioners, nurses, and other ancillary staff. Key external stakeholders would include the community, or patient population, and outpatient practices.

A Strengths, Weakness, Opportunities, and Threat (SWOT) analysis was performed to aid the principle investigator in discerning where the strengths of the project lie, make plans to address any potential weaknesses, know where to look for opportunity, and be aware of potential threats to the project. A thorough SWOT analysis should leave the project leader with a sense of direction for the project's best chance of success. The primary strength of SLUHN is the mission to provide efficient evidenced based medicine. Additionally, the overlying family culture of the network may help to encourage support from peers. One of the weaknesses identified is the lack of incentive for participation. Overcrowding of low cost clinics is also a potential weakness of the system. Opportunities to streamline patient follow-up processes and help organizing overcrowding and continuity of care are potential areas of improvement. The development of interdisciplinary collaboration between the ER and the outpatient arena is

also part of the bundle of opportunity. Porter O'Grady & Malloch (2015) describe this as an effective component of system operations and leadership. Although there are likely several threats to the project, having to have staff obtain consents forms for a project that has little patient involvement and nearly no risk to those involved seems to be the most pertinent. Efforts are in place to debunk this apprehension.

Budget Justification

Direct costs are those costs that can be attributable directly to the project. An explanation of the direct costs related to the said project are offered. The cost of 200 index cards is approximately eight dollars. The cost of reproducing the consent form which was 2 pages front and back for a total of 800 needed pages was approximately ten dollars. Lock boxes were approximately 30 dollars apiece, for a total of 90 dollars for three. Staff who chose to participate, would do so on a pro-bono basis, and would not be compensated for any contribution of time or effort. The principle investigator's time invested in the project was also pro bono and part of doctoral education requirements. Cost analysis based on the entity of the scheduler's discipline, and time contributed to scheduling will be calculated to gage the cost of future applications. The cost per/min for each discipline is offered and is readily available via internet browsing (salary.com), is based on national averages for ED services, and may not reflect the exact cost for locality, but will help future utilizers to develop a general idea of the project's labor cost. The average cost based on a 2,080hr position is as follows: ER technician= 27 cents/min, ER staff Nurse= 55 cents/min, ER nurse practitioner= 82 cents/min, ER physician assistant=90 cents/min, ER physician= $2.08 dollars/min. The training prior to

implementation could be calculated in the cost as well by multiplying the individual's cost per/min x 10min. Ten minutes is a generous estimation on how long the project training took.

The indirect costs of project were not included but are listed as follows: the use of telecommunications, printers, internet services, utilities, and use of space. Indirect cost were not calculated as part of the total budget for this scholarly project implementation. For future application, indirect cost should be offered as a percentage of the direct costs (Zaccagnini & White, 2015). In totality, the estimated cost of implementing this particular QI project was $108, not including the labor services of participating staff and the for mentioned indirect costs. One of the secondary goals of this project is to help develop a more accurate understanding and estimation of labor costs for future application. Zaccagnini & White (2015) write that labor costs should be calculated and included in budget.

Cost Benefit Analysis

When considering any scholarly project, a cost benefit analysis should be provided (Zaccagnini & White, 2015). A cost benefit analysis helps to demonstrate that the benefit of solving the problem is worth the cost. In a previous hallmark randomized controlled trial by Jack et al. (2009) investigators demonstrated a 33.9% lower observed cost between the intervention group and control group. The RED trial, performed at Boston Medical Center with 738 participants estimated the actual cost of ED visits totaled $21,389 for the usual care group vs. $11,285 for the intervention group. In the RED trial the actual total cost of hospital visits totaled $412, 544 for the usual care group

and $268,942 for the intervention group. The difference between study groups in total cost, combining both actual hospital utilization and estimated outpatient cost was $149,995. Furthermore, previous research has demonstrated that approximately 28% of hospitalizations are avoidable (Boutwell et al. 2009). By scheduling patients for follow-up prior to ED discharge, opportunities such as easing access to care, timely post-acute follow-up, early lifestyle behaviors coaching and modifications, receipt of preventative care, and enhancing patient and family education can all be capitalized on to help reduce unnecessary ED utilization and subsequent unnecessary re-hospitalizations. Developing discharge interventions has also been demonstrated to improve patient outcomes and increase patient satisfaction which may appeal to the community and cause patients to seek care at participating organizations rather than non-participating competitors.

Finally, the Centers for Medicare & Medicaid Services (CMS) has been strengthening collaborations with states in order to reduce costs, improve the patient experience, and improve the health outcomes of the populations served. As an increasing proportion of Americans gain coverage as a result of the Affordable Care Act, utilization of services across the health care system is likely to increase, CMS and participant states share a strong interest in reducing unnecessary hospital ED usage. CMS is committed to partnering with states, plans, providers, and consumers to implement reforms that can appropriately address the needs of the community more effectively and more efficiently (U.S. Department of Health and Human Services [USDOHHS], 2014).

Chapter 5: Implementation Procedures and Processes, Task List with Time Line

Implementation Procedures and Processes

IRB approval was obtained from Misericordia University (MU) (Appendix B), as well as, St. Luke's University Hospital (Appendix D). A complete IRB application was filed with both institutions. St. Luke's required a full IRB application for any researcher who intended to enroll at risk populations such as pregnant women and children, additionally, any principle investigator wishing to publish or present project results was required to complete the entire application process. Project approval was obtained from MU, and the proposed project qualified for exemption at St. Luke's University Hospital & Health Network (SLUHN). Both applications contained copies of the project plan and design, the appropriate consent forms, the Privacy Attestation form, proof of completion of the appropriate education related to the protection of human subjects (Appendix G), a copy of the short form index card tool used to collect information at the time of visit, proof of the principle investigator's (PI) ability to complete such a project (Appendix I), and lastly a complete reference list. MU required the approval signature of the DNP program director in addition to a letter of support from a physician mentor employed by the hosting institution, SLUHN. SLUHN required the signature of the department chief and the appropriate service line administrator.

The QI project setting occurred at three separate emergency departments within SLUHN. Populations of the selected EDs were urban, suburban, and rural populations. This helped to add a unique component to the QI project, multifaceted populations help

to strengthen the generalizability of project outcomes. Each facility offered an array of full service inpatient abilities and ED capabilities serving all populations.

The intended subject population was composed of enrollees throughout the life span including the special populations of pregnant women, children, and the elderly. Individuals could be enrolled if they required follow-up within 30 days of ED discharge. Including all populations helps to strengthen the validity of project results and the replicability among possible future implementations. Individuals excluded from the QI project included patients admitted to the hospital, patients instructed to return to the department for follow-up, psychiatric patients, and drug and alcohol patients. The latter two were excluded because of the sheer lack of outpatient services to these populations. Future applications could consider a similar project specific to these populations.

In order to implement the proposed project several steps were required. This included meetings with each facilities Medical Director and Nursing Director, and any collaborating physicians at each facility. A separate meeting was required to educate the collaborating advanced practitioners who staffed all the said settings. Unrolling the project required awareness of all personnel involved in the ED setting such as practitioners, nursing, and other ancillary staff. The project was also presented to the Network Chairperson of Emergency Services and the President of the Anderson Campus facility. All collaborators and administrators expressed at least some interest in the proposed project as it occurred simultaneously with the pressing expansion of patients seeking health care in light of the ACA. An increased number of patients will need outpatient care and direction, and most practitioners are aware of the needs for new

services that may help to streamline the patient care process and continuum of care. During meetings, the problem for practice was introduced along with key research related to the topic. Implementation plans were discussed with all stakeholders and colleagues. A letter of support was obtained from the PI's physician mentor, the Network Chairperson of Emergency Services. Following IRB approval from both institutions, a project plan and timeline were developed.

On May 6, 2015 the proposed project *Closing the Loop: The Effects of Scheduling Patients' Follow-Up Prior to Emergency Department Discharge* was implemented at the PI's primary practice site, St. Luke's Anderson Campus. It was determined that the initial implementation should be localized to address any potential necessary changes that may have been unforeseen. Over the subsequent weeks implementation was to begin at the Allentown Campus and then Miners Campus thereafter. Patients who required follow-up within 30 days were selected. ED providers where encouraged to be as unbiased and variable as possible. Given the nature and timing of the proposed project, convenience sampling could not be avoided. Additionally, it is impossible to blind subjects to the project intervention. Enrollees would understand that if appointments were made in the ED on their behalf, it met they were part of the intervention group. Again, admitted patients, psychiatric patients, drug and alcohol patients, and patients instructed to return to the ED were excluded.

The enrollment process was relatively simple. If patients were determined to warrant a follow-up within 30 days, the ED provider would simply ask the patient or guardian if they would like to participate in the quality improvement project and obtain a

consent. The provider would determine which group they would enroll the patient in. Patients in the intervention group would have an appointment scheduled for them prior to ED discharge by the ED provider, ED nurse, or ED ancillary staff. Patients in the standard group were handed discharge instructions, including where to follow-up, in the usual manor. Given that enrolment occurred during buisness and non-business hours, follow-up that was guaranteed by another clinician, through consultation during the ED visit, would also be eligible for enrollment. Although, previous research was primarily performed during normal business hours, enrolling subjects who were guaranteed a follow-up would allow the project to be implemented during any part of the day. Most outpatient clinical providers do not have access to their daily schedules off hours which limits their ability to physically assign a date and time for follow-up appointments. Perhaps future applications would allow providers to schedule appointments during off hours. Once consent was obtained the scheduler was educated to fill out the prewritten index card and place the index card in the designated collection receptacles which were locked and in a secure location to ensure patient privacy and protection of personal healthcare information. Schedulers would inquire regarding the patient's preferred date and time for follow-up, but this was not required and was clearly stated in the consent. Follow-up status was determined on or after the 30 day mark following ED discharge by the principle investigator. Two methods were used to determine follow-up. First, follow-up status could be verified through the network's physician portal and AllScripts for enrollees designated to follow-up with an in-network provider. Second, follow-up status was verified with out-of-network providers by contacting the office. Any office that

would require verification of patients' participation in the project was offered a copy of the patient's signed consent form and HIPPA Privacy Attestation form signed by the principle investigator via secure faxing.

Figure 1. Tasks and Timeline

Tasks	Timeline
Brief explanation of project and obtaining informed consent of interested participants meeting inclusion criteria.	5/7/2015-7/7/2015
Begin Follow-up verification	6/7/2015-7/7/2015
Begin Analyzing Data	6/7/2015-7/7/2015
Oral Presentation Draft	7/26/15
Oral Presentation	8/1/2015
Finish DNP Final Paper	Due: 8/16/2015

Chapter Six: Evaluation and Outcomes; Data Analysis and Results; Relationship of Results to Framework and Objectives

Introduction

As a direct result of the ACA, healthcare across the nation has developed an initiative for quality improvement throughout the healthcare sector. The three aims for this national strategy are: to improve the delivery of healthcare services, achieve better patient outcomes, and improve the health of the U.S. population (Zaccagnini & White, 2014). It has been clearly demonstrated throughout previously mentioned research that this quality improvement project satisfies these three aims. This project seeks to improve healthcare services and remove patient barriers in the post ED discharge follow-up process. As a direct result of increased patient follow-up, compliance research has demonstrated improved patient outcomes. Closing the loop in transitions of care will continue to improve the health of U.S. populations.

Desired Outcomes

Patients and their caregivers are often the only common thread moving across sites of care, together they constitute an appropriate target for an intervention designed to improve the quality of transitional care (Coleman & Chalmers, 2006). A clear need for improved transitions of care has been documented throughout recent research. Additionally, targeting areas where transitions of care have been determined to be less than satisfactory has demonstrated its appropriateness, in line with national initiatives. The primary desired outcome for this QI project was to demonstrate the positive effects

associated with the simple intervention of scheduling patients for follow-up prior to ED departure.

Evaluation of Outcomes

All data analyses were performed using SPSS version 20 (SPSS 2012). The chi-square test for association tests were utilized to test whether categorical variables were associated and whether two variables were statistically independent. Chi-square test of independence tests for the association/independence between two nominal/dichotomous variables. Given the nature of the variables involved in this project design, utilization of Chi-square was appropriate.

Participants and Demographics. Patient demographics were calculated in the form of percentages. The majority of patients (72%) fell between the ages of 18-65 years. The majority of enrollees had insurance including Medicare, Medicaid, or private insurance (83%). This quality improvement project's number of participants without insurance is similar to national trends (17%). Finally, the majority of enrollees (85%) claimed a PCP during their registration process. This could be a reflection of a primarily suburban ED setting.

Table 1. Demographics of Standard Group and Intervention Group

Group	Age <17	Age 18-64	Age 65+	Male	Female	Insurance	PCP
Standard Group (n=20)	3(15%)	15(75%)	2(10%)	12(60%)	8(40%)	16(80%)	16 (80%)
Intervention Group (n=20)	1(5%)	14(70%)	5(25%)	8(40%)	12(60%)	17(85%)	18 (90%)
Total of Both Groups (n=40)	**4(10%)**	**29(72%)**	**7(18%)**	**20(50%)**	**20(50%)**	**33(83%)**	**34 (85%)**

Consultation in ED (Follow-up guaranteed). Similar to previous research, follow-up compliance increased when contact was made with an ED consultant. In this QI project a consultant could be defined as any outpatient specialist or the patient's PCP. When follow-up was guaranteed during clinician to clinician contact, follow-up rates increased substantially.

Table 2. Guaranteed Follow-up in the Emergency Department

	Intervention Group (n=20)		**Standard Group (n=20)**	
	"n"	*percent*	*"n"*	*percent*
Total Follow-ups Guaranteed by Consultant in ED	14	(70%)	4	(20%)
Completed Follow-up	**14**	**(100%)**	**3**	**(75%)**

In the intervention group (IG), of the 20 patients that had appointments scheduled for them, 14 patients (70%) had follow-up guaranteed by another clinician during their ED visit. The compliance rate for this group of patient was 100%. For the standard group

(SG), four patients (20%) had follow-up guaranteed by another clinician during their ED visit. Three patients (75%) complied with follow-up. Clinician to clinician contact proportionally increased follow-up compliance among both groups.

A chi-square test for association was conducted between patients who had a follow-up appointment guaranteed by another clinician during the ED visit and follow-up compliance. All expected cell frequencies were greater than five. There was a statistically significant association between patients who had a follow-up appointment guaranteed by another clinician during the ED visit and follow-up compliance, $\chi 2(1) = 9.724$, $p = .002$.

Follow-up compliance relationship with primary care. Several sources suggest that patients with a primary care physician are more apt to follow-up. Primary care physician status was verified by the patient's face sheet found in physician portal. It is important to note that having a PCP was patient reported. How frequent, or when the last time the patient had sought care by their said primary provider was not considered.

Table 3. Follow-up compliance relationship with primary care

Follow-up Status	**Patients with PCP (n=34)**	**Patients without PCP (n=6)**
	"n" percent	*"n" percent*
Follow-up Complete	24 (71%)	1 (17%)
Follow-up Not Complete	10 (29%)	5 (83%)

Similar to previous studies, follow-up was more likely to occur if the patient had a PCP (71% vs. 17%). Although the current literature has not demonstrated why this seems to

occur, one assumption could be that patients with a PCP share a sense of obligation or initiative in obtaining health care. Future studies could research this more in depth.

A chi-square test for association was conducted between patients reporting a PCP at the time of visit and follow-up compliance. All expected cell frequencies were greater than five. There was a statistically significant association between patients reporting a PCP at the time of visit and follow-up compliance, $\chi 2(1) = 6.327$, $p = .012$.

Follow-up compliance and insurance status. It has become evident that insurance status can often serve as a formidable barrier in patients' ability to follow-up after ED discharge. Almost a third of uninsured adults in the U.S. in 2013 (30%) went without needed medical care due to cost (Kaiser Family Foundation, 2014). Studies repeatedly demonstrate that the uninsured are less likely than those with insurance to receive preventive care and services for major health conditions and chronic diseases. The lack of insurance has been associated with less than satisfactory health outcomes. Additionally, individuals who lack insurance often present to the ED for ailments that could be treated appropriately on an outpatient basis. This serves as a heavy burden to the U.S. healthcare system in terms of cost and even overcrowding in some higher census EDs.

Table 4. Follow-up compliance and insurance status.

	Insurance		No Insurance	
	"n"	*percent*	*"n"*	*percent*
Standard Group (n=20)	16	(80%)	4	(20%)
Follow-up Rates	5	(31%)	1	(25%)
Intervention Group (n=20)	17	(85%)	3	(15%)
Follow-up Rates	17	(100%)	2	(67%)

In the standard group, 80% of the patients (16) were insured. Of those, 16 patients (31%) completed follow-up compared to 25% of the patients without insurance that completed follow-up. In the intervention group, 85% of the patients (17) were insured. Of those 17 patients, 100% completed follow-up compared to 67% of the patients without insurance that completed follow-up. In both groups follow-up rates were higher in the insured group versus the uninsured group.

A chi-square test for association was conducted between insurance status and follow-up compliance. All expected cell frequencies were greater than five. There was not a statistically significant association between insurance status and follow-up compliance, $\chi 2(1) = 1.397$, $p = .237$.

Follow-up compliance and age. Some strategies for improving health outcomes suggest targeting special populations, or those populations who are deemed to be the most vulnerable such as children and the elderly. Additionally, as 'baby boomers' continue to enter the elderly population an increased number of elderly patients will seek

care in EDs. Successful organizations will have plans in place that target this increasing elderly population in regards to health screening and promotion, disease treatment, and post discharge coordination. Strategies should aim to increase the overall health of this population through sound evidenced based interventions.

Table 5. Follow-up compliance and age.

	Age <17	**Age 18-64**	**Age 65+**
	"n" percent	*"n" percent*	*"n" percent*
Age in Categories (n=40)	4 (10%)	29 (72%)	7 (18%)
Follow-up Complete	2 (50%)	17 (58%)	6 (86%)

In this project, follow-up compliance was highest in the elderly population, or those greater than 65 years at 86%, compared to 58% of patients ages 18-64, and 50% of patients age less than 17. One could postulate that increased elderly follow-up rates are related to this group's cultural deposition. The elderly population tends to hold a paternalistic view towards healthcare. Completing tasks delegated by health care professionals is likely a component of the elderly population's culture.

Cost analysis of intervention. As mentioned previously in chapter 4, one of the goals of a well thought out project design should be to help determine costs. It is understood that budgets should be considered prior to any project implementation, however, the evaluation and analysis following the project implementation may serve as a useful tool for key stakeholders to help determine costs that may be incurred during any future implementations. For ease of calculation, time estimates to perform the intervention of scheduling patients were assigned even numbers in minutes based on

providers estimation of time used as follow: 1-2min=2 min, 3-5min =4min, 5-7min =6min, >7min =8min. Using these averages demonstrated the total time used to schedule 20 patients, was 82 minutes.

Table 6. Cost of performing intervention

Discipline & Pay Rate	**Intervention Cost for 20 participants (total= 82min) (average time =4.1min)**	**65, 000 visits per/year, assuming 75% of patients are discharged home and all required follow-up within 30 days= 48,750**
ED Physician ($2.08/min)	$170.56	$101,400
ED Physician Assistant ($0.90/min)	$73.80	$43,875
ED Nurse Practitioner ($0.82/min)	$67.24	$39,975
ED Nurse ($0.55/min)	$45.10	$26,812.50
ED Tech (0.27/min)	$22.14	$13,162.50

Table 6 provides a visual reference of the costs of performing the project intervention of scheduling patients prior to ED departure. Although having a physician or advanced practitioner perform the task would be optimal, employing ED nurses to perform the task seems more economically feasible. The most cost effective entity would utilize the ED tech for this task. Some stakeholders could argue that the ED tech does not have the clinical negotiation skills appropriate for the task. ED nurses have already played a pivotal role in the care coordination/discharge coordination arena. Additionally, nurses have traditionally played the role of the patient advocate making them quite suitable for the task. The initial proposal sought to utilize nursing staff, however, the actual project

implementation did not. This may be related to the unanticipated time it would have taken to educate all ED nursing staff on the project. Future implementations or pilot programs should investigate the use of nursing staff.

Table 6 depicts the intervention costs based on a 65,000 a year census. Assuming that all calls would average approximately 4 min, and every patient that was discharged needed follow-up, it would cost $26,812.50 if the intervention was performed by a nurse. The tangible costs of sustaining more than one unnecessary hospitalization would likely offset the cost of the nurse. The intangible costs of increased patient satisfaction, better patient outcomes, and the nature of streamlining new payers into the system are invaluable.

Hospital Re-visits. Previous studies discussed earlier in chapter 2, demonstrated a decrease in hospital revisits among patients that received care coordination intervention.

Table 7. Hospital revisits.

ED Revisits within 30 days	**Standard Group (n=20)**	**Intervention Group (n=20)**
	"n" percent	*"n" percent*
ED revisits	4 (20%)	3 (15%)

Of the three revisits in the intervention group, two of the visits were a complaint not related to the initial presentation. Of the four revisits in the standard group, two presentations were for a same or similar complaint. In consideration of the small sample size, individuals in the intervention group were less likely to return to the ED for the same or similar complaint.

Initiative Effectiveness

The overall effectiveness of the care transition intervention of scheduling patients' follow-up prior to ED departure results were in line with the desired outcome to increase follow-up compliance. Follow-up compliance was greater in the intervention group compared to the standard group (95% vs. 35%). The figure below is a flow chart which visually depicts this outcome.

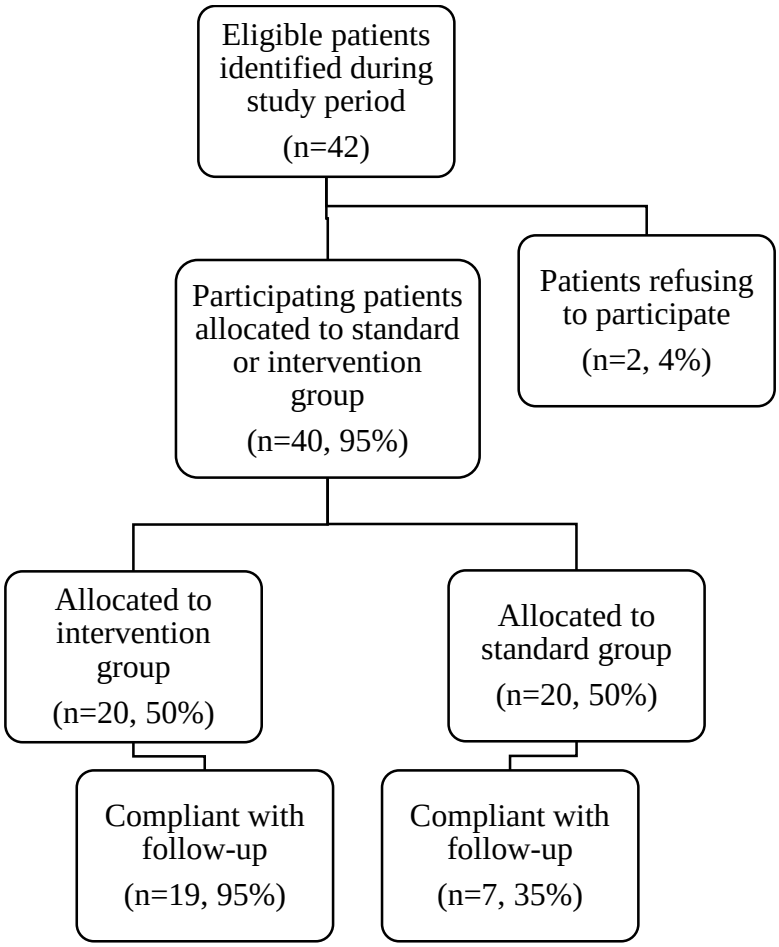


Figure 2. Flow Diagram of ED Patients in QI Project Comparing Standard versus the Intervention Group.

A chi-square test for association was conducted between patients scheduled for follow-up prior to ED discharge and follow-up compliance. All expected cell frequencies were greater than five. There was a statistically significant association between patients scheduled for follow-up prior to ED discharge and follow-up compliance, $\chi 2(1) = 15.824$, $p = .000$.

Conclusion

This quality improvement project has demonstrated the positive outcomes of the project. Scheduling patients for follow-up prior to ED discharge remains an effective approach to care transitions. Although some members of the community may find the initial cost burden of performing the intervention as impractical, the long term benefits have continuously demonstrated increased patient follow-up compliance and decreased unnecessary ED utilizations. Today's healthcare arena charges participants with fiscal responsibility to provide the most efficient evidenced based practices.

Additionally, increased follow-up compliance seems to be associated with whether or not patients had a primary care provider. Systems should organize a means of arranging primary care services to patients who have no primary care provider despite insurance status.

ED consultation also demonstrated increased success with follow-up compliance. Although, what constituted ED consultation was not defined. It can be presumed that consultation was at least composed of conversation between two providers of patient care, demonstrating that closing the loop in patient care, serves as a successful means to

increase follow-up compliance. Although desired amount of participants was not obtained, the desired outcomes of this project were successfully met.

Chapter Seven: Implications for Nursing Practice

Introduction

The proposed evidenced based practice change project clearly falls under the domain of nursing practice, as nurses are often the advocates in ensuring continual patient care beyond their own care to the next provider. In the ED, nurses are often faced with the task of reporting ED information to the next phase in the care continuum. Although this particular project focused primarily on providers closing the loop in patient care, nurses have traditionally dominated advocacy in care transition interventions. The DNP graduate in the APN role must demonstrate practice expertise. They should demonstrate specialized knowledge and expanded responsibility and accountability in the care and management of individuals and families. The nature of this direct care focus requires APNs to develop additional competencies in direct practice and in the guidance and coaching of individuals and families through developmental, health-illness, and situational transitions (Spross, 2005). The following chapter will discuss linkages to nursing practice, especially related to that of the Essentials of Doctoral Education for Advanced Nursing Practice composed by the American Nurses Credentialing Center (ANCC) in 2006. The chapter will also discuss limitations and future considerations of the evidenced based practice change project.

Essential I: Scientific Underpinnings for Practice

The determination to investigate the transitions-of-care domain related to current ED practice stems from the principle investigators primary area of practice. Through thorough review of literature, and the use of science-based theories and concepts, the

nature and significance of this particular health care phenomena and problem area for needed improvement was determined (AACN, 2006). Using integrated nursing science with knowledge from ethics, biophysical, psychosocial, analytical, and organizational science, the DNP project leader has developed the basis for the proposed practice change intervention. Throughout the previous chapters, readers were provided with the actions and advanced strategies that have been shown to enhance, alleviate, and ameliorate health care delivery related to care transition following ED utilization. The careful evaluation of outcomes of previous evidenced based research and the said QI project have reflected a care-transition intervention that is both practical and effective. The development and evaluation of new practice approaches are congruent with the expectations of Doctor of Nursing Practice.

Essential II. Organizational and Systems Leadership for Quality Improvement and Systems Thinking

Through scientific underpinnings for practice, the project leader investigated care delivery approaches related to the care transitions of patients from the ED. Through thorough evaluation, the project leader, has determined a practice change intervention that meets current and future needs of the ED patient population. The DNP is charged with ensuring accountability for quality of health care and patient safety for populations with whom they work (AANC, 2006). The project leader has had the opportunity to use advanced communication skills/processes to lead a quality improvement and patient safety initiative within the hosting health care system. The DNP project leader has carefully employed principles of business, finance, economics, and health policy to

develop and implement effective plans for practice-level and/or system-wide practice initiatives that will improve the quality of care delivery related to care transitions from the ED. Evidenced based literature review has reflected the cost-effectiveness of this practice change initiative. Collaboration with system leaders and careful consideration of diverse organizational cultures and populations, including patients and providers, has provided apparent opportunity to use organizational and systems leadership for quality improvement.

Essential III: Clinical Scholarship and Analytical Methods for Evidence-Based Practice

The DNP project leader demonstrated the use analytic methods to critically appraise existing literature and other evidence to determine and implement the best evidence for practice. This QI practice change was designed and implemented using evaluation of outcomes of practice, practice patterns, and systems of care within the ED practice setting. National trends related to care transitions have been strongly considered in this QI project. The DNP project leader, using sound evidenced based medicine, has designed, directed, and evaluated quality improvement methodologies in ED care transitions to promote a safe, timely, effective, efficient, equitable, and patient-centered care practice change initiative. All relevant literature findings have been investigated to develop this QI practice change initiative in order to improve current practice trends and the practice environment. The DNP project leader has satisfactorily used information technology and research methods appropriately to: collect appropriate and accurate data to generate evidence for nursing practice, analyze data from practice, implement

evidence-based interventions, predict and analyze outcomes, examine patterns of behavior and outcomes, and identify gaps in evidence for practice. As part of the AANC (2006) Essentials of the Doctorate of Nursing Practice, The QI project results will be disseminated as appropriate.

Essential IV: Information Systems/Technology and Patient Care Technology for the Improvement and Transformation of Health Care

The educational requirements of the DNP should demonstrate the ability to utilize a wide array of information technology. The DNP prepared nurse was able to effectively use two system EHRs to both extract data, and determine follow-up status. Physician Web Portal was used to help extract patient demographics and return to ED status. AllScripts, which is primarily utilized in the outpatient setting among participating network providers, was effectively utilized to determine follow-up status. Future implications for the proposed practice change would include EHR that would have prompting or cueing to help trigger the outpatient follow-up process. An even more intricate system would allow ED providers to physically schedule patients for follow-up within the health system at any time. ED charting systems could even contain the ability to electronically notify outpatient providers of patients' needs for follow-up. An effective health system should have the ability to schedule patients with any discipline at all times. This would serve as an effective means to generate revenue by keeping patients in network, as well as, reduce unnecessary returns to the ED and subsequent unnecessary hospitalization. Designing, selecting, utilizing, and evaluating programs that evaluate and

monitor outcomes of care, care systems, and quality improvement are part of the DNP education (AANC, 2006).

Essential V: Health Care Policy for Advocacy in Health Care

The DNP researcher critically analyzed current health policy related to patient care transitions. As current policy continues to incentivize organizations for developing more efficient evidenced based practice, hospitals continue to seek out the most efficient evidenced based care designs. In the near future, we will see hospitals reimbursed for the care transition interventions they provide. Raising the bar on current ED discharge procedures will help to ensure continual patient care, without breach in the care continuum. Consumers, nursing, other health professions, and other stakeholders in policy and public forums have begun to take interest in the ED discharge processes. The DNP nurse leader has an opportunity to demonstrate leadership in the development and implementation of institutional, local, state, federal, and/or international health policy. The DNP prepared nurse has the ability to influence policy makers through active participation on committees, boards, or task forces at the institutional, local, state, regional, national, and/or international levels to improve health care delivery during the discharge process.

Essential VI: Inter professional Collaboration for Improving Patient and Population Health Outcomes

A significant amount of interdisciplinary collaboration has been required in the development of this care coordination QI project. In the design phase of the project the contribution from the St. Luke's Research institute was imperative. Discussion with

Doctor Stolzfus, director of the research institute at SLHUN, helped to facilitate the IRB process. Employing effective communication and collaborative skills in the development and implementation of practice models is a pivotal component of a successful scholarly project (Zaccagnini & White, 2014). Utilizing peer review, practice guidelines, health policy, standards of care, and/or other scholarly products have all contributed to this QI project. Utilizing consultative and leadership skills among intra-professional and inter-professional leaders, positively contributed to creating change in health care and within the complex hosting healthcare delivery system. Support of administration including the Network Chairperson of Emergency Services, and the President of St. Luke's Anderson Campus helped to fortify the need for care coordination initiatives. Multidirectional multidisciplinary collaboration provides for a successful healthcare system (Porter O'Grady & Malloch, 2015).

Essential VII: Clinical Prevention and Population Health for Improving the Nation's Health

As part of the literature review the principle investigator analyzed epidemiological, bio statistical, environmental, and other appropriate scientific data related to care transition initiatives and overall population health. Care transition interventions help to address several domains including psychosocial dimensions and cultural diversity problems that may contribute to barriers during the ED discharge care coordination process. In developing the implementation of evidenced based care transition interventions, such as scheduling patients for follow-up prior to ED discharge, the DNP prepared nurse contributes to health promotion and disease prevention,

improves health status and access, and addresses gaps in care of individuals and populations (ANCC, 2006).

Essential VIII: Advanced Nursing Practice

The ED discharge process is a complex process administered under stressful conditions. Conducting a comprehensive and systematic assessment of health and illness and its relation to care transitions has provided the DNP project leader with the opportunity to develop a QI project that improves outcomes related to care transitions from the ED. Using fundamentals of nursing science and evidenced based research across several entities has provided a framework to the design and implementation of this effective therapeutic care coordination intervention delivered during a complex unique situation, ED discharge. Furthermore, this care coordination intervention is sustainable. Sustainability strengthens as the intervention helps to fortify therapeutic relationships at multiple levels, including clinician to clinician partnerships, the ED with the community, and the community with its outpatient clinicians facilitating optimal care and improved patient outcomes. Using advanced levels of clinical judgment, systems thinking, and accountability in designing, delivering, and evaluating evidence-based care has allowed the DNP prepared project leader to improve patient outcomes. By guiding, mentoring, and supporting other providers of patient care, the DNP project leader has helped contribute to excellence in patient care. This care transition intervention provides a means to guide individuals and groups through complex health and situational transitions. Through implementation of this QI project, the DNP project leader has demonstrated the

use of conceptual and analytical skills in evaluating the links among practice, organizational, population, fiscal, and policy issues (ANCC, 2006).

Limitations & Future Considerations

There have been several limitations noted throughout this QI project. Some limitations have been mentioned throughout the previous text in brevity. As part of the DNP program requirement this QI project has been limited by time parameters designated by MU. Project implementation began following IRB approval on May 6, data collection stopped on June 7 to allow for 30 day follow-up verification with completion of verification on July 7. Unfortunately, due to the said time restraints, reaching an adequate power was not feasible. It took approximately one month to reach a quarter of the desired number of enrolled subjects. Future implementation should plan for a 5 month data collection period which should allow for ample time to enroll a satisfactory amount of subjects.

Another formidable limitation was the collection of consent forms. The principle investigator understands the need for processes that protect human subjects through appropriate training. However, this particular project served no threat to human subjects. In fact, no physical or emotional harm could be associated with this intervention, which in many arenas, is considered a standard of care. The collection of consent forms resulted in less than favorable participation among colleagues, who viewed obtaining a consent for this particular QI project as redundant. Perhaps future implementation should consider incentivizing participation, with some type of award or recognition.

The original project was designed to be implemented at several variable settings at three different facilities. This proved to be a difficult task for a novice in the realm of research and QI projects. This implementation, on a smaller scale, serves as a nice pilot study to help structure future applications. The bottom line is that the principle investigator was not scheduled enough clinically at the St. Luke's Allentown and Miners Campuses enough to unroll a full scale implementation. This may limit the generalizability that the initial project plans wished to achieve.

The original project also sought using both nursing and ancillary staff for the scheduling of follow-up. Time limitations made it difficult to educate and obtain buy in from nursing and ancillary staff. Additionally, this was the first QI research project implemented among the ED unit at the Anderson campus. The culture of research is new to this facility which has only been servicing the community for two years. Future implementation would focus more time on explaining the project to, and educating these entities. Surprisingly, physician participation far succeeded that of other advanced practitioners. Perhaps, the education and research requirement of physician education made them more apt to participate. The ED advanced practitioner group is primarily physician assistants and one nurse practitioner, the project leader. Designing and performing research is not part of the physician assistant education requirements, perhaps explaining the shear lack of participation.

Future implementation would also develop examples of scripting that participating staff could use. It seemed much easier to perform the intervention and

obtain patient participation, then having patient's enroll that were not going to have follow-up arranged for them.

Convenience sampling could also be construed as a limitation to the study. Future application of this care transition initiative should attempt to avoid convenience sampling. Selection bias is also a limitation of the QI project. Providers may have been more likely to select patients that they thought were higher risk to return to the department. This limitation was considered in previous research as well (Kyriacou et al., 2005). Additionally, previous research has demonstrated that blinding patients to the intervention is not feasible.

Other future considerations for a similar project implementation should consider performing a study that would perhaps contact patients who have not followed up and inquire as to barriers they may have faced in the follow-up process. Additionally, a more randomized selection process would help to strengthen the validity of the practice change project. As mentioned previously, performing the intervention at several different settings including urban, suburban, and rural settings would have helped to increase the generalizability and reproducibility of results.

Chapter Eight: Summary of Project and Conclusions, Dissemination Plans, Future ideas or next steps related to project

Introduction

This evidenced based practice change project was developed in response to the lack of care coordination efforts currently utilized in the ED setting. Despite the abundance of literature available supporting care coordination techniques, organizations still seem to lack these interventions. The negative impact of poor care coordination interventions have been demonstrated throughout current literature. Readily available cost effective interventions, like scheduling patients' follow-up prior to ED discharge, have shown to be an effective means for improving patient care, health outcomes, and decreasing unnecessary system costs. The purpose of this practice change project was to demonstrate the effectiveness of scheduling patients' follow-up prior to ED discharge in increasing follow-up compliance. The United Kingdom's Royal College of Nursing Institute's PARIHS theoretical framework, served as a guide for this evidenced based practice change project. The PARIHS theoretical model describes successful research implementation as functions of the relationships among three key elements: evidence, context, and facilitation (Rycroft-Malone, 2004).This conceptual framework aided in the development of the project's structure; defining project variables, as well as, providing a framework for examining outcomes. This practice change project was implemented over a period of four weeks. The project's findings were consistent with current literature, in that scheduling patients for follow-up prior to ED discharge serves as an effective means to increase follow-up compliance, thereby, increasing health related outcomes and

decreasing unnecessary ED utilization and hospital revisits which has been directly associated with increased system costs. Future implementation of this project should utilize a greater sample size and longer data collection period.

Key Points:

Poorly transitions of care can lead to serious preventable medical errors and are the leading cause of sentinel events (JACHO, 2012). Poorly executed transitions of care can negatively affect a patient's health, well-being, family resources, and increase health care costs overall. Effective transitions of care across the health continuum are vital to the U.S. Health system in terms of increased positive health outcomes and fiscal responsibility.

In general, follow-up rates of patients discharged from the ED are infamously poor. Current strategies to improve follow-up care have met with variable success. Research has shown follow-up compliance rates as low as 30% to 50% in some U.S. urban and suburban hospitals (Straus, Orr, & Charney, 1983). Studies investigating compliance with recommended follow-up have shown that the U.S. healthcare system continues to perform poorly, with rates estimated to be as low as 26% to 56% (Kyriacou et al., 2005).

Today's healthcare arena charges participants with fiscal responsibility to provide the most efficient evidenced based practices. Consistent with previous literature, This QI practice change project has shown that scheduling patients for follow-up prior to ED discharge remains a replicable sustainable effective approach to care transitions.

Future Steps:

There are two primary purposes for the dissemination of the DNP scholarly project results: reporting the results of the project to stakeholders and the academic community, and dissemination to other professionals in similar setting (McGonigle & Mastrian, 2015). On a local and regional level project results will be disseminated among key stakeholders. Project participants including physicians, advanced practitioners, and nursing staff will also have opportunity to review project results. Project results will be submitted to MU and the SLUHN IRB as required. The project findings will be disseminated and shared with key stakeholders in the academic community, and colleagues. Written dissemination, a time honored tradition of sharing information, will occur in the form of submission of this entire document to the academic institution and the hosting institution accordingly. An oral presentation will occur in the form of a Microsoft Power Point presentation in line with the academic institutions requirements.

On a state and national level, future, researchers could utilize a similar project design in collection of a larger sample size, and across the institution, in line with the initial project design. Additionally, researchers could follow patients at various time intervals to determine prolonged effects of the initial intervention. Additionally, plans to disseminate the outcomes of this practice change project through publication in a professional journal are underway. This includes selecting the appropriate specialty journal.

The AACN (2006) notes that the DNP project is not simply a requirement for a degree, rather a synthesis of all the knowledge and skills gained by the DNP student in the course of studies. The attrition of the DNP student into the growing body of clinicians who can utilize evidenced-based projects and tools will positively affect the state of American healthcare.

References

Agency for Healthcare Research and Quality, National Quality Measures Clearinghouse. (2013). *Measure Summary*. Retrieved from: http://www.qualitymeasures.ahrq.gov/content.aspx?id=28142

American Association of Colleges of Nursing. (2006). *The Essentials of Doctoral Education for Advanced Nursing Practice*. Washington, DC: Author.

Aminzadeh, F., Dalziel, W.B. (2002). Older patient in the emergency department: A systematic review of patterns of use, adverse outcomes, and effectiveness or interventions. *Annuls of Emergency Medicine, 39,* 238-247.

Baren, J., Brenner, B., Rowe, B., & Camargo, C. (2006). Randomized Controlled Trial of Emergency Department Interventions to Improve Primary Care Follow-up for Patients With Acute Asthma. *CHEST, 129,* 257-265.

Baren, J., Shofer, F., Ivey, B., Reinhard, S., DeGeus, J., Stahmer, S., & ... Hollander, J. (2001). A randomized, controlled trial of a simple emergency department intervention to improve the rate of primary care follow-up for patients with acute asthma exacerbations. *Annals of Emergency Medicine, 38*(2), 115-122.

Boutwell, A., Jencks, S., Nielsen, G.A., & Rutherford, P. (2009). *STate Action on Avoidable Rehospitalizations (STAAR) Initiative: Applying early evidence and experience in front-line process improvements to develop a state-based strategy*. Cambridge, MA: Institute for Healthcare Improvement. Retrieved from http://www.ihi.org/Engage/Initiatives/Completed/STAAR/Documents/STAAR%20State%20Based%20Strategy.pdf

Center for Healthcare Quality and Payment Reform, (2011). *Reducing Hospital Readmissions: A major opportunity for rapid savings.* Retrieved from www.chqpr.org/readmissions.html

Coleman, E.A., Parry, C., Chalmers, S., Min, S.J. (2006). The care transitions intervention: results of a randomized controlled trial. *Archives of Internal Medicine, 17*(166), 1822–1828.

Congressional Budget Office, (March, 2011). *Estimate of the Effects of the Insurance Coverage Provisions Contained in the Patient Protection and Affordable Care Act (Public Law 111-148) and the Health Care and Education Reconciliation Act of 2010 (P.L. 111-152)*. Retrieved from www.cbo.gov/

Curley, C., & Vitale, P. (2012). *Population Based Nursing: Concepts and Competencies for Advanced Practice.* New York: Springer Publishing Company.

Fazzi R, Agoglia R, Mazza G, Glading-DiLorenzo J. (2006). The Briggs National Quality Improvement/Hospitalization Reduction Study. *Caring: National Association for Home Care Magazine, 25*(2), 70.

Forster A.J. et al. (2005). Adverse drug events occurring following hospital discharge. *Journal of General Internal Medicine, 4*(20), 317-23.

Guttman A, Afilalo M, Guttman R, Colacone A, et al. (2004). An emergency department-based discharge coordinator for elder patients: does it make a difference? *Academy of Emergency Medicine, 11*, 1318–1327.

Hastings, S., & Heflin, M. (2005). A systematic review of interventions to improve outcomes for elders discharged from the emergency department. *Academic*

Emergency Medicine: Official Journal of the Society for Academic Emergency Medicine, *12*(10), 978-986.

Institute of Medicine Committee on the quality of Health Care in America, (2001). *Crossing the quality chasm: A new health system for the 21st century*. Washington DC: National Academy Press.

Jack, B.W., Chetty, V.K., Anthony, D., Greenwald, J.L., Sanchez, G., Johnson, A.E., Forsythe, S.R., O'Donnell, J.K., Paasche-Orlow, M.K. (2009). A reengineered hospital discharge program to decrease hospitalization. *Annals of Internal Medicine*, *3*(150), 178-187.

Jones, J.S., Young, M.S., LaFleur, R.A., & Brown, M. D. (1997). Effectiveness of an organized follow-up system for elder patient released from the emergency department. *Academy of Emergency Medicine 4*, 1147-1152.

Katz, E., Carrier, E., Umscheid, C., & Pines, J. (2012). Comparative effectiveness of care coordination interventions in the emergency department: a systematic review. *Annals of Emergency Medicine, 60*(1), 12-23. doi:10.1016/j.annemergmed.2012.02.025

Kaiser Family Foundation, (2014). *Key facts about the uninsured population*. Retrieved from http://kff.org/uninsured/fact-sheet/key-facts-about-the-uninsured-population/

Kyriacou, D. N., Handel, D., Stein, A. C., & Nelson, R. R. (2005). BRIEF REPORT: Factors Affecting Outpatient Follow-up Compliance of Emergency Department Patients. *Journal of General Internal Medicine, 20*(10), 938-942. doi:10.1111/j.1525-1497.2005.0216_1.x

Limpahan, L., Baier, R., Gravenstein, S., Liebmann, O., & Gardner, R. (2013). Closing the loop: best practices for cross-setting communication at ED discharge. The *American Journal of Emergency Medicine, 31*(9), 1297-1301. doi:10.1016/j.ajem.2013.04.017

Magnusson, A., Hedges, J., Vanko, M., McCarten, K., & Moorhead, J. (1993). Follow-up compliance after emergency department evaluation. *Annals of Emergency Medicine, 22(*3), 560-567.

Medicare Payment Advisory Commission, (2008). *Report to the Congress, Reforming the Delivery System*, Washington, D.C.: MedPAC

Murry, M.J., LeBlanc, C.H. (1996). Clinic follow-up from the emergency department: Do patients show up? *Annuls of Emergency Medicine, 27*, 56-58.

Naylor, M.D., Brooten, D.A., Campbell, R.I., Maislin, G., McCauley, K.M., & Schwartz, J.S. (2004). Transitional care of older adults hospitalized with heart failure: a randomized, controlled trial. *Journal of American Geriatric Society, 5*(52). 675–84.

Orchard, C.A., Curran, V., & Kabene, S. (2005). Creating a culture of interdisciplinary collaborative professional practice. *Medical Education Online, 10*(11). Retrieved from www.med-ed-online.org

Patient Protection and Affordable Care Act of 2010, 42 U.S.C. § 18001 et seq.

Porter-O'Gradey, T., & Malloch, K. (2015). *Quantum Leadership: Building better partnerships for sustainable health,* (4th ed.). Burlington, MA: Jones & Bartlett Learning.

Richards, D., Meshkat, N., Jaqueline, C., Eva, K., & Worster, A. (2007). Emergency department patient compliance with follow-up for outpatient exercise stress testing: a randomized controlled trial. *Canadian Journal of Emergency Medicine, 9*(6), 435-440.

Rising, K.L., Padrez, K.A., O'Brien, M., Hollander, J.E., Carr, B.G., & Shea, J.A. (2014). Return Visits to the Emergency Department: The Patient Perspective. *Annals of Emergency Medicine,* 1-10.

Rycroft-Malone, J., (2004). The PARIHS Framework-A Framework for Guiding the Implementation of Evidence-based Practice. *Journal of Nursing Care Quality, 19*(4), 297-304

Schall, M., Coleman, E., Rutherford, P., & Taylor, J. (2013). *How-to Guide: Improving Transitions from the Hospital to the Clinical Office Practice to Reduce Avoidable Rehospitalizations.* Cambridge, MA: Institute for Healthcare Improvement. Retrieved from www.IHI.org.

Spross, J. A. (2005). Expert coaching and guidance. In A. B. Hamric, J. A. Spross, & C. M. Hanson (Eds.), *Advanced practice nursing: An integrative approach*, (3rd ed) (pp. 187-223). Philadelphia: Saunders.

Straus, J. H., Orr, S.T., Charney, E. (1983). Referrals from an emergency room to primary care practices at an urban Hospital. *American Journal of Public Health, 73*, 57-61.

The Joint Commission: Accreditation, Healthcare, Certification [JCAHO] (2012). *Transitions of care: The need for a more effective approach to continuing patient*

care. Retrieved from http://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=2&cad=rja&uact=8&ved=0CCgQFjAB&url=http%3A%2F%2Fwww.jointcommission.org%2Fassets%2F1%2F18%2Fhot_topics_transitions_of_care.pdf&ei=ktQiVOVs0fbJBOaRgKgL&usg=AFQjCNGXy_-ceCkUghgroOHZ0RITVYVeFw&sig2=SJDIbX3aNnZkpkniJvHyKw

The AGREE Collaboration (2001). *Appraisal of Guidelines for Research & Evaluation (AGREE) Instrument*. Retrieved from www.agreecollaboration.org.

Thomas, E., Burstin, H., O'Neil, A., Orav, E., & Brennan, T. (1996). Patient noncompliance with medical advice after the emergency department visit. *Annals of Emergency Medicine, 27*(1), 49-55.

U.S. Department of Health and Human Services, Center for Disease Control, Prevention. National Center for Health Statistics, (2010). *National Hospital Ambulatory Medical Care Survey: 2010 emergency department summary tables.* Retrieved from www.cdc.gov

U.S. Department of Health and Human Services, Centers for Medicare and Medicaid Services, (2014). *Reducing Non-urgent Use of Emergency Departments and Improving Appropriate Care in Appropriate Settings*. Retrieved from http://www.medicaid.gov/Federal-Policy-Guidance/Downloads/CIB-01-16-14.pdf

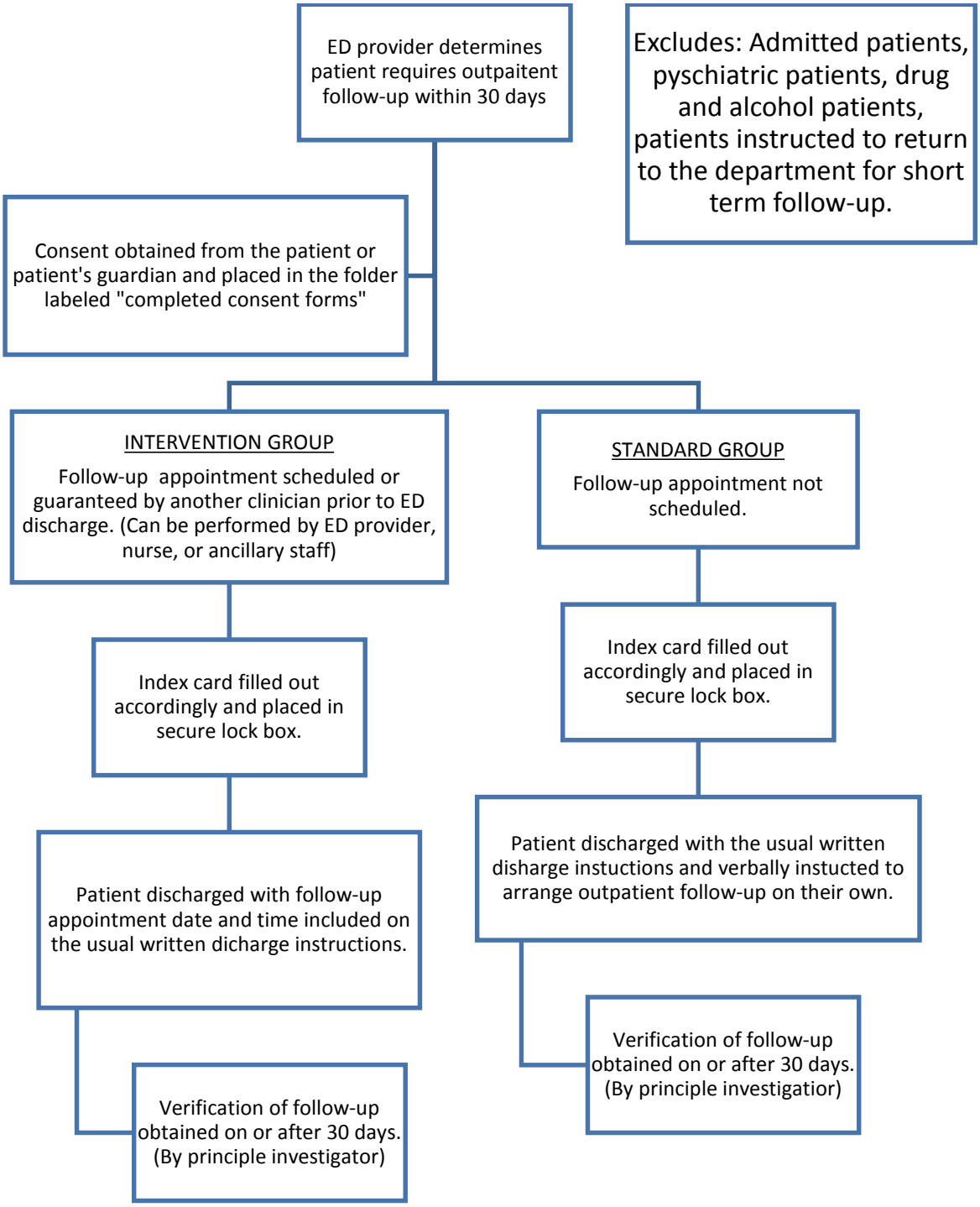
Wallis, M., Hooper, J., Kerr, D., Lind, J., & Bost, N. (2009). Effectiveness of an advanced practice emergency nurse role in a minor injuries unit. *Australian Journal of Advanced Nursing, 27*(1), 21-29.

Yang, O., (2012). *Guide to Effective Grant Writing*. (2nd edition). New York: Springer.

Zorc, J.J., Scarfone, R.J., Li, Y., et al. (2003). Scheduled follow-up after a pediatric emergency department visit for asthma: a randomized trial. *Pediatrics, 111*, 495-502.

Zaccagnini, M. E. & White, K., (2014). *The Doctor of Nursing Practice Essentials* (2nd edition). Burlington, MA: Jones & Bartlett Learning.

CLOSING THE LOOP: THE EFFECTS OF SCHEDULING PATIENTS' FOLLOW-UP PRIOR TO EMERGENCY DEPARTMENT DISCHARGE



MISERICORDIA
UNIVERSITY

May 6, 2015

Jens Hansen, MSN, CRNP
Brenda Hage, Ph.D., DNP, CRNP
Nursing Department
Misericordia University
Dallas, PA 18612

Dear Jens Hansen and Dr. Brenda Hage:

The IRB acted on your research protocol *The Importance of Scheduling Patients' Follow-Up Prior to Emergency,* Number 09-15-T1. Your study has been approved.

As part of the approval, the IRB has received and accepted the consent form as submitted. The attached consent form with a valid period of eligibility is the only consent form to be used. Any modifications must be approved by the IRB. The date stamp indicates the eligible period.

You will be reminded one month prior from the expiration date of your research protocol to complete an End-of-Project Report. You also have the responsibility to notify the IRB of any changes in the conduct of this study or injury to study subjects and to retain all approved application documents and signed consent forms for a minimum of three years following completion of the study (this includes student research). Please refer to the IRB Policies and Procedures document for specific details on what is expected

If you have any questions, please feel free to contact me.

Sincerely,

McKinley H. Manasco, Ph.D.
Chairperson, IRB

I have presented myself for treatment to a St. Luke's Hospital and Health Network facility and consent to routine medical care provided by that facility. I acknowledge that because medicine is not an exact science, no guarantees or warranties can be made to me regarding the results of any treatment in this facility.

2. I understand that this consent does not include informed consent for operations or any non-routine procedures or treatment and that the risks and alternatives for such procedures or treatment which a reasonable patient would consider significant to a decision whether or not to undergo such treatment or procedures will be explained to me by my treating physician or another physician designated by him/her. I understand I have the right to refuse any drugs, treatment or procedure to the extent permitted by law

3. I authorize the facility to use and disclose my health information (1) to other health care professionals who are involved in my treatment, either now or in the future; (2) to any insurance company or other entity as necessary for the facility to be paid for the services provided to me; and (3) for the general administrative activities of the facility, such as quality control and peer review

4. I have provided the facility with my true and correct medical insurance information and I hereby assign and transfer r to the facility all medical provider benefits payable and any related rights existing under those insurance policies. I authorize and direct the insurance company to pay all such benefits to the facility. I understand that this assignment does not relieve me of any responsibility ty I may have for payment of charges not paid by the insurance company, unless otherwise provided by the terms of an agreement between the insurer and the facility.

5 I understand that this facility is a teaching facility or is one that supports professional education training that those involved in training programs may be participating in my care, and I consent to their presence and participation in my care.

6 I have been advised not to keep valuables on my person or in my room and if I am an inpatient, to have them locked in the facility safe. I will not hold the facity responsible for any valuables that I keep on my person or in my hospital room at the time of admission or during the service.

7 I hereby authorize the facity to dispose of all tissue, blood and other organic matter in the facity's normal and routine method of disposing of such matters, including the use of blood and tissue for the internal purpose of gathering and sorting data, or human tissue by categories to be available for potential use in research studies. If my information is to be used for a research study, I may be asked to sign additional authorization at that time.

8. I have the right to file a grievance in writing or in person to administration. If the grievance is not resolved to my satisfaction, I may contact one of these organizations: Pennsylvania Department of Health (800-254-5164) Quality Insights of Pennsylvania (800-322-1914) or The Joint Commission (800-994-6610)

9. Medicaid Patents: My signature certifies that I received a service or item on the date listed bebw. I understand that payment for this service or item will be from Federal and State funds, and that any false claims, statements, or documents, or concealment of material may be prosecuted under applicable Federal and State laws.

10. You have the right to choose who may visit you during your inpatient stay regardless of whether the visitor is a family member, friend or a domestic partner. You have the right to change or withdraw your visitor's privileges at any time by notifying the nurse caring for you.

I HEREBY CERTIFY THAT I HAVE READ AND UNDERSTAND COMPLETELY THE INFORMATION ON THIS CONSENT; THAT ALL OF MY QUESTIONS HAVE BEEN ANSWERED TO MY SATISFACTION, AND ANY STATEMENTS NOT APPLICABLE HAVE BEEN CROSSED OUT AND INITIALED PRIOR TO MY SIGNATURE.

PATIENT SIGNATURE	DATE	TIME	PATIENT PRINTED NAME
SIGNATURE OF AUTHORIZED PERSON/LEGAL GUARDIAN	DATE	TIME	RELATIONSHIP

PRINT NAME OF AUTHORIZED PERSON LEGAL GUARDIAN

GENERAL CONSENT

Appendix 1

CONSENT FORM

INVESTIGATOR(S) NAME:
Jens Hansen, MSN, CRNP; Misericordia University DNP Student

FACULTY ADVISOR:
Brenda Hage, Ph.D., DNP, CRNP

STUDY TITLE:
Closing the loop: The effects of scheduling patients' follow-up prior to Emergency Department discharge.

PURPOSE OF THE STUDY:
Following up after being discharged from the Emergency Department (ED) is an important part of getting better and staying healthy. Many medical errors or problems can occur after our patients are discharge. ED discharge is often provided during times of illness and injury making discharge instructions confusing or difficult to read. The purpose of this quality improvement project is to help develop better ways to get patients healthy. The objective of this project is to determine if scheduling patients before they leave the ED helps to increase patient follow-up outside of the ED. Evidence based science has shown many benefits to providing safe effective transition of care from the ED to other healthcare providers.

DESCRIPTION OF THE STUDY:
Some patients, as well as, patients parents or guardians will has the opportunity to have their Emergency Department (ED) discharge follow-up appointments made before they leave the ED. If we speak to your family doctor or another specialty doctor we may agree on a follow-up plan for you. Those who wish to participate will sign this consent form. All participants will receive a copy of this consent form.

Participation in this project will not require participants to do anything. Participants who are eligible for the project are any patients who the ED provider believes should have a follow-up appointment within 1 month after discharge. ED providers talk to other clinicians and specialists on a regular basis to provide the best care possible. The project will help to determine if scheduling your follow-up before you leave the ED will help to improve the care you receive and get you to a state of improved health. If a patient or a patient's parent or guardian choose to participate we will schedule may your follow-up appointment before you leave the ED. Appointments will be obtained based on the availability to other clinicians and specialists. You do not have to participate in this quality improvement project. You personally do not need to dedicate any time toward the investigation. There are no interviews or surveys for you to complete. If you are selected, any appointment scheduled will be provided for you on your discharge paperwork. If any provider has agreed to see you for follow-up you will be provided written notice of this on discharge papers.

RISKS AND DISCOMFORTS:
There are no anticipated risks for you or your minor for participation. Confidentiality and personal information will be respected. Extra special care will be used in order to maintain your privacy. None of your personal information will be used. Under many circumstances, scheduling or arranging follow-up is a standard of care.

BENEFITS:
This project will help us to develop the best possible patient care, especially related to ED discharge practices. Studies have shown that scheduling patients' follow-up help to increase compliance and ease of follow-up. This quality improvement study will help to determine barriers to obtaining appropriate follow-up, so it is equally important in every patient population.

ALTERNATIVE PROCEDURES:
Patients who do not wish to participate or who are not selected will be instructed to follow-up in the usual manner and make follow-up arrangements on their own.

CONFIDENTIALITY:
All information used in this study will be kept confidential. Results of the study will be reported using only use pooled information which will protect the anonymity of participants. All information regarding the study will be secured in a locked filing cabinet off site in the project director's office. Any electronic records will be stored in a password protect file on limited

access computers. No one other than the director, the department chairperson, and the Internal Review Board (IRB) will have access to the study information. All paper information will be destroyed at the end of the project by shredding. Any electronic information will be deleted permanently.

TERMINATION OF PARTICIPATION:
You may decide to not keep your scheduled follow-up appointment, there is no penalty for this. We kindly ask that you contact your designated follow-up provider as soon as possible. The decision to withdraw from the project will not have any negative consequences for the participant.

COMPENSATION:
There will be no compensation for participation in the project. There will be no additional costs to the participant associated with the project. The service will be provided at no cost to the patient.

INJURY COMPENSATION
Although the risk of injury is unforeseen, Neither St. Luke's University Hospital nor Misericordia University will provide special services, free care, or compensation for any injuries resulting from this research. I understand that treatment for such injuries will be at my expense and/or paid through my medical plan.

QUESTIONS
All of my questions have been answered to my satisfaction and if I have further questions about this study, I may contact Jens Hansen, at hansenj@misericordia.edu or Dr. Brenda Hage at bhage@misericordia.edu, (570)-674-6760. If I have any questions about the rights of project participants, I may call the Chairperson of the Misericordia University Institutional Review Board at 570-674-8108.

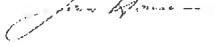
VOLUNTARY PARTICIPATION
I understand that my participation in this project is entirely voluntary, and that refusal to participate will involve no penalty or loss of benefits to me. I am free to withdraw or refuse consent, or to discontinue my participation in this project at any time without penalty or consequence.

I voluntarily give my consent to participate in this project. I understand that I will be given a copy of this consent form.

PATIENT SIGNITURE	DATE:	TIME:	PATIENT PRINTED NAME
SIGNATURE OF AUTHORISED PERSON/ LEGAL GAURDIAN	DATE:	TIME:	RELATIONSHIP
PRINT NAME OF AUTHORIZED PERSON/LEGAL GAURDIAN			

I, the undersigned, certify that to the best of my knowledge, the subject signing this consent form has had the project fully and carefully explained by me and have been given an opportunity to ask any questions regarding the nature, risks, and benefits of participation in this evidence-based practice project.

Jens Hansen, MSN, CRNP
INVESTIGATOR'S SIGNATURE (PRINT)



2/18/2015
INVESTIGATOR'S SIGNATURE DATE:

APPROVED UNTIL
JUL 31 2015
MISERICORDIA IRB

St. Luke's University Health Network
Informed Consent Document for Human Subjects Research

Department: Emergency Department

Principal Investigator: Jens Hansen MSN, CRNP, Doctoral Student **Telephone**: 484-707-0440

Medical Study Title: Closing the loop: The importance of scheduling patients' follow-up prior to emergency department discharge on transitions of care.

What Is Informed Consent / Parental Permission?

You or your child are being asked to take part in a medical research study. As required by federal regulations, this research study has been reviewed and approved by an Institutional Review Board (IRB), a committee that reviews, approves and monitors research involving humans. Before you or your child can make a decision about whether to participate, you or your child should understand the possible risks and benefits related to this study. This process of learning and thinking about a study before you make a decision is known as *informed consent* and includes:

- Receiving detailed information about this research study;
- Being asked to read, sign and date this consent form, once you understand the study and have decided to participate. If you or don't understand something about the study or if you have questions, you should ask for an explanation before signing this form;
- Being given a copy of the signed and dated consent form to keep for your own records.

What is the purpose of this study?

Following up after being discharged from the Emergency Department (ED) is an important part of getting better and staying healthy. Many medical errors or problems can occur after our patients leave the ED. Discharge instructions are often given during times of illness and injury making discharge instructions confusing, or difficult to read. The purpose of this quality improvement project is to help develop better ways to get patients healthy. The objective of this project is to determine if scheduling you before you leave the ED helps to increase follow-up outside of the ED. Evidence based science has shown many benefits to providing safe effective transition of care from the ED to other healthcare providers.

How many individuals will participate in the study and how long will the study last?

We hope to enroll about 200 patients at St. Luke's University Health Network. Your involvement in the study will last about 12 weeks.

What will I or my child have to do during the study?

Participation in this project will not require you to do anything. You may be eligible to be a participant in the project if the ED provider believes should have a follow-up appointment within 1 month after discharge. ED providers talk to other clinicians and specialists on a regular basis to

provide the best care possible. The project will help to determine if scheduling your follow-up before you leave the ED will help to improve the care you receive and get you to a state of improved health. If a patient or a patient's parent or guardian choose to participate we may schedule your follow-up appointment before you leave the ED. Appointments will be obtained based on the availability of other clinicians and specialists. You do not have to participate in this quality improvement project. You personally do not need to dedicate any time toward the project. There are no interviews or surveys for you to complete. If you are selected, any appointment scheduled will be provided for you on your discharge paperwork. If any provider has agreed to see you for follow-up you will be provided written notice of this on discharge papers.

What are the risks or discomforts involved?

There are no anticipated risks for you or your child in participating. Confidentiality and personal information will be respected. Extra special care will be used in order to maintain your privacy. None of your personal information will be used. Under many circumstances, scheduling or arranging follow-up is a standard of care.

Are there alternatives to being in the study?

You or your child do not have to participate in this study. People who do not wish to participate or who are not selected will be instructed to follow-up in the usual manner and make follow-up arrangements on their own.

HIPAA Authorization: How will privacy and confidentiality (identity) be protected?

Federal regulations require that certain information about individuals be kept confidential. This information is called "protected health information" (PHI). PHI includes information that identifies you or your child personally such as name, address and social security number, or any medical or mental health record, or test result, that may have this sort of information on it. The law states that you or your child may see and review your St. Luke's University Health Network medical records at any time. However, in a research study, you or your child may not see the study results or other data about the study until after the research is completed, unless the study doctor decides otherwise.

If you or your child join this study, the following individuals or entities may have access to your PHI and by law must protect it. These include investigators listed on this consent form and other personnel of St. Luke's University Health Network involved in this specific study, including the Institutional Review Board (IRB), and you or your child's health insurance company (if necessary for billing for standard medical care).

If you/your child develop/develops an illness or injury during the course of your participation in this study, other PHI about treating and following the condition may be generated and disclosed as it relates to this study. You or your child's PHI may be used/disclosed until the end of the research study.

You or your child may quit the study and revoke permission to use and share your PHI at any time by contacting the principal investigator, in writing, at: **Jens Hansen, 1872 St. Luke's Boulevard,**

Easton PA, 18045 If you quit the study, further collection of PHI will be stopped, but PHI that has already been collected may still be used.

Successful scheduling of follow-up performed as part of this research may be included in you or your child's medical records. The information from this study may be published in scientific journals or presented at scientific meetings but you or your child will not be personally identified in these publications and presentations.

Your name will never appear in any sponsor forms, reports, databases, or publications, or in any future disclosures by the principal investigator. A description of this clinical trial will be available on http://www.ClinicalTrials.gov, as required by U.S. Law. This Web site will not include information that can identify you. At most, this Web site will include a summary of the results. You can search this Web site at any time.

Will I/my child benefit from being in this study?

You or your child may or may not benefit from being in this project, but we hope that what we learn may be helpful to future patients or society in general. This project will help us to develop the best possible patient care, especially related to ED discharge practices. Studies have shown that scheduling patients' follow-up helps to increase compliance and ease of follow-up. This quality improvement study will help to determine barriers to obtaining appropriate follow-up, so it is equally important in every patient population.

Will I or my child be paid for being in this study?

You or your child will not receive payment for your participation in this study. In addition, you will not be paid if inventions and/or patents are developed from the study results.

Will I or my child be told about any new findings?

Anything learned during the study, beneficial or not, that may affect you or your child's health or you or your child's willingness to continue in the study, will be told to you and explained.

Are there costs related to being in this study?

There will be no additional costs if you choose to participate. This service will be provided at no additional cost to you.

Can I or my child be removed from the study or quit the study?

You or your child's decision to participate in this research study is entirely voluntary. You have been told what being in this study will involve, including the possible risks and benefits.

You or your child's participation in this research project may be terminated by the study doctor without your consent/assent for any reason that he feels is appropriate.

You or your child may refuse to participate in this study or withdraw consent and quit this study without penalty and without affecting your ability to receive medical care at St. Luke's University Health Network.

If you or your child withdraw from this study, you may continue treatment with your St. Luke's University Health Network provider, or you may seek treatment from another doctor of your choice.

If you or your child decide to withdraw from the study, please be sure to inform the study provider.

CONTACT INFORMATION

Telephone number for questions about your rights as a research participant	St. Luke's University Health Network Institutional Review Board	***Insert telephone number*** 484-707-0440
For questions, concerns or complaints about the research, or if you suspect a research-related injury	The Principal Investigator, Jens Hansen, MSN, CRNP	***Insert telephone number*** 484-707-0440

- **By your agreement/your permission to participate/allow your child to participate in this study, and by signing this consent form, you are not waiving any of you or your child's legal rights.**
- **You affirm that you have read this consent form, and have been told that you will receive a copy.**
- **You also authorize the use and disclosure of your health information to the parties listed in the HIPAA authorization section of this consent for the purposes as described.**

Your Name *(please print or type)*_____

Your Signature_____ Date _____

Name of Person Conducting Consent_____

Signature of Person Conducting Consent_____ Date_____

Printed name of child (if "Child Assent")_____

Signature of child_____ Date_____

do_not_reply@ddots.com Mon, Apr 6 10:56 AM
to jens hansen

Documents have been IRB reviewed: SLHN 2015-25 IRB No.: SLHN 2015-25

//

This email has been auto-generated by the DDOTS system.
Please do not reply to this email.

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An event for Protocol **SLHN 2015-25** has been marked as having completed review.

Local ID: SLHN 2015-25
Protocol: SLHN 2015-25
Type of Submission: New Studies
IRB Meeting Date: 04/07/2015
Action: Approved
Reviewed By: Exempt
Action Date: 04/06/2015
Agenda:

List Documents and Comments for each Document:
Download File: slhn 2015-25 - application.pdf
Download File: slhn 2015-25 - icf form.pdf

Review Completed By: Stawicki, Stanislaw P.
Completed Date: 04/06/2015

Email sent to: Murtaugh, Holly; Hansen MSN, CRNP, Jens

St Luke's
UNIVERSITY HOSPITAL
BETHLEHEM

109
801 Ostrum Street
Bethlehem, PA 18015
484-526-4000

February 18, 2015

301 Lake Street,
Dallas, PA 18612

Dear Misericordia University IRB Chair,

As Network Chairperson of Emergency Services at St. Luke's University Hospital Network (SLUHN), it gives me great pleasure to write this letter of mentoring support for Jens Hansen, MSN, Doctoral candidate. Jens has been employed by SLUHN for 10 years and we have worked together in the Emergency Department setting for 8 years. I am dedicated to mentoring Jens when assistance is needed with his project titled: *Closing the Loop: Scheduling patients' follow-up prior to discharge from the Emergency Department*. This project will explore the effects of scheduling patients' follow-up prior to emergency department discharge on follow-up compliance. I believe quality improvement is an important component of the excellent research environment here at SLUHN, which will foster the success of research endeavors. In addition to services such as regulatory support, biostatistical analysis, outpatient and mobile nursing services, specimen storage and analysis in our biorepository, and biomedical informatics, SLUHN houses a robust education program. This provides myriad resources for student researchers, trainees, early career faculty, and mentors.

For faculty, fellows, students, and staff conducting research, SLUHN offers a broad array of workshops and resources focusing on career development topics, team science, regulatory issues, and responsible conduct of research. For example, SLUHN's IRB website provides links to modules introducing early- and mid-career faculty to crucial elements in the research process. To meet the responsible conduct of research requirement established by the National Institutes of Health, SLUHN has also developed workshops to assist in research education. New research staff has access to the fundamentals of study development and clinical research language and culture, good clinical practice, recruitment and retention, and informed consent.

In support of mentoring, SLUHN offers a variety of resources, including a mentor-mentee agreement intended to provide a framework for career development, talks and workshops focusing on mentoring. Mentoring is an integral component of all SLUHN research projects.

I believe our rich educational offerings are a demonstration of the overall commitment of SLUHN to build a thriving clinical and translational research enterprise. SLUHN is a crucial component of the infrastructure and environment in which proposals such as yours can succeed. Congratulations on your exciting proposal, and I wish you much success with the application. All of us here at SLUHN look forward to working with you and your academic institute Misericordia University.

Sincerely,

Rebecca M. Pequeno M.D.
Network Chairperson of Emergency Services
St. Luke's University Hospital Network

Patient Privacy Attestation Form

I, Jens Hansen, MSN, Doctoral Candidate, hereby submits this attestation to compliance with applicable provisions of the Administrative Simplification provisions of the Health Insurance Portability and Accountability Act of 1996 ("HIPAA") as amended by the Health Information Technology for Economic and Clinical Health Act ("HITECH") (enacted as part of the American Recovery and Reinvestment Act of 2009) and the Affordable Care Act ("ACA") (Public Law Nos. 111-148 and 111-152, enacted in March 2010) and the standards, operating rules, and related regulations and guidance promulgated thereunder (referred to collectively, hereinafter, as "the HIPAA requirements"), as may be amended from time to time.

With this attestation, I hereby represent and warrant the following:

(a) I will, and shall remain, to the best of my knowledge, compliant with standards, operating rules, and related regulations promulgated by the Secretary of the U.S. Department of Health and Human Services (the "Secretary") under HIPAA that govern health care eligibility benefit inquiry and response, including, as applicable, the standards, operating rules, and related regulations adopted under Parts 160 and 162 of Title 45 of the Code of Federal Regulations, as may be amended from time to time;

(b) I will, and shall remain, to the best of my knowledge, compliant with applicable provisions of the HIPAA Privacy and Security requirements of Parts 160 and 164 of Title 45 of the Code of Federal Regulations, as may be amended from time to time.

I acknowledge that your business will rely on this attestation and that any omissions, misrepresentations, or inaccuracies may be a basis for dismissal of collaboration.

I agree to notify your business if I discover that any of the representations and warranties were not true when made or if I fail to remain compliant with any of the applicable standards, operating rules, and related regulations and guidance set forth above. I understand that a loss of compliance with the standards set forth above will result in dismissal of collaboration.

Signature: Date:

Jens Hansen, MSN, Doctoral Candidate, FNP-BC, GNP-BC

St. Luke's Emergency Department Certified Registered Nurse Practitioner

Certificate of Completion

The National Institutes of Health (NIH) Office of Extramural Research certifies that **Jens Hansen** successfully completed the NIH Web-based training course "Protecting Human Research Participants".

Date of completion: 11/02/2014

Certification Number: 1608403

COLLABORATIVE INSTITUTIONAL TRAINING INITIATIVE (CITI)

RESPONSIBLE CONDUCT OF RESEARCH CURRICULUM COMPLETION REPORT

Printed on 11/20/2014

LEARNER	Jens Hansen (ID: 4524119) 1330 Brian Lane Effort PA 18330
DEPARTMENT	Emergency Department
PHONE	484-707-0440
EMAIL	Jens.Hansen@sluhn.org
INSTITUTION	St. Luke's Hospital & Health Network - Bethlehem, PA
EXPIRATION DATE	

BIOMEDICAL RESPONSIBLE CONDUCT OF RESEARCH COURSE 2

COURSE/STAGE:	Basic Course/1
PASSED ON:	11/20/2014
REFERENCE ID:	14619077

REQUIRED MODULES	DATE COMPLETED	SCORE
Responsible Conduct of Research (RCR) Course Introduction	11/20/14	No Quiz
Research Misconduct (RCR-Biomed)	11/20/14	5/5 (100%)
Case Study - Truth or Consequences (RCR-Biomed)	11/20/14	3/3 (100%)
Data Management (RCR-Biomed)	11/20/14	5/5 (100%)
Case Study - Data Management - Share and Share Alike (RCR-Biomed)	11/20/14	3/3 (100%)
Authorship (RCR-Biomed)	11/20/14	5/5 (100%)
Responsible Authorship - The Chair as an Author (RCR-Biomed)	11/20/14	2/2 (100%)
Peer Review (RCR-Biomed)	11/20/14	8/8 (100%)
What is Responsible Peer Review (RCR-Biomed)	11/20/14	5/5 (100%)
Responsible Mentoring 01-1625 Archived 1625	11/20/14	6/6 (100%)
Mentoring Case Study: O, What a Tangled Web We Weave (All Disciplines)	11/20/14	4/4 (100%)
Conflicts of Interest (RCR-Biomed)	11/20/14	6/6 (100%)
CoI -The Case of the Entrepreneurial Clinician (RCR-Biomed)	11/20/14	5/5 (100%)
Collaborative Research (RCR-Biomed)	11/20/14	5/5 (100%)
Why Can't We All Just Get Along (RCR-Biomed)	11/20/14	3/3 (100%)
Responsible Conduct of Research (RCR) Course Conclusion	11/20/14	No Quiz
ELECTIVE MODULES	**DATE COMPLETED**	**SCORE**
Authorship and Publications - The Grateful Author (RCR-Biomed)	11/20/14	5/5 (100%)
Responsible Authorship -Taking Shortcuts (RCR-Physical Sciences)	11/20/14	4/5 (80%)
Peer Review and Controversial Research (RCR-Biomed)	11/20/14	3/3 (100%)
When Collaborators Become Competitors (RCR-Biomed)	11/20/14	3/3 (100%)
When Collaborators Disagree (RCR-Biomed)	11/20/14	3/3 (100%)
Collaborations Between Academics (RCR-Biomed)	11/20/14	4/4 (100%)
Marriage Has Its Advantages (RCR-Biomed)	11/20/14	2/2 (100%)

For this Completion Report to be valid, the learner listed above must be affiliated with a CITI Program participating institution or be a paid Independent Learner. Falsified information and unauthorized use of the CITI Program course site is unethical, and may be considered research misconduct by your institution.

Paul Braunschweiger Ph.D.
Professor, University of Miami
Director Office of Research Education
CITI Program Course Coordinator

COLLABORATIVE INSTITUTIONAL TRAINING INITIATIVE (CITI)

CITI HEALTH INFORMATION PRIVACY AND SECURITY (HIPS) CURRICULUM COMPLETION REPORT

Printed on 11/20/2014

LEARNER	Jens Hansen (ID: 4524119) 1330 Brian Lane Effort PA 18330
DEPARTMENT	Emergency Department
PHONE	484-707-0440
EMAIL	Jens.Hansen@sluhn.org
INSTITUTION	St. Luke's Hospital & Health Network - Bethlehem, PA
EXPIRATION DATE	11/19/2018

CITI HEALTH INFORMATION PRIVACY AND SECURITY (HIPS) FOR STUDENTS AND INSTRUCTORS

COURSE/STAGE:	Basic Course/1
PASSED ON:	11/20/2014
REFERENCE ID:	14619078

REQUIRED MODULES	DATE COMPLETED	SCORE
Basics of Health Privacy	11/19/14	16/16 (100%)
Health Privacy Issues for Students and Instructors	11/19/14	4/4 (100%)
Basics of Information Security, Part 1	11/20/14	No Quiz
Basics of Information Security, Part 2	11/20/14	5/5 (100%)
ELECTIVE MODULES	**DATE COMPLETED**	**SCORE**
Protecting Your Computer	11/20/14	8/8 (100%)
Picking and Protecting Passwords	11/20/14	8/8 (100%)
Protecting Your Portable Devices	11/20/14	6/6 (100%)
Protecting Your Identity	11/20/14	7/7 (100%)
Safer Emailing and Messaging, Part 1	11/20/14	No Quiz
Safer Emailing and Messaging, Part 2	11/20/14	16/16 (100%)
Safer Web Surfing	11/20/14	6/7 (86%)

For this Completion Report to be valid, the learner listed above must be affiliated with a CITI Program participating institution or be a paid Independent Learner. Falsified information and unauthorized use of the CITI Program course site is unethical, and may be considered research misconduct by your institution.

Paul Braunschweiger Ph.D.
Professor, University of Miami
Director Office of Research Education
CITI Program Course Coordinator

COLLABORATIVE INSTITUTIONAL TRAINING INITIATIVE (CITI)

HUMAN RESEARCH CURRICULUM COMPLETION REPORT

Printed on 11/20/2014

LEARNER	Jens Hansen (ID: 4524119) 1330 Brian Lane Effort PA 18330
DEPARTMENT	Emergency Department
PHONE	484-707-0440
EMAIL	Jens.Hansen@sluhn.org
INSTITUTION	St. Luke's Hospital & Health Network - Bethlehem, PA
EXPIRATION DATE	

STUDENTS - CLASS PROJECTS

COURSE/STAGE:	Basic Course/1
PASSED ON:	11/20/2014
REFERENCE ID:	14619075

REQUIRED MODULES	DATE COMPLETED	SCORE
Belmont Report and CITI Course Introduction	11/20/14	3/3 (100%)
Students in Research	11/20/14	10/10 (100%)
History and Ethics of Human Subjects Research	11/20/14	7/7 (100%)
Basic Institutional Review Board (IRB) Regulations and Review Process	11/20/14	5/5 (100%)
St. Luke's Hospital & Health Network	11/20/14	No Quiz

For this Completion Report to be valid, the learner listed above must be affiliated with a CITI Program participating institution or be a paid Independent Learner. Falsified information and unauthorized use of the CITI Program course site is unethical, and may be considered research misconduct by your institution.

Paul Braunschweiger Ph.D.
Professor, University of Miami
Director Office of Research Education
CITI Program Course Coordinator

COLLABORATIVE INSTITUTIONAL TRAINING INITIATIVE (CITI)

CITI GOOD CLINICAL PRACTICE CURRICULUM COMPLETION REPORT

Printed on 11/20/2014

LEARNER	Jens Hansen (ID: 4524119) 1330 Brian Lane Effort PA 18330
DEPARTMENT	Emergency Department
PHONE	484-707-0440
EMAIL	Jens.Hansen@sluhn.org
INSTITUTION	St. Luke's Hospital & Health Network - Bethlehem, PA
EXPIRATION DATE	11/18/2018

CITI GOOD CLINICAL PRACTICE COURSE

COURSE/STAGE:	Basic Course/1
PASSED ON:	11/19/2014
REFERENCE ID:	14619076

REQUIRED MODULES	DATE COMPLETED	SCORE
The CITI Good Clinical Practice Course for Clinical Trials Involving Drugs and Devices	11/19/14	3/3 (100%)
Overview of New Drug Development	11/19/14	5/5 (100%)
Overview of ICH GCP	11/19/14	4/4 (100%)
ICH - Comparison Between ICH GCP E6 and U.S. FDA Regulations	11/19/14	4/4 (100%)
Conducting Investigator-Initiated Studies According to FDA Regulations and GCP	11/19/14	3/3 (100%)
Investigator Obligations in FDA-Regulated Clinical Research	11/19/14	5/5 (100%)
Managing Investigational Agents According to GCP Requirements	11/19/14	5/5 (100%)
Overview of U.S. FDA Regulations for Medical Devices	11/19/14	3/3 (100%)
Informed Consent in Clinical Trials of Drugs, Biologics, and Devices	11/19/14	4/4 (100%)
Detecting and Evaluating Adverse Events	11/19/14	4/4 (100%)
Reporting Serious Adverse Events	11/19/14	4/4 (100%)
Audits and Inspections of Clinical Trials	11/19/14	5/5 (100%)
Monitoring of Clinical Trials by Industry Sponsors	11/19/14	8/8 (100%)
Completing the CITI GCP Course	11/19/14	No Quiz

For this Completion Report to be valid, the learner listed above must be affiliated with a CITI Program participating institution or be a paid Independent Learner. Falsified information and unauthorized use of the CITI Program course site is unethical, and may be considered research misconduct by your institution.

Paul Braunschweiger Ph.D.
Professor, University of Miami
Director Office of Research Education
CITI Program Course Coordinator

Analysis of How-to Guide: Improving Transitions from the Hospital to the Clinical Office Practice to Reduce Avoidable Rehospitalizations using the AGREE tool.

Scope and Purpose

1. The overall objective(s) of the guideline is (are) specifically described. (4)
    a. The objectives of the guideline are described in detail.
2. The clinical question(s) covered by the guideline is (are) specifically described. (4)
    a. Detailed description of the clinical questions and key recommendations covered by the guideline are provided
        i. Provide timely access to care following a hospitalization.
        ii. Prior to the visit: Prepare patient and clinical team.
        iii. During the visit: Assess patient and initiate new care plan or revise existing plan.
        iv. At the conclusion of the visit: Communicate and coordinate the ongoing care plan.
3. The patients to whom the guideline is meant to apply are specifically described. (3)
    a. There is a description of the target population covered by the guideline.
        i. Target populations are those discharged from the hospital
        ii. Comorbidities included
        iii. Does not specify sex or age specifically

Stakeholder Involvement

4. The guideline development group includes individuals from all the relevant professional groups. (4)
    a. Professionals who were involved in the development process were described
        i. Developers from several disciplines.
        ii. Commonwealth Fund & Institute for Healthcare Improvement.
5. The patients' views and preferences have been sought. (4)
    a. Information about patients' experiences and expectations of health care informed the development of clinical guideline.
        i. The guideline cites the disparities that occur to patients and their families.
        ii. Directly suggest patient and family caregiver engagement.
        iii. Identifies patient input and experience may identify opportunities for improvement.
6. The target users of the guideline are clearly defined. (4)
    a. The target users are clearly defined.
        i. Clinicians and ancillary staff.
        ii. Primary care practice, hospitalists, and hospital based clinicians.
7. The guideline has been piloted among target users. (3)
    a. Guideline has not been extensively pre-tested for further validation amongst its intended users prior to publication.

i. Although I do not see direct implementation of the guideline by users, the guideline clearly identifies similar piolet programs that are strongly related.

Rigor of Development

8. Systematic methods were used to search for evidence. (2)
    a. Details of the strategy used to search for evidence was not provided. The reader did not appreciate included search terms used, sources consulted, and dates of the literature covered.
        i. Strategy for evidence search was not provided or clearly identifiable.
9. The criteria for selecting the evidence are clearly described. (2)
    a. The criteria for including /excluding evidence was not identified. The guideline did not clearly identify reasons for including and excluding evidence.
        i. Clear cut evidence selection criteria was not appreciated.
10. The methods used for formulating the recommendations are clearly described. (3)
    a. There was not a clear description of the methods used to formulate the recommendations. Inferences to how recommendation were formed could be made.
        i. Clear cut methodology was not appreciated.
11. The health benefits, side effects and risks have been considered in formulating the recommendations. (4)
    a. The guideline considered health benefits, side effects, and risks of the recommendations.
        i. The guideline was developed in an effort to increase health benefits to patients.
        ii. Also identifies risks to patients in organizations that do not follow the intended recommendations.
12. There is an explicit link between the recommendations and the supporting evidence. (3)
    a. There was an explicit link between the recommendations and the evidence on which they were based. Each recommendation was linked with a list of references on which it is based. However, the reader would have benefited from a reference list following each recommendation. Instead, references were listed in entirety at the end of the document.
        i. Guideline did provided reasoning for recommendations.
        ii. Provided clear link to supporting evidence.
13. The guideline has been externally reviewed by experts prior to its publication. (3)
    a. A guideline should be reviewed externally before it is published. It was not clear whether reviewers were part of the development group or not. Patients' representatives did not appear to be included in development group. There was no description of the methodology used to conduct the external review presented.
        i. The guideline was reviewed by experts.

ii. No clear cut methodology was identified

14. A procedure for updating the guideline is provided. (3)
    a. There was not a clear statement about the procedure for updating the guideline.
        i. There was not a clear statement about the procedure for updating the guideline
        ii. There were processes identified for making changes to the guideline

Clarity of Presentation

15. The recommendations are specific and unambiguous. (4)
    a. The recommendations did provide a concrete clear description of which managements were appropriate, as well as, situations in which managements were appropriate for.
16. The different options for management of the condition are clearly presented. (3)
    a. The guideline did consider the different possible options for use. The guideline does not address specific conditions for which this would be applicable.
        i. The guideline did suggest several important aspects for each recommendation and possible scenarios.
        ii. Management of patients can be tailored to patients' comorbidities and risk level.
17. Key recommendations are easily identifiable. (4)
    a. Relative recommendations were easily identified. The recommendations did directly relate to the objective of the guideline.
        i. Key recommendations are easily identified either by tables, or bolding and underlining.
18. The guideline is supported with tools for application. (4)
    a. The guideline was very effective in providing additional materials.
        i. Companion guidelines are presented for different care coordination
        ii. Checklists for post hospital follow up visit provided
        iii. Information for creating access in clinic schedules
        iv. Available resources for each recommendation are provided
        v. Several worksheets and usable material are provided

Applicability

19. The potential organizational barriers in applying the recommendations have been discussed. (4)
    a. Organizational changes that may be needed in order to apply the recommendations were discussed.
        i. Provides a section designated to address the typical failures associated with the related systems of care. (p.78)
20. The potential cost implications of applying the recommendations have been considered. (3)

a. The recommendations do identify possible situations that may require additional resources, however, not all potential costs were identified.
    i. Some costs are addressed
    ii. CPT codes are provided for billing purposes (99495 & 99496)

21. The guideline presents key review criteria for monitoring and/or audit purposes. (4)
    a. Measuring the adherence to a guideline were clearly defined. Review criteria were derived from the key recommendations in the guideline.
        i. Suggested measures are clearly identified following each recommendation.
        ii. How to test change is provided
        iii. Test to increase process reliability provided
        iv. Tips for sustaining improvements

Editorial Independence

22. The guideline is editorially independent from the funding body. (4)
    a. There is an explicit statement that the views or interests of the Common wealth fund have not influenced the final recommendations.
23. Conflicts of interest of guideline development members have been recorded. (1)
    a. There was no explicit statement addressing possible conflicts of interest.

Brief Summary:

The chosen guideline *Improving Transitions from the Hospital to the Clinical Office Practice to Reduce Avoidable Rehospitalizations* was felt to be a very strong guideline. The recommendations provided are very thorough and provide extensive resources for implementation. The guideline is very applicable and can be used across healthcare in the United States. The recommendations of the guideline are quite practical and are evidence based. Many of the application proposed would likely required little additional recourses and likely a redistribution of resources already available in many health systems. Overall, the guideline did very effectively support the student researcher's PICOT.

Domain Scores

Domain 1 (Scope & Purpose) 89%

	Item 1	Item 2	Item 3	Total
Appraiser	4	4	3	11

Maximum possible score = 4 (strongly agree) x 3 (items) x 1 (appraisers) = 12

Minimum possible score = 1 (strongly disagree) x 3 (items) x 1 (appraisers) = 3

Obtained score (11) – minimum possible score (3) / Maximum possible score (12) – minimum possible score (3) = 8/9= 0.888 x 100= 89%

Domain 2 (Stakeholder Involvement) 92%

	Item 1	Item 2	Item 3	Item 4	Total
Appraiser	4	4	4	3	15

Maximum possible score = 4 (strongly agree) x 4 (items) x 1 (appraisers) = 16

Minimum possible score = 1 (strongly disagree) x 4 (items) x 1 (appraisers) = 4

Obtained score (15) – minimum possible score (4) / Maximum possible score (16) – minimum possible score (4) = 11/12= 0.916 x 100= 92%

Domain 3 (Rigor of Development) 62%

	Item 1	Item2	Item3	Item 4	Item 5	Item 6	Item 7	Total
Appraiser	2	2	3	4	3	3	3	20

Maximum possible score = 4 (strongly agree) x 7 (items) x 1 (appraisers) = 28

Minimum possible score = 1 (strongly disagree) x 7 (items) x 1 (appraisers) = 7

Obtained score (20) – minimum possible score (7) / Maximum possible score (28) – minimum possible score (7) = 13/21= 0.619 x 100= 62%

Domain 4 (Clarity of Presentation) 92%

	Item 1	Item 2	Item 3	Item 4	Total
Appraiser	4	3	4	4	15

Maximum possible score = 4 (strongly agree) x 4 (items) x 1 (appraisers) = 16

Minimum possible score = 1 (strongly disagree) x 4 (items) x 1 (appraisers) = 4

Obtained score (15) – minimum possible score (4) / Maximum possible score (16) – minimum possible score (4) = 11/12= 0.916 x 100= 92%

Domain 5 (Applicability) 89%

	Item 1	Item 2	Item 3	Total
Appraiser	4	3	4	11

Maximum possible score = 4 (strongly agree) x 3 (items) x 1 (appraisers) = 12

Minimum possible score = 1 (strongly disagree) x 3 (items) x 1 (appraisers) = 3

Obtained score (11) – minimum possible score (3) / Maximum possible score (12) – minimum possible score (3) = 8/9= 0.888 x 100= 89%

Domain 6 (Editorial Independence) 50%

	Item 1	Item 2	Total
Appraiser	4	1	5

Maximum possible score = 4 (strongly agree) x 2 (items) x 1 (appraisers) = 8

Minimum possible score = 1 (strongly disagree) x 2 (items) x 1 (appraisers) = 2

Obtained score (5) – minimum possible score (2) / Maximum possible score (8) – minimum possible score (2) = 3/6= 0.5 x 100= 50%

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484-707-0440

CERTIFICATIONS:

Board certified by the AANP in Family Practice.
Board certified by the ANCC in Gerontological Nurse Practitioner

EDUCATION:

5/2008 Misericordia University, Dallas, Pennsylvania
Masters of Science in Nursing
Specialty in Family Health
Masters Thesis: Childhood Obesity- A Pandemic?
Upon Request

10/2003 Rutgers, The State University of New Jersey
Bachelor of Science in Nursing

OTHER EDUCATION:

Saint Luke's University Hospital Emergency Nurse Coarse:
This course is intended to establish a solid foundation in nursing assessment and care of critical patients. In this course, participants reviewed multiple possible emergency cases from triage to disposition. Here we developed an understanding of routine emergency health care.

Saint Luke's University Hospital Trauma Course:
The purpose of this course was to identify and treat multiple trauma scenarios and conditions. This course focused on the stabilization and current recommendations for treatment of critical traumatic occurrences.

GRADUATE CLINICAL EXPIERIENCE:

1/2006- 5/2006 Saint Luke's Cardiology:
Here I developed an understanding of cardiac ailment identification, including cardiac function and identification of cardiac dysfunction and multiple potential abnormalities. I developed a basic foundation in interpreting ECHO cardiograms, and cardiac stress tests. As well as, acute and chronic medication management of cardiac patients and their ailments.

8/2005-12-2005 Saint Luke's Internal Medicine:
A very broad practice that allowed me to identify and experience multiple disease processes and there presentation. I learned the

	importance of proper medical management from admission to discharge.
8/2007-12/2007	Saint Luke's OB/GYN: Here I learned the implications of woman's health from STI's to cancer. I developed an understanding of the complexity of woman's health management including pregnancy, prepartum, and postpartum management.
8/2006-12/2008	Miller Heights Family Practice: Here I developed a real understanding of outpatient medical management with minimal resources. I developed insight into empirical treatment of several disease processes. I fortified a foundation in identification and implementation of primary prevention practices. I also developed a foundation in treatment of common pediatric ailments. As well as, identification of pediatric vital sign abnormalities and other pediatric assessment practices.

TEACHING EXPIERIENCE:

4/2006- 8/2006	***Saint Luke's University Hospital School of Nursing, Adjunct Faculty Clinical Instructor:*** Taught the basic and intermediate technical and academic skills of student nurses required in standard nursing care.
2004-2005	***Venetec Incorporated Clinical Education Consultant:*** Educated nurses and other ancillary staff at various facilities on the use of catheter securement devises. Including Intravenous, PICC, Central, and Foley catheter securement devices.
10/ 2010-Present	***Saint Lukes's University Hospital Advanced Practitioner Emergency Medicine Residency Program Faculty:*** This is a post master residency program that is designed to educate Nurse Practitioners and Physician Assistants on current evidenced based emergency care.
1/2012- 12/2012	***Nurse Practitioner Clinical Preceptor for DeSales University.*** Role: Clinically educate Nurse Practitioner students.
1/2012-12/2012	***Nurse Practitioner Clinical Preceptor for Misericordia University.*** Role: Clinically educate Nurse Practitioner students.
11/2014-1/2015	***Nurse Practitioner Clinical Preceptor for Kaplan University.*** Role: Clinically educate Nurse Practitioner student in the Emergency Department setting.

RELATED EXPIERIENCE:

10/2011-present	***Pocono Medical Center Immediate Care.*** Duties are primarily to diagnose and treat urgent and emergent conditions in both higher and lower acuity patients.

10/2009-present	***Saint Luke's University Hospital Emergency Department Advanced Practice Provider.*** Duties are primarily to diagnose and treat emergent conditions in both higher and lower acuity patients.
2010-present	***Emergency Excellence Inc.: Employed as a consultant.*** Duties are to physically observe emergency department processes, as well as, verify benchmarking reports on qualifying emergency departments throughout the United States. The Nation's first National award recognition program for top performing Emergency Departments. More Information available at www.emergencyexcellence.com
2011-present	***Doylestown Hospital Emergency Department Advanced Practice Provider.*** Duties are primarily to diagnose and treat emergent conditions in both higher and lower acuity patients.
7/2007- 10/2009	***Saint Luke's Hospital and Health Network, Emergency departments nurse***. Work as an Emergency and Trauma nurse. Demonstrate required skills in critical patient stabilization. Identify acute disease processes verse chronic ailment exacerbations. Identify numerous body systems abnormalities. Understand current trends and research in today's medical and traumatic management.
7/2004- 7/2007	***Saint Luke's Hospital and Health Network, Neuroscience nurse.*** Have in-depth and intuitive knowledge in neurological assessment. Identify major to minute changes in patient mentation and neurologic presentation. Develop an understanding of pre and post brain and spinal surgical outcomes and treatment expectations. Develop an understanding of familial perceptions and education in stroke and CVA care. Developed an understanding of follow-up care for CVA and the implications involved throughout the traumatic patient experience.
4/2006- 8/2006	***Saint Luke's Hospital and Health Network, Adjunct Faculty.*** Teach Nursing students on general assessment and practical skills on patient care units. Including, medication identification, identification of normal and abnormal physical assessment, as well as aid in the development of a foundation for future holistic nursing care including psychosocial care, physical health, and spiritual health.
2005-2006	***Venetec International, Inc., Clinical Education Consultant.*** Educate nursing and other entities throughout various hospitals on the use and purpose of catheter securement devices. Duties were to demonstrate and observe hospital staff on the use of these devices, including education on statistical benefits of the equipment. As

well as, the importance of initiating use of these relatively new devices in accordance with healthcare governing bodies such as JACHO.

11/2003-7/2004 ***Clarra Maass Hospital, St Barnibas Health Network, Telemetry Step down Unit.*** I developed a foundation of nursing at this facility. Here my foundation in nursing care and assessment was established. I also developed and understanding of critical cardiac care assessment and maintenance of recovering cardio/surgical patients.

PROFESSIONAL DEVELOPMENT:

Currently Enrolled at Misericordia University's Doctorate of Nursing Practice Program.

CONTINUING EDUCATION:

2011	Pediatric Emergency Management Conference
2011	Geriatrics Continuing Education
2012	Interpreting Chest and Abdominal Radiographs
2012	Urgent Care Medicine: A Primary Care Approach to Acute and Chronic Illnesses and Injuries
2013	Emergency Medicine: Acute and Critical Care Challenges in the Emergency Department.
2014	American Academy of Nurse Practitioners National Conference

CERTIFICATIONS:

ACLS, PALS, BLS

MEMBERSHIPS:

American Academy of Nurse Practitioners
Pennsylvania Coalition of Nurse Practitioners