

CARDIAC SERVICES NURSE RESIDENCY

by

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## DEDICATION

This paper is dedicated to my family. Without your support and encouragement, this process would never have come to fruition. To my husband, you are more than I could ever wish for. Thank you for your willingness to go above and beyond in order to keep our ship afloat all those days, in order for me to focus on work and school. To my daughter, you are a bright and shining star. I watch your tenacity and drive with amazement. I love learning something from you every day. To my son, thank you for your wit and charm. Your uncanny ability to make me smile has been my saving grace in this life. I wish for your health and safety always, and thank you for serving our country. To both of my children, I hope if nothing else, I have shown you that anything is possible, and it is never too late to pursue a goal. To my mom and dad, thank you for always believing in me. I love you more than you will ever know, and am grateful for you both every day of my life. To my sister, to the moon and back always. I love you all.

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## TABLE OF CONTENTS

1. INTRODUCTION .....	1
Purpose and Objectives .....	3
2. LITERATURE REVIEW .....	4
Role Transitions .....	4
New Graduate Turnover .....	5
Organizational Costs .....	6
New Graduates in High Acuity Areas .....	6
Nursing Theory .....	7
Leadership Theory .....	8
3. METHOD .....	12
Introduction .....	12
Microsystem Assessment .....	12
Purpose .....	12
Patient .....	13
Professionals .....	17
Processes .....	20
Patterns .....	26
General Impression .....	27
Conclusion .....	28
4. RESULTS .....	29
Program Design .....	29
Application Process .....	30
Residency Cornerstones .....	31
Preceptorship .....	31
Mentoring .....	32
Didactic .....	33
5. CONSIDERATIONS AND EVALUATION .....	37
Cost Considerations .....	37
Program Evaluation .....	38
Conclusion .....	39
REFERENCES CITED .....	41

TABLE OF CONTENTS-CONTINUED

APPENDICES .....46

    APPENDIX A: Anticoagulant, Antiplatelet, and  
                    Antithrombolytic Learning Module .....47

    APPENDIX B: Learning Module Post Test .....56

    APPENDIX C: Post Program Evaluation .....58

    APPENDIX D: Literature Review Matrix .....61

LIST OF TABLES

Table	Page
1 NRC Picker Cath Lab Stoplight Report Year End 2015.....	17
2 Staff Satisfaction Survey Results.....	20

LIST OF FIGURES

Figure	Page
1 Patient Gender Breakdown .....	16
2. Age Breakdown of Patients .....	16
3. Department Volume.....	17
4 Staff Reported Problem Processes.....	23
5 Processes Viewed as Totally Broken by Staff.....	24
6 High Level Flow Chart .....	25

## ABSTRACT

This professional project was born out of a specific need within the cardiac services department at Kalispell Regional Medical Center. In order to describe, and best determine the exact needs of the cardiac services department, a clinical microsystem assessment was completed for the department focusing on the “five P’s” of the assessment process; Purpose, Patients, Processes, Professionals, Patterns. Information obtained from the microsystem assessment highlighted the need for additional staffing.

Factors such as retirement, department growth, and turnover have left the department chronically short staffed. Chronic short staffing has resulted in long work hours and routine overtime. Attempts at hiring experienced nurses have not been successful enough to meet the department demand. Evidence would support nursing residency programs as one solution to staffing shortages. Therefore, a literature review was completed regarding the design and success of nurse residency programs. Given the issues of persistent short staffing, and the subsequent increased work load for staff, a proposal for the development of a unit specific nurse residency program was made.

This professional project proposes a 16 week unit specific nurse residency program designed to be integrated into the existing organizational program. The program includes components of preceptorship, mentoring, and didactics. The goal of the proposed nurse residency program would be to provide education, professional support, and mentoring to new graduate nurses interested in cardiac care in order to satisfy long term staffing needs within the department.

## CHAPTER ONE

### INTRODUCTION

Cardiac services at Kalispell Regional Medical Center (KRMC) originated more than 20 years ago. What initially started as a small department offering limited procedures, has grown into a large multifaceted department that provides a variety of complex procedures. As the department has grown, staffing needs have changed. Through the recent addition of increased service lines such as Electrophysiology, as well as the continued expansion of existing departments including Cath Lab and Interventional Radiology, the need for department staff has greatly increased.

Historically work days in the department were short. Despite working fewer than 40 hours, staff were able to earn full time equivalent pay through taking call. Growth in the department has resulted in regular long work days. Additionally, call back hours have become more frequent, creating fatigue and burnout of staff. All of these factors have created a persistent staffing shortage within the department. Attempts to fill available department positions with experienced nurses have been unsuccessful. Within the last year, the department has utilized two different traveler nurses in order to meet staffing needs. The utilization of a traveler to meet staffing needs is suboptimal, as it is an expensive short term option.

The utilization of travelers, realization of a continued growth trend in the department, and an inability to hire experienced staff provided the impetus for a complete microsystem assessment. Through this assessment, staffing shortages and long work

hours were identified as major areas of staff discontent. In response to these findings, and in order to meet the staffing needs of the department, a proposal was made to onboard a new graduate nurse to the department. Onboarding is not synonymous with hiring. Onboarding, also known as organizational socialization, refers to the “mechanism through which new employees acquire the necessary knowledge, skills, and behaviors to become effective organizational members and insiders” (“Onboarding,” n.d., para. 1). Because of the specialized nature of the Cardiac Services department, KRMCs currently existing nurse residency program will not be adequate to meet the department needs.

Kalispell Regional Medical Center’s currently existing nurse residency program has been designed to cover information for training in acute care (Medical, Surgical, and Intermediate Care units), geriatrics, and behavior health. The KRMC residency program has undergone several changes in recent years in order to provide a program which utilizes the most up to date evidence based practice.

The KRMC residency program accepts applicants twice a year. Each group of residents is comprised of approximately 10 new graduate nurses. The current program offers residents preceptorship utilizing the Married State Preceptor Model (Kalispell Regional Healthcare, 2016). Residents take part in biweekly educational sessions for the first four months. A variety of topics such as compassion fatigue and inter-professional teamwork are discussed during these sessions. Following the initial four months, residents take part in monthly sessions regarding topics including the conduct of literature reviews and best practices developed from the evidence. Throughout this process residents, preceptors, department managers, and the program coordinator meet regularly

to evaluate the residents' progress and learning needs. The existing program has met with success. However, it does not provide the specialty information necessary to integrate new graduates into higher acuity specialized departments, such as cardiac services.

### Purpose and Objectives

The purpose of this professional project was to improve staffing in the Cardiac Services department. An initial microsystem assessment was performed in order to identify department needs. A review of available evidence was then completed in order to establish the validity of a nurse residency program. Finally, the collected information was used to create a residency program able to provide the learning opportunities necessary for a new graduate nurse to become a functioning member of the department.

The specific aim of this project was to develop components of a nurse residency program specific to the needs of the Cardiac Services department, while allowing for integration of components from the established organizational program.

## CHAPTER TWO

### LITERATURE REVIEW

A review of available literature identified the importance of structured nurse residency programs. Multiple databases were utilized for the literature search including PubMed, CINAHL, Google Scholar, and The Cochrane Library. The following terms and phrases were used in the search process “new graduates, nurse residency programs, nurse residency in high acuity areas, new nurses in critical care, and new graduate turnover”. Literature was chosen based on relevance to the concepts of the project. Literature was disregarded based on age (greater than 10 years), and lack of relevance to the topic.

#### Role Transitions

Literature related to current evidence indicates newly graduated RN’s struggle with the transition in their roles from student to professional nurse. “Role transitions, lack of confidence, struggles organizing and managing workload, fears related to giving medications and harming patients” (Dyess & Sherman, 2009, p. 404), were identified as major stressors for new nurses. The first year of nursing practice has been identified as being paramount in practitioner development and career satisfaction. “The first 12-24 months of nursing practice are critical to job satisfaction and overall success and retention of graduate nurses” (Clark & Springer, 2012, p. E2). These findings were part of a qualitative study completed in 2011, which further identified “job stress, lack of

support, poor nurse physician relations, unreasonable workloads, uncivil work environments, and difficulty transitioning into practice” (Clark & Springer, 2012, p. E2), as key reasons new nurses leave the nursing profession. Additional literature repeated these sentiments. Ward (2009), identified a perceived lack of support from both organization and staff as stressors and predictors in turnover for new nurses. The National Council State Boards of Nursing’s “Transition to Practice Model” supports programs incorporating 1. Patient centered care, 2. Communication and Teamwork, 3. Evidence Based Practice, 4. Quality Improvement, 5. Informatics (Spector et al., 2015).

#### New Graduate Turnover

Studies published throughout recent years have documented the high turnover seen in new nurses within their first year of practice. New nurses have the lowest retention rates, with one year retention rates being as low as 50% (Hillman & Foster, 2010). A 2013 study found retention rates for new graduate nurses ranging from a low of 25% to a high of 64% (Friedman, Delaney, Schmidt, Quinn, & Macyk, 2013). This trend is not new, a study conducted almost a decade ago reported similar findings. According to Pine and Tart, 2007, the turnover rate within the first year has been reported to range from 35% to 61%. Stokowski (2015), identified nurse residency programs as being able to increase retention of new graduate nurses from 73% to 95%. In a separate study, investigators reported nurse residency programs reduced new graduate turnover from 40%-60% to less than 10% (Harrison & Ledbetter, 2014). The American Association of Colleges of Nursing (AACN) has acknowledge the merit of nurse residency programs in

retention of new nurses. The AACN reported retention rates of 95% for those involved in residencies, compared to reports of turnover rates of greater than 30% within the first year for residents not involved in a residency program (American Association of Colleges of Nursing [AACN], 2010).

### Organizational Costs

Struggles experienced by new nurses impact not only the nurse, but the organization they work for as well. Nationally, at any given time, the nursing workforce is comprised of roughly 10% new graduate nurses (Hopkins & Bromley, 2016). The cost to replace a registered nurse has been documented to range from 75% to 125% of a nurses' annual salary (Pine & Tart, 2007). Welding (2011), estimated the one year turnover rate of new nurses at 75%, with a related cost to the organization ranging from \$22,000-77,000. Increased retention through the utilization of residency programs, in addition to a reduction in contract labor usage, often results in an overall cost saving to an organization (Trepanier, Early, Ulrich, & Cherry, 2012). The retention of one nurse through the utilization of a nurse residency program, can in fact, render the cost of the program neutral (Harrison & Ledbetter, 2014).

### New Graduates in High Acuity Areas

Existing evidence supports the notion of integrating new graduate nurses into critical care areas, and not only into medical/surgical units. A study undertaken at a New York area pediatric hospital focused on the hiring and training of new graduate nurses

into pediatric critical care, emergency department, and hematology/oncology units. At the end of two years, researchers found an increase in retention, improved job satisfaction on the part of the nurses, and a positive financial impact to the organization (Friedman, Delaney, Schmidt, Quinn, & Macyk, 2013). A separate study mirrors these sentiments stating “a specialized critical care orientation program for new graduate RN’s can impact retention and positively impact health care finances” (Friedman, Cooper, Click, & Fitzpatrick, 2011, p. 7). Berube et al. (2012), identified nurse residency programs as an important contribution in the integration of new graduate nurses into high acuity areas while providing quality care in such settings. Finally, Spector et al. (2012, pg. 37), acknowledged the need for residency programs to “be customized so the new graduate learns the specialty knowledge needed to work on the unit”.

### Nursing Theory

Evidence obtained in review of the literature provides support to programs which aid transition of newly graduated nurses in their roles from student to professional nurse. Likewise, nursing theory, which provides a structured framework for understanding education and development of nurses, supports the need for such programs. Dr. Benner has studied nursing education and performance for decades, and her “Novice to Expert” theory provided the theoretical framework for this project.

The “Novice to Expert” theory states new nurses begin as novices, having “a very limited ability to predict what might happen in a particular patient situation” (“Nursing Theory,” 2015, para. 5). As nurses gain experience, they transition to the advanced

beginner stage of competency. The advanced beginner stage is where new graduate nurses begin their work experience. These nurses “have had more experiences that enable them to recognize recurrent, meaningful components of a situation. They have knowledge but not enough experience” (“Nursing Theory,” 2015, para. 6). In the competent stage, “nurses lack speed and flexibility, but have begun to develop some sense of mastery and can rely on advance planning and organizational skills” (“Nursing Theory,” 2015, para. 7).

The goal for this project is to have nurse residents’ who are advanced beginners, transition through the advanced beginner stage and begin to identify with the competent stage by the end of the program. With this goal in mind, the identified project was developed in order to provide the proper experiences for novice nurses to transition into competent nurses working in the Cardiac Services department. In addition to nursing theory, leadership models provide insight for leaders about how to fully assist novice nurses to reach their full capacity.

### Leadership Theory

In order for the nursing leaders at KRMC to assist novice nurses to reach their full potential, a leadership theory focusing on the leader’s development of self-knowledge and awareness as a means to effective leadership was explored. During the mid-1970’s Robert Greenleaf developed a theory of servant leadership. Servant leadership focuses on the leader’s development of self-knowledge and awareness as a means to effective leadership (Greenleaf, 1977). Robert Greenleaf’s leadership model was chosen to guide

the leadership foundation for the project. Greenleaf's model highlights the need for leaders to engage the whole person (heart, head, and hand) in their work in order for a person to reach their full capacity (Batalden, Nelson, Gardent, & Godfrey, 2007).

Greenleaf identified "A number of personal attributes, strategies, themes, and approaches that leaders might take in their own organizations (Batalden et al., 2007, p. 82)". Ten different themes were recognized by Greenleaf, including goalsetting, principle of systematic neglect, listening, language as a leadership strategy, values, personal growth, withdrawal, tolerance of imperfection, being your own person, acceptance, and foresight.

Greenleaf's leadership model provides an ideal foundation for someone functioning in the Clinical Nurse Leader (CNL) role, as his model resonates with the core role functions which comprise the position of a Clinical Nurse Leader. Each of Greenleaf's 10 core attributes can be related to the role functions of the CNL. The identified role functions of the Clinical Nurse Leader are Clinician, Outcomes Manager, Client Advocate, Educator, Information Manager, Systems Analyst, Team Manager, Member of a Profession, and Lifelong Learner (American Association of Colleges of Nursing [AACN], 2013). The proposed project is in line with the major role functions of the Clinical Nurse Leader.

1. The CNL is trained as an advanced clinician. As such, the CNL is "designer/coordinator/integrator/evaluator of care to individuals, families, groups, communities, and populations; able to understand the rationale for care and competently deliver this care" (AACN, 2013, p. 38).

2. As an information manager, the CNL utilizes “information systems and technology in order to put information at the point of care to improve health outcomes” (AACN, 2013, p. 38). The CNL has the ability to effectively navigate the electronic medical record, as well as to use technology for the purpose of obtaining the most up to date information related to evidence based practice.
3. As an outcomes manager the CNL is able to “synthesize data, information, and knowledge to evaluate and achieve optimal outcomes” (American Association of Colleges of Nursing [AACN], 2013, p. 38).
4. Developing didactics (learning modules), as well as the ability to conduct program evaluation are both functions of an outcome manager (AACN, 2013).
5. The role of educator, which is the heart of the project, is another of the core role functions of the CNL (AACN, 2013).
6. As a systems analyst, the CNL has the ability to identify not only the need for a change in staffing procedures, but identify cost effective means to address the issue (AACN, 2013).
7. While management is not the defining aspect of this project, the CNL role is designed to be one of leadership. The ability to coordinate staff efforts in a mutual goal of training new nurses to be functional members of the team required leadership skills and dedication (AACN, 2013).

8. The role of client advocate is identified by the desire of the CNL to ensure proper training of new nurses, to provide safe competent care to patients and their families (AACN, 2013).
9. As a member of a profession, the CNL strives for betterment through the utilization of evidence based practice (AACN, 2013).
10. Finally, in order to promote evidence based practice among staff as well as throughout the organization, the CNL must maintain a personal commitment to lifelong learning (AACN, 2013).

## CHAPTER THREE

### METHOD

#### Introduction

The microsystem evaluated in the following assessment is a cardiovascular unit, which is part of a larger acute care facility and healthcare organization. The goal of the assessment process was to evaluate the strengths and weaknesses of the unit, identify what works well, and analyze where there is room for improvement. Information obtained from data collections, interviews, and surveys was utilized to evaluate the system.

#### Microsystem Assessment

##### Purpose

The purpose of the Cardiac Services department, initiated over 20 years ago, at Kalispell Regional Medical Center (KRMC) is to provide scheduled and urgent Coronary Angiography, Electrophysiology, and Interventional Radiology care to patients throughout northwest Montana. A wide variety of procedures are offered through these three modalities, and will be discussed in detail throughout the assessment. Services provided by the department have continued to evolve and expand since its inception.

Cardiac Services is part of KRMC, which is a not for profit acute care facility. KRMC in turn, is part of the larger corporation Kalispell Regional Healthcare. Kalispell

Regional Healthcare is comprised of both for profit and not for profit acute care facilities. Additionally, the organization includes numerous clinics covering primary and specialty care, a long-term care facility, an inpatient psychiatric facility, and a medical fitness facility. The mission statement for Kalispell Regional Healthcare has been changed of late. The current mission statement is “Above all do the right thing”. Recently, the organization has implemented multiple core values, which they feel identify what the organization as a whole strives for. The organizations stated core values are respect, integrity, stewardship, excellence, and ownership. There is no individual mission statement for Cardiac Services at this time. Currently, the unit operates under the umbrella statement and values of the organization.

### Patients

From January 1, 2015 through December 31, 2015, 2,270 patients were cared for in the Cardiac Services holding room. The holding room serves as a “same day” pre and post op care center for the department. The majority of patents were male (Figure 1). Patients covered a 90 year span in age with the highest age group of patients being cared for in their 60<sup>th</sup> decade of life (Figure 2). Of the total 2,270 patients, 1,311 patients were seen for cardiac reasons, while 959 were seen for Interventional Radiology care (Figure 3).

Top diagnoses for the department are coronary artery disease, cardiac arrhythmia, cancer, and peripheral vascular disease. Comorbidities most often identified for patients are hypertension, hyperlipidemia, obstructive lung disease, and diabetes, which is

consistent with finding from the American Heart Association and centers for Disease Control ("Risk for heart disease," 2015).

Patients are admitted to the department from a variety of points of entry. The majority of procedures are scheduled out patients. Out patients are registered and admitted to the Holding Room for their pre-op prep prior to being taken to the appropriate lab (Cath Lab, Electrophysiology, and Interventional Radiology). The majority of out patients are discharged to home the same day. However, many patients are admitted to the inpatient setting following their scheduled procedure. An example of this situation is a patient with coronary artery disease who is presenting for a staged intervention. After their procedure, the patient will be admitted to the IMC for observation and discharged the following morning. Patients may also arrive to the department from the inpatient setting. Inpatients originate from all facility areas including Medical, Surgical, Intermediate Care Unit or the Intensive Care Unit. Acute patients are referred to the unit from the Emergency Department, as well as being transported from outside facilities to the department for care. Transferred patients may be admitted to holding, inpatient, or ED prior to transfer to their necessary place of care, depending on their clinical presentation at the time of transport.

As with admission, following the completion of a patients' procedure they may be discharged to a variety of places. Scheduled diagnostic procedures, as well as patients transferred in from outside facilities, who do not receive intervention requiring overnight stay are usually transferred back to the holding area. Here patients receive post procedure care and preparation for discharge to home. Inpatients are returned to their

assigned rooms for post op care and either continuation of needed care or preparation for discharge to home. Patients who originated from the ED are often admitted to the floor following their procedure either for post cardiac care, or for continued evaluation of needs related to admitting diagnosis. Exact numbers for how many patients, in the examined year, originated from each specific port of entry were not immediately available. Information regarding patients living situation (independent, assisted living, nursing home) at the time of their admission was not available.

Until recently the Cardiac Services department had utilized the National Research Corporation (NRC) Picker patient satisfaction reporting system. Within the last year, the organization shifted to a new reporting entity. KRMC is currently using the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) patient satisfaction reporting system. HCAHPS is required by the Centers for Medicare and Medicaid services for all U.S. hospitals ("HCAHPS," n.d.). HCAHPS reporting for the first quarter of 2016 indicated patient satisfaction scores above the national average for the cath lab. The Holding Room scored below the national average for patient satisfaction (Table 1). It warrants noting however, that while the total volume of patients for the reviewed year was 2,270, the number of patient responses for the year was n=33 for the Cath Lab, and n=87 for the Holding Room. This small number indicates that the majority of patients did not respond to their received surveys.

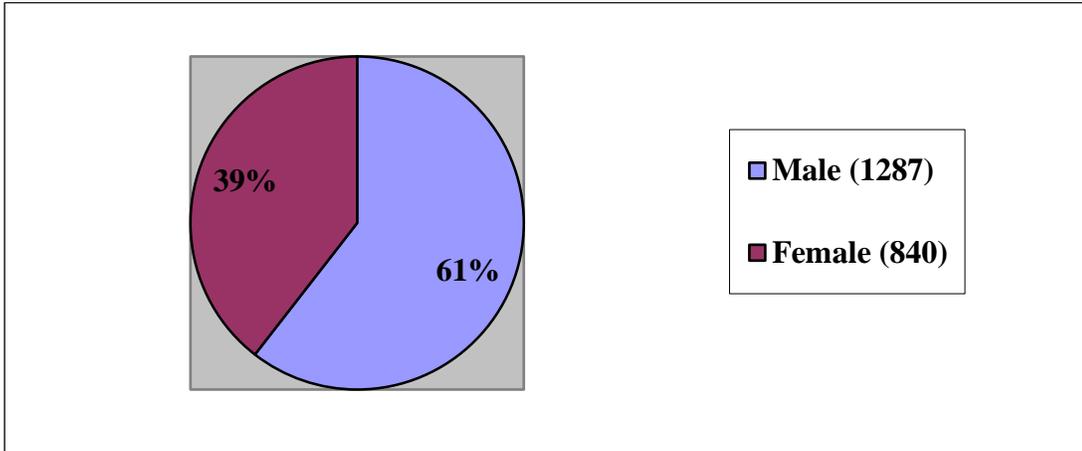


Figure 1 Patient Gender Breakdown

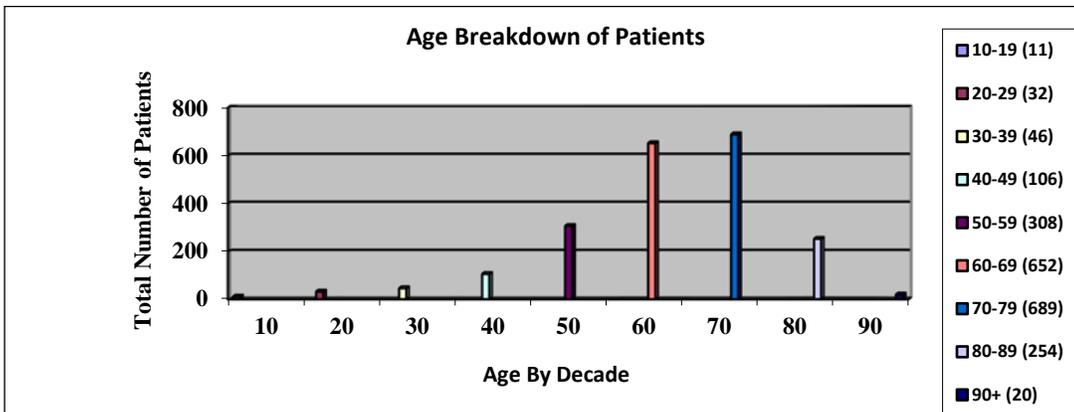


Figure 2. Age Breakdown of Patients

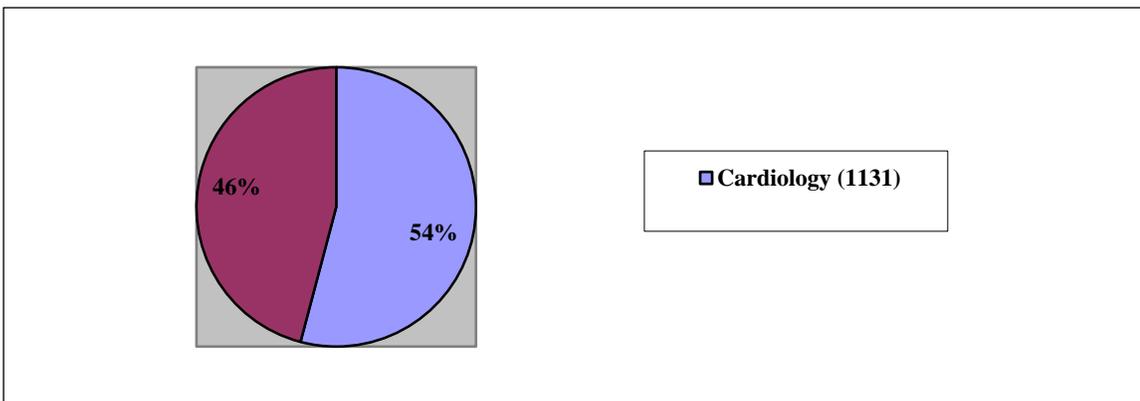


Figure 3. Department Volume  
 Table 1 NRC Picker Cath Lab Stoplight Report Year End 2015

NRC Picker Cath Lab Stoplight Report Year End 2015				
	Benchmark 75 <sup>th</sup> %	Benchmark 90 <sup>th</sup> %	KRMC Cath Lab	KRMC Holding Room
Overall Rating: Using any number from 0 to 10, where 0 is the worst facility possible and 10 is the best facility possible, what number would you use to rate this outpatient surgical facility? ("CATALYST," 2015)	90.2% n=191,518	92.9% n= 191,518	90.9% n=33	78.2% n=87
	Montana average patient satisfaction	National average patient satisfaction		KRMC as a whole
Overall Rating: Percentage of patients who gave their hospital an overall rating of 9 or 10 from 0 (lowest) to 10 (highest) (Medicare, 2015)	68% n=not provided	71% n=not provided		74% n=not provided

Professionals

At the current time, members of the cardiology group at KRMC have full responsibility in ordering procedures for patients who need cardiac care. Outside providers from departments such as the hospitalist service or the emergency department may feel a procedure is warranted, however, they would request a cardiac consultation and then the cardiologist or electrophysiologist would ultimately provide direction for the order. Interventional Radiology orders come from multiple outside sources. To date,

radiology physicians are not KRMC employees but are contracted unit. The radiology group does not provide the orders for their patients, they simply complete the requested procedure.

There are currently two full time interventional cardiologists who perform procedures in the Cath Lab. A new interventional cardiologist will be joining the organization mid-summer. There are five non-interventional cardiologists on the service who provide both pre and post procedural care to patients as well as covering all other non-interventional cardiac patients. There is one Electrophysiologist who performs all cardiac device placements, and cardiac ablations. To assist the physicians, there are four additional non-physician providers in the group. Two nurse practitioners and two physician assistants. The Interventional Radiology group has three full time interventional radiologists. The group also has one full time radiology physician assistant who performs the majority of the low acuity procedures.

There are eleven full time registered nurses on staff in cardiac services. There are two part time registered nurses, and two PRN registered nurses on staff as well. In addition to nursing staff, there are six radiation technologist who assist with the scrub and technical aspect of procedures. Until as recently as nine months ago, the department had never utilized a traveling nurse. During 2015, administration agreed to bring in traveling nurses after multiple requests by staff for assistance in alleviating staffing shortfalls. During 2015, there have been two nurse travelers utilized. Administration anticipates the need for a third traveler assignment during summer 2016 in order to fill continued staffing short falls. Given the high cost of utilizing travelers, it is the understanding that

this utilization shall be short termed, and not part of the long term staffing matrix. Float staff have been utilized on a very limited bases in cardiac services. The majority of float shifts are filled in the holding room, which then allows an experienced staff member to transfer to one of the procedure labs. Currently, multiple shifts are needed to be filled by float nurses every month. Nurses from ICU, ED, and IMC have all picked up extra shifts in the department. At a minimum, nurses and techs take call at least one night a week, and one full weekend a month.

All fifteen of the department nurses completed staff satisfaction surveys. The findings are detailed below (Table 2). Major themes were identified with the staff satisfaction surveys. Identified themes are related to making the department better for patients, as well as for those who work in the department.

Themes identified related to making the department being better for patient were;

1. Better streamlining (less delay) for transfer to inpatient bed.
2. Better scheduling of procedures.
3. Better communication from providers on outcomes and long term impact of procedures.
4. Less delay in patients going for scheduled procedures.

Themes identified related to the department being a better place for staff were;

1. Improved communication between providers and staff.
2. Improved wages secondary to specialty high acuity department.
3. Improved scheduling (improved hours), including clearer expectations of scheduling and patient add-ons.

## 4. Less overtime hours.

Table 2 Staff Satisfaction Survey Results

<b>Staff Satisfaction Survey Results</b>	
<b>Statement</b>	<b>Staff responses in percentages</b>
I am treated with respect every day by everyone that works in this department.	60% Agree
I am given everything I need-tools, equipment, and encouragement-to make my work meaningful to my life	70% Agree
When I do good work, someone in this practice notices that I did it.	80% Agree
Working in this practice is stressful.	70% Agree
It is easy to ask anyone a question about the way we care for patients?	60% Strongly Agree
How would you rate other peoples morale and their attitudes about working here?	50% State Attitudes are Good
This practice is a better place to work than it was 12 months ago.	50% Agree
I am compensated appropriately for the work I do.	30% Agree
I would recommend this practice as a great place to work.	70% Agree
I work more hours than I am scheduled in a regular work week	100% Agree
I have worked overtime within the last 30 days	100% Agree
I feel we are appropriately staffed	90% Disagree
Patients are taken for their procedures in a timely fashion.	100% Disagree
It is easy to obtain a bed on the inpatient setting when needed.	100% Disagree

Processes

Cardiac services are opened for outpatient procedures Monday through Friday.

The department opens at 0700. Day end is variable depending on the specific unit within the department. Holding Room will keep outpatients for discharge until 1900. For patients requiring discharge after that time, attempts are made to obtain a bed on the floor for the patient to be discharged from. However, there is reported disconnect regarding the ability to transfer patients to the floor for late discharges secondary to high census and a lack of available beds. Many nurses report working 12-15 hour days, and often work

more than 40 hours in their scheduled four shifts. For Electrophysiology, Cath Lab, and Interventional Radiology staff stay until procedures are completed. There are days the staff are finished by 1700, and days the staff is there until 2200. The variable hours as previously noted was an issue identified as problematic by the nursing staff. A lack of available staff prevents there being a second shift within the department to prevent long work days. A call team of one technologist and two nurses is available twenty four hours a day seven days a week for urgent and emergent cases as deemed necessary by the department physicians.

During the reviewed year there were 2,270 patients cared for in the Holding Room. This is not a complete number of patients cared for in the department, as many patients are inpatients who go directly to their point of care and then are returned to their rooms. This cohort of patients bypass the holding room entirely. As data is not collected to combine inpatient volumes for each individual lab, it is unknown how many additional patients were cared for within the entire department for the year. The previously noted number is a fair representation as it compiles the vast majority of patients cared for.

In order to highlight processes within the department, the cardiac Cath Lab was chosen for closer review. During the reviewed year, there were 854 patients cared for in the Cath Lab. As stated, exact data regarding the number of patients admitted to the Cath Lab from each of the varied entry points was not available. HCAHPS surveys found that 97% of patients with suspected heart attack received PCI within 90 minutes of arrival to the hospital. This number is consistent with the national average of 96% of patients receiving PCI within 90 minutes of arrival at a hospital (Medicare, 2015). Exact data

regarding average procedure time was not available, however staff report they instruct patients and families to anticipate the procedure lasting one to one and a half hours, longer if there is an intervention.

Cardiac services in not a lone standing department, and relies on multiple supporting departments to fully function. Supporting departments to cardiac services include laboratory, pharmacy, echo, the emergency department, all inpatient floors, and the operating room.

In addition to the completed staff satisfaction surveys, a review of unit processes identified multiple process areas deemed by staff as problematic. A few key processes were identified to not only be problematic, but to in fact be totally broken. Processes identified as problematic are (Figure 4);

1. Laboratory specimens- Related to a lack of computer access directly in the lab, as well as a lack of available staff to place orders.
2. Pharmacy ordering- Related to a lack of computer access directly in the lab, as well as a lack of available staff to place orders.
3. Pharmacy receiving- Related to having to leave the room to access the tube delivery system. Pharmacy routinely sends medications to the holding area instead of the Cath Lab.

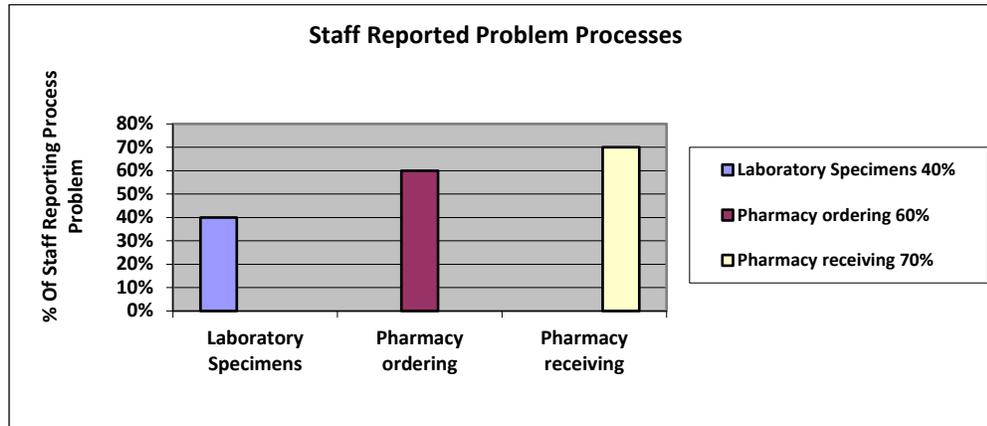


Figure 4 Staff Reported Problem Processes

Processes identified as totally broken are (Figure 5);

1. Physician ordering- Related to a lack of integration of the Electronic Medical Record (EMR) between offices and the acute care setting.
2. EMR-Data entry- Related to a lack of available EMR for outpatients, and the requirement to continue to use paper orders for these patients.
3. EMR-Data review/retrieval- Related to a lack of continuity in documentation (paper versus electronic) between inpatients and outpatients. Also due to a lack of available computers in the Cath Lab itself. Staff are unable to review information without stepping into the control room.
4. Bed management- Related to inconsistent house supervisor assistance. Many patients are not assigned to beds in a timely fashion, or have to wait in holding for hours for a room to become available. Staff report occurrences of this issue are higher with specific supervisors.
5. Staffing- Staff report regular longer than scheduled shifts, as well as regular overtime.

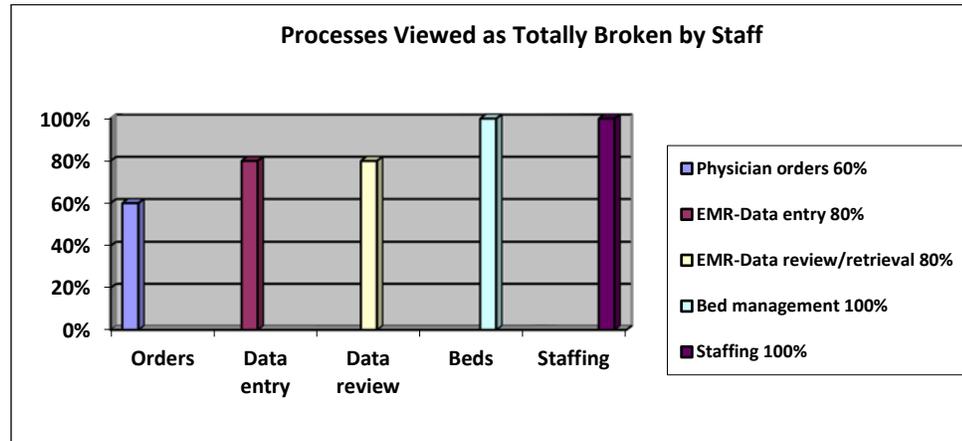
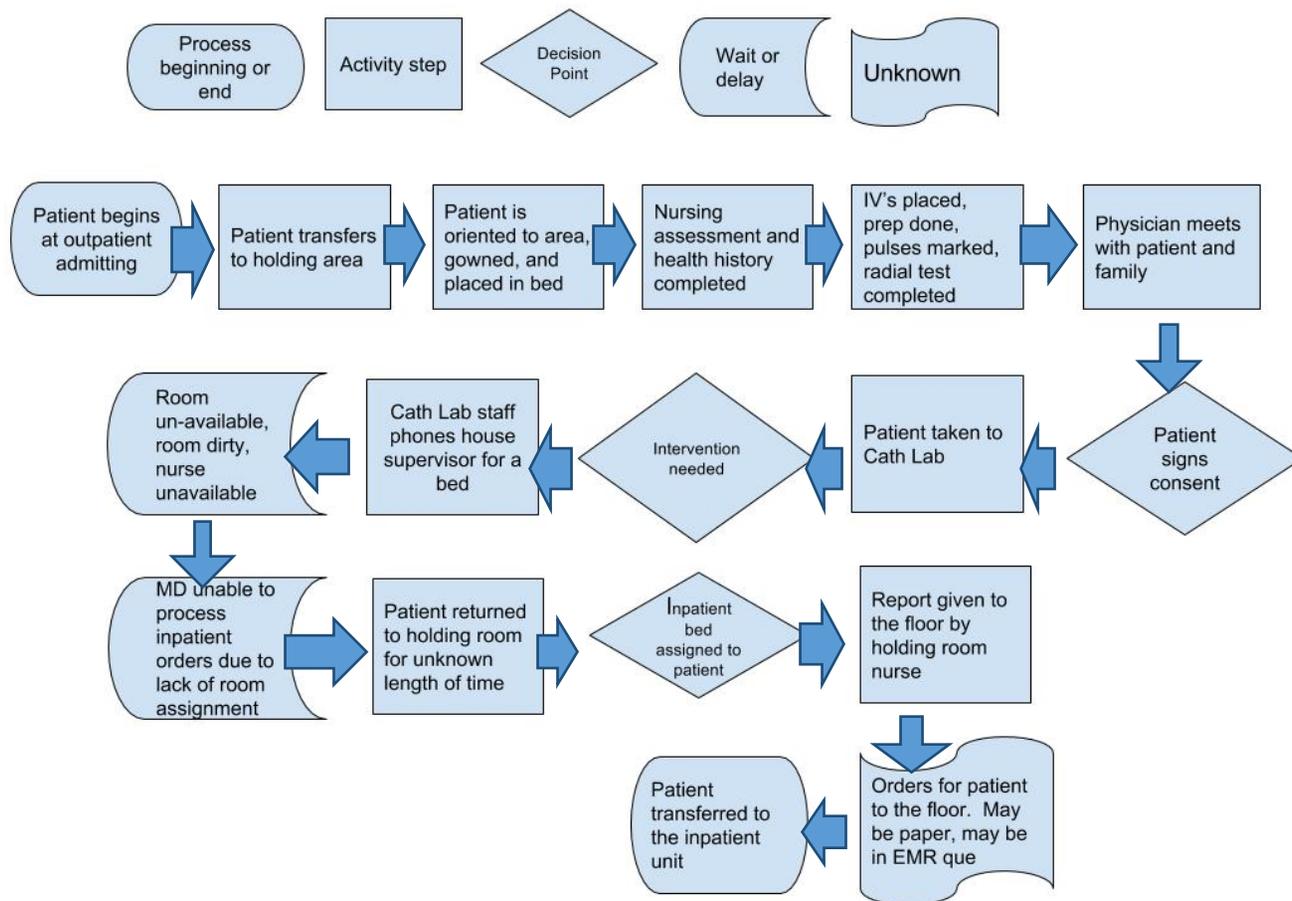


Figure 5 Processes Viewed as Totally Broken by Staff

Figure six represents a high level flow chart depicting a patient's usual transition from outpatient, through holding, into the Cath lab, and finally admission to the inpatient setting post intervention. As stated in Nelson, Batalden, Godfrey, & Lazar, 2011, a high level flow chart is useful in identifying the sequence of steps in a process. It is possible, by evaluating each step of a process, to identify areas for improvement.



### Patterns

Over the course of the last few years, the cardiac services department has undergone several changes. Multiple providers have moved on to new experiences, and have been replaced by new providers each with their own way of running their practice and doing procedures. Each new provider coming into the practice setting increases the patient volume the department needs to accommodate. Multiple new procedures have been added to the array of services offered at KRMC within the last two years. In addition to new providers, many long term members of the nursing staff have retired or transferred to other departments. This change in particular, has been challenging for the staff, as it requires time, patience, and resources to train new staff. Nursing staff as a group report being most proud of their ability to remain flexible in the face of so much change in a short amount of time. The nurses on staff feel they rely on each other daily, and overall work very well together. 25

Financial information, including operating margins for the department was not available. There was no available data related specifically to cardiac services for unplanned 30 day readmit rates, nor unexpected ER rates. Data for KRMC unplanned 30 day readmit rates is consistent with the national average (Medicare, 2015). Given that cardiac services is classified as a surgical area, no data related to core measures is collected at this time. No other metric information is collected related to falls, catheter associated UTI's, nursing care hours per day, or restraint use.

### General Impression

As previously noted throughout the assessment, Cardiac Services has seen growth and change throughout the last year in terms of staff, providers, and services offered. There are many areas for improvement within the department. Many of the staff (50%) feel the department is not a better place to work than it was a year ago. Several core processes were identified as being broken including order entry, data management, bed management, and staffing. Further evaluation of these identified processes, by means of detailed surveys specifically related to process complaints may be beneficial in order to adequately evaluate the core problem. Individual high level flow charting for each broken process may be valuable to aid in identifying precise locations in the system where improvements can be made. Data tracking over a determined length of time regarding how often patients are rerouted back to holding instead of being admitted to the inpatient unit, as well as how long the average wait for a bed is would also assist in determining whether or not the issue is real or perceived. Finally, in relation to staff comments regarding long working hours, a retrospective study of time cards should be completed. Evaluation of the occurrence of overtime as well as average hours worked per day would be useful in determining if there needs to be a change in how the department is staffed.

There is much room for improvement within this department including optimizing patient flow, improved utilization of EMR and electronic data review. Improved coordination of supporting processes and departments, such as laboratory and pharmacy,

would reduce time wasting and allow for staff to direct focus on patient care. Improved staffing within the department may improve staff morale and function as well.

### Conclusion

Cardiac services are a high volume department which served more than 2000 patients within the last year. Assessment of this microsystem focused on the 5P's; Purpose, Patients, Professionals, Processes, and Patterns. The assessment was able to identify areas of needed improvement within the department, as well as identify several staff concerns. Despite the need for improvement and change within the department, review of patient satisfaction scores indicates the staff continues to provide quality care.

Upon completion of the microsystem assessment, areas of need were identified. In order to address identified issues including chronic staffing deficiencies and areas of poor staff satisfaction, based on survey results, it was determined the development of a Cardiac Services nurse residency program would be a potential benefit to the department. The goal of the proposed nurse residency program would be to provide education, professional support, and mentoring to new graduate nurses interested in cardiac care in order to satisfy long term staffing needs within the department.

## CHAPTER FOUR

### RESULTS

As a result of the microsystem assessment, a nurse residency program was envisioned, and a portion of the curriculum designed to begin the process of successful onboarding of graduate nurses into the Cardiac Services department.

#### Program Design

“Characteristics of a residency program include standardization of curriculum and competencies, practical application of knowledge, a support system, rigorous evaluation, and continuous improvement” (Kovnerf et al., 2007, p. 207). A unit specific program should provide an environment supportive of learning for new nurses, ultimately providing new nurses with the tools necessary to be successful in their work environment. Given the specialty nature of the Cardiac Services department, these characteristics or requirements become even more relevant.

The duration of a unit specific nurse residency program is anticipated to be 16-18 weeks (Hillman & Foster, 2010). However, specific elements of a program including mentoring and preceptorship may last for up to a full year. Research findings indicate the need for ongoing support of new nurses for the entire first year of practice (Spector et al., 2015). In order to meet the desired goals of the residency project, and to meet the department competency requirements, the program must have a solid structure. The aim of the program structure is to gradually build on fundamental skill and knowledge, and

introduce the resident to advanced information as they work through the program.

Advanced learning needs include areas such as pathophysiology, specialty medications, and focused assessments.

For the Cardiac Services nurse residency program at KRMC, using the results of the microsystem assessment and evidence presented in the literature, the following four objectives were identified:

1. Provide professional and social support during the transition from student to professional nurse.
2. Validate competency and confidence in the providing of care to patients.
3. Foster a culture and environment of support and professionalism.
4. Increase retention and commitment to the organization (Hillman & Foster, 2010).

#### Application Process

Applicants to the residency program will be accepted twice yearly in conjunction with the organization's acute care residency program. Applicants will be interviewed and selected by a department committee comprised of management, and department charge nurses. Accepted residents will be approved through human resources and attend the mandatory organization orientation prior to starting their Cardiac Services residency program.

While a certain percentage of the curriculum is specific to the Cardiac Services residency program, residents taking part in the proposed program will be included in the

larger cohort of nurse residents in the acute care setting. Inclusion in this larger group will serve to minimize redundancy of services such as education between two separate groups. Being included into this larger cohort of new graduates will also benefit the residents, as they will have a larger peer support network to rely on.

### Residency Cornerstones

#### Preceptorship

Effective preceptorship will be one of the cornerstones for this project. The Married State Preceptor Model (MSPM), as described below, will be utilized throughout the program. Traditional orientations and preceptorships focused on a “divide and conquer” technique in which new preceptees shadowed the preceptor for a short duration, then begin to take a reduced patient load. One of the drawbacks to this method is that the preceptee does not have the undivided attention and teaching ability of the preceptor, as they still have their own patient load. This practice leaves potential for missed learning and teaching opportunities (Figueroa, Bulos, Forges, & Judkins-Cohn, 2013). “The foundational concept behind the MSPM is for the new graduate RN and preceptors to work together, side by side, and from shift to shift” (Figueroa et al., 2013, p. 369). In the MSPM, the tasks increase over time, not the patient load. As stated in Figueroa (2013), “working closely together allows the preceptor to teach, coach, assess, and give learning opportunities while maintaining patient safety at all times” (p. 369). The MSPM is structured in phases, with the preceptee taking a more dominant role in patient care as they progress through the phases.

In order for the MSPM to be successful, preceptors must be properly educated prior to the preceptorship experience. All staff desiring to be involved in the precepting process will complete the preceptor application as outlined in Kalispell Regional Medical Centers Preceptor Program policy (Kalispell Regional Medical Center [KRMC], 2015). “Preceptors require education including development of teaching skills, roles and responsibilities, principles of adult education, learning styles, delivering effective criticism, and generational differences” (Figueroa et al., 2013, p. 366). Upon acceptance of the preceptor applications, potential preceptors will attend the eight hour Married State Preceptor instruction course prior to the preceptorship experience. Every attempt will be made to maintain the pairing of preceptor and preceptee for a full phase, which is approximately five weeks. This continued pairing will provide consistency of learning for the preceptee and aid in the development of a sense of cohesion for the new graduate (Ward, 2009). Effective preceptors are essential to the success of the nurse residency program. “Preceptors who provide a caring, nurturing environment along with clinical expertise and other professional qualities significantly improve the orientation process and facilitate the transition of new graduates” (Ward, 2009, p. 88).

### Mentoring

Mentoring will provide the second foundational cornerstone for the project. Mentoring differs from preceptorship in that mentoring is less involved in the functional or professional aspect of training, and is more focused on the personal support of the person being mentored. Mentoring has been described as a “collaborative relationship between two individuals, one of whom is more senior than the other...The senior partner

helps the less-experienced individual mature and grow in his or her field” (“Mentoring-RWJF,” 2013, para. 8). The Institute of Medicine (IOM, 2010) report indicate mentoring strengthens the profession and improves both patient care and outcomes.

Currently, the Professional Development Council (PDC) at Kalispell Regional is developing a mentoring program to be utilized throughout the organization. The proposed residency program for Cardiac Services will fully comply with the organizational program structure and recommendations. Mentoring requires a high level of commitment from the involved parties. Additionally, mentoring involves organizational proximity and availability of regular face to face interaction (Sambunjak & Marusic, 2009). An important recommendation for mentoring from the PDC has been to not associate the position of mentor with a pay benefit. The goal of this endorsement is to encourage mentorship from a position of commitment to the process, and not from a position of financial benefit. It is anticipated the mentoring portion of the program will initiate upon the completion of the third phase of the preceptorship. The mentoring relationship will formally continue throughout the remainder of the program duration.

### Didactic

The final foundational piece of the project is the didactic component. The currently existing organizational nurse residency program incorporates bi-weekly learning sessions throughout the 16 week preceptorship portion of the program. The Cardiac Services residency will offer unit specific learning sessions during the alternating weeks.

Learning modules will combine existing organizational programs with required competencies, as well as new department specific educational sessions. Existing learning modules with required competencies include conscious sedation, basic and advanced electrocardiogram (ECG) interpretation, and post percutaneous coronary intervention (PCI) care for both femoral and radial accesses. Competency will be evaluated through the completion of preceptor validation (sedation and PCI care), as well as education module post testing (ECG interpretation). The Essentials of Critical Care Orientation (ECCO) interactive modules will be offered for specific systems including care of the patient with cardiovascular disease. These courses will be taught by the organizations critical care educator.

New department specific learning modules are being developed for the purpose of this project. The proposed learning modules include cardiac medication fundamentals (statins, anti-hypertensive medications, and diuretics), antiplatelet and anticoagulant medications, hemodynamic monitoring, right heart angiography measurements, and post procedure patient care and education. Anderson, Hair, & Todero, 2012, p. 210, state “content must be customized so that it is relevant to the clinical population and to nursing practice situations”. Learning modules will be presented in power point format including learning objectives, information related to the specific topic, and summary. Case studies and scenarios will also be discussed as evidence shows the benefit of providing practical examples with an emphasis on application (Anderson et al., 2012). Power point presentations will be informative and concise, with a goal of less than 15 slides per module. All modules are being developed with assistance from the critical care educator.

The initial learning module developed for the purpose of this project is “Antiplatelet, Anticoagulation, and Thrombolytic Medications” (Appendix A). Weekly modules will be taught by qualified interested department nursing staff wishing to meet the teaching requirements of the organizations professional development nursing clinical ladder program.

Each learning module presentation will be accompanied by a brief post assessment (Appendix B). Post tests are given to a group of students in order to measure their academic gain following a learning session (Neglected/Delinquent Technical Assistance Center [NDTAC], 2012). By developing the true/false or multiple choice questions directly from the presentation, the post assessment will have content validity. Content validity is the degree to which the assessment covers the content presented (NDTAC, 2012).

Residents will be offered looping experiences throughout their program. Looping refers to the act of following the patient throughout the continuum of care. The looping process was originally practiced in the classroom or educational setting, and involves the act of continuing the teacher student relationship beyond the traditional one academic year timeframe (Rasmussen, 1998). Looping provides a new nurse the opportunity to learn what their patient experiences during different aspects of their care process. Looping experiences to be incorporated into the residency experience include accompanying a patient for coronary angiograms, ablations, pacemaker implants, and biopsy procedures. Experiencing a variety of procedures from firsthand observation will

potentially increase the knowledge base related to patient impact as well as the critical thinking process for residents.

## CHAPTER FIVE

## CONSIDERATIONS AND EVALUATION

Cost Considerations

Cost considerations related to the project include training preceptors and mentors. Each person involved in these positions will be required to attend a paid eight hour training course related to the specific preceptor position. The costs for these courses are budgeted through the education department at KRMC and is fully supported by the organizations nursing administration. Another cost for the project is related to the dollar an hour preceptor pay incentive offered by the organization. Full time employment is estimated at 36 hours per week at KRMC. At one dollar an hour for 16 weeks, the estimated cost to precept each resident is \$576.00. Finally, the cost to the organization for non-productive time (cost of hourly wages and benefits for new residents) must be factored. Given an estimated beginning wage of \$24.66 per hour, times 36 hours a week, for 16 weeks, cost to the organization is approximately \$14,200 plus benefits in non-productive pay per resident.

Cost saving considerations must be evaluated in addition to cost expenditures in calculating the actual return on investment, and overall benefit of a residency program. Cost savings include expenditures incurred for recruitment and advertising. The high cost of utilizing traveling staff is also eliminated through the potential result of adequate organizational staffing. Turnover rates for new graduate nurses have been reported to be 35% to 75% within the first year (Trepanier et al., 2012). The cost of nurse turnover has

been estimated to be 75% to 125% of the nurses' annual salary (Pine & Tart, 2007). Using the previous example of \$24.66 per hour for an average 36 hour work week, monetary cost to the organization for a single nurse turnover can be estimated between \$34,000.00-\$58,000.00 plus the cost of benefits. Multiple studies report a substantial reduction in the rate of new nurse turnover through the utilization of a nurse residency program (Letourneau & Fater, 2015). However, "calculating actual return on investment is complicate because many of the benefits are difficult to quantify, and are considered avoided costs. Avoided costs are described as quality of care, reduced turnover, patient and physician satisfaction, quality of care, and reduced nurse burnout"(Friedman, Cooper, Click, & Fitzpatrick, 2011, p. 12).

### Program Evaluation

Effectiveness of the program will be evaluated using a variety of criteria. Weekly progress meetings between resident, program director, and critical care educator will take place. During these meetings, conversations will address what has gone well and what has been a challenge that week for residents. Residents will be encouraged to discuss the weeks learning opportunities, and items they believe they require more experience in. Preceptorship conferences including the program director, resident, and preceptor will take place prior to progressing through each phase of the preceptor program. Achieved goals from the previous phase, as well as anticipated goals for the next phase will be discussed.

Upon the completion of the program, feedback will be obtained from participants (preceptors and residents). A Likert scale satisfaction survey has been created to evaluate overall satisfaction including a section for participants to provide their own comments and recommendations for the program (Appendix C). The Likert model of surveying was chosen due to its evidence based value in surveys related to attitude, belief, or behavior items (Losby & Wetmore, 2012). Feedback will be requested from department staff as to the programs impact on their personal work experience. Information obtained through the survey process will aide in formulating a Plan Do Study Act (PDSA) model for future residency programs. The ultimate evaluation of the project will be a decrease in department turnover with a resulting stabilization of staffing needs and cost savings.

### Conclusion

A cardiac services department specific nurse residency program was created at Kalispell Regional Medical Center in response to department needs identified through the conduction of a clinical microsystem assessment. Chronic shortages in staffing, as well as routine overtime were both identified as areas of job dissatisfaction by staff during the assessment process. A literature review was completed to provide the evidence for the design and success of a unit specific nurse residency program.

“It has been suggested that many new graduate nurses are not prepared to care for high acuity patients in the practice setting” (Letourneau & Fater, 2015, p. 96). New graduate nurses encounter a variety of stressors upon joining the workforce. Complex patients and care treatments, difficult work environments, as well as perceived workplace

incivility create a high level of dissatisfaction for new nurses (Hillman & Foster, 2010). Structured nurse residency programs have been shown, through evidence based research, to ease the transition for new nurses into the workforce. Nurse residency programs have shown to decrease turnover, improve job satisfaction, as well as have a positive return on investment for organizations. Successfully structured residency programs include components of professional and social support through preceptorship and mentoring. Additionally, classroom and didactic learning opportunities have been shown to be beneficial to the success of new graduate nurses partaking in a residency program (Anderson, Hair, & Toderò, 2012). Through the formatting and utilization of the foundational components of a structured nurse residency program, the goal is to establish long term effective staffing for the Cardiac Services department.

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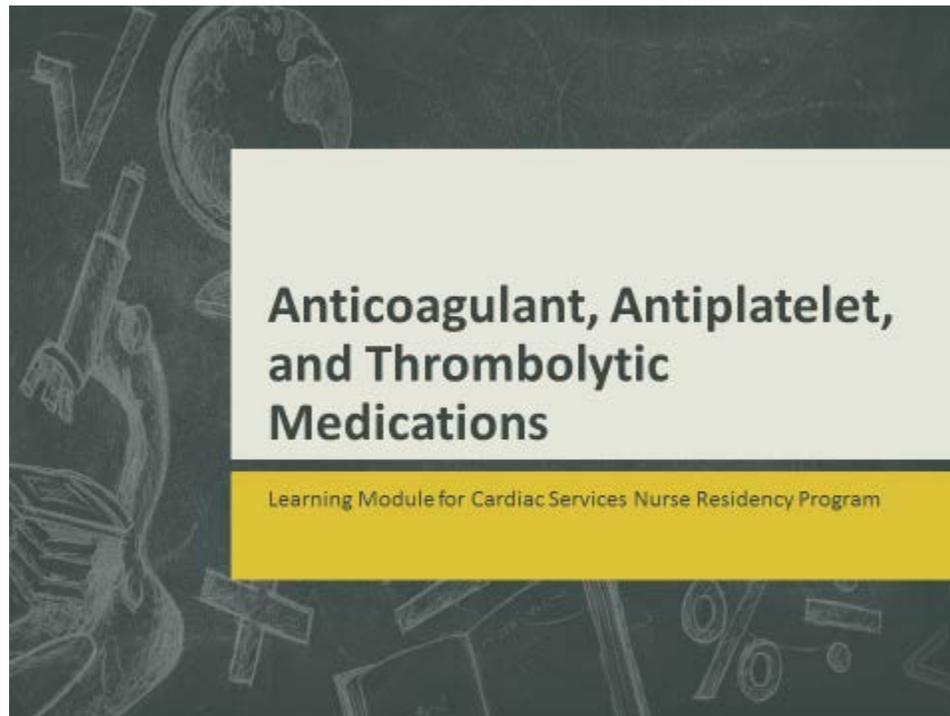
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APPENDICES

APPENDIX A

ANTICOAGULANT, ANTIPLATELET, AND  
ANTITHROMBOLYTIC LEARNING MODULE



### Learning Objectives

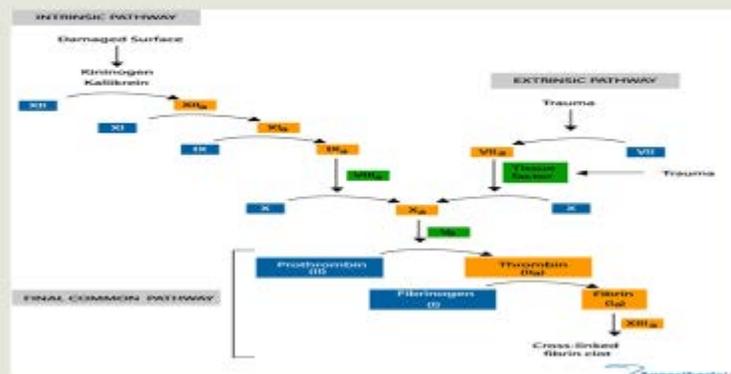
- Describe the mechanism of action for the three classes of medications
- Describe the physiologic effect of anticoagulant, antiplatelet, and thrombolytic medications
- Describe common side effects of these medications
- Identify pertinent labs related to each class of medication
- Compare and contrast medication half lives for oral anticoagulants and antiplatelets
- Describe appropriate pre procedure hold durations for medication
- Identify key nursing considerations for patients using these medications

## Mechanism of Action

- Anticoagulants: Prevent clot formation and extension
- Antiplatelet drugs: Interfere with platelet activity
- Thrombolytic agents: Dissolve existing clot



## Clotting Cascade



## Anticoagulants

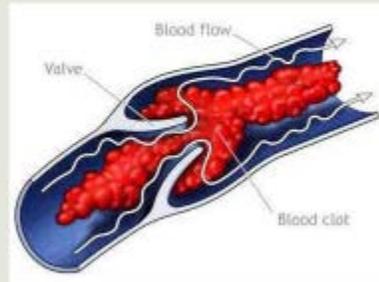
- Heparin
  - Inactivates Thrombin
- Lovenox (Enoxaparin)
  - Prevents conversion of fibrinogen to fibrin
- Coumadin (Warfarin)
  - Factor II, VII, IX, X inhibitor
- Pradaxa (Dabigatran)
  - Direct thrombin inhibitor
- Xarelto (Rivaroxaban)
  - Factor Xa inhibitor
- Eliquis (Apixaban)
  - Factor Xa inhibitor

## Antiplatelet drugs

- Aspirin
  - Inhibits COX1
- Plavix (Clopidogrel)
  - ADP/P2Y2 platelet inhibitor
- Effient (Prasugrel)
  - ADP/P2Y2 platelet inhibitor
- Brilanta (Ticagrelor)
  - ADP/P2Y2 platelet inhibitor
- Integrilin (Eptifibatide)
  - Glycoprotein IIB/IIIA inhibitor
- Angiomax (Bivalrudin)
  - Direct thrombin inhibitor

## Thrombolytics

- Streptase (Streptokinase)
- tPA (Alteplase)
- Retavase (Retepase)



## Medication Side Effects

Anticoagulants	Antiplatelets	Thrombolytics
<ul style="list-style-type: none"> <li>▪ Hemorrhage/Bleeding</li> <li>▪ Heparin Induced Thrombocytopenia (HIT)</li> <li>▪ GI Upset</li> </ul>	<ul style="list-style-type: none"> <li>▪ Bleeding</li> <li>▪ GI Upset</li> <li>▪ Thrombocytopenia</li> <li>▪ Tinnitus</li> </ul>	<ul style="list-style-type: none"> <li>▪ Bleeding               <ul style="list-style-type: none"> <li>▪ Intracranial</li> <li>▪ GI/GU</li> </ul> </li> <li>▪ Nausea and Vomiting</li> <li>▪ Urticaria</li> <li>▪ *Anaphylaxis (Streptokinase)</li> </ul>

## Pertinent Labs

Anticoagulants	Antiplatelets	Thrombolytics
<ul style="list-style-type: none"> <li>Heparin: PTT, platelet count</li> <li>Coumadin: INR</li> </ul>	<ul style="list-style-type: none"> <li>Plavix: CYP2C19 eval</li> </ul>	<ul style="list-style-type: none"> <li>PTT, INR, platelet count, fibrinogen prior to administration</li> <li>Fibrinogen 2-3 hours after initiation</li> </ul>

## Medication Half Lives

Anticoagulants	Antiplatelets
Heparin 1-2 hours	Aspirin
Lovenox (Enoxaparin) 4.5-7 hours depending on # of doses	Plavix (Clopidogrel) 8 hours
Coumadin (Warfarin)	Effient (Prasugrel) 7 hours
Pradaxa (Dabigatran) 12-17 hours	Brilanta (Ticagrelor) 7 hours
Xarelto (Rivaroxaban) 5-9 hours	Integrilin (Eptifibatide) 2.5 hours
Eliquis (Apixaban) 11+ hours	Angiomax (Bivalrudin) 25 minutes

## Recommended Pre Procedure Medication Hold Durations

- Oral anticoagulant and antiplatelet hold times vary based on the procedure the patient is scheduled for.
- Medications may not need to be held at all for minimally invasive procedures.
- Medications may need to be held for up to 5-7 days for procedures with an increased risk of bleeding (spinals and arterial sticks).
- Always verify per providers orders whether or not a medication needs to be held.
- If the provider has not addressed a medication hold...ASK.

## Nursing Considerations

Anticoagulants	Antiplatelets	Thrombolytics
<ul style="list-style-type: none"> <li>▪ Heparin is contraindicated immediate post op brain/eye/spinal surgery</li> <li>▪ Heparin reversal is protamine</li> <li>▪ Coumadin reversed with Vit K or FFP</li> <li>▪ Coumadin has multiple food and drug interactions</li> <li>▪ Xarelto has no monitoring test or antidote</li> </ul>	<ul style="list-style-type: none"> <li>▪ Plavix is a pro-drug. Be aware of genetic considerations</li> <li>▪ Instruct patient to NOT D/C without discussion with provider</li> <li>▪ Increased risk for major bleeding</li> </ul>	<ul style="list-style-type: none"> <li>▪ Only given in critical care setting</li> <li>▪ Patient must be monitored and continually assessed</li> <li>▪ Avoid invasive procedures</li> <li>▪ Dedicated access line</li> <li>▪ Do not use in patients with CVA or CHI within 3 months</li> </ul>

## Resources

- You can always ask another nurse
- Nursing drug reference book
- Lexicomp on our Pyxis machines
- Pharmacy is our friend
- If in doubt ask...Cardiologists and Interventional Radiologists will always be glad to answer a question and prevent a potential patient reschedule due to a medication not being held.

## Questions

- Thank you for your time
- As always, please feel to ask questions at anytime

## References

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APPENDIX B

LEARNING MODULE POST TEST

**Anticoagulant, Antiplatelet, and Thrombolytic Learning Module****Post Test**

1. **Which antiplatelet drug has a patient genetic consideration?**
  - a. Effient
  - b. Integrellin
  - c. Brilanta
  - d. Plavix
  
2. **All anticoagulants should be held prior to an elective procedure.**
  - a. True
  - b. False
  
3. **All blood thinning agents work in the same place on the intrinsic clotting cascade.**
  - a. True
  - b. False
  
4. **A patient is on Coumadin and needs to have a procedure done today. What order can you anticipate receiving for this patient?**
  - a. Oral Vitamin D
  - b. One unit packed red blood cells
  - c. IV Vitamin K
  - d. Cancel the procedure and wait 48 hours
  
5. **A patient on thrombolytic medications can be returned to their room on the medical floor.**
  - a. True
  - b. False

**Answers**

1. D
2. B
3. B
4. C
5. B

APPENDIX C

POST PROGRAM EVALUATION

**Nurse Residency Post Program Evaluation**

	<b>Strongly Disagree</b>	<b>Disagree</b>	<b>Neither Disagree or Agree</b>	<b>Agree</b>	<b>Strongly Agree</b>
I found the unit specific nurse residency program beneficial	1	2	3	4	5
I found the unit specific learning modules useful	1	2	3	4	5
I had sufficient time with my preceptor	1	2	3	4	5
I was exposed to all of the varied procedures offered in the department during my residency	1	2	3	4	5
I found the looping experiences beneficial to my learning	1	2	3	4	5
I feel prepared to accept patient assignments independently	1	2	3	4	5
I feel supported in the department by staff	1	2	3	4	5
I feel supported in the department by providers	1	2	3	4	5

**Provide at least two examples of items you felt were most beneficial to you during your residency**

**Provide at least two examples of items you would recommend improvement of for the residency program in the future**

APPENDIX D

LITERATURE REVIEW MATRIX

## Literature Review Matrix

Author/ Date	Theoretical/ Conceptual Framework	Research Question(s)/ Hypotheses	Methodology	Analysis & Results	Conclusions	Implications for Future research	Implications For practice
Anderson Hair Toderro 2012	N/A	Systematic review	Describe and evaluate the literature in terms of quality, recommendations, and lessons.	N=20 Databases searched for the years 19810-2010 Key words: nurse, intern, extern, transition, and residency programs were used.	There is a lack of a definitive description of what a NRP is in the literature. There is much variation between programs. Multiple tools are being used for evaluation. There is a lack of theoretical framework guiding the research.	Structured “correlation studies would help program directors understand best predictors of success and financial effectiveness”. The long term effectiveness of NRP is unknown.	NRP appear to improve nurse satisfaction and have positive financial implications for organizations.
Clark Springer 2012	Krueger’s Systematic Process	“How do NGRN view their lived experiences and job satisfaction in the first year of practice in a RNP?”	Development of 9 focus groups. Planning, moderation, and analysis of focus group data, and reporting of findings.	N=37 Identification of themes including work day chaos, feeling valued, stressors, need for lifelong learning, and preserving the profession were identified	NGRN are often overwhelmed due to workday chaos and lack of functional knowledge.	A better understanding of what additional support is needed from the perspective of NGRN.	There is a need to increase competency regarding prioritizing, teamwork, communication and professionalism

Author/ Date	Theoretical/ Conceptual Framework	Research Question(s)/ Hypotheses	Methodology	Analysis & Results	Conclusions	Implications for Future research	Implications For practice
Dossary Kitsantas Maddox 2013	N/A	Systematic review	Describe and evaluate the literature in terms of quality, recommendations, and lessons.	N=13 Databases searched for the years between 1980-2013 Key words: Decision making Clinical leadership Residency programs New graduate nurse	NRP are beneficial in integrating NGRN into high acuity areas.	More research is needed in the effectiveness of NRP impact on clinical decision making and leadership skills for NGRN.	NRP aid in skill acquisition for NGRN. NGRN retention is crucial and cost effective.
Figuroa Bulos Forges Judkins- Cohn 2013	N/A	“Integration of a Married State Preceptor Model (MSPM) would help new graduate RNs to work more independently in the clinical setting and experience less anxiety during the transition to practice.”	Qualitative and Quantitative approaches. Focus groups and surveys	Preceptors (N=100) New RNs (N=108)  97.2% new RNs reported the program was beneficial 99.1% reported the program promoted safety 89.9% reported feeling prepared to take a full patient load. 91% of preceptors reported the program as beneficial	A statistical decrease in turnover was seen in participants who were part of a MSPM.  Both preceptors and new RNs reported the program as being beneficial, promoting safety, and reducing new RN anxiety.	Researchers acknowledge the use of convenience sampling and descriptive design limit the ability to generalize the findings.	MSPM has been shown to reduce anxiety on the part of new RNs as well as improving practice and safety.

Author/ Date	Theoretical/ Conceptual Framework	Research Question(s)/ Hypotheses	Methodology	Analysis & Results	Conclusions	Implications for Future research	Implications For practice
				97% reported the program promoted practice safety.			
				Turnover reduced from 12% to 2.6% post program induction.			
Friedman Cooper Click Fitzpatrick 2011	Patricia Benner three levels of skill acquisition	What is the effect of a specialized orientation on retention of new graduate nurses?	Retrospective Descriptive design	N=90 2004 cohort received standard orientation (N=30) 2007 cohort received specialized orientation (N=60)	Nurse retention increased from 53.3% to 78.3% at one year Financial savings to organization of 1.5 to 2x a nurses annual salary.	Researchers identified the need for further similar studies to validate findings.	Specialized orientations have been shown to decrease new nurse turnover which promotes the need for continued implementation.
Friedman Cooper Click Fitzpatrick 2013	Patricia Benner Novice to Expert	What is the difference in retention for new graduate RNs pre and post initiation of the PNFP orientation program? What is the net cost savings that result from the retaining of nurses post program initiation?	Retrospective Descriptive evaluative design using a nonprobability convenience sample	N=77 All new RNs hired between March 2005 to August 2007 compared to all new RNs hired between September 2007 to March 2010.	New RN retention increased from 82% to 94% with program initiation Length of employment was significantly higher. Net cost savings were almost \$600,000	Study findings support the existing literature related to the benefits of residency programs Researchers recommend further studies with larger sample sizes.	Specialized orientation programs provide support for new RNs which increases retention and positively impacts organizational finances.

Author/ Date	Theoretical/ Conceptual Framework	Research Question(s)/ Hypotheses	Methodology	Analysis & Results	Conclusions	Implications for Future research	Implications For practice
Harrison Ledbetter 2014	N/A	In NGRN does a NRP versus standard orientation increase recruitment and retention?	Cross sectional descriptive quantitative design	N=202 Convenience sample	“There was a trend towards positive outcomes with the NRP based on 1 <sup>st</sup> year turnover rates and satisfaction scores”.	Findings support previous evidence.	Continued research is needed to further evaluate long term return on investment.
Hassmiller Reinhard 2011	N/A	N/A	Commentary Paper	Paper is a review of the IOM report on the future of nursing specifically related to recommendations regarding nursing leadership.	Nurse leaders must advocate for the support of NRP within their organizations in order to meet the IOM recommendations.	Studies regarding the barriers to practice as well as the development of continuing education programs to maximize nursing excellence need to be continued.	By meeting the goals set forth by the IOM, we will increase high quality, cost effective care for patients.
Hillman Foster 2010	N/A	“To identify the benefits and essential elements of a new graduate residency”.	Commentary Paper “Multiple valid and reliable tools were utilized to evaluate work satisfaction, clinical decision making, organizational commitment and skill development during and after each residency”.	N=251 Retention and cost evaluated from June 2005 to October 2009 Overall program evaluation in addition to evaluation of each independent component of the program.	Preprogram initiation 1 year retention was 50%. Five years post program 1 year retention was 72.5%	In addition to reviewing retention rates organizationally, and by unit it is necessary to understand why nurses stay. Further research is needed in this area.	Initiation and standardization of a NRP, as well as hiring process improves retention and reduces cost.
Hinson Spatz 2011	N/A	“The aim of the retention collaborative was to decrease voluntary turnover by 10% while increasing	Team meetings, idea development, monthly huddles to discuss idea implementation.	5 change concepts were implemented 1. Onboar ding 2. Roundi ng for outcomes	Nurse turnover was reduced by 91% Overall statistically significant increase in staff satisfaction.	Organizational leaders should review the change concepts and identify ways they could be integrated into their facilities.	Implementing retention strategies improves job satisfaction which decreases turnover.

Author/ Date	Theoretical/ Conceptual Framework	Research Question(s)/ Hypotheses	Methodology	Analysis & Results	Conclusions	Implications for Future research	Implications For practice
		overall employee satisfaction”.	Pre and post implementation surveys	3. Social networking 4. Employee recognition Morehead Employee Engagement Survey was completed at the end of the implementation phase.			
Hopkins Bromley 2016	N/A	“How does the satisfaction ratings of nurse leaders and staff nurses at a Midwestern academic medical center to national benchmark data obtained from the 2007 Nursing Practice Readiness Tool.”	Cross sectional survey design administered to new graduate RN’s in a residency, Unit managers, Assistant managers, and staff RNs	N=149 Survey results regarding clinical knowledge, technical skills, critical thinking, communication, professionalism, and responsibility management were calculated and compared to results from the Nursing Executive Center tool developed in 2007.	Managers, staff nurses, and nurse residents rated their satisfaction of the new graduate’s performance very differently, with the residents rating themselves higher than the staff or management cohorts rated them.	This study does not appear to be consistent or valid. Multiple departments with varying skill sets were grouped together. The time frame between comparison groups was 9 years. The study should have tighter parameters and be repeated with similar cohorts.	While the Nursing Practice Readiness tool has been shown to be valid, practice changes would not be warranted from these findings.

Author/ Date	Theoretical/ Conceptual Framework	Research Question(s)/ Hypotheses	Methodology	Analysis & Results	Conclusions	Implications for Future research	Implications For practice
Krinsky Murillo Johnson 2014	Katharine Kolcaba's comfort theory	"To describe comfort theory as applied in care of cardiac patients and to demonstrate the use of a specific intervention called quiet time, derived from comfort theory, to improve cardiac patients' experiences of comfort across four domains of care".	Case Studies	N/A	Kolcaba's theory offers tools to guide the nursing practice of assessment and intervention development as they relate to patient comfort.	Authors recommend the need for research to validate the effectiveness of the theory based interventions discussed.	Nursing theory and practice experience offer foundations for care.
Letourneau Fater 2015	Whittemore and Knafl integrative review methodology	Does the existing evidence support the use of nurse residency programs?	Integrative review of existing literature	25 articles were reviewed 10 empirical 15 program development related	The majority of data evaluated was related to the success of NRP as it pertains to nurse retention, performance and confidence.	Further research is needed related to evaluation of NRP and nurse sensitive patient outcome improvements. Research related to the difference in degree levels of new RNs (AN vs BSN) does not exist.	Existing evidence provides a foundation for the development of NRPs for nurse educators and leadership.
"Mentoring " 2013	N/A	"Mentoring helps cultivate nurse leaders, retain nurses, and diversify the nursing workforce".	White paper review of mentoring experiences in nursing.	N/A	Mentors play a role in enabling new nurses to be successful in their fields, not only professionally but socially as well.	Mentoring integration is identified as beneficial to nursing in the IOM Future of Nursing report (2011).	Mentoring strengthens the profession and improves patient outcomes.

Author/ Date	Theoretical/ Conceptual Framework	Research Question(s)/ Hypotheses	Methodology	Analysis & Results	Conclusions	Implications for Future research	Implications For practice
Nursing Theory 2015	Patricia Benner Novice to Expert Dreyfus model of skill acquisition is the foundation for the theory	Review of Dr Benner's theory	N/A	Identification of five stages of clinical competence	Improvement in practice is dependent on experience and science. Skill development is a long process.	Dr Benner's theory is not only skill based, but has guided research related to ethics and non-nursing disciplines.	Nurses develop skills and knowledge over the course of time, with continued experiences.
Pine Tart 2007	Patricia Benner From novice to expert: excellence and power in clinical practice	Is there a favorable return on investment for the institution with a nurse residency program?	Retrospective review of cost versus savings at one year post residency program implementation.	Retention increased from 50% to 89% at one year. ROI was calculated based on comparison of program cost versus program benefits.	Initiation of a NRP resulted in a positive return on investment (ROI) for the organization.	Evaluations of the program did not address overall satisfaction with the program.	NRP are cost effective and have a positive ROI impact.
Sokowski 2015	N/A	How have new nurse training needs changed from the days of "apprentiship" to today's "residency programs"?	Review of existing literature Descriptive report	Review of the "theory/practice gap" is completed. Acknowledgement of the variation in existing programs between organizations and settings is addressed. Identification of benefits of NRP are made.	Nurse residency programs offer benefit to nurses and organizations despite variability and lack of standardization.	There is variation and lack of standardization as to what constitutes a NRP. Additional lack of standardization as to the length of a NRP exists. There is a need for more generalizable studies to be done.	Recommendation s for best evidence practice models are made.

Author/ Date	Theoretical/ Conceptual Framework	Research Question(s)/ Hypotheses	Methodology	Analysis & Results	Conclusions	Implications for Future research	Implications For practice
Spector Blegen Silvestre Barnsteiner Lynn Ulrich Fogg, Alexander	N/A	How effective is NCSBN's TTP program in terms of safety, competence, stress, job satisfaction, and retention when compared with a control group of various onboarding methods and programs customarily used by hospitals enrolled in the study?	Randomized longitudinal controlled multisite study	N=1088 from 105 hospitals nationally. Results included demographic information on facilities as well as comparisons of three study groups regarding patient safety, competency, work stress, job satisfaction, and turnover. New nurses in less structured onboarding programs had more errors and more negative safety practices, and had higher turnover.	NRP including elements of patient centered care, communication and teamwork, quality improvement, EBP, informatics, safety, clinical reasoning, feedback, reflection, and specialty knowledge provide better support for NGRN.	Study relied on volunteer organization and individual participation which may create volunteer bias. More rigorous research is needed in this area to answer questions emerging from the study.	Standardized transition to practice programs improve safety, quality outcomes, improve satisfaction and reduce turnover.
Trepanier Early Ulrich Cherry 2012	Beecroft and Benner conceptual models	Is there a positive cost benefit for small community hospitals in the initiation of a NRP?	Cost benefit analysis performed utilizing turnover rates and contract labor usage obtained through a secondary data analysis of extant data.	15 hospitals nationwide, 14 of which were community based were evaluated pre and post initiation of a NRP. Step regression analysis was performed to evaluate the relationship	Turnover dropped from an average of 36.8% to 6.41% at one year. Annual contract labor dollars dropped form an average of \$19,099 to \$5,490	Limitations of the study include the utilization of secondary data sets of a corporations community based hospital network. It is unknown if the results are reproducible. Further studies	Findings indicate NRP should be viewed by leadership as an investment and not an expense.

Author/ Date	Theoretical/ Conceptual Framework	Research Question(s)/ Hypotheses	Methodology	Analysis & Results	Conclusions	Implications for Future research	Implications For practice
				between NRP and turnover and contract labor usage.		should be conducted.	
Ward 2009	Shared governance model	Does the development of a staff taught unit specific orientation improve satisfaction and retention of new RNs?	Descriptive review	N=22 participants 2 day class offered to all new hires and existing staff. Course offered in addition to existing organization orientation and preceptor program.	Post class evaluation questionnaires yielded positive responses. 1 year retention increased from 44% to 84% following class initiation.	Review of unit specific orientation course content related to knowledge needs and satisfaction warrants further study.	“Empowering unit staff to develop and teach orientation programs such as the one described helps support and socialize new employees”.
Welding 2011	N/A	Does the existing evidence support the use of nurse residency programs?	Descriptive review	Review of the development and initiation of existing programs.	Programs need to be in effect for several years before their true impact can be effectively evaluated.	Further research of existing programs needs to be completed at time intervals to fully evaluate effectiveness.	“Nurse leaders need to evaluate programs continually and revise them based on the needs of the served population”.
NRP= Nurse Residency Program NGRN= New Graduate Registered Nurses MSPM= Married State Preceptor Model			EBP= Evidence Based Practice TTP=Transition To Practice				