Establishing An Infrastructure For Nursing Innovation In A Large Urban Magnet® hospital

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Establishing an Infrastructure for Nursing Innovation
in a large urban Magnet® Hospital

Submitted to the Faculty
Yale University School of Nursing

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

Gregory Eichelzer

May 20, 2024
This DNP Project is accepted in partial fulfillment of the requirements for the degree Doctor of Nursing Practice.

Mary Ann Camilleri

Date May 16, 2024
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May 16, 2024
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Special thanks are extended to my mother, a seasoned nurse with over 60 years of experience, whose unwavering support and encouragement have been a constant source of strength and motivation. Her enduring belief in me and her mantra to "go for it" have been guiding lights, propelling me forward in pursuit of my goals.

To all those who have supported, encouraged, and believed in me throughout this journey, I extend my heartfelt appreciation. Your contributions have been invaluable, and I am profoundly grateful for your presence in my life.
Abstract

Establishing an Infrastructure for Nursing Innovation in a large urban Magnet® Hospital

Problem and Context: Despite nursing's potential to contribute valuable solutions to healthcare challenges, dedicated nursing innovation development programs are scarce. This scarcity, compounded by a lack of nursing leadership competencies in fostering innovation, inhibits nurses’ ability to translate innovative ideas into clinical practice effectively.

Intervention: This Doctor of Nursing Practice (DNP) project addressed this gap by establishing a structure, process, and technology access based on industry-standard for nursing innovation in the inpatient setting.

Aims and Methods: The project aimed to establish a structure, process, and technology access based on industry-standard for nursing innovation in the inpatient setting, to implement and evaluate the infrastructure and make recommendations for scaling and sustainability of the nursing innovation infrastructure.

Outcomes/Results: Twelve innovations were submitted to an innovation platform, with four progressing for further development. Users found the platform easy to use and intend to use it again. A culture of innovation existed at this Magnet organization, indicated by pre and post assessment high scoring culture of innovation surveys. However, after receiving detailed information about the complex innovation process, nurses’ intention to participate in innovation decreased slightly.

Implications: This nursing innovation program underscores the importance of cultivating nursing voices within the healthcare innovation landscape. Establishing such ecosystems not only harnesses nursing ideas' transformative potential but also enhances healthcare delivery by integrating frontline perspectives into innovation processes.
# Table of Contents

Part 1 Introduction.................................................................................................................. 1

- Problem Statement ............................................................................................................... 1
- Significance .......................................................................................................................... 2
- Review of Literature .......................................................................................................... 3
- Search Strategy .................................................................................................................... 3
- Synthesis of Literature ........................................................................................................ 3
- Literature Findings .............................................................................................................. 4
  - Innovation Definitions ....................................................................................................... 4
  - Healthcare Related Innovation Theories .......................................................................... 6
  - Nursing Innovation and Leadership ................................................................................. 7
  - Centers of Nursing Innovation and Models ..................................................................... 8
  - Significance of Magnet® Hospitals and Innovation ......................................................... 9
  - Impacts of Nursing Innovation ....................................................................................... 10
- Project Model ....................................................................................................................... 10
- Organizational Description and Assessment .................................................................... 11
  - Strengths, Weaknesses, Opportunities, and Threats Analysis ...................................... 12
- Project Goals and Aims ....................................................................................................... 13

Part 2 Methods....................................................................................................................... 14

- Overview of Methods ......................................................................................................... 14
- Project Goals and Aims ....................................................................................................... 14
- Aims and Associated Methods ......................................................................................... 14

Part 3 Systems, Policy, and Business Applications............................................................... 29

- Systems Overview: Leadership, Business, Policy ............................................................ 29
- The Business Case and Leadership Engagement ............................................................. 29
- Business/Financial Considerations ................................................................................... 31
Part 1

Establishing an Infrastructure for Nursing Innovation in a large urban Magnet® Hospital

The requirement for nurses to be competent and participative in innovation is increasing. The American Nurses Association recognizes innovation with an advisory board, and the American Nurses Credentialing Center Magnet® Recognition Program includes innovation on their model (American Nurses Association, 2022; American Nurses Credentialing Center, 2022). The National Academies of Science, Engineering, and Medicine's Future of Nursing 2020-2030 establishes the need for increased nursing innovation and charges nurse leaders to encourage nursing innovation (National Academies of Sciences, 2021). A professional organization and index dedicated to nursing innovation amplifies the evolution of nursing innovation (Lemberger, 2022; Society of Nurse Scientists, Innovators, Enterpreneurs, and Leaders, 2022a). Nurses' recent innovations during the COVID-19 pandemic accent and complement the fact that nurses are the most trusted professionals for the 20th consecutive year (Masson, 2022; Woolliscroft, 2020). Nurses play a critical role in patient outcomes due to their pivotal position with respect to health promotion, access, and equity. Although statistics related to the impact of innovation on the quadruple aim of value, positive patient outcomes, provider satisfaction, and patient satisfaction are limited, there is a developmental trajectory and mandates towards using innovation to create quality patient care. Supporting innovation in nursing and encouraging nurses to create new solutions to our current healthcare crisis will assist the US in providing quality patient care (Barr et al., 2021; Hughes, 2006; Marjanovic et al., 2018; Melnyk & Raderstorf, 2019; National Academies of Sciences & Medicine, 2021; Warmelink et al., 2015).

Problem Statement

Innovative ideas by nurses rarely transform into clinical practice because dedicated nursing innovation development programs are rare. An assessment of established nursing innovation programs reveals that only seven dedicated nursing innovation programs exist
nationally while forty-three non-nursing inclusive healthcare innovation centers exist nationwide. This disparity prevents nursing from providing valuable solutions to healthcare issues, although nursing is best equipped to derive healthcare solutions (Barr et al., 2021; Dyrda, 2019; Hughes, 2006). Additionally, nursing leadership lacks the competencies to provide an innovative environment. This compounds the problem of nursing access to innovation development (White, 2016). Nurses desire to innovate, but do not have the ecosystem, leadership, or process to support them (Hughes, 2006). To address this gap, this DNP project will establish an electronic platform creating nursing innovation participation and pathways for inpatient nurses in a large urban Magnet® hospital.

**Significance**

Nurses do not work efficiently due to operational failures in the workplace. Forty-four minutes of every 8-hour shift, nurses are performing a workaround due to something being incorrect, damaged, ambiguous, missing, or miscommunicated. For the full-time bedside nurse this totals over 190 hours of lost patient care time and millions of dollars of cost to hospitals annually. Additionally, operational failures lead to workarounds and contribute to negative patient outcomes (Tucker et al., 2020; Vanbelleghem, 2022).

The US is failing at meeting the quadruple aim of quality patient care. The United States’ health care system is the most expensive healthcare system in the world with a gross domestic product of 16.9% - more than half the average of comparable countries. However, with the large spend on healthcare, the US does not perform well. Compared to socio-economic counterparts worldwide, the US life expectancy is 2 years less than, and the lowest of all similar countries at 78.6 years. Centers for Medicare and Medicaid base their payments on patient satisfaction scores, and alarmingly, 43% of survey respondents in the US stated that they were not very/not at all satisfied with the country’s national health system. Compared to peer nations, the U.S. has among the highest number of hospitalizations from preventable causes such as, diabetes and hypertension, and the highest rate of avoidable deaths. Innovative solutions to these quality
healthcare failures are called for in the US and nurses play a significant role in improving these challenges by taking part in the healthcare innovation process. (Alharbi et al., 2019; Ipsos, 2020; Levinson, 2010; Lluch et al., 2022; Tikkanen & Abrams, 2020).

Embracing innovation in business and healthcare has positive implications. Minor (2017) demonstrated 16 out of 28 companies who created a culture of innovation by collecting ideas from employees had a positive correlation with increased profit margins and idea submission rates. A climate of patient safety is correlated with an innovative working climate as determined by Weng et al. (2015). Employees of companies that trust their employers and are encouraged to participate in decisions, both foundations of innovation, have higher job satisfaction scores (Appelbaum et al., 2013). In a cross sectional study of 120 hospitals nation-wide Dobrzykowski (2015) identified a positive correlation between innovation orientation and patient satisfaction.

Review of Literature

Search Strategy

A search was conducted using three electronic databases including, PubMed, Elsevier’s SCOPUS, and Business Source Complete. Inclusionary criteria were articles that addressed innovation theories, innovation definitions, leadership impacts on innovation, healthcare innovation best practice models, current nursing innovation center models and narrowed to include the years 2006-2022. The keywords searched were nursing innovation, innovation centers, healthcare innovation, innovation leadership, Magnet® nursing, and innovation theories. Initial results yielded 237 articles. No duplicates were noted. Following title and abstract review, 90 articles were reviewed for relevance. The process for identifying articles is shown using the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) flowchart. In total, 38 articles were used for this review of literature and 12 for the Evidence Matrix.

Synthesis of Literature
Study designs included descriptive narratives, case studies, cross-sectional surveys, and cohort designs. Levels of evidence ranged from Level III to Level V using Joanna Briggs Institute (JBI) Critical Appraisal Tools. The concept of nursing innovation, although not new, is newly being examined. Although business data and theories about general innovation are readily available, data supporting objective patient or staff satisfaction outcomes directly related to nursing innovation are not supported in nursing literature. Recent articles lay the foundation for the requirements of a nursing innovation center (Albert, 2018; Barr et al., 2021). Literature frequently links leadership to innovation success and stresses the importance of leadership behaviors and competencies in nursing innovation promotion (Afsar & Waheed Ali, 2020; Masood & Afsar, 2017; Weintraub & McKee, 2019). The case for promoting nursing innovation is well-established through professional organizations, government agencies, and experts in the field (American Nurses Association, 2022; American Nurses Credentialing Center, 2022; Society of Nurse Scientists, Innovators, Entrepreneurs and Leaders, 2022). The innovative development process has been tested and proven effective, with established models for innovation development (Albert, 2018; Barr et al., 2021; Siefert, 2019). Innovation definitions vary between industry and context, with the newest nursing innovation definitions spawning from professional organizations (Drucker, 1985; Society of Nurse Scientists, Innovators, Entrepreneurs, and Leaders, 2022; Weberg, 2009).

Strengths of the studies included strong statistical analyses of cross-sectional surveys, the use of standardized validated tools for surveys, and standardized processes for qualitative thematic analysis. Weaknesses are related to geographic limitations, no power analyses, and small sample sizes.

**Literature Findings**

**Innovation Definitions.** The definition of innovation varies depending on setting. Within the business sector innovation is consistently defined by product development (Dyer et al.,
2019; Planas-Campany et al., 2020). Healthcare has taken some basic concepts from business definitions of innovation and focused their definitions on the benefits innovations can have on a role, group, or organization (Kaya et al., 2015). Although the definition of healthcare innovation is also varied, it is better defined than in the business sector. Healthcare’s definition, as suggested by Weberg (2009 p. 236), is “something new or perceived new by the population experiencing the innovation, that has the potential to drive change and redefine healthcare’s economic and/or social potential”.

With the increased research surrounding healthcare innovation, nursing innovation research has also increased. The American Nurses Association (2022) now has a dedicated nursing innovation team and advisory board. In 2019, the Society of Nurse Scientists, Innovators, Entrepreneurs and Leaders (SONSIEL) was conceived. This organization seeks to inspire, educate, and elevate nurses as innovators and defines nursing innovation within healthcare as “the novel, impactful, scalable, and accessible solutions for improving healthcare delivery and health outcomes. Innovations can be products, processes, services, and platforms” (Society of Nurse Scientists, Innovators, Entrepreneurs and Leaders, 2022b).

The discussion of invention versus innovation gives context to the definition of innovation. Considering the definitions of Drucker (1985) and discussions by Weberg (2009 p. 236) an invention itself it not an innovation. A delineation between these two concepts is the social impact or the ability to create change. Drucker uses many examples in his writings to demonstrate this difference. For example, the common zipper was invented 10 years prior to its roll out to the public. It was not until it was integrated in military uniforms in the 1940s that it created a social impact and created change. The lightbulb is another example demonstrating this difference. Edison had knowledge of the idea of the lightbulb from the mid 1860s and waited for the research to develop further until he created his perfect product, which had the ability to be mass produced by 1879. Therefore, innovation is constant and a process, and when something transforms from invention to innovation, the innovation can make improvements
Healthcare Related Innovation Theories. Theories of innovation discuss processes related to innovation, behaviors related to innovative individuals, and sources of innovative ideas (Drucker, 1985; Dyer et al., 2019). In Drucker’s writings he discusses the seven sources of innovative opportunity within an enterprise or public service institution, for example, a hospital. He separates these seven sources into two distinct groups: sources within the enterprise and sources outside the enterprise. Drucker postulates that opportunity for innovation inside the institution are an unexpected success or failure, incongruities in processes, meet process need, or are unpredicted changes in market or industry structure. In his second group, he states opportunities for innovation outside the institution are related to population changes, perception changes, or new knowledge. He believes considering all these sources is practicing systematic innovation. Drucker theorizes that systematic innovation is organized and is the social and economic analysis these opportunities might have on innovation.

Drucker refers to healthcare in his writings to demonstrate that his thoughts and theories can easily be translated into healthcare. To demonstrate his theory of incongruities, he discusses the incongruity of the economic performance of healthcare. With the increase in demand of healthcare, one would expect economic performance to go up. Instead, this is incongruent, and economic performance in healthcare is down (Drucker, 1985). His innovation opportunity theories related to population changes, meeting process need, and unpredicted changes in market or industry structure also have applications to healthcare and nursing innovation.

A current innovation theory describes the behaviors one must exhibit to be innovative. Dyer et al. (2019) describe 5 discovery skills of innovation: associating, questioning, observing, networking, and experimenting. They state the associating skill triggers the other skills of questioning, observing, networking, and experimenting. They describe association as having the ability to connect different disciplines, fields, problems, or ideas that are thought to be unrelated. These authors also use examples from the healthcare sector to illustrate their thoughts. To
demonstrate association, an example of a consultant with manufacturing expertise is used as he associated manufacturing touch point efficiencies with patient throughput in a hospital. The skill to associate the manufacturing industry to this part of healthcare created efficiencies and ultimately saved the hospital money. Dyer et al. (2019) discusses additional innovation skills of questioning, observing, networking, and experimenting and highlight the importance of being curious and inquisitive as an innovator. They stress the importance and value that can be gained by observing, to compare current processes and seek potential to improve these processes. Networking is a valued skill because it can create opportunity through seeing diverse ideas and perspectives. The discussion of experimenting segregated into three domains: gaining new experiences, taking apart products or processes, and testing through pilots or prototypes. Much of Dyer et al has similarities to the Plan, Do, Study, Act performance improvement model familiar to nursing.

**Nursing Innovation and Leadership.** A common theme related to nursing innovation is the importance of leadership and its relationship to nursing innovation promotion. Transformational leadership has been stated to have a both a direct and indirect positive impact on nursing innovation (Afsar & Waheed Ali, 2020; Weng et al., 2015). Furthermore, leaders who want to promote nursing innovation embody specific behaviors such as boundary spanning, risk taking, visioning, leveraging opportunity, adaptation, coordinating information, and facilitating innovation (Weberg & Weberg, 2014). Nursing leaders do not possess competencies that promote nursing innovation. The leadership competencies of conveying a compelling vision, resiliency, and opportunity recognition promote nursing innovation. These competencies are critical to innovation success and need to be incorporated into educational programs and continuing education offerings for nurse leaders (White, 2016). These innovation leadership competencies, identified by White, were some of the first to be noted within the realm of nursing leadership. Leadership foundations of trust and psychological empowerment also impact nursing innovation in positive ways. In a study by Masood and Afsar (2017), increased leader
trust was associated with increased knowledge sharing and innovative work behavior. Afsar and Waheed Ali (2020) surveyed 338 employees and found over 50% stated that transformational leadership behaviors from their supervisor created an innovative work environment. A study by Weng et al. (2015), indicated that transformational leadership affects nursing innovation via indirect influences of patient safety climate and innovation climate. This study used robust statistical analysis to validate the mediating effects of transformational leadership on nursing innovation.

**Centers of Nursing Innovation and Models.** Innovation programs and centers dedicated to nursing are not prevalent in the United States. In an early article on such centers, Albert (2018) states that a nursing innovation center must have clear planning, leadership backing, and trained personnel. More recently, a model designed by Barr et al. (2021) is novel in its identification and illustration of themes for a nursing innovation center. Barr et al. (2021) identified organizational culture, sustainability, and impact themes for nursing innovation centers through their narrative analysis of seven nursing innovation centers. In their working model they identified, funding, partnerships, collaboration, diversity, leadership, and engagement as creating the foundation of successful nursing innovation centers. Within the model, an ecosystem including competency, engagement, mentoring/coaching, and structures of innovation were identified as well.

Models of innovation development are common. However, models related to healthcare innovation design and development are limited (Siefert, 2019). The Yale Center for Biomedical Innovation and Technology (CBIT) has studied similar healthcare innovation centers and developed a model based on best practices from these centers. In CBIT's review of Healthcare Innovation Centers they analyzed common processes from Stanford, MIT, and the National Institutes of Health, and The Coulter Foundation. The center subsequently developed their own best practice model. Yale’s CBIT has had over 3,000 submissions since 2014 with some being commercialized and raising millions of dollars (Siefert, 2019). The Cleveland Clinic Health
System Office of Nursing Research and Innovation is a leading nursing innovation center in the United States being one of the first nursing innovation programs in the country since 2013 (Albert, 2018; Barr et al., 2021). Both the CBIT and the Cleveland Clinic use electronic idea submission as a first step in the innovation development journey. However, literature on an established nursing centric innovation development pathway is still absent in the relevant literature. This can be attributed to the relatively novel idea of nursing innovation independent of earlier design-thinking models, and disruptive innovation literature from the business sector (Roddy & Polfuss, 2020).

Significance of Magnet® Hospitals and Innovation. Magnet hospitals epitomize excellence in nursing care, characterized by a commitment to advancing nursing practice through the integration of new knowledge and improvement sources of evidence (American Nurses Credentialing Center, 2023). These institutions prioritize continuous learning and innovation, fostering environments where nurses are empowered to engage in research, evidence-based practice, and quality improvement initiatives (American Nurses Credentialing Center, 2023). By actively seeking out and applying the latest evidence-based interventions and best practices, Magnet hospitals ensure that their patients receive the highest standard of care, leading to better outcomes and experiences (American Nurses Credentialing Center, 2022).

A cornerstone of Magnet hospitals is their dedication to creating a culture of inquiry and lifelong learning among nursing staff (American Nurses Credentialing Center, 2023). These institutions invest in ongoing education and professional development opportunities, encouraging nurses to stay abreast of the latest research findings and clinical innovations (American Nurses Credentialing Center, 2023). By supporting initiatives such as mentorship programs, research fellowships, participation in scholarly activities, and innovation activities, Magnet hospitals cultivate a workforce that not only delivers high-quality care but also contributes to the generation of new knowledge within the field of nursing. Through collaborative
partnerships with academic institutions and involvement in research consortia, Magnet hospitals serve as hubs of discovery, driving advancements in patient care and nursing practice with broad implications for healthcare delivery (American Nurses Credentialing Center, 2023).

**Impacts of Nursing Innovation.** Direct impacts of nursing innovation on patient or staff satisfaction outcomes is limited. Raderstorf (2020) found no significant impact of an innovation studio on nurse job satisfaction or intent to stay in his 6-month study on participants within an innovation studio at The Ohio State University. However, a small sample size limited the results. The indirect and direct impacts of nursing innovation on return of investment, reduction of healthcare cost, revenue creation, patient satisfaction, and staff satisfaction are yet to be proven. However, the topic has been written about extensively by nursing experts (Cianelli, 2016; Clipper & Murphy Dawson, 2018; Melnyk & Raderstorf, 2019; Weberg & Davidson, 2021).

**Project Model**

The project model used for this DNP project was a logic model. **Situationally,** the organization leads nursing practice as evidenced by having a dedicated nursing institute and a supportive executive nursing leadership team. The Vision and Values of the organization include innovation. Additionally, the Mission of the organization is to provide quality patient care. To continue to lead nursing practice and provide quality patient care, the organization must implement a nursing innovation platform and pathway and make this a priority.

The **inputs** for the project will include platform and pathway development planning, dedicated staff time to innovation efforts, technology to support platform, a partnership with an innovation platform software company, and financial support for the platform. This project will reach house-wide shared leadership councils, chairs, advisors and mentors, nursing leadership, and all registered nurses of the main medical center. Activities will include innovation workshops at shared leadership meetings, training on the platform, facilitating use of the platform, creating engagement for nursing innovation, and customizing the electronic innovation platform software.
Outputs are short term, medium term, and long term. Examples of short-term outputs include increased innovation awareness, increased innovation interest, increased innovation knowledge, and increased nursing participation in innovation. Medium term outputs include increased sense of well-being and job satisfaction by RNs, new processes and practices developed, and dissemination of best practices to national conferences and peer reviewed journals. Long term outputs impact quality patient care as evidenced by lower costs, increased patient satisfaction, increased staff satisfaction and increased positive patient outcomes.

Assumptions and external factors are also part of the logic model. Assumed in this model is adoption of platform, funding for platform, agenda availability for council meetings, platform ease of use, and mid-level leadership engagement. External factors to be considered include COVID-19 surges, a 6th Magnet redesignation, and continued stable executive leadership support.

Organizational Description and Assessment

The organization is a large, urban multi-hospital nonprofit academic healthcare organization in Southern California which consists of two main hospitals and affiliations with two other regional hospitals. The organization is ranked nationally in 11 specialties and is the second-best hospital in the country according to US News and World Reports. The organization employs 16,859 people, of which nearly 3,000 are registered nurses with an annual budget of over 5 billion dollars (US News and World Reports Best Hospitals, 2022). Registered nurses at the main medical center serve inpatient areas and outpatient areas at the bedside as well as in nursing leadership positions.

The organization has been Magnet® recognized six times by the American Nurses Credentialing Center (ANCC) and is preparing its 7th application with an expected site visit in Spring 2026. Only 1.5% of Magnet® organizations have received a 7-time recognition. The medical center’s multiple magnet recognitions demonstrates a compatible culture for creating
novel ideas, as the Magnet® model includes new knowledge and innovations (American Nurses Credentialing Center, 2022).

The compatible culture and multiple designations create the need for this project. As being one of the most recognized hospitals in the Magnet® program, the ANCC expects multi-recognized centers to be leaders in the nursing profession creating novel pathways for nurses to work at top of scope (American Nurses Credentialing Center, 2022).

**Strengths, Weaknesses, Opportunities, and Threats Analysis**

A strengths, weaknesses, opportunities, and threats (SWOT) analysis was conducted for this project. It is an established organizational assessment process creating a matrix of internal and external factors which are both helpful and harmful (Gurl, 2017).

The organization’s strengths are plentiful. Implementing a nursing innovation institute is part of the 2021-25 nursing strategic plan. Included in the mission and vision is the word “innovation,” with innovation being noted as a specific value. The executive nursing team is united and supportive of meeting the nursing strategic plan and supporting this project. The organization has an endowed nursing institute, The Brawerman Nursing Institute, committed to education, research, and innovation. The organizational innovation accelerator is a leading healthcare innovation center in the United States and can serve as a resource to this project. Quality patient care is part of the mission of the organization. Innovation enhances quality patient care. The shared governance structure of the organization standardizes communication for all nurses.

**Weaknesses** include no baseline innovation education program in the organization, long approval processes, and siloed innovation efforts. Currently, there is no baseline innovation education as part of nursing development. The large system creates a long approval process and silos of work. Finally, nursing has been left out of most innovation development activities for unknown reasons. For example, nurses thus far do not have any official roles within the organization’s innovation center.
An opportunity to put the organization at the forefront of nursing practice is implementing innovation development pathways for their front-line nurses. Allowing nursing to contribute to innovation process can lead to better patient outcomes, lower healthcare costs, higher job satisfaction, and higher patient satisfaction. Although formal nursing innovation pathways are rare in hospitals, creating innovation pathways would give the organization’s nursing the opportunity to excel amongst industry competitors. An established platform called Service Center is designed for enterprises to electronically accept requests from employees and consequently manage and track the request through the innovation process. The creation of an electronic platform for nursing innovative ideas could signify the organization as a leader in nursing innovation.

Staffing bedside nurses is a nationwide challenge and is an identified threat. Competitors pulling staff to travel contracts or more valuable offers threatens the participation of bedside nurses from participating in innovation education or activities. A local competitor to the organization, already has an innovation program and is ahead in the innovation discipline. Finally, COVID-19 surges are unpredictable and can displace priorities and staff availability to adopt new projects and can threaten the success of this project.

Project Goals and Aims

This DNP project established an infrastructure for nursing innovation for inpatient nurses in a large urban Magnet® hospital.

The aims of this project were:

1. To establish a structure, process and technology access based on industry-standard for nursing innovation in the inpatient setting.
2. To implement and evaluate the infrastructure.
3. To make recommendations for scaling and sustainability of the nursing innovation infrastructure.
Part 2

Methods

Overview of Methods

This quality improvement project developed and implemented an electronic platform and infrastructure for nursing innovation in a large urban Magnet® Hospital. This electronic platform provided nurses the opportunity to ideate and submit novel ideas for processes, products, or services to improve health outcomes. Participants included any registered nurse who is employed by the hospital, using the shared governance network as a communication pathway. The outcomes assessed included increased nursing awareness and interest in perceived knowledge of, and participation in nursing innovation projects or initiatives and qualities of electronic platform submissions.

Project Goals and Aims

This DNP project established an infrastructure for nursing innovation for inpatient nurses in a large urban Magnet® hospital.

The aims of this project were:

1. To establish a structure, process and technology access based on industry-standard for nursing innovation in the inpatient setting.
2. To implement and evaluate the infrastructure.
3. To make recommendations for scaling and sustainability of the nursing innovation infrastructure.

Aims and Associated Methods

Aim 1. To establish a structure, process and technology access based on industry-standard for nursing innovation in the inpatient setting.

Development

External Network Development and Site Visit
• As part of the planning process to establish a structure, process and technology access, a site visit to an established nursing innovation program was necessary. A leading institution where an established nursing innovation program has been in existence since 2013, was chosen. Professional contacts were made with the institution, including the Nursing Innovation Coordinator. Additionally, the organization holds an annual Nursing Innovation Summit that includes national speakers on the topic of innovation. This author, acting as the project leader, scheduled a site visit to the organization and nursing innovation summit from October 24th to October 26th, 2022. During the site visit the project leader reviewed innovation pathways with the institute’s nursing innovation coordinator and attended the Nursing Innovation Summit where he heard national speakers on nursing innovation and networked with national nursing leaders on the topic of nursing innovation.

System Network Development

• In addition to the external networking development, system networking development was also necessary in the planning process of this project. As the project leader, the author established connections at the organization’s innovation division, a key internal innovation development resource. This collaboration was initiated as part of a DNP Leadership course, which mandated leadership immersion hours. The system networking efforts commenced between September and December 2022, during which the project leader was matched with the Vice President of the innovation division for leadership hours. A notable activity of this engagement was the attendance to the innovation division’s strategic planning event spanning 48 hours in September 2022. Here, the project leader created relationships with members of the innovation division team and actively contributed to the event’s strategic planning by summarizing the strategic
plan for the innovation division. Additionally, multiple one-on-one meetings were held with the Vice President of the innovation division, cultivating a valuable and meaningful relationship. Prior to this endeavor, connections between the innovation division and the organization's nursing division had been limited, signifying the significance of this collaboration in bridging institutional divides.

Project Leadership Formation

- Form stakeholder committee.

- As a next step in the development process, the establishment of a stakeholder committee, including the organization’s executive leadership, was necessary. Stakeholders included the Chief Nurse Executive, the Executive Director of the organization’s nursing institute, the Manager of Business Development and Licensing for the innovation division, the Nursing Shared Governance (NSG) Coordinator who plans all nursing shared governance activities, the Shared Governance Inter-Coordinating Council Chair who is a frontline staff nurse, and the program leader who served as the chair of the stakeholder committee. The purpose of the stakeholder committee was to advise and collaborate on platform development and implementation as well as ensure engagement from all nursing leadership is present. Additionally, this stakeholder committee ensured appropriate resources were available and advised on feasibility for the successful implementation of the platform. The stakeholder committee met once a month on the 3rd Friday of every month on Microsoft® Teams, the official virtual platform of the institution. The stakeholder committee meetings began in June 2023 and ended in December 2023.

Develop plan to create a culture of innovation
In the Spring of 2022, a Nursing Innovation Consultant, completed a site visit to the organization, and created an executive summary on the topic of Nursing Innovation. The consultant is a national expert on nursing innovation and was the first Vice-President of Nursing Innovation at the American Nurses Association. As part of their assessment in 2022, a top priority for the organization was to develop a culture of innovation. According to Melnyk and Davidson (2009), a shared vision for innovation is essential to create a culture of innovation. The consultant identified knowledge deficits surrounding the comprehension the organization’s nurses and nurse leaders have about nursing innovation. Furthermore, the consultant identified the organization’s nurses and nurse leaders do not understand the potential nurses have on healthcare innovation. The recommended first step by the consultant is establishing a culture of innovation within nursing at the organization by addressing these issues. This was addressed in the following manner:

The Nursing Shared Governance (NSG) at the organization consists of 150-200 elected front line nurses from all units who bring forth nursing practice related issues to leadership. During the hospital wide monthly meetings, there is also dedicated time for leadership development. To meet recommendations for creating a culture of innovation, the following was developed and presented at monthly NSG Meetings from August 2023 to December 2023:

- The project leader attended monthly hospital wide NSG professional development forums and NSG meetings and presented topics related to nursing innovation to key groups. Professional development forums are interactive free time sessions where NSG members spoke to experts about career
development and education benefits. These forums were also a vehicle for the nursing institute to promote topics of interest, such as nursing innovations. These presentations and forums laid the foundation of a culture of innovation.

- A national expert on healthcare innovation attended the monthly NSG meeting and spoke on the topic of healthcare innovation and the process for invention disclosure within the innovation division.

Develop electronic platform

In June 2023, the development of the electronic platform occurred through the following actions:

- Identification of the platform service
- There was strong institutional support for modifying an established organizational system wide platform called Service Center which can be modified to intake nursing innovative ideas due to the feasibility of it already existing and an established familiarity of its use with most front-line nurses. There was less support for investing in a commercial brand innovation platform. The support for the platform that already existed cost nothing, and users already had a sense of functionality and did not require as much training.

- Customize Platform
- Once the platform was identified, it was customized to meet the needs of the project. Elements of an equivalent nationally recognized academic medical center as well as Yale’s Center for Biomedical Innovation and Technology were integrated into the customization including the ability to self-categorize submissions and making links available on nursing computer workstations.
Bi-weekly meetings on Thursdays with Information Technology (IT) contacts occurred between the project leader, the NSG Program Coordinator, and IT contacts to create the platform from July 2023 to September 2023 on Microsoft® Teams. The platform was named The Nursing Ideation Station.

- **Test platform functionality**
  - The platform was tested for functionality prior to go live to ensure the platform met the objectives of the project. The IT development contacts, program leader, and NSG Program Coordinator shared the beta form of the platform with end-user focus groups and stakeholder committee in September 2023 for final adjustments.

- **Develop platform demonstration sessions**
  - To communicate the functionality of the platform, demonstration sessions were scheduled and conducted at NSG meetings, unit level NSG meetings, clinical nurse educator meetings, and associate director nursing leadership meetings in August and September 2023. Promotional material was developed by the project leader. A schedule as well as content to communicate the functionality of the platform was developed by the project leader.

**Identify participants**

- Participants included any registered nurse working at the organization. This included ~3000 front line registered nurses. The platform had no limit of number of submissions.

**Develop Recruitment Plan**

- Recruitment of platform use was necessary to measure impact. Recruitment was be conducted at monthly house wide NSG meetings, unit level NSG meetings, and a
hospital wide nursing leadership meeting. The project leader was placed on the agenda of these meetings. With executive nursing leadership support and support of the stakeholder committee, there were no barriers to agenda placement. Requests to chairs of NSGs, and administrators of the nursing leadership meetings occurred in June and July 2023 for placement on August and September 2023 agendas. Timeline of meetings and recruitment materials were developed.

Develop process map for innovation submissions to platform and their disposition

- Once an idea was submitted to the platform, a standardized pathway was developed for evaluation and escalation of the idea with a closed loop communication system. The innovation submission was reviewed for novelty and solution potential then categorized. The project leader reviewed submissions for all the above, and if the submission was found to meet these standards, the project leader presented the submissions to the stakeholder committee for approval. If this process became too cumbersome for project leader to review determined by >50 submissions within the first month, members of the stakeholder committee were prepared to be engaged to assist with review. Review of the submissions were scored by reviewers. A score of 1 (low) to 3 (high) for novelty and solution potential were calculated by initial reviewer for a total max score of 6 on each submission. A total score of 4 or greater qualified for complete stakeholder review.

- Once approved by the stakeholder committee, the project leader mentored the submission through the innovation division’s Innovation Disclosure Form completion. Submitting to the innovation division required department chair signature. The Executive Director of Nursing Research and Innovation is the endowed chair for the organization’s nursing institute and served as chair signature for this process.

Develop pre and post surveys/assessments
• The goal of the pre and post surveys and assessments was to assess Culture of Innovation status, feedback on platform functionality, and to evaluate perceptions of the implementation process. Three main surveys were developed- pre-post assessments on familiarity with Nursing Innovation for the nursing participants, a platform functionality evaluation for platform users, and a program evaluation for the Stakeholder Committee.

• Culture of Innovation Familiarity Assessments
  • Pre-Assessment:
    • The Pre-assessment was a four question, 5-point Likert scale, confidential survey developed to achieve baseline knowledge on perception of nurses as innovators, perception innovation can have on healthcare, intent to participate in nursing innovation activities, and preferred method of submitting innovative ideas. Participants for this pre-assessment were July 2023 NSG house-wide attendees. Administration of this survey was through Qualtrics via QR code. Each participant had a unique identifier. The unique identifier was their employee ID number. This number does not change and is known to each employee.

• Post-Assessment
  • The post-assessment was a three question, 5-point Likert scale, confidential survey developed to achieve post program knowledge on perception of nurses as innovators, comprehension of nursing innovation and its impact on healthcare, and intention to participate in nursing innovation
activities. The participants for this post-assessment were December 2023 NSG house-wide attendees. This is the same group who attended the NSG in July 2023 and completed the pre-survey. The survey was administered through Qualtrics via QR code. Each participant entered their employee ID number as their unique identifier. This number does not change and is known to each participant. Participants were tracked through this identifier to allow for pre and posttest comparison.

- Platform functionality evaluation
  - A four question, 5-point Likert scale survey with open ended questions was developed to obtain platform user feedback on functionality of platform. The user was not able to complete a submission on the platform without completing the platform functionality evaluation.

- Program evaluation
  - A three question, 5-point Likert scale survey with two open ended questions was developed to obtain feedback on the implementation and perceived impact of program. The participants for this survey were stakeholder committee members. The mode used to administer this survey was Qualtrics via email link and took place in January 2024.

- The following metrics were also gathered for the new platform:
  - Number of submissions compared to an equivalent nationally recognized academic medical center's implementation of a nursing innovation platform.
• Number of submissions escalated to the innovation division compared to an equivalent nationally recognized academic medical center’s number of submissions escalated to their healthcare innovation center (HIC).

• Number of submissions accepted for innovation development by the organization’s innovation division compared to an equivalent nationally recognized academic medical center’s number of new submission accepted to their own HIC.

Aim 2. To implement and evaluate the infrastructure.

Implement

Leadership

• Relevant findings from October 24 and 25, 2022 Cleveland Clinic site visit and Innovation Summit were integrated. A relevant finding from the site visit included using a standardized process map for innovation submissions to be evaluated, understanding how to validate submission for novelty and return on investment (ROI), and validating category of submission as a product or process. Another relevant finding from the site visit is the importance of vetting and reviewing the idea at a granular level before submitting to an institution level HIC. This intensive review with an identified nursing innovation expert gives the submission validity and creates a more powerful submission to the HIC.

• Regular meetings for stakeholder committee were held. The stakeholder committee met once a month on the 3rd Friday of every month on Microsoft®Teams, the official virtual platform of the institution. The objective of the stakeholder committee meetings was to communicate implementation milestones, and after the platform launched in October 2023 the committee also
reviewed submissions for approval to the HIC. The stakeholder committee meetings began in July 2023 and ran through December 2023.

Administer Culture of Innovation Pre-Assessment Survey

- The culture of innovation pre-assessment survey was implemented during the month of July 2023 at the house wide NSG as well as at unit level NSG meetings. The project leader administered the survey at the house wide NSG. The survey was electronic and a QR code was displayed and electronically shared to those at the meeting to use their smart devices to link to the survey. The project leader was given 10m of agenda time during the meeting to explain the survey and have participants take the survey in real time. The survey took approximately 2 minutes to complete.

Create and Sustain Culture of Innovation

- The creation and sustainment of a culture of innovation was implemented in August 2023 and continued through December 2023. A part of the day long monthly NSG schedule included a professional development forum. During this forum attendees networked with different organizational entities including human resources, career counselors, and support systems. The project leader was included in all professional development forums representing nursing innovation. The participation of the project leader at these forums provided an opportunity for the project leader to interface with front-line RNs and promote nursing innovation. In addition to the forums, the project leader was on agendas of house wide NSG councils to present topics of nursing innovation.

- A highlight of implementing a culture of innovation was a keynote address by a national and organization expert on healthcare innovation. This took place in December of 2023.

Demonstrate Platform
Demonstration of platform functionality was necessary for it to be adopted into practice. Demonstrations occurred at NSG meetings and professional development forums by the project leader. In addition to NSG meetings the project leader also demonstrated the platform at a house-wide nursing leadership meeting. The project leader projected and displayed the electronic platform to meeting attendees. The project leader demonstrated the location of platform and demonstrated how to submit an innovation. The house-wide demonstrations occurred in August and September 2023 and reached 150-250 RNs.

To disseminate platform functionality NSG chairs and members shared platform functionality at the unit level to unit staff meetings, NSG meetings, and staff huddles. The NSG leaders used the same techniques and materials as the project leader for house wide NSG meetings. The unit level demonstrations took place in August and September 2023 and reached ~1000 RNs.

Recruit

Promotion of platform use is necessary for it to be used to its full potential. Recruitment of platform users occurred at NSG meetings and professional development forums by the project leader. In addition to NSG meetings the project leader also recruited users for the platform at the house-wide nursing leadership meeting. The project leader promoted platform use as a tool to solve problems, a way to develop professionally, and a way to empower frontline RNs. The house-wide recruitment occurred in August and September 2023 and reached 150-250 RNs.

To promote platform, use at the unit level, NSG chairs and members promoted platform to unit staff meetings, NSG meetings, and staff huddles with support from the project leader. The NSG leaders used the same materials as the project
leader for house wide NSG meetings. The unit level recruitment took place in August and September 2023 and reached ~1000 RNs.

Launch Platform

- The platform launched and was available to all users to submit innovative ideas on October 1, 2023. As part of the promotion of the platform, the Chief Nurse Executive included the launch of his platform in his weekly newsletter.

Track platform usage

- After the launch, platform usage was monitored. Daily, weekly, and monthly statistics on number of submissions was made available to the project leader by IT. Tracking of platform usage by IT took place from October 1, 2023, to January 31, 2024.

Administration of Evaluations

- The Culture of Innovation post assessment survey was administered during the December 2023 house wide NSG meeting. The project leader administered the survey to house wide NSG members. The survey was electronic and a QR code was displayed and electronically shared to those at the meeting to use their smart devices to link to the survey on Qualtrics. Each participant used their employee ID number as a unique identifier. The project leader was given 5m of agenda time during the meeting to explain the survey and have participants take the survey in real time. The survey took 2m to complete.

- The Platform Functionality Evaluation was administered to obtain platform user feedback on functionality of platform. The user was not able to complete an innovation submission without completing the platform functionality evaluation.

- The Program Evaluation was administered in January 2024 to obtain feedback on the implementation and perceived impact of program. The participants for this
survey were stakeholder committee members. The mode to administer this survey was Qualtrics via QR code.

Evaluation

Bivariate and descriptive statistics were used to evaluate outcomes. The project leader collaborated with information technology and system statisticians to ensure data was collected and analyzed accurately.

- **Culture of Innovation surveys:**
  - Pre and post project Culture of Innovation surveys were compared using Paired t-Tests. Participant’s surveys compared included those from July 2023 and December 2023 house wide NSG meetings. Results were evaluated to assess differences in nurses’ perception of the culture of innovation pre- and post-program implementation.

- **Program Evaluation:**
  - The program evaluation was evaluated descriptively.

- **Platform Functionality Evaluation:**
  - The platform functionality was evaluated using descriptive analysis to identify trends, relationships, and distribution of the data.

- **Platform usage** was evaluated using descriptive analysis to identify trends, relationships, and distribution of the data focusing on the following metrics:
  - Number of submissions compared to an equivalent nationally recognized academic medical center’s implementation of a nursing innovation platform.
  - Number of submissions escalated to the organization’s innovation division compared to an equivalent nationally recognized academic medical center’s number of submissions escalated to their healthcare innovation center (HIC).
- Number of submissions accepted for innovation development by the organization's innovation division compared to an equivalent nationally recognized academic medical center's number of new submission accepted to their own HIC.

Aim 3. To make recommendations for scaling and sustainability of the nursing innovation infrastructure.

Scaling
- To scale this project, expanding this platform and infrastructure to the entire health system including participants beyond nursing would create opportunities for all employees to submit innovative ideas to the organization.

Sustainability
- Recommendation would be made for:
  - The establishment of an innovation advisory board would be a mechanism of sustainment. The advisory board would review submissions for further development, up to and including invention disclosure forms to the innovation division.
  - The creation of a Director of Nursing Innovation 1.0 FTE role who would lead the nursing innovation advisory board would be a mechanism of sustainment. This role could also serve as a liaison to the division of innovation for further development and mentor innovative ideas through the innovation pathway.
  - Inclusion of innovation participation as an option on the nursing clinical ladder would integrate innovative activities into the professional development of nurses and contribute to sustainment of the program.

Dissemination
The project leader will submit an abstract to the *Journal of Nursing Administration* and to the National Magnet® Conference.

**Statement related to human subjects**

This DNP project has been deemed a QI project by the Yale University IRB. It poses minimal risk to participants.

**Part 3**

**Systems, Policy, and Business Applications**

**Systems Overview: Leadership, Business, Policy**

In addition to the SWOT analysis discussed previously in this proposal, there are leadership considerations to this project which position the project for sustainability. The Chief Nurse Executive (CNE) is a personal champion of innovation. The CNE has lead organizations which have nursing innovation support systems and has been published in peer-reviewed journals on the topic. It was the CNE’s recommendation to include innovation on the CSMC Nursing Strategic Plan. Additionally, the Fall 2022 Leadership Practicum provided the project leader a network of innovation experts at CSMC’s Division of Technology Ventures, specifically the Vice-President of this Division. Having executive leadership within the network of support of this project will facilitate the project’s success through resource allocation, removal of barriers, and upholding a culture of innovation.

**The Business Case and Leadership Engagement**

The project leader is the Associate Director of the Gastrointestinal Endoscopy unit of the organization bringing a depth of organizational knowledge and experience of 17 years within the organization and 2.5 years in the current role. Having roles ranging from staff nurse, charge nurse, clinical nurse educator in the emergency department, and current role as associate director, there is opportunity to reach beyond positional power to relational power to influence the success of this project. Professional relationships with nurse leader colleagues,
nursing and non-nursing executive directors and vice-presidents extends connections at multiple levels to support the project.

The individual sponsor for this project is the Executive Director of the Brawerman Nursing Institute. Other stakeholders include the Chief Nurse Executive, Nursing Shared Governance Program Coordinator, and the Inter-Coordinating Council Chair. All these roles are registered nurses, and the inter-coordinating council chair, a front-line bedside nurse, creating a shared vision.

Stakeholders will be engaged in the project by taking part in regular meetings related to the project. During these meetings, the project leaders will demonstrate leadership competencies.

A possible change theory to engage stakeholders is the path-goal theory. The path-goal theory can motivate followers to achieve goals. Leadership behaviors such as directive, supportive, participative, achievement-oriented behaviors will be utilized (Northouse, 2022).

To lead the project change initiative from an organizational perspective, the project leader will use human-centered leadership. The human-centered leadership model influences change from the center outward and establishes cultures of caring, excellence, and trust (Kennedy et al., 2020). This leadership model is also in alignment with the Watson’s theory of Caring Science, the chosen nursing theory of the medical center. The use of nursing shared governance in the methods supports human-centered leadership. The project leader will act as a connector providing a culture of trust, localizing solutions, and embracing change (Kennedy et al., 2020).

The project leader will consider cultural factors within the organization surrounding different nursing specialties, inpatient units, and outpatient areas. All are represented within NSG, and this governance model mitigates differences between units. Using nursing shared governance also ensures inclusivity of all registered nurses with the organization and is
considered a best practice.

**Business/Financial Considerations**

The cost of the project and a return on investment (ROI) have been analyzed using an accepted tool published by Health Catalyst, Inc. In the climate of value-based care, considerations of not only cost, but also direct and indirect benefits need to be reviewed (Brown & Hough, 2013). Total initial cost for the project is projected to be $8336. This cost is related to training RNs on the platform and cost to software engineer to customize platform (Built In LA, 2022). There is no cost to create the platform, as the base platform already exists in the medical center. Although there are no direct benefits identified in this analysis, there are indirect benefits related to reduced work arounds due to nursing ideas increasing efficiency and potential royalties from products which go to market. According to Tucker (2020) nurses on average spend 190 hours of time doing a work around related to an inefficient workflow. Using average nursing hourly rates, these lost hours total greater than $20 million dollars in wasted paid nursing time annually for the hospital. Innovative ideas developed by nurses could impact these inefficiencies and increase over time as demonstrated in (Nursing Solutions, 2022). The Curos™ cap, which was invented by a nurse, screws onto intravenous ports when not in use, reducing risk of infection. The Curos™ cap had $559m in sales its first year. Medical device royalties are 5% (TechTransfer, 2022). The health system splits these royalties with the inventor when they assist in development. Overall ROI for this project is 253662%, with internal rate of revenue being 56727%, a net present value of $20,769,000, a high benefit to cost ratio of 2119.4 and payback timing of 0 months. These projections indicate the minimal cost is worth the value of potential savings outcomes.

**Risk Assessment and Risk Mitigation Plan**

A complete risk assessment and mitigation plan considers risk management systems such as preventable risks, uncontrollable risks, and strategy risks. Furthermore, risk domains such as operational, clinical, strategic, financial, human capital, legal/regulatory, technology,
and hazard assists the evaluator in categorizing different risk impacts (Kaplan, 2012).

Five main risks have been identified by the project leader. Risks identified include a public health emergency, delayed approvals/decisions in project implementation, delayed go-live of platform, disengaged frontline staff, and a change in leadership support/stakeholders. These risks have been categorized in systems and domains with mitigating actions. Additionally, a risk analysis matrix has been developed scoring these risks based on impact and probability.

Part 4

Results

A total of 54 NSG members participated in the pre-assessment and post-assessment culture of innovation surveys administered in July 2023 and December 2023. Participants scored an average of 0.46 points lower on the post-assessment compared to the pre-assessment (SD: 2.70). The median score difference was 0 (IQR: 2). The median total score for both assessments was 14 of a possible 15. A two-tailed paired t-test was carried out to assess matched scores pre-assessment to post-assessment. Post-assessment scores were found to be 0.46 points lower than pre-assessment scores. This result was not found to be statistically significant (t = -1.26, df = 53, p = 0.21).

For the question “Nurses are innovators” participants scored an average of 0.04 points lower on the post-assessment compared to the pre-assessment (SD: 1.06). The median score difference was 0 (IQR: 0). The median total score for “Nurses are innovators” was 5/5 in both assessments. A two-tailed paired t-test was conducted to assess matched scores pre to post assessment for the question “Nurses are innovators.” Post-assessment scores were found to be 0.04 points lower than pre-assessment scores (95% CI: 0.33 points lower to 0.25 points higher). This result was not found to be statistically significant (t = -0.26, df = 53, p = 0.80).

For the question “I understand nursing innovation and the impact it can have on healthcare,” participants scored an average of 0.04 points lower on the post-assessment compared to the pre-assessment (SD: 0.99). The median score difference was 0 (IQR: 0). The
median total score for “I understand nursing innovation and the impact it can have on healthcare” was 5 of a possible 5 in both assessments. A two-tailed paired t-test was conducted to assess matched scores pre to post assessment for the question “I understand nursing innovation and the impact it can have on healthcare.” Post-assessment scores were found to be 0.04 points lower than pre-assessment scores (95% CI: 0.33 points lower to 0.25 points higher). This result was not found to be statistically significant (t = -0.26, df = 53, p = 0.80).

For the question “If given the opportunity, I plan to participate in nursing innovation activities at the organization,” participants scored an average of 0.39 points lower on the post-assessment compared to the pre-assessment (SD: 1.2). The median score difference was 0 (IQR: 1). The median score total score for “If given the opportunity, I plan to participate in nursing innovation activities at the organization” was 5 in the pre-assessment and 4 in the post-assessment. A two-tailed paired t-test was carried out to assess matched scores pre to post assessment. Post assessment scores were found to be 0.39 points lower than pre assessment scores. This result was found to be statistically significant (t = -2.37, df = 53, p = 0.02).

A total of twelve participants completed platform functionality evaluations on ease of use, ease of finding and intention to use platform again. One hundred percent strongly agreed or agreed the platform was easy to use. Ninety-two percent of participants strongly agreed or agreed the platform was easy to find and 8% disagreed the platform was easy to find. Ninety-two percent of users agreed they would use the platform again and 8% neither agreed nor disagreed they would use the platform again. Subjective comments were positive, and suggested optimizations such as ability to attach documents and websites to the platform.

All five stakeholder committee members were surveyed post implementation regarding the program and platform contributing to nursing impacting healthcare and their sense that nursing innovation is now part of the culture of the organization. Ninety-two percent of committee members strongly agreed the program and platform contributes to nursing impacting healthcare and 92% strongly agreed or agreed that nursing innovation is now part of the culture
of the organization. Subjectively, committee members gave positive comments regarding the program. One committee member did not complete the evaluation.

A total of twelve submissions were submitted to the platform between October 1, 2023, and January 31, 2024. Eighty-three percent of platform submissions were from staff nurses and 17% were from nurse leaders. Submissions were categorized as a product, process, service, or platform. Of the twelve submissions, six were platforms, five were products, one was a process, and zero were services. When submitting, participants were asked in what stage of development the submission was, with definitions available for each stage, assisting submitters with categorization. Choices for stages of development were define, ideate, prototype, and test. Eighty-four percent of the submissions were categorized as ideate by submitters, 8% were categorized as define, and 8% were categorized as test. The average novelty and solution score for submissions was 3.75 out of a possible six with the lowest score being two and highest scores being five. A total of 6 submissions scored >4 and qualified for stakeholder committee review. Of those six submissions, four were identified as viable and were submitted to the organization’s innovation division via an invention disclosure form and are pending acceptance by the innovation division. All four of the submissions to the innovation division were categorized as products. An equivalent nationally recognized academic medical center which implemented a nursing innovation platform had a total of seventeen submissions on initial implementation compared to the organization’s 12 submissions. This equivalent medical center had four viable submissions to their innovation center compared to this program’s four viable submissions. The equivalent medical center had a total of two of their four submissions accepted by their innovation center. The four submissions by this program are pending acceptance with expected decisions by April 2024.

Part 5
Discussion and Conclusion

Discussion of Findings
This nursing innovation program was a nursing professional development quality improvement program led by the project leader, this DNP student. The program established an electronic submission platform for inpatient nurses to submit healthcare innovation ideas for further development. The program was designed to introduce the concepts of healthcare innovation to front line nurses via monthly NSG meetings. The program provided front line nurses the resources needed to have healthcare innovation ideas advanced to organizational healthcare innovation leaders. The program included a stakeholder committee of nurse executives, front-line nursing, a nursing professional development practitioner, and a healthcare innovation business development expert who met monthly giving feedback on program implementation and review of qualified submissions. The program was implemented at large urban Magnet® hospital between July 2023 to January 31, 2024. The program was supported by multiple nurse leaders including the Chief Nurse Executive, the Executive Director for Nursing Innovation and Research, the Director of Nursing Education, and the Director of Nursing Research.

Nursing shared governance members at this six-time Magnet® institution identify as innovators and intend to participate in innovation activities. This is evidenced by the high scores in both the pre and post assessment surveys. This result indicates a culture of innovation was already in existence at baseline prior to project implementation. After learning about innovation development, NSG nurses' intention to participate in innovation activities decreased and this was the only statistically significant difference between the pre and post assessments. Notably, the post assessment survey was completed on the same day a nationally recognized healthcare innovation expert presented information to NSG members on the intricacies of healthcare innovation. This presentation included the complicated patenting process and invention disclosure process at the organization. Although only an average of .39 points lower than baseline, participants may have scored lower on this question, with the knowledge of the
extensive commitment related to innovation development. Future uses of this presentation may be more valuable if given in sections over a period of time, rather than all the information in one session.

Users of the platform found it easy to locate, use, and intend to use the platform again. The platform, in its initial implementation, had comparable participation to an equivalent nationally recognized academic medical center in its initial implementation. Also comparable were the number of submissions accepted for application to the organizational innovation development division. Nurses who submitted to this platform in this program overwhelmingly self-categorized their submissions in the ideate stage of development, indicating participants in this platform had not completed any prototyping or testing of their ideas, and could be novice to development of their ideas into prototyping and testing. Users of the platform were given the opportunity to have their innovative ideas considered for further development, an opportunity which did not exist prior to this program. Critical to submissions to the platform which were deemed viable for application to the organizational healthcare innovation division was the mentoring of the submitters through the application process by the program leader.

Limitations

While the results of this project provide insights into the efficacy and impact of the nursing innovation program within the context of its implementation site, caution must be exercised when generalizing these results to other healthcare institutions. Several limitations inherent to the program design and participant characteristics warrant consideration, including a small sample size for pre and post assessment surveys and only NSG members taking the survey. Further research, including larger and more diverse participant samples across multiple healthcare settings, is warranted to enhance the generalizability of the program.

Recommendations for Sustainability

To ensure the long-term viability and continued success of the nursing innovation program, structure and dedicated resources are essential. Recommendations to foster
sustainability and promote ongoing innovation within the institution include the formation of a multidisciplinary nursing innovation committee, replacing the stakeholder committee as a permanent body, and allocation of dedicated resources. By identifying priority areas for innovation, evaluating proposed projects and platform submissions, and making recommendations for resource allocation, the committee would serve as the governance structure for nursing innovation. Recognizing the importance of supporting nursing innovation endeavors, it is recommended that a 1.0 full-time equivalent position be designated to oversee the facilitation of nursing innovation activities. This individual would serve as a catalyst for innovation, providing mentorship and guidance to aspiring innovators, facilitating interdisciplinary collaborations, and liaising with the organizational healthcare innovation division to streamline the integration of nursing-led initiatives. By investing in dedicated resources, the healthcare organization can nurture a culture of innovation and empower frontline staff to drive change.

**Recommendations for Scalability and System Implications**

To enhance the scalability of the nursing innovation program and facilitate its expansion to encompass all members of the healthcare team, a strategic approach is essential. This entails initially implementing a stepped approach wherein the integration begins with nursing practitioners before gradually expanding to incorporate a wider array of healthcare practitioners, such as nursing assistants, allied health professionals, physicians, and administrative staff. This phased strategy ensures a systematic and comprehensive integration process, allowing for thorough evaluation and refinement. Upon expansion, it is imperative to ensure representation from all disciplines comprising the healthcare team on the innovation committee. By fostering a collaborative environment inclusive of diverse perspectives and expertise, an innovation program, accessible to all in the organization would be valuable. Such an expansion would promote a culture of innovation and continuous improvement throughout the organization.
Considering long-term scalability, a comprehensive plan must be devised for system-wide expansion. This entails establishing an innovation program accessible to all healthcare workers within the system, thereby promoting a culture of innovation and continuous improvement. The engagement of experts from the fields of bioengineering or information technology is crucial, as their specialized insights can drive technological advancements and facilitate seamless integration within the healthcare ecosystem. By incorporating these elements into the scalability strategy, the nursing innovation program can effectively navigate the complexities of expansion and realize its full potential in advancing healthcare delivery.

It is paramount that nurses maintain leadership throughout the development, implementation, and scaling of the program. Nurse-led initiatives not only leverage their unique insights and frontline experiences but also ensure alignment with patient-centered care principles. This leadership role underscores the importance of nursing in driving innovation within healthcare systems and reinforces their pivotal role in promoting quality care delivery.

**Conclusion**

Nurses are undeniably central to the provision of healthcare services, embodying a wealth of frontline experiences and insights critical for driving meaningful improvements in patient care. It is imperative that the voices of nurses, often at the forefront of patient interaction, are not only heard but also actively cultivated and developed within the healthcare innovation landscape. Establishing an ecosystem for nursing innovation, such as this nursing innovation program, serves as a mechanism for harnessing the transformative potential of nursing ideas to enhance healthcare delivery. As evidenced by the burgeoning emphasis on nursing innovation within professional organizations and models like Magnet®, there exists a clear imperative for healthcare organizations to embrace and support nursing innovation initiatives.

However, the realization of this vision necessitates more than mere acknowledgment. It demands tangible efforts to bridge existing gaps between frontline nurses and healthcare innovation divisions within large organizations. This program is an example of an effort to
narrow this gap by providing a platform and infrastructure for nursing innovation to its nurses. Only through the implementation of effective mechanisms aimed at fostering collaboration and communication can the invaluable perspectives and contributions of nurses be fully integrated into healthcare solutions.
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