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Development Of An Educational Program To Elevate The Financial Cumen Of Nurse Managers

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DEVELOPMENT OF AN EDUCATIONAL PROGRAM TO ELEVATE THE FINANCIAL ACUMEN OF NURSE MANAGERS

Submitted to the Faculty
Yale University School of Nursing

In Partial Fulfillment
of the Requirements for the Degree
Doctor of Nursing Practice

Quyen Wong, MS, MPA, RN, NE-BC

May 22, 2023
This DNP Project is accepted in partial fulfillment of the requirements for the degree
Doctor of Nursing Practice.

_________________________________________
Joan Kearney, PhD, APRN, FAAN

Date: ___________________________________
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Signed: 

QUYEN WONG, MS, MPA, RN, NE-BC

May 22, 2023
Abstract

Development of an Educational Program to Elevate the Financial Acumen of Nurse Managers

The purpose of this QI project is to elevate the financial acumen of nurse managers (NMs) in a large urban healthcare organization through the development of an educational program to strengthen the science of managing the business, a core AONL competency domain for nurse managers. The nurse manager role has evolved in today’s rapidly changing and demanding healthcare landscape that has been stressed by an increased demand for services and a decrease in resources. The impending nursing shortage that has been accelerated by the COVID-19 pandemic is an added stressor to the workload of nurse leaders as they struggle to meet the expectations of delivering value-based care with limited resources. In order for nurse managers to secure a seat at the decision-making table, it is imperative that they obtain foundational competency in financial and business management. Previous studies examining financial-analysis education for nurse leaders indicate that having financial acumen is crucial to their success, yet this competency is the least developed among nurse managers. This QI project provides a targeted financial education live didactic program for nurse managers in multi-topic sessions. Descriptive and bivariate statistics and analysis of themes were used to evaluation this intervention. Paired-t tests was used to compare pre/post session knowledge acquisition and confidence levels.

Pre/post survey results showed a statistically significant increase in mean scores for both measurable outcomes of knowledge acquisition and confidence levels.
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Part 1

Development of an Educational Program to Elevate the Financial Acumen of Nurse Managers

Nurse Managers play a vital role in influencing financial, clinical, patient experience, quality, and safety outcomes; therefore, it is essential that they are provided adequate training and resources to effectively manage their daily workload (Goetz et al., 2011; McFarlan, 2020). The AONL Nurse Leader core competency provides a framework for knowledge, skills and abilities required to be an effective nurse leader, and having business skills and understanding financial principles is one of the five core competency domains (AONL, 2022). Unfortunately, review of the literature reveals a knowledge deficit among nurse leaders when it comes to the business of healthcare (McFarlan, 2020; McKinney et al., 2016; Seabold et al., 2020; Warshawsky & Cramer, 2019). Many clinical nurses are promoted to leadership positions because of their clinical expertise rather than their business acumen. In addition, few are provided proper training in the financial and business of healthcare once they are in their new leadership role.

With a significant increase in the population retiring, it is estimated that the nursing profession will lose about 70,000 RNs each year (Buerhaus et al., 2017). As the older generation of nurses retire, we will experience a shortage in nurses in management roles as well as at the bedside. It is vitally important to focus on the recruitment, retention and succession planning of new nurse managers so that we can maintain a strong bench strength of experience, as a high number of experienced nurses retire, and the number of generation X and millennial nurses outnumber the baby boomers (Warshawsky & Cramer, 2019).

Moreover, the COVID-19 pandemic has unfortunately accelerated the churn and attrition of the nursing workforce, and there are growing concerns that the overall shortage in RN supply...
will have a significant impact on the number of nurses in leadership positions. A study by the American Medical Association reports that 1 in 3 nurses surveyed intend to reduce work hours and 2 in 5 nurses intend to leave their practice altogether (Skinsky et al, 2021). With the looming staffing constraints related to this great post pandemic resignation, it is important that nursing managers are provided with the knowledge and tools required to manage the challenges of staffing constraints through structured educational programs focusing on the science of managing the business. Providing nurse managers with this foundational knowledge and elevating their financial acumen has the potential to positively impact retention of staff and job satisfaction.

Problem Statement

The Future of Nursing: Leading Change, Advancing Health released by the Institute of Medicine (2011) recommends that nurses achieve higher levels of education, practice to the fullest extent of their education and training, and be full partners with other healthcare professionals, taking a leadership role in transforming and redesigning our nation’s healthcare. In today’s rapidly changing and competitive healthcare landscape it is no longer adequate for nurse leaders to be clinical experts; in addition, they are required to have an elevated financial acumen in order to successfully navigate the complexity of our healthcare system and efficiently manage increasing consumer demands with limited resources. On a daily basis, front-line nurse managers are expected to juggle competing priorities: ensuring that quality and patient satisfaction metrics are met, while simultaneously managing an organization’s largest personnel budget.

Financial competency is identified as a core competency by both the Healthcare Leadership Alliance (HLA) and AONL, yet many nurse managers rate themselves less than competent in this domain (Keys, 2014; J. Y. Lim & W. Noh, 2015; McFarlan, 2020; McKinney et
Training in financial management is essential for nurse managers so that they can be successful in managing the clinical, administrative, quality, and financial outcomes of a unit. Having the foundational knowledge will allow them to develop flexible staffing models that enable them to efficiently utilize their resources in response to daily census and staffing fluctuations (Udod et al., 2017).

In order for nurse managers to influence patient care, staff retention and health care initiatives, it is imperative that they obtain a foundational competency in the financial and business management of healthcare. Many previous studies examining financial-analysis education for nurse leaders indicate that having financial acumen is crucial to the success of nurse leaders, yet this competency is the least developed amongst nurse managers (J. Y. Lim & W. Noh, 2015). To address this problem, this DNP project will develop a financial educational program for inpatient nurse managers in a large urban healthcare organization.

**Significance**

In addition to the stressors caused by the RN shortage, economic recession and healthcare reform legislation add additional layers of stress on our healthcare system. Healthcare reform legislation will increase the demand for healthcare services by expanding coverage for 31 million uninsured Americans; at the same time, its regulations will limit compensation to healthcare providers and reduce RN salaries affecting the number of students interested in pursuing the nursing profession (Zhang et al., 2018). Increased demands for healthcare and decreased resources only add to the stress and workload of nurse leaders as they struggle to meet the expectations of delivering value-based care with limited resources. The science of managing the business of healthcare is an essential competency for nurse leaders, yet finance and business courses are not introduced into nursing undergraduate
curriculum. In order to set nurse leaders up for success in managing financial and staffing challenges, proper training and education is required to close the current knowledge gap.

In the absence of adequate financial training and competencies for nurse leaders, negative financial ramifications to the organization can result due to inefficient staffing, poor staff engagement, and turnover of employees. As per the 2022 National Health Care Retention and RN Staffing Report (2022), the average national total beside RN turnover rate is 27.1 which is an increase from the 2021 report when the turnover rate was 8.4%. The average turnover cost for each bedside RN ranges from $40,300 to $64,000 resulting in the average hospital losing from $5.2M to $9.0M annually. The average estimated cost of replacing a nurse manager is approximately 75%-125% of their annual salary (Phillips et al., 2018). Lack of resources, inadequate training, and heavy workloads are factors that can lead to poor job satisfaction and increase in turnover of nurse managers. Results from a survey conducted by Ramseur and colleagues revealed that 62% of their nursing leaders report leadership roles were unappealing to future nurse leaders, and 56% perceived there was lack of training and resources available (Ramseur et al., 2018). Nurse Managers are not set up for success in their daily responsibilities as they lack both financial and stewardship training, thus impacting both clinical and financial outcomes. This lack of training can lead to frustration in meeting their responsibilities as they navigate the challenges in our complex healthcare environment, and ultimately result in job dissatisfaction and increased turnover (Keith, et al., 2020). It is imperative for senior nursing and hospital executives to prioritize and invest in strategic succession planning, training, and development of nurse managers to increase engagement and retention, particularly in those competencies that are historically lacking, such as relevant finance and business skills.
Background

Search Strategy

The purpose of this review of literature is to understand the level of nurse manager competency in the science of managing the business of healthcare and how it affects job satisfaction and retention. A search of the literature was performed using the following databases: Web of Science, PubMed, Scopus, and Business Source Complete. Search terms used were nurse managers (and) finance competency (or) orientation (or) succession planning (or) stress (or) job satisfaction (or) turnover (or) retention.

Inclusion criteria included articles specific to orientation, financial competency, succession planning and factors influencing stress, job satisfaction, turnover and retention related to nurse managers or nurse leaders; participants were nurses or nurse leaders; articles were peer reviewed, and English language papers published since 2014. Initial results and hand-search using the snowball method, yielded a total of 1,695 articles that met criteria. Following duplicate removal and further narrowing of articles published between 2010 and 2022, a total of 197 remained. Title and abstract review yielded 106 articles. Following full text review, a total of 26 articles remained. See Appendix A. Twelve articles were included in the Evidence Matrix Table.

Synthesis of Literature

A mix of study designs were included, in the review: two were literature reviews, five quasi experimental, two qualitative, two observational, and one mixed-methods. The review of literature revealed a knowledge deficit for nurse managers in the science of managing the business competency domain as defined by HLA and AONL, and supported competency training in the science of healthcare business management. There is a limited amount of research on the association between the level of competency in the science of managing the
business and how it affects nurse managers’ job satisfaction and stress level. Gaps in the literature support the need for further research on methods to elevate nurse managers’ financial acumen, and impact on job satisfaction and retention.

In analyzing the studies for strengths and weaknesses, it was noted that the majority of the studies used validated measuring tools to measure their findings. Five of the studies reviewed were quasi-experimental studies used the Nurse Manager Skills Inventory Tool (NMSI), based on Brenner's from novice to expert framework to measure level of competency. The limitations of these quasi-experimental studies were that they had small homogenous sample sizes, making it difficult to generalize to wider audiences.

The two observational studies used measuring tools based on the AONL Nurse Manager Competency Framework, however, instead of the NMSI, Seabold et al. (2020) used the Chase Nurse Manager Competency Instrument and Warshawsky & Cramer (2019) used a 5-point scale reflective of Benner’s stages of competency development. Seabold et al. (2020) had a sample size of 45 nurse managers and assistant nurse managers, in a large urban academic healthcare system, however, due to the single site design, this limits generalizability to wider audiences. In addition, the researchers did not evaluate actual competencies of the participants, but rather the focus was on perceived importance of specific competencies as it relates to their practice over time. Warshawsky & Cramer (2019) had a large national sample size of 647 nurse managers in 964 patient care units at 54 hospitals, allowing their findings to be generalizable to a larger audience. The researchers’ findings suggested a statistically significant correlation (p <0.05) between role preparation and competence in the science of competency domain. A limitation of this cross-sectional design is it limits the ability to draw inferences.
The two qualitative studies included in this literature review used the four criteria of trustworthiness (1) credibility, (2) transferability, (3) dependability and, (4) confirmability to support the rigor of the study. The two literature reviews (Hughes, 2018; Keith et al., 2020) used the John Hopkins Evidence-Based Nursing Practice Level of Evidence and Quality Guide to appraise the articles in their review.

Literature Findings

The review identified the following specific themes in the literature: (1) financial and business management skills are core competencies crucial to the success of nurse managers, (2) there is a knowledge deficit in financial and business management due to lack of formulized training and education and, (3) business competency and training are factors that influence job satisfaction and retention.

Core Competencies of Nurse Managers.

AONL summarizes nurse leader competencies the following domains, with the leader from within as the anchoring domain the five core domains: Business Skills and Principles; Communication and Relationship Building; Knowledge of the Health Care Environment; Professionalism (AONL, 2022). All twelve studies (Coogan & Hampton, 2020; Hughes, 2018; Keith et al., 2020; Keys, 2014; J. Y. Lim & W. J. Noh, 2015; McFarlan, 2020; McKinney et al., 2016; Ramseur et al., 2018; Seabold et al., 2020; Titzer et al., 2017; Udod et al., 2017; Warshawsky & Cramer, 2019) included in this review of literature emphasized that having competency in financial and business management is essential for nurse managers to be successful in their daily responsibilities. However, seven of the twelve articles reviewed (Hughes, 2018; Keith et al., 2020; J. Y. Lim & W. Noh, 2015; McFarlan, 2020; McKinney et al., 2016; Titzer et al., 2017; Warshawsky & Cramer, 2019) suggested that the lack of formulized training and education focused on the financial and business management makes it difficult for
nurses to achieve competency in this domain as they transition from clinical to leadership positions.

Researchers from seven studies (Keith et al., 2020; Keys, 2014; McFarlan, 2020; McKinney et al., 2016; Ramseur et al., 2018; Seabold et al., 2020; Udod et al., 2017) acknowledged that the role of a nurse manager is multifaceted and vital in influencing outcomes related to clinical, financial, and employee satisfaction metrics. In five studies, researchers (Hughes, 2018; Keith et al., 2020; Keys, 2014; McFarlan, 2020; Titzer et al., 2017) suggested that effective and competent nurse managers positively impact clinical quality and safety outcomes and improve staff retention and productivity.

In a mixed design study conducted by researchers Lim & Noh (2015), a literature review, a qualitative focus group, and content validity index (CVI) survey was performed to identify key components of financial-analysis education for clinical nurses in Korea. According to Lim & Noh (2015), six components of financial-analysis education was identified as essential: (1) understanding the need for financial analysis, (2) introduction to financial analysis, (3) reading and implementing balance sheets, (4) reading and implementing income statements, (5) understanding the concepts of financial ratios and, (6) interpretation and practice of financial ratios analysis. The researchers emphasized the need for nurses to become more competent in financial and business management to meet the demands of the rapidly growing hospital industry in Korea.

**Knowledge Deficit in Business Skills and Principles.**

Competencies under the art of leadership domain are first introduced in undergraduate education, and these skills are further developed during clinical practice. Many nurses are promoted to leadership positions for excelling clinically and in the human resource leadership domain. Nurse leaders are required to learn business skills and principles on the job, because
finance and business management courses are not introduced in many nursing curricula until the master’s level. In three studies (Coogan & Hampton, 2020; McFarlan, 2020; Warshawsky & Cramer, 2019) that implemented an educational intervention, competency scores pre-intervention revealed the highest mean scores were seen in the art domain. According to the researchers from these same three studies, the business skills and principles domain had mean scores was the lowest among the nurse manager participants.

According to researchers from six studies, (Coogan & Hampton, 2020; McFarlan, 2020; McKinney et al., 2016; Ramseur et al., 2018; Seabold et al., 2020; Warshawsky & Cramer, 2019) the largest increase in mean and median scores were seen in domains related to financial and business management after informational/educational interventions. For example, researchers Coogan & Hampton (2020) reported the highest increase from pre-intervention mean (1.74) to post-intervention mean (3.35) were seen in the financial management category after nine participants from a five-hospital system located within the South-Central region of the United States attended a new nurse manager orientation program. Similarly, statistically significant results were seen according to McFarlan (2020) in an experimental study evaluating the impact of an evidence based four-hour educational session that focused on topics related to financial aspects of a nurse manager role. Both of these studies used validated measuring competency tools. McFarlan (2020 used the Nurse Manager Skills Inventory Tool, and Coogan & Hampton (2020) used the AONL Nurse Manager Competency Tool to measure competency of the participants pre-post intervention. The sample size in both these studies, however, were small and homogenous which limits the generalizability to wider audiences.

One observational, prospective cohort study of 45 Nurse Managers and Assistant Nurse Managers conducted by Seabold et al. (2020) to evaluate the impact of a two-day intensive leadership training on satisfaction and perceived importance of competencies concluded that
although the largest pre-and six-month post intervention differences were seen in the budget and financial management competency category, scores returned to baseline twelve months after the intervention. This highlights the importance of continued exposure and education to maintain competency (Seabold et al., 2020).

Perceptions of lack of training and preparation as nurses transitioned to leadership positions were identified in three studies conducted by (Keys, 2014; McKinney et al., 2016; and Ramseur et al., 2018). In a survey conducted by Ramseur et al. (2018), 56% of nurse leader participants at a large academic health system in the southeastern United States perceived that they were not provided appropriate training and resources. Similar themes of inadequate training and preparation for leadership roles were identified by Keys (2014) in a qualitative study to gain insight on Generation X nurse managers and their perspectives on professional success and fulfilment. In another study conducted by McKinney et al. (2016) at a tertiary hospital, 86% of the participants reported that there was a lack of formal training in leadership before becoming a nurse manager. In this same study, all 28 participants rated themselves less than competent in the science of managing the business domain.

**Competency and Training Influencing Job Satisfaction and Retention.**

Many factors influence job satisfaction and retention of nurse managers. Some of these factors include orientation, training, and level of competencies, as identified in seven of the twelve articles in this literature review (Hughes, 2018; Keith et al., 2020; Keys, 2014; McFarlan, 2020; Seabold et al., 2020; Titzer et al., 2017; Udod et al., 2017). A qualitative exploratory inquiry of seventeen nurse managers in six different acute care facilities conducted by Udod et al. (2017) identified that nurse managers are challenged and feel pressure to prioritize financial accountabilities and manage heavy workloads. Practice implications identified by the
researchers include the need to enhanced training for managers to improve their leadership competencies.

Themes from an integrated literature review of fourteen articles that Keith et al. (2020) identified in influencing nurse manager job satisfaction include workloads, organizational support, and competency and training. In another literature review of 11 studies, conducted by Hughes (2019), repeated themes of heavy workloads, lack of leadership development, resources, education, and training were identified as barriers to effective leadership, which can negatively influence job satisfaction. One study conducted by Seabold et al. (2020), to measure the impact of intensive leadership training on nurse managers’ job satisfaction using the McCloskey/Mueller Satisfaction Scale, suggested that management training did not significantly impact manager satisfaction rates over a 1-year period. However, findings from this study revealed that the largest increases in mean scores from baseline to twelve months were seen in the importance of competency knowledge related to staffing. Due to the small single-site sample size, Seabold et al. (2020) cautioned against making definitive conclusions related to the relationship between intensive training and nurse manager perceived importance of competency and satisfaction.

In the qualitative study conducted by Keys (2014), the most frequently mentioned factor-affecting retention among the sixteen Generation X nurse manager participants from various hospitals in the United States was the need for better preparation for the role and opportunities for improvement in their skills and competencies through formal education and training programs. Results from a study conducted by Titzer et al. (2014) to evaluate the perceptions of eleven nurse managers from a 480-bed acute care hospital located in southwestern Indiana after their completion of a formal Nurse Manager Succession Planning Program suggests positive correlations with retention and increased perceptions in leadership and competency.
All 11 participants remained employed at the hospital after one year of completion of the program, and nine (82%) of participants were promoted to various leadership roles in this study.

**Summary of Findings**

In summary, literature review confirms that having business skills and principles is a core competency for nurse leaders, however, a knowledge deficit amongst many nurse managers in this competency domain was identified. In order for nurse managers to be successful in their daily roles and responsibilities, they must possess both clinical expertise and have a sharpened financial acumen, so that they can successfully navigate through the challenges and demands of our complex healthcare landscape. In the articles reviewed, evidence suggests that there is a correlation between the level of competency and training and how it influences job satisfaction and retention of nurse managers. Literature supports the need to provide financial competency training early on in academic programs and as part of the onboarding and ongoing training of nurse leaders. There is lack of breadth and depth of research related to how structured financial competency training for nurse manager can impact their self-efficacy and knowledge acquisition further supporting the implementation and evaluation of this project.

**Project Model**

This DNP project used Prosci’s ADKAR model as the goal-oriented change management framework. See Appendix B. The ADKAR acronym outlines five milestones an individual need to meet in order to achieve successful change: **A**wareness of the need for change, **D**esire to support the change, **K**nowledge of how to change, **A**bility to demonstrate new skills and behaviors needed for the change, and **R**einforcement to sustain the change (Hiatt, 2006). The ADKAR change model guided nurse managers through the three states of change, from their current state of knowledge deficit through successful transition to the future state of enhanced competency in financial and business management of healthcare.
In the first phase of awareness, the assessment of nurse managers’ baseline level of financial competency identified gaps and knowledge deficits. The gaps and knowledge deficits were communicated to the nurse managers and senior leadership team. Once awareness of the need to change was communicated, momentum was built to increase the desire to change by highlighting the importance and benefits of elevating the financial acumen of nurse leaders. The development and implementation of financial education sessions based on the gaps and knowledge deficit identified in the baseline competency assessment, which provided nurse managers with the knowledge on how to change. With the knowledge gained through attending the educational program, nurse managers gained the ability to efficiently manage their resources. Change is in iterative process, and requires continual reinforcement in order for the change to stick. Implementation of yearly refresher courses for nurse managers and including financial educational sessions in nurse managers’ orientation curriculum will be beneficial in the reinforcement of knowledge learned.

**Supporting Theoretical Frameworks**

In addition to a change management framework, the AONL Nurse Leader Competency Domain Framework was used as a guide in developing the content of the educational sessions related to the business skills and principles (AONL, 2022). Benner’s Novice to Expert theoretical framework was used as a guide in assessing nurse manager learning needs self-assessment of competency. (Benner, 1982). See Appendix C.

**SWOT Analysis**

A SWOT (Strengths, Weaknesses, Opportunities, and Threats) analysis was conducted for this project. See Appendix D.

**Strengths.** As a Magnet designated organization, there is culture that supports nurse driven practice improvement and scholarly advancements. This project also aligns with the
AHS’s mission that fosters a supportive environment that encourages innovative thinking to develop solutions that aims to improve quality, safety and financial metrics. Developing an education program to elevate the financial acumen of the nursing leadership team also aligns with the Nursing Department and Health System’s goals of achieving agile financial performance, by providing nurse leaders with foundational knowledge to improve labor productivity, recruitment, retention and engagement. Initial learning needs self-assessment survey of nurse related to the science of managing the business at this organization confirmed that there is a knowledge deficit in this competency domain. Another strength is the strong partnership between the Nursing Department and the Organization Development and Learning Department and their support in achieving the CNE’s strategic goal.

**Weaknesses.** Internal weaknesses to consider is the time constraints due to workload and competing priorities with other organizational initiatives that may prevent nurse managers to attend additional educational courses during their work day. Bureaucratic complexities inherent in this large organization, makes scaling changes more challenging due to varying levels of leadership and wide range of experience among the nursing leadership team. There may be challenges in adopting change which requiring nurse leaders to not only be clinical experts but also business managers of their units and department. This may be especially difficult for those nurse managers and senior directors who have many years of experience operating in the current model to adapt to the changes.

**Opportunities.** External opportunities identified include the need for healthcare organizations to focus on fiscally responsible initiatives in order to stay competitive due to healthcare reform and complex healthcare environment. Further supporting the need for healthcare leaders, including nursing leaders to elevate their financial acumen. Staffing constraints related to nursing shortages related to COVID-19 pandemic can be considered both
as a threat but also an opportunity in which these staffing constraints can be a catalyst for nurse leaders to recognize the need to elevate their financial acumen so that they are equipped with the skill and competency to better manage their units from a business and finance lens.

National staffing constraints related to the great resignation has also pushed healthcare organizations to explore emerging technology and artificial intelligence to improve efficiencies and quality. An additional opportunity identified is the reputable brand associated with this healthcare organization. It draws and attracts considerable talent as well as substantial philanthropic fundraising activities.

**Threats.** External threats related to national staffing shortages due to COVID-19 surges and mounted staffing challenges have increased staff burnout and turnover. Due to national shortages, agency staffing has become a very competitive market, costing organizations hefty expenditures in premium salary costs to obtain additional temporary staffing. Reimbursement reductions, challenging negotiations with private insurances, and changes in payer mix have increased financial constraints to healthcare organizations. The increase in demands for healthcare, sicker patients requiring admissions to hospitals, and higher CMIs are additional threats to the delivery of quality value-based healthcare.

**Project Goal and Aims**

The goal of this DNP project is to develop a financial educational program for inpatient nurse managers in a large urban healthcare organization.

The aims of this project are:

(1) To develop an educational program related to financial and budgeting topics for inpatient and procedural nurse managers in a large urban health care organization

(2) To implement and evaluate the education program for improvement in financial competency and confidence level of nurse managers
(3) To make recommendations for scaling and sustainability of this program throughout healthcare system.
Part 2

Methods

Approach

This quality improvement DNP project provided a targeted financial education program to nurse managers, implemented it in a live didactic, multi-topic session, and used a pre-posttest design for evaluation. The Project Goal and Aims, and associated methods are as follows:

Project Goal

The goal of this DNP project is to develop a financial educational program for inpatient nurse mangers in a large urban healthcare organization.

The Aims and associated methods:

Aim 1. To develop an educational program related to financial and budgeting topics for inpatient and procedural nurse managers in a large urban health care organization. This aim included the following steps:

1. DNP student presented the literature review results to senior nursing leadership team, and proposed the development of a financial educational program to elevate the financial acumen of the nursing leadership team. The educational program focused on financial and budgeting concepts under the AONL’s Nurse Manager’s the business skills and principle competency domain as a guide.

2. As part of Nursing Leadership’s strategic initiative for developing the financial acumen of the management team, a previous learning needs self-assessment survey was developed by DNP student to obtain a baseline assessment of the organization’s nurse leaders’ perception of their confidence and understanding of the science of managing the business. This self-assessment was developed using Qualtrics Survey platform and sent to 356 nurse
leaders using the organization’s nursing leadership distribution list. The survey included 11 questions asking individuals to rate their current financial acumen level regarding financial concepts outlined in the AONL nurse leader business skills and principle competency domain using Benner’s from novice to expert learning theory. The survey was open for two weeks, and had a 53% response rate, which included 32 clinical coordinators/assistant nurse managers, 115 nurse managers, and 42 directors/senior directors. Results revealed that over 50% of nurse managers rated themselves as novices to advance beginners in the majority of the financial concepts, highlighting a knowledge deficit in the science of managing the business competency domain.

3. Results from the self-assessment and the financial management section of the AACN/AONL Nurse Manager Skills inventory were used as a guide in the development of course content and objectives of this educational program. The DNP student designed two instructor-led interactive, didactic educational modules on financial and budgeting concepts delivered through a virtual classroom setting. Each educational session was approximately 1.5 hour long to ensure adequate time for students to ask questions during and after the lecture. The target audience for this educational program was inpatient and procedural nurse managers in a large urban healthcare organization.

4. The first session of this educational program focused on the following topics: (1) review of the definitions of key financial terms, (2) capital and operational budgets, (3) review the building blocks for developing an operational budget, (4) introduction to understanding budget variances. The second session focused on (1) zero based and non-zero-based budgets for inpatient and procedural units (2) how to determine staffing needs create a staffing budget (3) how to monitor, interpret, analyze budgets, and justify budget variances through the use data and labor productivity tools.
5. The DNP student reviewed the content of the educational program with content experts from finance department and the Financial Stewardship Committee members, made up of internal senior directors of nursing to obtain feedback prior to implementation of the educational program.

**Aim 2.** To implement and evaluate the educational program for improvement in financial competency and confidence level of nurse managers.

**Implementation**

1. The DNP student recruited participants using an email invitation which provided all nurse managers with an overview of the educational program and elicited participant enrollment via link to access the registration from through the FOCUS module platform. Reminders were sent to participants one week prior to their scheduled session to ensure all participants have completed enrollment. Registration of participants was managed through the FOCUS module platform, and participant’s pre-posttest results were kept confidential using a unique numeric identifier. Participants were asked to provide their current title and years in current leadership title during the registration process. Only numeric identifiers were used when evaluating results, to maintain confidentiality of participants. Links between names and identifiers were kept on an encrypted hospital owned laptop computer in the locked DNP student’s office at the Hospital.

2. Within the first month of implementation, two dates were offered to participants to attend the first educational session, allowing participants the flexibility to attend one of the sessions. Educational sessions were held during normal working hours. A maximum of 30 participants were allotted for each educational session to increase student participation and retention of knowledge. All participants who completed the first session were sent a link to participate in the second part of this educational program following the same format as the first
educational session. Upon completion of the registration and pre-test, participants were sent a calendar invitation with the time and date, and WebEx link to join the education program.

Evaluation

1. Evaluation of this project was completed using bivariate and descriptive statistics and analysis of themes.

   Knowledge acquisition was evaluated using multiple choice competency tests delivered electronically through the FOCUS enrollment process at the beginning and end of each educational program. See Appendices H, I, J, K. Each pre and post-test consisted of 10 multiple choice questions worth 1 point each for a total score of 10, to measure baseline knowledge and knowledge acquisition of the content reviewed during the educational sessions. Pre and post session results were compared using paired-t tests.

   Participants’ confidence level was evaluated pre/post-educational sessions using Bandura’s self-efficacy scale (Bendura, 2006) and analyzed using paired-t tests. See Appendix E.

   A post program evaluation was sent to participants upon completion of the educational program in order to make changes and improvements to future sessions. Trends on this evaluation was assessed qualitatively.

   **Aim 3.** To make recommendations for scaling and sustainability of this program throughout healthcare system. This aim included the following steps:

   **Sustainability**

   The DNP student collaborated with systems professional development leadership to incorporate the educational program to all new nurse managers’ onboarding and orientation curriculum. In addition, the DNP student collaborated with the Nursing Leadership Succession
Planning Committee to include this educational program to their development program for assistant nurse managers.

**Scaling**

DNP student presented the results of the educational program to the CNE and Enterprise Executive Nursing Council and made recommendations to expand this educational program to the other hospitals within the AHS. The DNP student worked with the nursing education department to create a recorded interactive course in the FOCUS platform to further scale this program to a larger audience.

**Dissemination**

External dissemination of the findings will be shared by submission of the abstract for poster presentation at an AONL conference and a submission to the Journal of Nursing Management.

**Human Subjects Statement**

This project was deemed a quality improvement project. The project was also reviewed by the System Senior Director of Nursing Research and Program Evaluation at the organization in which the project was implemented, and deemed a quality project with minimal risk posed to participants.
Part 3

Systems, Policy and Business Implications

Business Case and Leadership Engagement

This DNP project was implemented at an urban academic health system. In alignment with the health system’s mission, the CNE has outlined a three to five-year strategic map to achieve the nursing department’s vision of being a vibrant, fully integrated team, respected for clinical contributions, trusted for effective resource utilization and recognized, both internally and externally, for our many contributions to the profession and our organizational tripartite mission. As part of the Nursing Department’s strategic goals, nursing leadership Chairs were elected to develop committees charged with accomplishing the specific strategic goals and visions of the nursing department. As a result, the development of a Financial Stewardship Committee with an expert panel of Senior Nursing Directors, chaired by the DNP student, was convened to create a project plan and timeline to accomplish the goal of elevating the financial acumen of the nursing leadership team. The DNP student is currently a Senior Director of Nursing at this organization. Nurse Managers expressed their interest and agreed that there is a need to develop an educational program to elevate their financial acumen during preliminary discussion gauging their interest.

Business and Financial Considerations

Recent healthcare reform and current competitive healthcare environment further supports the need for healthcare leaders to elevate their financial acumen and be more fiscally responsible in managing their resources. In order to stay relevant and meet the demands of our challenging healthcare system, this organization has leveraged emerging technology, artificial intelligence and developed strong analytic tools and dashboards to assist leaders in improving
patient safety and experience metrics, become more efficient in labor productivity management and patient throughput.

The nurse leader role has evolved in today’s rapidly changing and demanding healthcare landscape. Our healthcare system continues to be stressed by the increased in demands for healthcare and decrease in resources, which adds to the workload of nurse leaders as they struggle to meet the expectations of delivering value-based care with limited resources. Being the clinical expert is no longer enough for nurse leaders to secure a seat at the decision-making table. Therefore, the need for developing an educational program to elevate the financial acumen of the nursing leadership team is a crucial yet low cost project that has high return on investment, yielding both indirect and direct benefits.

There were no costs associated with developing the educational program since the student created the curriculum. The panel of experts internally from nursing leadership and key members of the organization’s finance department were elicited to provide feedback on the curriculum content; therefore, their review of the curriculum did not accrue any additional cost. There are no costs associated with time paid for Nurse Managers of this organization to attend the educational program because there is dedicated time allotted for employees to attend educational programs and conferences.

This goal of this educational program is to increase nurse leaders’ knowledge of understanding and monitoring their budgets through use of data, and provides them with strategies to improve their ability to efficiently manage their resources and adjust their staffing needs based on fluctuations in volume and staffing levels. Strategies reviewed in this educational program highlight the importance of closely monitoring observed to expected staffing metrics through use of historical census trends, so that nurse leaders can better align staffing needs, and appropriately allocate the use of full time, part time, per diem staff to reduce
unnecessary over-time and premium salary expenditures. Ensuring nurse leaders have the foundational knowledge to effectively staff to volume needs has the potential to save the organization on a conservative range of $22,000 to close to $90,000 dollars annually through reduction of unnecessary overtime and premium staffing costs based on a financial cost analysis conducted.

The methodology used in this financial cost analysis to quantify the potential direct cost savings included a review of 26 pay periods for 60 inpatient units to determine the total number of overtime hours worked over volume adjusted clinical hours. To calculate the total number of overtime hours worked over the volume adjusted clinical hours, the following criteria was used: overtime hours worked during a pay period where the unit was at or below 0% variance of their budgeted average daily census (ADC) and had greater than 1% of their total volume adjusted expected clinical hours being paid at an overtime rate. Using this methodology, 549 pay periods met the criteria, resulting in a large number of overtime hours above the volume adjusted clinical hours, costing the organization several million dollars of overtime expenses. A detailed three-year return on investment analysis for this project is estimating a cost savings in overtime hours by 10% in year 1, 15% in year 2, and 20% in year 3.

Besides monetary direct cost savings, other indirect benefits of increasing nurse leaders’ ability to efficiently manage their resources and adjust staffing needs based on fluctuation of census is it can potentially improve nurse managers’ confidence and job satisfaction. The average turnover for nurse managers can cost hospitals about 75-125% of their annual salary. Another indirect benefit is the potential to improve staff satisfaction and retention. National average of RN turnover rate for CY21 is 27.1%, costing hospitals on average $262,300 for each percentage per year (NSI Nursing Solutions, Inc., 2022).
Risk Assessment & Mitigation Strategies

Potential risks were evaluated and contingency plans were developed to ensure the successful completion of this project. The first potential risk identified is low participation rate related to the time constraints of nurse managers. The contingency plan for this identified risk is to offer more sessions if, after the first session, there is a notable low participant rate. The second potential risk is that participants may not retain the knowledge post educational program, and are unable to apply the knowledge to their daily practice. Recording the educational program and program materials reviewed during the educational program was provided to participants by instructor (DNP student) so that participants can refer back to education material post program. Post educational program feedback from participants was used to improve future the programs.
Part 4

Results

Participants

The educational program was offered to two cohorts of nurse managers, with a total of 46 participants who completed the program. Cohort one had a total of 19 participants, 11% of which were male and 89% were female. Cohort two had 27 participants, 7% were male and 93% were female. When evaluating the descriptive statistics of the two cohorts combined, the majority of the participants were female (91%) as compared to males (9%). The nurse managers’ experience level ranged from 1 year to 25 years of leadership experience (mean 7.5) for both cohorts, with cohort one having a mean of 7.1 years and cohort two having a mean of 7.9 years of experience. All 46 participants completed a pre/post knowledge acquisition ten question multiple choice questionnaire, a seven question self-efficacy questionnaire using a 0-100-point Bandura’s self-efficacy rating scale, and a post program evaluation consisted of 6 areas of evaluation using 5-point Likert Scale.

Findings on the Knowledge Acquisition Pre and Post test

Cohort one.

Evaluation of the pre/post knowledge acquisition results from the 10-point questionnaire for cohort one showed an 8% increase in mean scores from pre-test (8.7) to post-test (9.4) for part one, and a 31% increase in mean scores of pre-tests (6.5) to post-test (8.5) for part two. Pre/post mean scores were compared using paired-t tests, revealing a statistically significant increase in pre/post mean scores in both part one (T = 2.69; p < 0.015) and part two (T = 4.86; p < 0.001) of the educational program.
**Cohort two.**

Evaluation of the pre/post knowledge acquisition questionnaire results for cohort two showed a 10% increase in mean scores from pre-test (8.5) to post-test (9.4) for part one, and a 59% increase in mean scores of pre-tests (4.8) to post-test (7.7) for part two. Pre/post mean scores were compared using paired-t tests revealing a statistically significant increase in pre/post mean scores in both part one (T - 3.31; \( p < 0.003 \)) and part two (T - 6.54; \( p < 0.001 \)) of the educational program.

**Cohorts combined.**

Evaluation of the pre/post knowledge acquisition questionnaire results for cohort one and two combined showed a 10% increase in mean scores from pre-test (8.6) to post-test (9.4) for part one, and a 46% increase in mean scores of pre-tests (5.5) to post-test (8.0) for part two. Pre/post mean scores were compared using paired-t tests revealing a statistically significant increase in pre/post mean scores in both part one (T - 4.23; \( p < 0.001 \)) and part two (T - 8.08; \( p < 0.001 \)) of the educational program. Appendix F.

The differences in the percent increase seen in the pre/post results for part one was lower than the increase in pre/post mean scores as compared to part two. This was an expected outcome, because the content reviewed in part one of the educational program covered basic financial terms and concepts, whereas content taught in part two was more complicated and reviewed in detail how to create, monitor, and justify variance in operational budgets.

**Findings on Self-efficacy Rating Pre and Post**

In evaluating confidence level pre/post intervention, participants were asked to provide ratings on the following seven competency domains: “As a nurse leader I feel confident that I can...” (1) create and monitor a budget, (2) analyze a budget and explain variances, (3)
conduct ongoing evaluation of productivity, (4) differentiate between capital and operational budgets, (5) differentiate between variable and fixed costs, (6) establish staffing patterns and adjust staffing to patient needs, (7) explain the variable that affect operational budgets to my employees.

**Cohort one.**

Evaluation of cohort one participants’ pre/post self-efficacy ratings using a 0-100-point range based on Bandura’s self-efficacy rating scale revealed statistically significant increases in mean self-efficacy ratings in all seven competency domains with \( p \) values ranging from 0.004 to <0.001. Participants in this cohort showed the highest mean increase in confidence (53%) in their ability to create and monitor a budget post intervention, with the second highest mean increase in confidence (51%) in their ability to differentiate between capital and operational budgets, and the lowest mean increase in confidence (15%) in their ability to establish staffing patterns and adjust staffing to patient needs. Appendix G.

**Cohort two.**

Evaluation of cohort two pre/post self-efficacy ratings also revealed statistically significant increases in mean self-efficacy ratings in all seven competency domains with \( p \) values ranging from 0.010 to <0.001. Participants in this cohort showed the highest mean increase in confidence (46%) in their ability to differentiate between variable and fixed costs, with the second highest mean increase in confidence (45%) in their ability to create and monitor a budget post intervention, and the lowest mean increase in confidence (27%) in their ability to conduct ongoing evaluation of productivity. Appendix H.

**Cohorts combined.**

Evaluation of pre/post self-efficacy ratings for both cohorts combined showed statistically significant increases in mean self-efficacy ratings at a \( p \) value < 0.001 in each of the seven
Appendix I. Evaluation of combined cohort self-efficacy ratings pre/post intervention, showed the highest mean increase in confidence (48%) in their ability to create and monitor a budget, with the second highest mean increase in confidence (45%) in their ability to differentiate between variable and fixed costs, and the lowest mean increase in confidence (23%) in their ability to conduct ongoing evaluation of productivity. Appendix J.

**Evaluation of Findings by Gender and Management Experience.**

Evaluation of management experience level was separated and categorized as follows: 1-3 years (n = 17), 4-10 years (n = 18), greater than 10 years (n = 9). Participants with 1-3 years of management experience scored on average 10% less in the knowledge acquisition Part 1 pretest as compared to those with 4-10 years and greater than 10 years of experience, however these participants showed a higher percent increase (11%) in their Part 1 post-test as compared to those with more experience. When evaluating pretest scores of Part 2, participants with greater than 10 years of experience scored on average 10% less than those with 1-3 years and 4-10 years of experience, and showed the highest percent increase (37%) in their mean scores in the post-test. When comparing pre-program self-efficacy confidence level based on years of management experience, those with less years of experience rated themselves lower in self-efficacy rating as compared to those with more years of experience. When evaluating the post self-efficacy scores, it was noted that those with 1-3 years of leadership experience had the highest increase in their confidence (33%). Participants with 4-10 years or management experience had the lowest increase in confidence (21%).

Pre/posttest knowledge acquisition results between genders did not show a significant difference, however there was a slight difference noted when comparing pre/post self-efficacy confidence rating between males and females. Males rated their confidence level higher than
their female counterparts in both the pre and post self-efficacy rating scale, however, female participants showed a higher increase in their self-efficacy rating (females 28% and males 14% increase in confidence post program). It is important to note however the limitation of a small sample size of only 4 males as compared to 42 female participants. In evaluating the mean scores of pre/post knowledge acquisition results as it relates to years of experience and gender, only slight differences noted. Appendix K.

**Findings on the Post Program Evaluation**

All participants (n =46) received and completed a post program evaluation survey, which assessed participants agreement on 6 items related to the program. The items were scored using a 5-point Likert scale, ranging from strongly disagree to strongly agree (1-5). When asked if the content of the educational program was relevant to their daily responsibilities as a nurse leader, twenty-nine (63%) participants strongly agreed, sixteen (35%) participants agreed, and one participant strongly disagreed. Most participants either strongly agreed (52%) or agreed (39%) that the content of the educational program was organized and easy to follow, with only one participant neither agreeing nor disagreeing, and three participants disagreeing. Post program evaluation results also showed that the majority of participants strongly agreed (63%) or agreed (35%) that the objectives of the program were clearly stated, with only one participant neither agreeing nor disagreeing. All participants strongly agreed (67%) or agreed (33%) when asked if the instructor demonstrated in-depth knowledge of the subject. The majority of participants strongly agreed (65%) or agreed (28%) when asked if the instructor engaged the audience and if the course was interactive, with only one participant neither agreeing nor disagreeing and two participants disagreeing. Finally, when asked if the program met their expectations, twenty-five participants strongly agreed (54%), seventeen agreed (37%), two neither agreed nor disagreed, one disagreed and one participant strongly disagreed (2%).
Overall, there was overwhelmingly positive feedback provided related the implementation of this educational program. Appendix L.

Participants were also provided an opportunity to provide free-text comments in the post-program evaluation, and twenty-six comments were left. Major and sub-themes were identified from the responses using qualitative analysis. The major themes identified: high value of the content of the educational program, structure and delivery of program, and suggestions for future program modification. Multiple sub-themes identified include: structure strengths, structure opportunities, additional offerings, and supervised practice of case studies.

**High value of content.**

Participants were highly engaged and eager to expand their knowledge and elevate their financial acumen, and agreed that it is an essential competency in their daily roles and responsibilities as nurse leaders. There was a high number of positive comments related to the value of the content. About 28% of the remaining comments agreed that the educational course was beneficial to their daily role and responsibilities as a nurse leader. Participants recognized the importance of understanding the business of healthcare and how it affects the daily operations of a unit.

**Structure and delivery of program.**

Of the feedback provided by the participants, 31% of the comments were related to the structure of delivery of the educational program. A few comments from participants who were novice in their leadership positions suggest that budgeting and financial concepts may be overwhelming for new leaders, and more hand on practice is required to fully understand the content.
Suggestions for modifications moving forward.

The majority of the feedback confirms the importance and need to elevate the financial acumen for nurse leaders. However, areas of opportunity identified from the analysis of the survey responses suggest that in order to retain the knowledge acquired, it is important to arrange supplemental practical experiences with mentors after the completion of the program. In addition, it would be helpful to manualized a workbook that nurse leaders can reference and practice after completion of the program. Several participants requested more opportunities to put the knowledge they have gained from the program to use after completion of the class.
Part 5

Discussion and Conclusion

Discussion

The goals and aims of this QI project were achieved, with the successful development and implementation of a financial educational program offered to nurse managers at an urban health care organization. National nursing organizations confirm that the science of managing the business of healthcare is a crucial and important competency required for all nurse leaders (AONL, 2022). Despite this, review of the literature, preliminary results from baseline self-assessment of financial acumen, and pre-test scores evaluating baseline knowledge of financial and budgeting concepts of nurse leaders at this organization confirms a knowledge deficit related to this competency domain. The content of this program was developed using components and topics outlined by AONL’s nurse manager skills inventory checklist paired with examples of data from the organization’s dashboards and reports to provide the participants with the opportunity to apply the concepts taught to their daily roles and responsibilities.

Results from the pre-post evaluation of knowledge acquisition and self-efficacy showed a statistically significant increase in mean scores post intervention in both measurable outcomes. Post program evaluation confirmed the need to provide nurse leaders with training related to business skills and principles as a core competency domain required by effective leaders in today’s competitive and complex healthcare environment. Leaders who are skilled in managing the business of healthcare and have a heightened financial acumen are able to evaluate and translate the data to make informed clinical and staffing decisions, adjust their staffing needs based on fluctuations in volume and staffing levels, and advocate for resources needed to provide quality patient care.
As we continue to experience staffing challenges related to the nursing shortage that has been accelerated by the COVID-19 pandemic, it is vitally important to invest in recruitment, retention, and succession planning for new nurse managers and provide them with the training and skills needed to navigate through challenges of the increase in demand for patient care and decrease in supply of the nursing workforce. Providing nurse managers with this foundational knowledge and elevating their financial acumen has the potential to positively impact retention of staff and job satisfaction.

This educational program was well received by nursing leadership in this healthcare organization. Both sessions were filled within a few hours of the email invitation to enroll was sent to nurse managers, with approximately 10 additional participants on the waitlist. Due to the high demand, the number of seats available for the educational program was increased from 20 in Cohort 1 to 30 in Cohort 2. The high engagement of this educational program further confirms that this educational program was beneficial in filling in the gap and knowledge deficit related to nursing budgeting and finance competency.

This QI project adds to the breadth and depth of literature related to how structured financial competency training for nurse manager can impact their self-efficacy and knowledge acquisition. Current literature primarily focuses on generalized training, staffing, and workload of nurse leaders as a cause for turnover and burn out. Given the statistically significant results and successful implementation of this project, further research is warranted to evaluate the impacts of elevating the financial acumen of nurse leaders and the positive return on investment for organizations to develop structured financial stewardship programs. Positive impacts related to engagement and retention of both bedside staff and nurse managers is an area that should be evaluated further in future research related to nurse leader business and financial acumen.
Limitations

Size of a class is important as it can affect the ability for instructors to garner participation and engagement. There were 8 more participants in Cohort 2 (n=27) as compared to Cohort 1 (n=19), which could have been the contributing factor to the difference in level of participation. It was noted that the larger cohort had less engagement by the participants, likely due to several factors. First, the larger size of the class made it difficult for the instructor to engage each participant individual, to ensure they fully understood the content being taught. Second, participants who are not comfortable with speaking in large groups, may be deterred from participating or ask questions. Based on the difference in level of participation between Cohort 1 and 2, future classes should be capped at 20 participants. Delivery method is another factor that should be explored in the future programs to evaluate if there is a difference in participant engagement when comparing live versus virtual classrooms. This educational program was given through a virtual classroom setting, and based on feedback provided by several participants in the post program evaluation, in person review classes are being considered to allow participants the opportunity to apply knowledge acquired through scenario-based practice exercises.

Scalability and Sustainability

Scaling. This quality improvement project was piloted among nurse managers at a healthcare organization that is part of a health system. This educational program will be scaled and offered to all nurse managers throughout the health system. Since the conclusion of this quality improvement project, the course was offered to 3 more cohorts with an approximate total number of 120 participants.

Sustainability. Future plans to create a recorded interactive electronic learning module is currently underway. Once this is completed, a link for enrollment will be sent to all nurse
managers through the system. This learning module will also be added as a required course for all new nurse leaders. The strategic financial stewardship workgroup involved in the initial pilot has begun discussions about developing an additional educational program related to the business of healthcare as an ongoing offering for nurse managers.

**Healthcare and Policy Implications**

Safe staffing has been topic that many organizations and legislators have been focused on in the recent years, and is one of American Nurse’s Association’s core federal policy priorities. On a state level, 16 states are currently addressing staffing in hospitals through laws or regulations related to mandated nurse to patient ratios, development of staffing committees led by nurses, and disclosure of staffing level to public and regulatory bodies. Now more than ever, having foundational competency on the science of managing the business of healthcare is imperative for nurse leaders in order to effectively influence financial decisions made on a unit, organization, state, and federal levels. No longer is it enough for nurse managers to be clinical experts, because without a heightened financial and business acumen it would be nearly impossible for nurse managers to be successful in the daily operations of managing a unit. The stressors caused by the national staffing shortages, economic recession and healthcare reform legislation further solidifies the need for nurse managers to solidify their competency in the science of managing the business. When nurse managers understand the business and financial aspects that influence how care is delivered, they can translate and impart this knowledge to bedside staff. Nursing Schools might also consider introducing business and financial education into their curriculum in their bachelor’s programs. In addition, healthcare organizations need to include financial management training for all leadership positions.
Conclusion

This quality improvement project focused on the development and implementation of a financial and budgeting educational program to elevate the financial acumen of nurse leaders. Results and feedback post implementation confirmed that financial education is an unmet need and this educational program was successful in filling a knowledge gap. This program provided nurse managers with a foundational knowledge in the competency domain of business skills that is essential to their success in the daily operations as a leader. It is vital for organizations to continue to focus on providing additional financial education for nurse leaders so that they apply and retain this critical knowledge in their leadership practice. Healthcare is a business, and in order for nurse leaders to be successful in securing a permanent seat at the decision-making table, and respected for our contributions in advancing and improving our healthcare system we need to ensure that our nurse leaders are equipped to be clinical experts with a heightened financial acumen.
References


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https://doi.org/10.1016/j.mayocpiqo.2021.08.007


https://doi.org/10.1108/lhs-04-2016-0015


Appendix A

Prisma Diagram

For more information, visit www.prisma-statement.org
### Appendix B

#### Project Model

<table>
<thead>
<tr>
<th>A</th>
<th>Awareness – Of the need for change</th>
</tr>
</thead>
<tbody>
<tr>
<td>D</td>
<td>Desire – To participate and support the change</td>
</tr>
<tr>
<td>K</td>
<td>Knowledge – On how to change</td>
</tr>
<tr>
<td>A</td>
<td>Ability – To implement desired skills &amp; behaviors</td>
</tr>
<tr>
<td>R</td>
<td>Reinforcement – To sustain the change</td>
</tr>
</tbody>
</table>
Appendix C

Benner From Novice to Expert Model

# Appendix D

## SWOT Diagram

<table>
<thead>
<tr>
<th>STRENGTHS</th>
<th>WEAKNESSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Magnet designated hospital with culture to advance nursing scholarly practice.</td>
<td>• Time constraints due to workload for nurse managers to attend additional educational courses.</td>
</tr>
<tr>
<td>• Alignment with health system’s mission</td>
<td>• Competing priorities with other organizational initiatives.</td>
</tr>
<tr>
<td>• Alignment nursing department strategic goal to elevate financial acumen of nursing leadership.</td>
<td>• Implement of change in large academic medical centers can be challenging due to complexities of bureaucratic environments.</td>
</tr>
<tr>
<td>• Agility in financials, robust margins and health cash flow.</td>
<td>• Challenges with adaptation to changes requiring nurse leaders to not only be clinical experts but also business managers of their units/departments.</td>
</tr>
<tr>
<td>• Partnership with Organization Development and Learning Department to meet CNE’s strategic goal</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>OPPORTUNITIES</th>
<th>THREATS</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Healthcare reform and current healthcare environment has spurred organizational goal to be more fiscally responsible.</td>
<td>• It is a competitive market for agency staffing.</td>
</tr>
<tr>
<td>• The COVID-19 pandemic has created staffing constraints related to nursing shortages and is catalyst for nurse leaders to better manage their units from a business and finance lens.</td>
<td>• Reimbursement reductions, challenging negotiation with private insurances, and changes in payer mix has increased financial constraints to healthcare organizations</td>
</tr>
<tr>
<td>• Emerging technology, AI and other innovations are emerging to improve efficiencies and quality.</td>
<td>• Higher CMI, sicker patients requiring care.</td>
</tr>
<tr>
<td>• Reputable brand that draws talent and increases philanthropy</td>
<td>• Unknown health effects related to PASC.</td>
</tr>
<tr>
<td></td>
<td>• Covid-19 pandemic accelerating churn and attrition of nursing workforce leading to staffing shortages, increase in staff burnout &amp; decreased engagement.</td>
</tr>
</tbody>
</table>
Appendix E

Bandura’s Self-Efficacy Scale

**Financial Acumen Self-Efficacy Rating**

Rate your degree of confidence by recording a number from 0 to 100 using the scale given below:

0  10  20  30  40  50  60  70  80  90  100

<table>
<thead>
<tr>
<th>Cannot do at all</th>
<th>Moderately can do</th>
<th>Highly certain can do</th>
</tr>
</thead>
</table>

As a nurse leader, I feel confident that I can…

<table>
<thead>
<tr>
<th>Create and monitor a budget</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Analyze a budget and explain variances</td>
<td></td>
</tr>
<tr>
<td>Conduct ongoing evaluation of productivity</td>
<td></td>
</tr>
<tr>
<td>Differentiate between capital vs operational budgets</td>
<td></td>
</tr>
<tr>
<td>Differentiate between variable and fixed costs</td>
<td></td>
</tr>
<tr>
<td>Evaluate staffing patterns and adjust staffing to patient needs</td>
<td></td>
</tr>
<tr>
<td>Explain the variables that effective operational budgets to my employees</td>
<td></td>
</tr>
</tbody>
</table>

Appendix F

Knowledge Acquisition Pre/Post Intervention Result

![Knowledge Acquisition Chart]

Mean Score

<table>
<thead>
<tr>
<th>Part 1</th>
<th>Part 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-intervention</td>
<td>8.6</td>
</tr>
<tr>
<td>Post-intervention</td>
<td>9.4</td>
</tr>
</tbody>
</table>
### Appendix G

Self Efficacy Pre/Post Intervention Results Cohort 1

<table>
<thead>
<tr>
<th>As a nurse leader I feel confident that I can ...</th>
<th>Pre/Post</th>
<th>Mean</th>
<th>Diff Mean</th>
<th>% Change in Mean</th>
<th>T-test</th>
<th>Two-sided p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Create and monitor a budget</td>
<td>Pre</td>
<td>44.32</td>
<td>23.47</td>
<td>53%</td>
<td>-4.92</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td></td>
<td>Post</td>
<td>67.79</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Analyze a budget and explain variances</td>
<td>Pre</td>
<td>57.05</td>
<td>18</td>
<td>32%</td>
<td>-4.90</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td></td>
<td>Post</td>
<td>75.05</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Conduct ongoing evaluation of productivity</td>
<td>Pre</td>
<td>57.21</td>
<td>19.74</td>
<td>35%</td>
<td>-4.53</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td></td>
<td>Post</td>
<td>76.95</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Differentiate between capital vs operational budgets</td>
<td>Pre</td>
<td>61.16</td>
<td>31.26</td>
<td>51%</td>
<td>-6.42</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td></td>
<td>Post</td>
<td>92.42</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Differentiate between variable vs fixed costs</td>
<td>Pre</td>
<td>63.00</td>
<td>28.37</td>
<td>45%</td>
<td>-5.72</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td></td>
<td>Post</td>
<td>91.37</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Establish staffing patterns and adjust staffing to patient needs</td>
<td>Pre</td>
<td>75.74</td>
<td>11.63</td>
<td>15%</td>
<td>-3.26</td>
<td>0.004</td>
</tr>
<tr>
<td></td>
<td>Post</td>
<td>87.37</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Explain the variables that affect operational budgets to my employees</td>
<td>Pre</td>
<td>65.68</td>
<td>20</td>
<td>30%</td>
<td>-5.32</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td></td>
<td>Post</td>
<td>85.68</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>
## Appendix H

Self Efficacy Pre/Post Intervention Results Cohort 2

### Financial Acumen Confidence Level: Bandura's Self-Efficacy Rating Scale

<table>
<thead>
<tr>
<th>As a nurse leader I feel confident that I can ...</th>
<th>Pre/Post</th>
<th>Mean</th>
<th>Diff Mean</th>
<th>% Change in Mean</th>
<th>T-test</th>
<th>Two-sided p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Create and monitor a budget</td>
<td>Pre</td>
<td>40.93</td>
<td>18.33</td>
<td>45%</td>
<td>-4.13</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td></td>
<td>Post</td>
<td>59.26</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Analyze a budget and explain variances</td>
<td>Pre</td>
<td>46.07</td>
<td>18.04</td>
<td>39%</td>
<td>-3.84</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td></td>
<td>Post</td>
<td>64.11</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Conduct ongoing evaluation of productivity</td>
<td>Pre</td>
<td>49.41</td>
<td>13.22</td>
<td>27%</td>
<td>-2.74</td>
<td>0.011</td>
</tr>
<tr>
<td></td>
<td>Post</td>
<td>62.63</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Differentiate between capital vs operational budgets</td>
<td>Pre</td>
<td>61.22</td>
<td>22.93</td>
<td>37%</td>
<td>-4.64</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td></td>
<td>Post</td>
<td>84.15</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Differentiate between variable vs fixed costs</td>
<td>Pre</td>
<td>54.63</td>
<td>24.89</td>
<td>46%</td>
<td>-5.41</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td></td>
<td>Post</td>
<td>79.52</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Establish staffing patterns and adjust staffing to patient needs</td>
<td>Pre</td>
<td>58.33</td>
<td>17</td>
<td>29%</td>
<td>-3.02</td>
<td>0.006</td>
</tr>
<tr>
<td></td>
<td>Post</td>
<td>75.33</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Explain the variables that affect operational budgets to my employees</td>
<td>Pre</td>
<td>49.93</td>
<td>17.51</td>
<td>35%</td>
<td>-4.06</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td></td>
<td>Post</td>
<td>67.44</td>
<td></td>
<td></td>
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<td></td>
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</tbody>
</table>
## Appendix I

Self Efficacy Pre/Post Intervention Results Cohort 1 & 2

### Financial Acumen Confidence Level: Bandura’s Self-Efficacy Rating Scale

#### Combined Cohort 1 & 2

<table>
<thead>
<tr>
<th>As a nurse leader I feel confident that I can ...</th>
<th>Pre/Post</th>
<th>Mean</th>
<th>Diff Mean</th>
<th>% Change in Mean</th>
<th>T-test</th>
<th>Two-sided p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Create and monitor a budget</td>
<td>Pre</td>
<td>42.33</td>
<td>20.45</td>
<td>48%</td>
<td>-6.29</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td></td>
<td>Post</td>
<td>62.78</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Analyze a budget and explain variances</td>
<td>Pre</td>
<td>50.61</td>
<td>18.02</td>
<td>36%</td>
<td>-5.78</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td></td>
<td>Post</td>
<td>68.63</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Conduct ongoing evaluation of productivity</td>
<td>Pre</td>
<td>52.63</td>
<td>15.91</td>
<td>30%</td>
<td>-4.74</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td></td>
<td>Post</td>
<td>68.54</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Differentiate between capital vs operational budgets</td>
<td>Pre</td>
<td>61.2</td>
<td>26.37</td>
<td>43%</td>
<td>-7.43</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td></td>
<td>Post</td>
<td>87.57</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Differentiate between variable vs fixed costs</td>
<td>Pre</td>
<td>58.09</td>
<td>26.32</td>
<td>45%</td>
<td>-7.83</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td></td>
<td>Post</td>
<td>84.41</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Establish staffing patterns and adjust staffing to patient needs</td>
<td>Pre</td>
<td>65.52</td>
<td>14.78</td>
<td>23%</td>
<td>-4.10</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td></td>
<td>Post</td>
<td>80.3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Explain the variables that affect operational budgets to my employees</td>
<td>Pre</td>
<td>56.43</td>
<td>18.55</td>
<td>33%</td>
<td>-6.29</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td></td>
<td>Post</td>
<td>74.98</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Appendix J

Self Efficacy Pre/Post Intervention Results Cohort 1 & 2

Self-efficacy
"As a nurse leader, I can..."

<table>
<thead>
<tr>
<th>Task</th>
<th>Pre-intervention</th>
<th>Post-intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Create &amp; monitor a budget</td>
<td>42.3</td>
<td>75.0</td>
</tr>
<tr>
<td>Analyze &amp; explain budget variances</td>
<td>50.6</td>
<td>62.8</td>
</tr>
<tr>
<td>Conduct ongoing evaluation of productivity</td>
<td>52.6</td>
<td>68.5</td>
</tr>
<tr>
<td>Differentiate between capital vs operational budgets</td>
<td>61.2</td>
<td>87.6</td>
</tr>
<tr>
<td>Differentiate between variable and fixed costs</td>
<td>58.1</td>
<td>84.4</td>
</tr>
<tr>
<td>Evaluate staffing patterns &amp; adjust staffing to patient needs</td>
<td>65.5</td>
<td>80.3</td>
</tr>
<tr>
<td>Explain the variables that affect operational budgets to staff</td>
<td>56.4</td>
<td></td>
</tr>
</tbody>
</table>
# Appendix K

Experience and Gender Comparative Analysis

## Part 1 Pre-Test to Part 1 Post-Test

<table>
<thead>
<tr>
<th>Yrs of Experience</th>
<th>N</th>
<th>Part 1 Pre-Test</th>
<th>Part 1 Post-Test</th>
<th>% Increase Mean Scores</th>
<th>Part 2 Pre-Test</th>
<th>Part 2 Post-Test</th>
<th>% Increase Mean Scores</th>
<th>% Increase in Confidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-3 yrs</td>
<td>17</td>
<td>8</td>
<td>9</td>
<td>11%</td>
<td>6</td>
<td>8</td>
<td>27%</td>
<td>33%</td>
</tr>
<tr>
<td>4-10 yrs</td>
<td>18</td>
<td>9</td>
<td>10</td>
<td>6%</td>
<td>6</td>
<td>8</td>
<td>24%</td>
<td>21%</td>
</tr>
<tr>
<td>&gt; 10yrs</td>
<td>11</td>
<td>9</td>
<td>9</td>
<td>4%</td>
<td>5</td>
<td>8</td>
<td>37%</td>
<td>26%</td>
</tr>
</tbody>
</table>

## Part 2 Pre-Test to Part 2 Post-Test

<table>
<thead>
<tr>
<th>Yrs of Experience</th>
<th>N</th>
<th>Part 1 Pre-Test</th>
<th>Part 1 Post-Test</th>
<th>% Increase Mean Scores</th>
<th>Part 2 Pre-Test</th>
<th>Part 2 Post-Test</th>
<th>% Increase Mean Scores</th>
<th>% Increase in Confidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-3 yrs</td>
<td>17</td>
<td>8</td>
<td>9</td>
<td>11%</td>
<td>6</td>
<td>8</td>
<td>27%</td>
<td>33%</td>
</tr>
<tr>
<td>4-10 yrs</td>
<td>18</td>
<td>9</td>
<td>10</td>
<td>6%</td>
<td>6</td>
<td>8</td>
<td>24%</td>
<td>21%</td>
</tr>
<tr>
<td>&gt; 10yrs</td>
<td>11</td>
<td>9</td>
<td>9</td>
<td>4%</td>
<td>5</td>
<td>8</td>
<td>37%</td>
<td>26%</td>
</tr>
</tbody>
</table>

## Gender

<table>
<thead>
<tr>
<th>Gender</th>
<th>N</th>
<th>Part 1 Pre-Test</th>
<th>Part 1 Post-Test</th>
<th>% Increase Mean Scores</th>
<th>Part 2 Pre-Test</th>
<th>Part 2 Post-Test</th>
<th>% Increase Mean Scores</th>
<th>% Increase in Confidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>4</td>
<td>8</td>
<td>9</td>
<td>11%</td>
<td>6</td>
<td>8</td>
<td>25%</td>
<td>14%</td>
</tr>
<tr>
<td>Female</td>
<td>42</td>
<td>9</td>
<td>10</td>
<td>10%</td>
<td>5</td>
<td>8</td>
<td>38%</td>
<td>28%</td>
</tr>
</tbody>
</table>
Appendix L

Post Program Evaluation

The program met my expectations.

- Strongly Agree: 25
- Agree: 17
- Neither Agree Nor Disagree: 2
- Disagree: 1
- Strongly Disagree: 1

The instructors engaged the audience and the course was interactive.

- Strongly Agree: 30
- Agree: 13
- Neither Agree Nor Disagree: 1
- Disagree: 2

The instructors demonstrated in-depth knowledge of the subject.

- Strongly Agree: 31
- Agree: 15

The program objectives were clearly stated.

- Strongly Agree: 29
- Agree: 16
- Neither Agree Nor Disagree: 1
- Disagree: 1

The content of the educational program was organized and easy to follow.

- Strongly Agree: 24
- Agree: 18
- Neither Agree Nor Disagree: 1
- Disagree: 1

The content of the educational program is relevant to my daily responsibilities as a nurse leader.

- Strongly Agree: 29
- Agree: 16
- Neither Agree Nor Disagree: 1
- Disagree: 1

53