

Evaluating New Roles for a More Efficient Staffing Model to Address the Nursing Shortage

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Notes from the Author

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Abstract

Staffing challenges in healthcare have been a longstanding issue, leading to severe shortages within healthcare organizations. The identified problem for this evidence-based project was high nursing staff vacancy rates in an academic regional medical center. A literature review indicated the potential benefits of introducing unlicensed assistive personnel (UAP) roles, to address staffing shortages. Using a Plan-Do-Study-Act (PDSA) framework, this quality improvement project was implemented over a four-month period. The project aimed to evaluate the impact of integrating these roles on staff vacancy rates, job satisfaction, patient falls, and cost-effectiveness. Results demonstrated a substantial reduction in Registered Nurse (RN) and Nursing Assistant (NA) vacancy rates, improved staff satisfaction, and a notable decrease in patient falls. However, the financial impact varied, with cost savings achieved during night shifts through effective use of UAP, while day shift costs increased due to using the new UAP role. The discoveries reveal the importance of strategic role deployment and suggest that UAP roles can enhance staffing efficiency and patient care quality. Further research is recommended to refine these roles and optimize their integration into healthcare settings.

Keywords: unlicensed assistive personnel, lay persons, nurse staffing, lay health personnel, nurse staffing model

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Section I. Introduction

Background

Staffing within healthcare organizations has been a topic of concern for many years, and the challenges have only intensified recently (Martin et al., 2023; Rocchio et al., 2023). The aftermath of the pandemic has exacerbated the pre-existing struggles with workforce retention and attrition, with many healthcare professionals experiencing unprecedented levels of stress and burnout (Martin et al., 2023). Notably, in an academic, regional medical center located in the southeast, the issue of staffing remains a concern. The persistent problem of balancing staffing levels with quality care delivery demands innovative approaches, especially as healthcare systems tackle unforeseen challenges like the recent global health crisis.

The pandemic did not cause the nursing staffing crisis, it has been an issue for several decades (Nursing Solutions Inc. [NSI], 2023). Before the pandemic started in the United States (US), healthcare policymakers asked how to care for the tidal wave of geriatric patients entering the health system with more complex needs (McHugh et al., 2021; Rocchio et al., 2023). Of equal concern, policymakers were insisting that hospitals increase the education levels of the nursing staff to meet new regulations by accrediting bodies as more and more evidence demonstrated that this would improve patient outcomes (McHugh et al., 2021; Rocchio et al., 2023).

Over the last five years, staff vacancy rates have significantly increased; what was already high in 2018 now stands at 15.7% (NSI, 2023). In Figure 1, the years before the pandemic witnessed a Registered Nurse (RN) vacancy rate of 8%. By 2022, the RN vacancy rate had soared to a staggering 17.0%, only showing a modest reduction of 1.3% in a year (NSI,

2023). Such trends emphasize the urgent need for interventions to address and stabilize the fluctuating staffing levels in the healthcare sector.

Figure 1

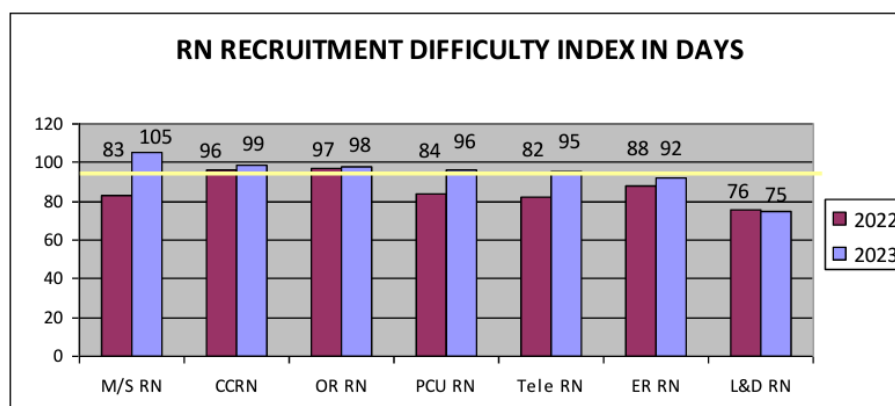
RN Vacancy Rate

RN VACANCY RATE	2019	2020	2021	2022	2023
Less than 5%	21.9%	19.3%	23.9%	6.5%	5.0%
5.0% to 7.49%	22.8%	18.2%	13.8%	3.6%	7.3%
7.5% to 9.9%	31.6%	30.7%	26.6%	8.6%	12.3%
10.0% to 12.49%	12.3%	15.9%	22.9%	12.2%	13.4%
12.5% to 14.9%	5.3%	4.5%	3.7%	7.9%	10.6%
Greater than 15.0%	6.1%	11.4%	9.2%	61.2%	51.4%
Average	8.0%	9.0%	9.0%	17.0%	15.7%

Note. Percent Registered Nurse (RN) Vacancy Rate. From the “2023 NSI National Health Care Retention & RN Staffing Report” by NSI Nursing Solutions (2023).

Figure 2

RN Recruitment Difficulty Index



Note. RN recruitment difficulty index in days by nursing department. From the “2023 NSI National Health Care Retention & RN Staffing Report” by NSI Nursing Solutions (2023). M/S RN = medical surgical registered nurse; CCRN = critical care registered nurse; OR RN = operating room registered nurse; PCU RN = progressive care unit registered nurse; Tele RN =

telemetry registered nurse; ER RN = emergency room registered nurse; L&D RN = labor and delivery registered nurse.

Combined with the RN vacancy rate, there is an observed increase in the days required to recruit experienced RNs (NSI, 2023). Figure 2 illustrates the RN Recruitment Difficulty Index (RDI-RN), which indicates the average number of days it takes for a hospital to recruit an experienced nurse from 2022 to 2023, categorized by nursing specialty (NSI, 2023). This prolonged recruitment process further underscores healthcare institutions' challenges in maintaining consistent and expert patient care amidst workforce shortages. When nursing units face staffing shortages, the repercussions are diverse and deeply impactful. Cho et al. (2020) identified specific activities frequently overlooked during such shortages. The most commonly missed activities included turning the patient, bathing, ambulation, providing emotional support, and mouth care (Cho et al., 2020). In addition, activities like setting up meals, participating in interdisciplinary care conferences, and mouth care were often deprioritized (Cho et al., 2020). A more recent study by Perpetua et al. (2023) noted that RNs spend 17.7% of their time on non-clinical tasks, which could be delegated. Furthermore, RNs and Unlicensed Assistive Personnel (UAPs) dedicated 12.5% and 5.8% of their time, respectively, to documentation (Perpetua et al., 2023). Cho et al. (2020) found a significant correlation between overlooked activities and several poor outcomes. Specifically, each additional missed task correlated with worsening perceptions of patient safety, a decline in care quality, reduced nursing staff job satisfaction, and a heightened likelihood of nurses considering leaving their roles (Cho et al., 2020). These findings emphasize the need for adequate nursing unit staffing to ensure optimal patient care and staff wellbeing.

Organizational Needs Statement

The targeted project site is an academic, regional medical center unit grappling with a high Nursing Assistant (NA) vacancy rate of 61% and an RN vacancy rate of 22.7% (K. Merritt, personal communication, June 21, 2023). The national benchmark for RN vacancy stands at a significantly lower 15.7% (NSI, 2023), indicating a severe issue. High turnover rates result in the need to augment staff with temporary agency nurses' positions, usually filled at a higher cost than staff nurses (K. Merritt, personal communication, June 21, 2023).

The high vacancy rates of NAs and RNs present a significant issue in achieving the organization's mission and vision. The gap between the organization's RN vacancy rate and the national benchmark reflects a potential deficiency in patient care, staffing proficiency, and overall service quality (Weston, 2022). Moreover, this issue impacts the organization's ability to deliver competent, cost-effective, and high-quality patient care, ultimately influencing this organization's reputation within the community. Benchmarking against local, state, and national standards can help address this issue.

Despite the organization's commitment to patient care and community health, it needs help with significant challenges in its nursing models of care. The increase in NA and RN vacancy rates reveals an underlying inefficiency in staffing, compromising the hospital's ability to deliver consistent and high-quality patient care. The reliance on temporary agency nurses as replacements for staff RNs suggests a deviation from the optimal skill mix, further indicating

that the hospital's current nursing model may need to be adequately structured or resourced to meet patient needs effectively.

Alignment with Triple Aim, Quadruple Aim, and Healthy People 2030

The high nursing vacancy rates at the project site bear significant implications for both the Triple Aim and Quadruple Aim, which emphasize improving population health, enhancing patient experience, reducing healthcare costs, and improving the work life of healthcare providers (Berwick et al., 2008; Sikka et al., 2015). These objectives are intimately connected to the hospital's issues. Specifically, inefficient staffing models can lead to compromised patient care quality, increased strain on existing staff, heightened operational costs due to temporary staffing, and potential detriments to patient outcomes and satisfaction (Sasichay-Akkadechanunt et al., 2003).

First, the high RN vacancy rates directly affect improving population health (Berwick et al., 2008). Adequate staffing in healthcare settings is fundamental for providing thorough and high-quality care, influencing overall population health (Brennan et al., 2013). Staff shortages, particularly among RNs and NAs, can lead to delays in care, increased patient wait times, and the potential for medical errors, thus negatively impacting population health (Sasichay-Akkadechanunt et al., 2003).

Second, improving patient experience, another core tenet of the Triple and Quadruple Aim is deeply intertwined with staffing levels (Berwick et al., 2008; Sikka et al., 2015). The quality of patient interactions, the degree of personalized attention, and the timeliness of care constitute critical components of the patient's experience, which are compromised when healthcare staffing is inadequate (Brennan et al., 2013). This can lead to lower patient

satisfaction rates, impacting the hospital's reputation and community trust (Sasichay-Akkadechanunt et al., 2003).

Third, regarding the aim of reducing healthcare costs, high vacancy rates can increase these costs in several ways. The hospital may have to harness temporary or agency staff, often costlier than permanent staff (Xue et al., 2015). Inadequate staffing levels can lead to extended hospital stays due to suboptimal care, driving up costs (Sasichay-Akkadechanunt et al., 2003).

High vacancy rates also impact the fourth aspect of the Quadruple Aim, improving the work life of healthcare providers (Sikka et al., 2015). Existing staff may have to take on additional responsibilities to cover the gaps left by vacant positions, leading to increased workload, stress, and burnout (Brennan et al., 2013). Poor job satisfaction can worsen staff turnover, creating a vicious cycle of attrition and recruitment (Sikka et al., 2015).

Finally, these high vacancy rates also affect the achievement of the Healthy People 2030 goals, particularly those related to ensuring high-quality, longer lives free of preventable diseases, disability, injury, and premature death and promoting health equity (Hasbrouck, 2021). Adequate staffing is essential to preventing disease and disability and providing equitable care to all patients (Hasbrouck, 2021). When staffing levels are low, the quality of care can decrease, leading to poor health outcomes and disparities in care, especially among vulnerable populations (Hasbrouck, 2021). Thus, the high vacancy rates at the project site pose significant challenges to both the Triple and Quadruple Aims and the goals of Healthy People 2030. It emphasizes the need for effective strategies to address this issue and improve quality and equitable patient care delivery.

Problem Statement

The project site currently faces significantly high nursing staff vacancy rates, with 61% for nursing assistants and 22.7% for RNs, considerably exceeding the national benchmark of 15.7% (K. Merritt, personal communication, June 21, 2023; NSI, 2023). This staffing shortfall critically undermines the hospital's ability to uphold the Triple Aim and Quadruple Aim of healthcare, which center around improving population health, enhancing patient experience, reducing healthcare costs, and improving healthcare provider work life (Berwick et al., 2008; Sikka et al., 2015). Additionally, it hinders progress toward the Healthy People 2030 goals, particularly those focused on high-quality care, disease prevention, and health equity (Hasbrouck, 2021). The problem is complex, affecting not only patient outcomes and experience but also exerting undue pressure on existing staff, escalating attrition and recruitment challenges, and perpetuating the cycle of high vacancy rates (Martin et al., 2023). The organization's ability to provide comprehensive and equitable care to its community is thus compromised, necessitating urgent intervention strategies to rectify the staff shortfall and improve healthcare delivery. Due to the nurse staffing shortage, there needs to be a more efficient staffing model that includes evaluating a current role used in a different practice environment and the new unlicensed assistive personnel role created by the project site.

Purpose Statement

This project aims to evaluate an evidence-based staffing model that integrates RNs, LPNs, and NAs by adding a new role within the health system called the Patient Attendant Safety Aide (PASA) and evaluating the CMAs in an inpatient practice environment. Recognizing the significant gaps currently undermining patient care quality, staff well-being, and operational efficiency in the academic, regional medical center, this model aims to ensure an adequate number of nursing staff and the right mix of skills tailored to the specific needs of the patient

population. Informed by the prevailing challenges and aligned with the organization's mission and vision, the model endeavors to improve patient outcomes, enhance workforce satisfaction, reduce operational costs, and advance the benchmarks of Triple Aim, Quadruple Aim, and Healthy People 2030. Through this initiative, this project hopes to transform the present field of nursing care delivery, prioritizing both patient-centric care and the professional fulfillment of the nursing team.

Section II. Evidence

Literature Review

A literature search was conducted through the project site's medical library and East Carolina University (ECU) Laupus Health Sciences Library. The primary databases for this review included PubMed, ProQuest, and Ovid ® Synthesis. Medical assistants have been used primarily in the ambulatory setting and have a scope of practice as UAPs per the project site's policy center. The health system created the new PASA role that is not currently in the literature. Several other terms were found that were used more commonly in the research. The following search terms were used: lay health worker, lay person, and nursing staff. Using the PubMed database, the search term lay health worker resulted in 3034 articles, adding only English articles produced 2950. The search criteria with search terms "lay health worker," plus the "OR" operator and search terms "lay person," plus the "AND" operator and search term "Nursing Staff" resulted in 154 when narrowed to 2013 – 2023 articles. Of these articles, 15 discussed using a role similar to the PASA role proposed for this project.

Using the Ovid ® Synthesis database, the search term "lay health worker" with "OR" operator and "Unlicensed assistive personnel" and the operator "AND" with the search term "patient falls" led to 162 articles when narrowed down to 2013 – 2023. Of these 162 articles, 16 were the most relevant to the study topic. After the 31 studies were reviewed, seven articles were used as evidence to address implementing UAP roles for this quality improvement project. Articles excluded were those that discussed lay health workers in public health settings in social support roles. See Appendix A for details on the PubMed database literature search and Appendix B for the Literature Matrix.

Current State of Knowledge

The consensus in recent literature emphasizes the need to maintain a nurse vacancy rate at or below the current national average of 15.7%. This figure, as noted, is a marked increase from the numbers observed pre-pandemic (NSI, 2023). Research into potential solutions for integrating a novel "unlicensed" position into the healthcare profession remains limited. A preliminary study at the project site's health system featured promising outcomes from introducing the PASA role (Basnight et al., n.d.). This initiative was designed to reinforce the ranks of the stretched-thin nursing staff, and the feedback has been predominantly favorable (Basnight et al., n.d.). Providing a broader context, it is worth noting that leveraging "unlicensed" or "lay health workers" is not entirely novel. Several community health platforms have been integrating such roles for decades, harnessing their capabilities to improve the overall healthcare structure (Basnight et al., n.d.).

Current Approaches to Solving the Problem

Many hospitals have historically turned to agency staffing as a short-term solution within fiscal cycles to address the nursing shortage, with costs often offset by increasing elective surgeries (Bose et al., 2021; NSI, 2023). However, the prolonged nature of the pandemic strained financial resources, making continuous reliance on agency staffing unsustainable for many hospital systems (NSI, 2023). A systematic review by Vander Weerd et al. (2023) also found potential quality concerns; among 11 studies, four highlighted a significant association between increased travel nurse utilization and increased patient fall rates.

In response to the nursing shortage, some hospitals opted for more direct measures, like operating with less staff or mandating overtime for existing nursing personnel (Shaffer & Curtin, 2020). While administrators might perceive mandatory overtime as cost-effective, evidence suggests it carries detrimental consequences. The practice could dissuade prospective nurses

from joining the profession, motivate existing staff to exit, and contribute to more significant turnover, extended patient stays, reduced productivity, and increased treatment mistakes (Shaffer & Curtin, 2020).

Technology has emerged as another potential remedy. Remote Patient Monitoring, while cost-effective, proves beneficial only if patients comply with the monitoring system; certain patients, like those with delirium, still necessitate in-person care (Zimbro et al., 2023). Another technological advancement in healthcare has been the rise of virtual care nursing, which employs video and audio technologies to allow nurses to serve patients in various environments, from homes to hospitals (Cloyd & Thompson, 2019). While these solutions offer flexibility and reach, more research is needed to address the core issue of inpatient nursing shortages directly.

Evidence to Support the Intervention

With the increasing demands on the healthcare system, an emphasis on individualized patient care is essential. There is a rising acknowledgment of the importance of healthcare workers at all levels, especially lay health workers like the PASA role. Recent studies show that lay health workers have the potential to transform care, but correct integration is crucial (Cain et al., 2020; Cho et al., 2020; Patel et al., 2018; Primmer et al., 2015).

One of the most alarming findings, as outlined by Cho et al. (2020), is the prevalence of missed patient activities in the current healthcare system. Activities like turning the patient, bathing, emotional support, and mouth care are frequently overlooked by RNs and NAs (Cho et al., 2020). Such lapses negatively impact the perception of safety, care quality, and job satisfaction, fueling intentions to leave the profession (Cho et al., 2020).

Cain et al. (2020) describe care guides' role evolution and challenges in considering lay health worker roles. Care guides' roles were initially broadly defined, leaving it up to the

individual to tailor their task to their patient's needs. Still, collaborations and managerial pressures eventually altered these roles to be more defined (Cain et al., 2020). The role changes, coupled with feeling undervalued, led to turnover of the RN staff and the newly developed care guide role (Cain et al., 2020). The care guides' experience signifies the importance of clarifying and maintaining the roles of lay health workers to ensure long-term success and collaboration within healthcare settings.

Despite the challenges, lay health workers have shown substantial benefits in outpatient settings. Patel et al. (2018) detailed the positive outcomes of introducing a lay health worker for six months, including remarkable improvements in end-of-life care and considerable reductions in healthcare costs. The potential economic benefit cannot be ignored as the intervention led to significant savings and a notable cut in overall healthcare expenses (Patel et al., 2018).

However, not all interventions or role additions yield positive outcomes. Duffield et al. (2018) detailed the mixed results of adding Nursing Support Workers, similar to the PASA role. While these units had experienced staff partnered with the new Nursing Support Workers, there were issues of higher absenteeism, greater staff rotation, and a potentially poorer practice environment (Duffield et al., 2018). The expectation that support workers would enhance care quality was not met. Instead, they may have replaced RNs rather than complementing them (Duffield et al., 2018).

Similarly, Roche et al. (2017) observed that UAPs offered more direct care than RNs, signifying a shift in the traditional caregiving model. The observer effect, where care may have been impacted simply due to the researcher watching, might have biased this observation. It was clear from this study that UAPs helped the nursing staff complete their daily tasks (Roche et al., 2017)

Twigg et al. (2016) further emphasized the significance of the right skill mix. Adding staff like Assistants in Nursing (AINs), a term used for NAs in Australia, only sometimes resulted in better patient outcomes (Twigg et al., 2016). Occasionally, outcomes were even worse with adding AINs (Twigg et al., 2016). Adding AINs suggests that introducing additional staff requires careful planning, ensuring that the expertise of seasoned professionals like RNs is maintained.

Lastly, the spotter program, evaluated by Primmer et al. (2015), serves as a guide to successful integration. Though initially met with skepticism, the program eventually reduced falls, increased safety, and resulted in financial savings (Primmer et al., 2015). Its success demonstrates the importance of teamwork and adaptability when adding new roles to the healthcare team.

In conclusion, while lay health workers can potentially enhance patient care, careful and planned integration is necessary. It is essential to ensure that these roles are designed to complement, not replace, the expertise of established healthcare professionals. Patient care can be reformed, outcomes enhanced, and costs saved with the right balance.

Plan-Do-Study-Act (PDSA) Framework

Many frameworks assist healthcare professionals in navigating systematic methods for conducting Evidence Based Practice. The PDSA approach promotes creating a proposal for enhancement (Plan), establishing a study method and gathering data (Do), evaluating the findings (Study), and deciding on the subsequent steps (Act) (Speroff & O'Connor, 2004). The primary goal of PDSA research is to determine if an intervention applied to change a process results in a better outcome (Speroff & O'Connor, 2004). As in any scientific investigation, PDSA quality improvement studies help improve understanding, where interventions are applied

to certain variables to see their impact on others (Speroff & O'Connor, 2004). This framework was applied to implement the USP roles within the project site's Relationship Centered Team Nursing model.

The PDSA cycle is a repetitive, four-step model designed to enhance processes (Christoff, 2018). The "Plan" phase involves crafting a strategy, detailing tasks and task owners, establishing specifics like where, when, and how the plan will be executed, and setting clear objectives and outcome predictions (Christoff, 2018). The "Do" phase entails executing the plan and recording pertinent data, noting successes and unexpected outcomes (Christoff, 2018). The "Study" phase, where the gathered data is evaluated, is as significant as the "Do" phase. Here, outcomes are compared with predictions and previous performances, and insights are documented (Christoff, 2018). Finally, in the "Act" phase, the evaluated intervention is adopted, adjusted, or discarded based on the data analysis (Christoff, 2018). This phase also outlines the subsequent steps for problem-solving (Christoff, 2018).

Ethical Consideration & Protection of Human Subjects

Implementing the UAP roles in the project site brought forth several ethical considerations. Confidentiality and privacy are important since data collection pertains to staff performance, patient outcomes, or other potentially sensitive topics. It was necessary to safeguard the information to ensure the confidentiality and privacy of all involved. Participants, especially the new PASA staff, were thoroughly informed about their job expectations and the project's purpose and implications.

This quality improvement project was developed to benefit patients and staff and uniformly represents the principles of equality and equity. While the intervention was inherently designed to be helpful to everyone, practical implementations might see some disparities. For

instance, newer staff members or those working less frequently might need help adapting swiftly. Offering adequate training and support became essential, ensuring everyone benefited from the project. Extended orientation sessions were provided for those who found the project implementation challenging.

With change comes the potential for unintended repercussions. No matter how well designed, quality improvement projects can sometimes yield unforeseen challenges in practical settings. During the transitional phase of the project implementation, there is an underlying risk of confusion or miscommunication, which could impact patient care. The pressure to adapt to this new model might inadvertently result in staff stress or burnout.

Lastly, the project aimed to enhance care without exploiting any stakeholders. However, unintended risks are always present, especially if staff perceive consequences for not adapting quickly or if specific incentives are reserved solely for a handful of staff. Cultivating an environment where every individual feels valued and supported is vital. This was achieved through consistent leadership check-ins and a clear communication strategy emphasizing improving communication strategies. While the project intervention promised numerous benefits, a constant awareness of these ethical considerations helped to ensure this project's smooth adoption.

Several Collaborative Institutional Training Initiative (CITI) modules were reviewed by the Project Manager (PM) from ECU and the project site's institutional system to prepare for the formal approval process. The project received an exemption from the IRB at the project site (see Appendix C). The PM discussed the IRB application and associated documents with the site's Research Nurse Scientist. Once the application was filled out, it was handed over to the Research Nurse Scientist to secure the necessary signatures. The IRB application was then presented to

the site's IRB committee for evaluation on November 11, 2023. The application was forwarded to the IRB committee at ECU and approved on October 23, 2023. The project site and ECU's IRB committee recognized the doctoral project as non-human research and classified it as a QI project (see Appendix D).

Section III. Project Design

Project Site and Population

The project was piloted at an academic regional medical center primarily serving central North Carolina. The medical center serves general medical needs and employs over 3000 staff members. It caters to both intermediate and progressive care (step-down) patients. A facilitator for this project was the vast range of medical experiences available, with patients in service lines from surgery, neurology, oncology, and palliative care. However, one barrier was that having a variety of needs on the unit requires staff to be able to care for increasingly complex patient assignments.

Description of the Setting

The setting for the evidence-based quality improvement project was a neurology-oncology general medicine unit with a total of 37 beds, 29 private beds, and four double occupancy beds. The patient population included various service lines, not only in neurology and oncology but also in surgery, orthopedics, urology, and palliative and internal medicine. This unit is designed to spread out along a hallway with rooms on either side, one central nursing station, and two supply and medication rooms on each end. Nursing staff with patient assignments far from the central nursing station use workstations on wheels to be closer to their patient assignments.

Description of the Population

The target population was the unit staff. At the start of the project, 101 full-time and part-time staff were employed: one nurse manager, three assistant nurse managers, 49 RNs, three LPNs, and 48 NAs. Of the RNs, 40 were permanent staff, while nine were travel agency nurses.

There was also one Nurse Educator responsible for orienting the UAP roles. Most of the staff worked 12-hour shifts.

Project Team

The project team consisted of the hospital's leadership, including the Chief Nursing Officer, Certified Nurse Research Specialist, and Nurse Educator, who worked with the team before project implementation to hire and orient the UAP roles. Further team members consisted of the unit leadership, the clinical team leaders (Assistant Nurse Managers), and the Nurse Manager who facilitated the schedule of the UAP roles. Following the leadership, the unit's falls champion obtained the unit's fall data for analysis, and the project manager, a doctoral student, facilitated the implementation of the project.

Project Goals and Outcome Measures

RN and NA Vacancy and Staff Satisfaction

The first defined outcome sought to determine a decrease in the vacancy rates of RNs and NAs and positive staff satisfaction after introducing the UAP roles. The literature stressed the need for high staff satisfaction to improve RN vacancy rates (Martin et al., 2023). The health system's HR department records these rates and periodically updates the HR portal database. Before the start of the project, RN vacancy was at 22.7%, and NA vacancy was at 61%, while the national benchmark was at 15.7% (K. Merritt, personal communication, June 21, 2023; NSI, 2023). Therefore, the outcome of staff satisfaction aimed to achieve positive feedback and acceptance of the UAP roles by the nursing staff. Capturing the staff's sentiments was helpful for an in-depth understanding of why nurses leave or intend to leave the bedside.

Patient Falls

This outcome expected to witness a reduction in patient falls after implementing the UAP roles. The health system uses a “Fall Champion” nurse to document every fall in collaboration with the care RN, and this data is then transferred to a separate electronic health management (EHM) system that tracks safety-related outcomes. According to leadership, there was no seasonality in the patient fall rate on the unit. Therefore, the project was measured against the occurrence of falls over three months before project implementation, with fall data from October, November, and December 2023. The project site measures its patient fall data using the National Database of Nursing Quality Indicators (NDNQI) quality metrics that measure falls per 1000 patient days (Agency for Healthcare Research and Quality [AHRQ], 2021). Per the AHRQ, there is no national benchmark on patient fall data because it is impossible to compare measures between hospitals since patient characteristics are not homogenous (AHRQ, 2021). For the three months before project implementation, the average number of falls was 3.03 per 1000 patient days for the project site.

Cost-effectiveness of Skill Distribution and Staffing Balance

This objective was to achieve an optimal balance in the skill mix across nursing categories post-UAP role introduction. To facilitate this, the health system continually tracked the distribution of staff across various nursing roles. Data concerning the staff distribution across categories was maintained in the staffing analytics system, providing a quantitative basis for evaluating the model's impact on staffing balance. Day shift skill mix for the unit was used as baseline data for this outcome assessment. This outcome was measured by how many staff were assigned per 12-hour shift. The average staff for a census of 36-38 patients was a total of eight RNs, one LPN, four NAs, and a hospital unit coordinator (HUC). The following pay range details are from the project period involving the first five months of 2024. The pay range for RNs

was listed as \$24.52 - \$53.60, averaging \$38.56 (\$462.72 per shift) based on their experience level. The pay range for LPNs was \$20.66 - \$41.33, averaging \$30.99 (\$371.94 per shift) based on their experience level. The pay range for the NAs and HUC was \$17.17 - \$23.72, averaging \$20.45 (\$245.34 per shift) based on their experience level. The starting pay for the CMA roles was \$21.41, and the PASA's pay was \$18.00. There is no national or hospital benchmark for this measure since several variables (e.g., experience level and patient acuity level) impact the overall cost per shift per patient day. The project implementation's goal was to hire two CMAs and one PASA to reduce the need for one RN or LPN and one NA, thereby reducing the cost per shift per patient day.

In implementing this improvement project, the defined target for cost reduction per shift centered around a 5% decrease from the current average staffing costs. Based on our existing model, the average cost per 12-hour shift during the day (0700 to 1900) stood at approximately \$7,263.12, which included the staffing mix of 8 RNs, 1 LPN, 4 NAs, and a HUC. The average cost per 12-hour shift during the night (1900 to 0700) stood at approximately \$7,017.78, which included the staffing mix of 8 RNs, 1 LPN, 3 NAs, and an HUC. With the introduction of the CMA and PASA roles, replacing one RN and one NA, the aim was to reduce this cost to around \$6899.96 per day shift and \$6,666.89 per night shift. This change reflected a targeted cost reduction of about \$29.34 per day shift and \$205.60 per night shift. The goal was to maintain this cost reduction consistently, ensuring that our staffing expenses stayed within this new, more economical range while continuously monitoring and adjusting the model to uphold the highest standards of patient care.

Description of the Methods and Measurement

PDSA cycles were performed to measure staff satisfaction. During each PDSA cycle, staff feedback was collected and analyzed during leadership rounds. Staff perceptions and acceptance of the roles were evaluated during pre- and post-implementation survey questions. During the PDSA cycle for falls data, data was collected by utilizing the EHM's audit features. Each month of the project, a Falls audit was conducted and analyzed by the Falls Champion and sent to the project manager. The staffing mix and vacancy rate were assessed after the project in April 2024.

Discussion of the Data Collection Process

The vacancy rates were determined using the tools embedded within the HR portal and obtained by the site preceptor. The national vacancy rate acted as a benchmark, and data from the project site helped indicate the initial status before project implementation. A survey designed to capture opinions on the UAP roles was distributed via a Qualtrics survey. By collating responses pre- and post-introduction of the UAP roles, insights into the staff's developing perceptions were obtained. The survey was sent to staff by the nursing management. The survey was completed using the hospital's Qualtrics® Survey system. The survey was sent to staff in January 2024 as the pre-implementation survey, and then a post-survey was sent at the end of the project timeline in April 2024 (see Appendix F).

The unit's Falls Champion and the project leader would analyze the monthly patient falls at the end of each month from January 2024 to April 2024. Data concerning patient falls was obtained using tools and reports in the EHR's Safety Dashboard. Three months of data, from October 2023 to December 2023, before the UAPs introduction, was compared against post-implementation data to gauge the impact. A comparative analysis between pre- and post-implementation data yielded insights into the UAP role's effectiveness in this area.

The Staffing Optimization dashboard gathered and reviewed detailed data on the staffing mix. By contrasting staffing numbers before and after the introduction of UAPs, the project leader assessed the shift's skill distribution and the staffing model's effectiveness. This ensured a systematic and data-driven approach to discovering the effects of the UAP roles on staffing and patients.

Implementation Plan

At the end of November into early December 2023, the project team held two meetings with the project site's leadership team to strategize the detailed rollout of the UAP roles. In late December 2023, the project leader reviewed and disseminated the guideline document (see Appendix E), which explained the UAP roles, responsibilities, and tasks. As January 2024 began, an initial feedback survey was sent to the nursing staff, targeting the RNs, LPNs, and NAs (see Appendix G) for pre- and post-implementation surveys. Between January 2nd and 7th, 2024, the project leader briefed the staff about the UAP roles before they completed their orientation. Also, during this first week of the project implementation, a charge nurse meeting was conducted, including hospital supervisors from both day and night shifts to inform them that they would update the project leader on the UAP role acceptance. At the end of January 2024, the first feedback from charge nurses was relayed to the project leader.

February 2024 saw further developments, with the second PDSA feedback loop occurring in early February and the second feedback from charge nurses being relayed to the project leader by mid-February. Late February marked the third PDSA feedback loop. In early March the third feedback from the nurse manager was relayed to the project manager, and by mid-March, the fourth PDSA feedback loop took place. Late March involved the fourth feedback from charge nurses being relayed to the project manager. Finally, by the end of April 2024, the PDSA

feedback loop process concluded. At the beginning of May 2024, the post-implementation survey was sent out by the nursing leadership. This survey was closed at the end of May for evaluation of the responses by the project leader.

Additionally, the project leader worked with the unit's Falls champion to collect patient falls data. The first collection of this data was at the end of January, after a month of the UAPs working on the unit. Falls data was collected at the end of each month, this included the number of falls and the daily average census for the month to calculate the falls rate per NDNQI measurement standards. Falls data was obtained from January 2024 through end of April 2024 for the entirety of the project.

Starting with the first day of project implementation in January 2024, staffing mix for day shift was tracked and maintained by the unit leadership team. This information was then averaged for the month and given to the project leader. The UAP roles worked a set schedule with the PASA's working Monday through Friday from 0700 – 1530. In early March, the PASA role was adjusted to help improve flexibility for the PASA staff, their hours were altered throughout the project implementation. The CMA role worked a three day a week 12-hour shift covering every day of the week except Saturdays from 1900 until 0700. The rest of the shift throughout the week tracked the skill mix even when the UAPs were not working. This skill mix data was obtained from January 2024 through the end of April 2024. Collecting this skill mix data throughout the project timeline helped inform the leadership on the average cost per shift of utilizing these UAP roles.

Section IV. Results and Findings

Results

RN and NA Vacancy Rates

The project implementation began in January 2024 with the addition of two CMA staff and one PASA staff member. After the completion of the project the RN vacancy rate was 18.5%, which was a reduction of 18.5% from pre-implementation. The NA vacancy rate was 31.5%, which was a reduction of 48% by the end of the project.

Staff Perception Surveys

Staff perception surveys of nurses and NAs (n = 15, pre-implementation, 15% response rate; n = 35, post-implementation, 35% response rate) on their perception of the CMA and PASA role were evaluated using a non-parametric test, the Mann-Whitney U test, to evaluate the significance of staff's perception of workload, appropriateness of CMA/PASA tasks, time management, and concerns with integrating the new roles. The results from the pre-implementation and post implementation surveys are attached in Appendix H for review. In the pre and post-implementation surveys provided to the staff there were two main groups. One part of the survey asked the staff their initial perceptions of the new CMA role. The second part of the survey focused on staff perception of the new PASA role. Both surveys focused on the staff perceptions about how the new CMA and PASA roles would affect their workload, appropriateness of tasks, time management, and concerns about integrating the new roles.

Pre-Implementation Survey Results. In the pre-implementation survey (see Appendix H), the staff expressed their perceptions about the CMA and PASA roles.

CMA Role.

- 67% of the staff anticipated that introducing the CMA role would decrease their workload, while 33% expected no change.
- 60% strongly agreed that the tasks planned for the CMA were appropriate for the unit's demands, and another 27% agreed.
- 73% of the staff strongly agreed or agreed that the CMA role would provide them more time to practice their skills.
- 87% of respondents had no concerns about integrating the CMA role, with only 7% expressing minor or major concerns each.

PASA Role.

- 53% of participants expected a workload decrease, while 47% anticipated no change.
- 87% strongly agreed or agreed that the tasks for PASA were appropriate, with a small minority (7%) disagreeing or strongly disagreeing.
- 67% strongly agreed or agreed that they would have more time to use their skills because of the PASA role.
- 60% expressed no concerns regarding integrating the PASA role, while 27% had minor concerns, and 7% expressed either major or moderate concerns.

Post-Implementation Survey Results. In the post-implementation survey (see Appendix H), the staff responded to similar questions about the CMA and PASA roles.

CMA Role.

- 81% of the staff strongly agreed or agreed that the CMA role decreased their workload, with 10% expecting no change.
- 90% responded that the tasks were appropriate for the CMA.

- 90% strongly agreed or agreed that they had more time to use their skills effectively.
- 85% had no concerns about the CMA role.
- Free text comments about the CMA role were unanimously positive, with some stating, “the CMA role is more valuable because they can help both nurses and aides” and “the CMAs can be used more on our unit; we have recently changed our morning insulin routine and I believe the CMAs could be a huge help with this.”

PASA Role.

- 76% strongly agreed or agreed that their workload was decreased.
- 82% strongly agreed or agreed that the tasks the PASA role was trained in (e.g., toileting, turning, feeding, and ambulating) were appropriate.
- 75% strongly agreed or agreed that they felt they had more time to use their skills because of the PASA role.
- 50% reported no concerns, while the other 50% had minor or moderate concerns about the PASA role.
- Free text comments mostly expressed positive sentiment towards the PASA role, with one exception stating, “the PASA role is a great idea, however, it has to be the appropriate person who is willing to take initiative to help the floor.”

Comparison of Survey Results. In comparing the pre- and post-surveys, overall trends can be discovered about the CMA and PASA roles.

CMA Role.

- Mann-Whitney U test indicated a significant difference between pre-survey and post-survey perceptions on the decrease in workload at a 90% confidence level ($U = 100.5$, $p < 0.10$).
- Significant difference in the perceptions of the appropriateness of tasks and time management at greater than a 90% confidence level.
- No change in concerns about the CMA role between the pre- and post-surveys.

PASA Role.

- The Mann-Whitney U test indicated a significant difference between pre-survey and post-survey perceptions on the decrease in workload at an 80% confidence level ($U = 81.5$, $p < 0.20$).
- The mean score for the appropriateness of PASA tasks was 4.1 before the role implementation and 4.1 after.
- The mean score for the belief that having the PASA role would allow staff to use their skills more effectively was 3.7 pre-implementation and 3.9 post implementation.
- The mean score about the concerns of implementing the PASA role had no change from pre-implementation and post-implementation at 4.4.

Patient Falls Results

The patient falls data was collected at the end of each month. During project implementation, there were no patient falls between January 2024 and April 2024, a reduction rate of 100%.

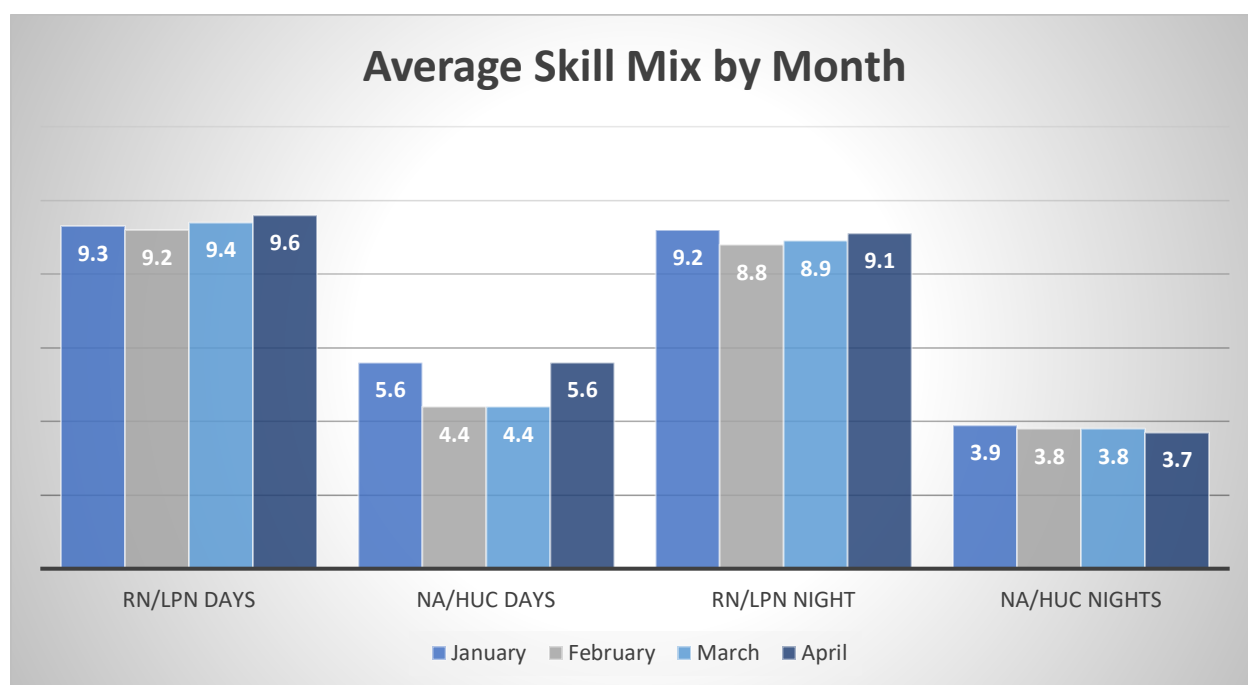
Cost-effectiveness of Skill Distribution and Staffing Balance

The data collected on cost-effectiveness came from an EHR dashboard that displayed the skill distribution of the staff on the project unit. The unit was not able to fully use the PASA role

in place of an NA; therefore, the unit experienced an increased cost for the day shift of \$216. This was an increase of 2.89% in cost per day shift when the PASA role was utilized. The unit could use the CMA role instead of staffing an RN on night shifts. This resulted in a reduction in cost per shift of \$205.80 or a 2.93% reduction in cost when the CMA role was utilized. Figure 3 illustrates the average RN and NA separated by day shift (0700-1900) and night shift (1900 – 0700).

Figure 3

Average Skill Mix by Month



Note. Average RN/LPN and NA/HUC Staffing by Month. From the data analysis dashboard used by the project site (2024).

Discussion of Major Findings

Project Implementation and Vacancy Rates

The project began in January with the addition of two CMA staff members and one PASA staff member. By the project's conclusion, the RN vacancy rate had decreased from 22.7%

to 18.5%, and the NA vacancy rate had been reduced from 61% to 31.5%, representing reductions of 18.5% and 48%, respectively. This significant reduction suggests that integrating UAP roles can effectively alleviate staffing shortages by redistributing workload and responsibilities, making these positions more attractive and sustainable for current and prospective staff.

Staff Perceptions

Staff perception surveys conducted before and after implementation assessed staff perceptions of the CMA and PASA roles. To determine whether the staff accepted the new UAP roles, these surveys focused on workload, task appropriateness, time management, and integration concerns. The results were analyzed using the Mann-Whitney U test for the CMA role, indicating a predominately positive acceptance of the use of the role. Concerns about integrating the CMA role remained low and unchanged, with no significant differences between pre-and post-implementation surveys. The CMA has traditionally not been used in an inpatient setting, and this project illustrates a practical use case. The PASA role, overall, has a more ambivalent attitude towards its acceptance. Overall, the survey results demonstrated that with the right staff member in this PASA role, the staff would have had a more positive acceptance of the role. Unfortunately, the staff member selected for the PASA role was often absent or tardy, requiring the unit's leadership to make many changes to their schedule, ultimately leading to their dismissal from the unit near the end of the project implementation period.

Patient Falls

A notable outcome of the project was the complete absence of patient falls during the implementation period from January to April 2024, representing a 100% reduction. At first glance, the integration of UAP roles may have contributed to improved patient safety through

better staff availability and task management. Yet, it is important to note that the Falls Champion's educational meetings about new fall prevention policies, held just before the implementation, may have also influenced this outcome.

Cost-Effectiveness

The cost-effectiveness analysis yielded mixed results. With the day shift costs, using the PASA role in place of an NA led to an increased cost of \$216 per day shift, representing a 2.89% increase. However, the night shift cost showed a saving in using the CMA role instead of an RN during night shifts, which resulted in a cost reduction of \$205.80 per shift, equating to a 2.93% savings. These findings signal the importance of strategic role utilization and staffing balance in achieving cost efficiencies. Successfully integrating and utilizing UAP roles can lead to cost savings, mainly when these roles effectively substitute for higher-cost staff.

Implementing the new UAP roles, the CMA and PASA, demonstrated significant potential in reducing staff vacancy rates, acceptance among the staff with perceptions of workload and task appropriateness, maintaining patient safety, and achieving cost savings during night shifts. However, the increased costs during day shifts due to utilizing the PASA role in combination with the unit's typical NA staff underscore the need for strategic role deployment and effective training. The project highlights the benefits of integrating UAP roles in healthcare settings, contributing to better staffing outcomes and operational efficiencies.

Section V. Interpretation and Implications

Costs and Resource Management

The effort to implement our project without the advantage of student labor and expertise would have significantly increased the project's overall costs and resource allocation. To begin the research phase, the project leader (PL) must understand the roles of UAPs, which require up to 35 hours at approximately \$39 per hour, amounting to \$1,365. This initial phase is foundational, as the insights garnered here guided the project's direction.

The planning meetings, a critical step in the project's development, were made more efficient and cost-effective by including student labor and expertise. These meetings, which involved collaboration between the Chief Nursing Officer (CNO), Human Resources (HR), and the PL, cost an estimated \$ 1,326 for three one-hour sessions. The student's contributions in strategizing the hiring of new roles, including CMA and PASA, helped us save on additional planning costs.

The implementation phase encompassed staff meetings to orient the unit to the project, costing an estimated \$450 for two sessions. This phase ensures all team members are aligned with the project goals and the scope of practice for the two new roles. Furthermore, unit leadership rounds involving the Nursing Manager (NM), Assistant Nursing Managers (ANM), Clinical Nurse Specialist (CNS), and PL were conducted weekly, totaling \$2,080. These rounds are essential for maintaining open lines of communication and promptly addressing any issues arising during the project's lifecycle.

The inclusion of student labor and expertise enhanced the post-implementation meetings. These staff and leadership meetings consisted of four 30-minute sessions, cost an estimated \$1400, and provided insights that were found from the project's impact assessment. The student's

contributions to data analysis (48 hours) and the publication of findings (15 hours), which required an investment cost of \$1,872 and \$975, ensured that the project's results were accurately interpreted and disseminated within the academic and professional community.

Without student involvement, the total cost of these efforts amounts to \$11,730. However, this figure only scratches the surface of the actual cost. Additional hidden costs appear when considering what went undone due to personnel allocation to this project. These include delayed routine tasks, postponed initiatives, and the opportunity cost of not deploying resources on other projects.

Implementing the project on a larger scale would require more extensive planning, personnel, and, consequently, increased financial investment. Areas such as research, planning, and data analysis would become more time-intensive, amplifying the overall cost. Nevertheless, there are avenues for cost reduction in future iterations. Leveraging technology for data collection and analysis, streamlining communication through digital platforms, and refining the hiring process for new roles can yield significant savings in time, money, and other resources. The experience and data gathered from the initial implementation can inform more efficient project designs, reducing the learning curve and associated costs in subsequent rollouts.

Student labor and expertise contribute to the project's outcomes and represent a substantial cost-saving measure. The strategic allocation of these resources enables the project to achieve its objectives while minimizing financial and operational burdens. Details of the budget can be found in Appendix I.

Implications of the Findings

Reflecting on the project's complexities and insights, it became clear that strategic planning and an awareness of internal and external project dynamics are essential for replication

and success. The support from nurse management and the intrinsic motivation of CMA staff emerged as critical facilitators, suggesting that promoting a supportive leadership culture and leveraging staff motivation are vital for project success.

Implications for Patients

The introduction of the CMA and PASA roles has significant implications for patients. The project results indicate a notable reduction in patient falls during the implementation period, suggesting that additional support staff enhances patient safety. This can be attributed to the improved workload distribution, allowing nurses and nursing assistants to focus more on direct patient care. With CMAs and PASAs, which handle specific tasks, primary care providers can attend to critical patient needs more effectively, reducing the likelihood of adverse events. Furthermore, the overall patient experience will likely improve as staff can provide more timely and attentive care, sustaining a safer and more supportive hospital environment.

Implications for Nursing Practice

For nursing practice, integrating CMA and PASA roles has been shown to ease workload and improve time management among nursing staff. The survey results highlight that many nurses and nursing assistants perceived these roles as beneficial in reducing their workload and allowing them more time to perform their skills. This enhanced job satisfaction and reduced burnout and fatigue, which are common issues in the project site's healthcare setting. Moreover, the staff's positive acceptance of these roles suggests that such changes could be instrumental in retaining nursing professionals and reducing turnover rates.

Impact for Healthcare Systems

From a healthcare systems perspective, implementing UAP roles can lead to significant operational and financial benefits. The reduction in RN and NA vacancy rates suggests that these

roles help create a more balanced and sustainable staffing model. Financially, the cost savings achieved through the effective use of CMAs on night shifts demonstrate the potential for optimized staffing expenses. However, the rise in costs during day shifts attributed to using the PASA role highlights the necessity for appropriate role allocation. The unit could not use the PASA role instead of the NA role, which was the project's hope, but the literature reminds us that replacing nursing staff does not work.

Overall, healthcare systems can take advantage of these insights, especially in times of crisis, like the past pandemic, to improve their staffing models, ensuring that support roles are fully utilized to maximize efficiency and cost-effectiveness. Overall, the project underscores the value of flexible and adaptive staffing strategies in enhancing the resilience and effectiveness of healthcare delivery.

Dissemination Plan

In completing the background research on using UAPs, it was noted that research on the topic could have been more extensive. The pandemic was a tipping point for an already unstable staffing situation. The conclusions from this project might help future researchers use a different staffing model to ensure that patient outcomes are not impacted. Nursing leadership journals and conferences will be explored for publishing to disseminate these findings. The project leader will start disseminating the findings when presenting at the East Carolina University project presentation on July 12, 2024.

Section VI. Conclusion

Limitations of the Project

PASA Staff Attendance

One notable limitation was the poor attendance of PASA staff. This impacted the effectiveness of the role, as consistent presence is important for administrative tasks that support the nursing team and patient care. The absenteeism likely contributed to delays and increased workload for other team members, underscoring the need for reliable staffing in support roles.

PASA Role Pay

The PASA role was compensated at the same rate as CNAs, which introduced potential conflicts within the team. Since CNAs have a greater role in direct patient care, the equal pay rate may have been perceived as undervaluing their clinical contributions, potentially leading to discontent and tension among staff. This highlights the importance of carefully considering pay structures to reflect different roles' responsibilities and skill requirements (Zayed et al., 2022).

Scope of Practice Limitations for CMAs

Pre-existing policies that limit the scope of practice for CMAs presented a significant barrier, particularly regarding medication administration. At the project site, CMAs were not allowed to give intravenous medications, subcutaneous insulin, or narcotics. These restrictions limited the extent to which CMAs could engage in patient care activities and affected the nursing team's efficiency and flexibility. This limitation emphasizes the immediate need to evaluate and revise the scope of practice policies to better capitalize on the skills of all team members (Chapman et al., 2015).

Facilitators of the Project

Supportive Nurse Management Team

A key facilitator was the supportive nature of the nurse management team. Their encouragement and openness to innovation fostered a positive environment for project implementation. This support was instrumental in navigating challenges and facilitating adjustments to project plans, highlighting how leadership attitudes can significantly impact project success. The nurse management team was also flexible with staffing the PASA role to accommodate any staff needs that limited their ability to work. This type of transformational leadership is imperative when working in a stressful healthcare setting (Ticharwa et al., 2019)

Highly Motivated CMA Staff

Another major facilitator was the high motivation level of the CMA staff. Eager to contribute to the nursing team, CMAs actively sought ways to assist within their scope of practice. This eagerness enhanced team dynamics and ensured patient care needs were met more efficiently. The CMAs' motivation illustrates how a committed workforce can drive project progress and foster a collaborative team environment.

Sustainability

Addressing these identified limitations and facilitators is a good first step in considering the scalability and sustainability of similar projects. A scalable project model should include strategies for effective staff management, policy advocacy, and leadership support, ensuring they remain sustainable and impactful as projects expand (Ticharwa et al., 2019). Ultimately, the goal is to create a replicable model that achieves its immediate objectives and contributes to systemic improvements in healthcare delivery, emphasizing efficiency, staff satisfaction, and patient care quality as cornerstones of sustainability.

Recommendations for Others

One significant impact of the initiative was the critical role of staffing in terms of presence and compensation. The challenges posed by PASA staff absenteeism and the discontent stemming from unequal pay rates between PASA roles and CNAs demonstrated the need for a flexible work schedule policy and a nuanced compensation strategy that reflects the contributions of each role (Ticharwa et al., 2019; Zayed et al., 2022). Future projects should develop a compensation framework that recognizes the team's diverse skill sets and responsibilities to ensure the effectiveness and harmony of the project team (Zayed et al., 2022).

Additionally, the constraints imposed by existing policies on the scope of practice, particularly for CMAs, highlight the importance of policy flexibility and adaptation. Research has shown that to utilize their team's capabilities and enhance patient care, it is necessary to advocate for and implement policy revisions that expand the scope of practice where appropriate, especially for the CMA role (Chapman et al., 2015). This maximizes all team members' contributions and promotes a more dynamic and responsive care environment.

Recommendations Further Study

Building on the foundation set by this project, the following steps involve refining the existing framework and exploring opportunities for expansion and replication. The PASA role, tailored explicitly for environments lacking enough NAs, highlighted the importance of flexible staffing solutions in healthcare settings. This adaptability suggests the project's potential applicability in varied settings, particularly in facilities experiencing similar staffing shortages. More studies on the CMA role and organizational policies, using them to the top of their scope of practice, would reveal an opportunity for policy advocacy and adjustment to maximize their contributions to patient care in primary and inpatient settings.

Final Thoughts

The project aimed to address the critical issue of nursing shortages in a large academic regional medical center in the southeast. This initiative evaluated a novel staffing model that integrated RNs, LPNs, and NAs with newly introduced roles, such as the PASA and the CMA. The project sought to enhance staffing efficiency, improve patient care quality, and reduce operational costs.

The project's approach involved implementing and evaluating these new roles, focusing on their impact on vacancy rates, staff satisfaction, patient falls, and cost-effectiveness. By applying the PDSA framework, data was collected and analyzed to refine and continuously optimize the staffing model. Early findings indicated a notable reduction in vacancy rates and patient falls, suggesting that these roles significantly supported nursing staff and enhanced patient care.

In conclusion, this project demonstrated the potential of innovative staffing solutions to transform healthcare delivery. The integration of PASA and CMA roles eased staffing shortages, improved job satisfaction, and maintained high standards of patient care. These findings provided a valuable perspective on addressing the nursing shortage and offered practical implications for healthcare systems striving to balance staffing levels with quality care delivery.

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and reduces harm. *Journal of Nursing Care Quality* (Publish Ahead of Print).

<https://doi.org/10.1097/NCQ.0000000000000749>

Appendix A

Literature Search Terms – PubMed Database

Search	Actions	Details	Query	Results
#4	...	>	Search: ((Lay health worker) OR (lay person)) AND (Nursing staff) Filters: English, from 2000 - 2023	154
#3	...	>	Search: ((Lay health worker) OR (lay person)) AND (Nursing staff) Filters: English	191
#2	...	>	Search: lay health worker Filters: English	2,950
#1	...	>	Search: lay health worker	3,034

Literature Matrix

[illegible]

Appendix C

Project Site IRB Approval of QI project

**INSTITUTIONAL REVIEW BOARD DECLARATION OF ACTIVITY NOT MEETING THE
DEFINITION OF RESEARCH**

The [REDACTED] IRB has determined that the following activity does not meet the definition of research as described in 45 CFR 46.102(d), 21 CFR 50.3(c) and 21 CFR 56.10(c) and satisfies the Privacy Rule as described in 45 CFR 164.514.

Protocol ID: Pro00114838

Reference ID: Pro00114838-INIT-1.0

Protocol Title: Introducing a New Role for a More Effective Staffing Model to Address the Nursing Shortage

Principal Investigator: Deborah Allen

This IRB declaration is in effect from December 07, 2023 and does not expire. However, please be advised that any change to the proposed research will require re-review by the IRB.

Appendix D

ECU IRB Approval of QI Project



Quality Improvement/Program Evaluation Self-Certification Tool

Purpose:

Projects that do not meet the federal definition of human research pursuant to 45 CFR 46 do not require IRB review. This tool was developed to assist in the determination of when a project falls outside of the IRB's purview.

Based on your responses, the project appears to constitute QI and/or Program Evaluation and IRB review is not required because, in accordance with federal regulations, your project does not constitute research as defined under 45 CFR 46.102(d). If the project results are disseminated, they should be characterized as QI and/or Program Evaluation findings. Finally, if the project changes in any way that might affect the intent or design, please complete this self-certification again to ensure that IRB review is still not required. Click the button below to view a printable version of this form to save with your files, as it serves as documentation that IRB review is not required for this project. 10/29/2023

Appendix E

CMA and PASA Role Guidelines

Unlicensed Assistive Personnel (UAP) - Any unlicensed personnel, regardless of title, who may participate in patient care activities through the delegation process. This may include the Certified Medical Assistant.

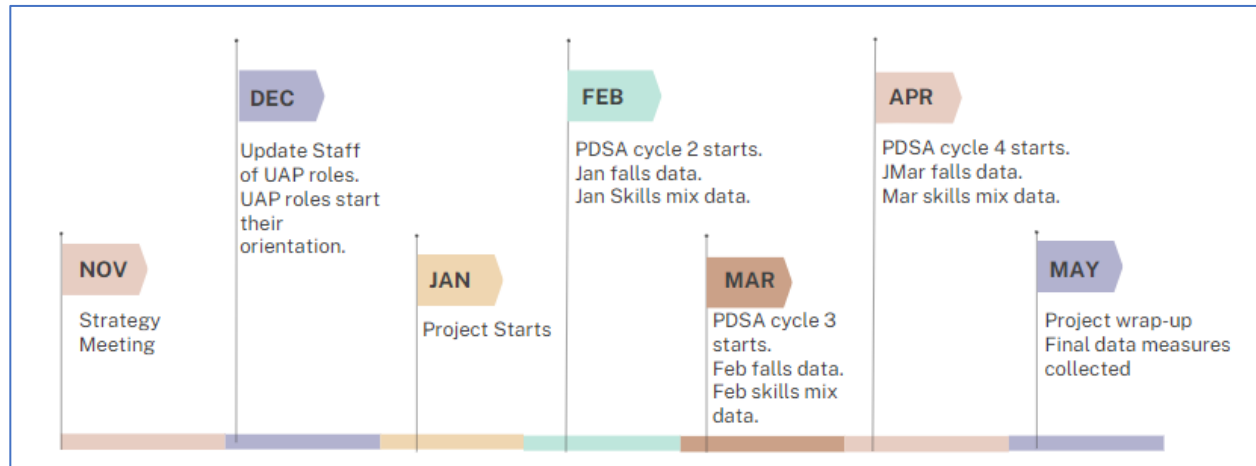
Upon initial presentation to the clinic for a provider encounter, RN, LPN, and/or UAP will conduct a screen or assessment as indicated below.

- 1) Specialty-focused assessment: (RN/LPN)
- 2) Allergies: (RN/LPN/UAP)
- 3) Current medications: (RN/LPN/UAP)
- 4) Vaccines for pediatrics and adults are tracked in primary care clinics and subspecialty, as appropriate (RN/LPN/UAP)
- 5) Barriers to learning and additional learning needs (RN/LPN/UAP)
- 6) Functional status (RN/LPN/UAP)
- 7) Abuse/neglect:
 - i. UAP completes screening
 - ii. If the patient answers Yes, the UAP notifies RN or provider to complete an assessment
- 8) Nutritional screen by primary care providers and, as appropriate, for sub-specialty (RN/LPN/UAP)
- 9) Need for psychosocial support (RN/LPN/UAP)

Providers work collaboratively with licensed nurses to decide which tasks are appropriately delegated to each individual UAP, using the following as guidelines:

Group A: May be delegated by a provider	Group B: May not be delegated
Medications • PO, IM, SC, Intradermal, topical medication administration • Vaccinations-require individual written order • Preparation / labeling of medications for administration by a provider Other Tasks • EKG's • Phlebotomy • Suture / Staple removal • Splinting • Clamping of gastrostomy tubes • Removal of feeding tubes • Point of Care Testing • Message Management • Downloading of glucose meter • Set up of rooms for procedures • Set up of oxygen therapy; may monitor flow <u>rate</u> • Oral suctioning • Tracheostomy care • Bladder Scan • Simple Wound Dressings • High Level Disinfectant - Procedures/sterilization • Pulse Oximetry	• Any medication administrations or preparation that requires a calculation • IV insertion • Triage via telephone or in-person • Assessment, interpretation, evaluation or clinical decision making • Administration of: - IV Medications - Controlled substances - Insulin - Anticoagulants - Allergy injections - Biologic injections - Antineoplastic injections

Patient Bathing				
Work Performed By	Patient Attendant Safety Aide (PASA)	Total Time (min)	25 min	
Purpose(s)	• Provide guidelines for patient bathing			
Expected Outcome(s)	• Patients will safely be assisted with bathing			
Steps	Duration (min)	Expected Outcomes	Diagrams, Work Flow, Pictures, Tips, Etc.	
1 Review assignment and coordinate with primary RN to identify which patients are appropriate for bathing	2	• Ensures patient safety and eligibility of bathing for patients	***PASAs are not allowed to perform CHG bathing, device care, or bathe patients that are hemodynamically unstable as identified by the RN.	
2 Gather supplies	2	• Prevents delays in care	Warm wipes, gown, bedding, lotion, etc. Basins are NOT allowed.	
3 Upon entering room, introduce yourself and explain the task to the patient	1	• Obtains consent	Tip: A separate sheet may be used to cover the patient.	
4 Uncover only the area to be washed at a time	1	• Prevents patient from getting cold and provides privacy	Tip: A separate sheet may be used to cover the patient.	
5 Wash the body in order of face, arms/legs, trunk, then groin using a fresh wipe for each area	5	• Avoids cross-contamination		
6 Completely dry the patient and apply lotion as needed	5	• Prevents skin irritation	Only use non-medicated lotions supplied by the hospital.	
7 Change gown and bed linens	5	• Completes the task	For patients unable to assist with moving in bed, seek assistance from another team member and utilize lift equipment as appropriate.	
8 Finish by placing the patient in a comfortable position and ensure personal items are within reach	2	• Completes and hourly round	Remember to address the 4 Ps (pain, potty, position, and partner) before leaving the room.	
9 Document the bath in the flowsheet and report any abnormal findings or needs to the primary team	2	• Ensures communication amongst team members and records task	Tip: Document before leaving the room to ensure the documentation is completed.	

Appendix F**Timeline for Project Implementation**

Appendix G

Nursing Staff Pre & Post-Implementation Survey

This survey is asking for your perception regarding the utilization of Unlicensed Assistive Personnel (UAP) on this unit and their impact on your workload. These questions will ask both about the Certified Medical Assistant (CMA) role and the Patient Attendant Safety Aide (PASA) role. Your participation is voluntary and anonymous. All of your responses will be kept confidential. Completion of this survey should take no longer than 5 minutes of your time.

1. How do you anticipate the introduction of the CMA role will affect your workload?
 - Greatly Decrease
 - Decrease
 - No Change
 - Increase
 - Greatly Increase
2. How do you anticipate the introduction of the PASA role will affect your workload?
 - Greatly Decrease
 - Decrease
 - No Change
 - Increase
 - Greatly Increase
3. Do you believe the tasks planned for the CMA (ex., medication administration) are appropriate for the demands of the unit?
 - Strongly Agree
 - Agree
 - Neutral
 - Disagree
 - Strongly Disagree
4. Do you believe the tasks planned for the PASA (ex. toileting, turning, feeding, and ambulating) are appropriate for the demands of the unit?
 - Strongly Agree
 - Agree
 - Neutral
 - Disagree
 - Strongly Disagree
5. Do you expect that with the support of the CMA role, you will have more time to use your skills effectively?
 - Strongly Agree
 - Agree
 - Neutral
 - Disagree
 - Strongly Disagree
6. Do you expect that with the support of the PASA role, you will have more time to use your skills effectively?
 - Strongly Agree

- Agree
- Neutral
- Disagree
- Strongly Disagree

7. How do you feel about the current staffing levels on the unit without the CMA role?

- Overstaffed
- Adequately Staffed
- Understaffed

8. How do you feel about the current staffing levels on the unit without the PASA role?

- Overstaffed
- Adequately Staffed
- Understaffed

9. Do you have any concerns about integrating the CMA role into the unit?

- No Concerns
- Minor Concerns
- Moderate Concerns
- Major Concerns
- Very Significant Concerns

10. Do you have any concerns about integrating the PASA role into the unit?

- No Concerns
- Minor Concerns
- Moderate Concerns
- Major Concerns
- Very Significant Concerns

Please share any additional thoughts or concerns you may have regarding the introduction of the CMA or PASA roles to the unit:

[Open text box for participants to write their thoughts]

Thank you for taking the time to provide feedback! Your insights are crucial in guiding the successful introduction and integration of the UAP roles into our unit.

Nursing Staff and PASA Role Feedback Post-Implementation Survey

This survey is asking for your perception regarding the utilization of Unlicensed Assistive Personnel on this unit and their impact on your workload. These questions will ask both about the Certified Medical Assistant (CMA) role and the Patient Attendant Safety Aide (PASA) role. Your participation is voluntary and anonymous. All of your responses will be kept confidential. Completion of this survey should take no longer than 5-10 minutes of your time.

1. The CMA role has decreased my workload.

- Strongly Agree
- Agree
- Neutral

- Disagree
- Strongly Disagree

2. I believe the CMA's tasks (ex., medication administration) appropriately met the demands of the unit.

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

3. Because of the support of the CMA role, I had more time to use my skills effectively.

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

4. Did you have any concerns about the CMA role into the unit?

- No Concerns
- Minor Concerns
- Moderate Concerns
- Major Concerns
- Very Significant Concerns

5. How satisfied are you with the implementation and impact of the CMA role on your work?

- Very Satisfied
- Satisfied
- Neutral
- Unsatisfied
- Very Dissatisfied

6. The PASA role has decreased my workload.

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

7. I believe the PASA's tasks (ex., toileting, turning, feeding, and ambulating) appropriately met the demands of the unit.

- Strongly Agree
- Agree
- Neutral

- Disagree
- Strongly Disagree

8. Because of the support of the PASA role, I had more time to use my skills effectively.

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

9. Did you have any concerns about the PASA role into the unit?

- No Concerns
- Minor Concerns
- Moderate Concerns
- Major Concerns
- Very Significant Concerns

10. How satisfied are you with the implementation and impact of the PASA role on your work?

- Very Satisfied
- Satisfied
- Neutral
- Unsatisfied
- Very Dissatisfied

11. My work unit is adequately staffed.

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

Thank you for taking the time to provide feedback! Your responses are invaluable in helping us understand and improve the working dynamics on this unit.

Appendix H

Staff Perception Survey Results Table

Questions	Pre-Implementation (n=15)										
How do you anticipate the introduction of the CMA role will affect your workload?	15 Responses Greatly Decrease Decrease No Change Increase Greatly Increase <table border="1"> <thead> <tr> <th>Response</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Decrease</td> <td>67%</td> </tr> <tr> <td>No Change</td> <td>33%</td> </tr> </tbody> </table>	Response	Percentage	Decrease	67%	No Change	33%				
Response	Percentage										
Decrease	67%										
No Change	33%										
How do you anticipate the introduction of the PASA role will affect your workload?	15 Responses Greatly Decrease Decrease No Change Increase Greatly Increase <table border="1"> <thead> <tr> <th>Response</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Decrease</td> <td>53%</td> </tr> <tr> <td>No Change</td> <td>47%</td> </tr> </tbody> </table>	Response	Percentage	Decrease	53%	No Change	47%				
Response	Percentage										
Decrease	53%										
No Change	47%										
Do you believe the tasks planned for the CMA (ex., medication administration) are appropriate for the demands of the unit?	15 Responses Strongly Agree Agree Neutral Disagree Strongly Disagree <table border="1"> <thead> <tr> <th>Response</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Strongly Agree</td> <td>60%</td> </tr> <tr> <td>Agree</td> <td>27%</td> </tr> <tr> <td>Neutral</td> <td>7%</td> </tr> <tr> <td>Strongly Disagree</td> <td>7%</td> </tr> </tbody> </table>	Response	Percentage	Strongly Agree	60%	Agree	27%	Neutral	7%	Strongly Disagree	7%
Response	Percentage										
Strongly Agree	60%										
Agree	27%										
Neutral	7%										
Strongly Disagree	7%										
Do you believe the tasks planned for the PASA (toileting, turning, feeding, and ambulating) are appropriate for the demands of the unit?	15 Responses Strongly Agree Agree Neutral Disagree Strongly Disagree <table border="1"> <thead> <tr> <th>Response</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Strongly Agree</td> <td>47%</td> </tr> <tr> <td>Agree</td> <td>40%</td> </tr> <tr> <td>Disagree</td> <td>7%</td> </tr> <tr> <td>Strongly Disagree</td> <td>7%</td> </tr> </tbody> </table>	Response	Percentage	Strongly Agree	47%	Agree	40%	Disagree	7%	Strongly Disagree	7%
Response	Percentage										
Strongly Agree	47%										
Agree	40%										
Disagree	7%										
Strongly Disagree	7%										
Do you expect that with the support of the CMA role, you will have more time to use your skills effectively?	15 Responses Strongly Agree Agree Neutral Disagree Strongly Disagree <table border="1"> <thead> <tr> <th>Response</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Strongly Agree</td> <td>33%</td> </tr> <tr> <td>Agree</td> <td>40%</td> </tr> <tr> <td>Neutral</td> <td>20%</td> </tr> <tr> <td>Strongly Disagree</td> <td>7%</td> </tr> </tbody> </table>	Response	Percentage	Strongly Agree	33%	Agree	40%	Neutral	20%	Strongly Disagree	7%
Response	Percentage										
Strongly Agree	33%										
Agree	40%										
Neutral	20%										
Strongly Disagree	7%										

Do you expect that with the support of the PASA role, you will have more time to use your skills effectively?	15 Responses Strongly Agree Agree Neutral Disagree Strongly Disagree 20% 47% 20% 7% 7%
How do you feel about the current staffing levels on the unit without the CMA role?	15 Responses Overstaffed Adequately Staffed Understaffed 7% 53% 40%
How do you feel about the current staffing levels on the unit without the PASA role?	15 Responses Overstaffed Adequately Staffed Understaffed 7% 60% 33%
Do you have any concerns about integrating the CMA role into the unit?	15 Responses No Concerns Minor Concerns Moderate Concerns Major Concerns Very Significant Concerns 87% 6.5% 6.5%
Do you have any concerns about integrating the PASA role into the unit?	15 Responses No Concerns Minor Concerns Moderate Concerns Major Concerns Very Significant Concerns 60% 27% 7% 7%

Questions	Post-Implementation (n=35)										
The CMA role has decreased my workload.	21 Responses Strongly Agree Agree No Change Disagree Strongly Disagree <table border="1"> <thead> <tr> <th>Response</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Strongly Agree</td> <td>48%</td> </tr> <tr> <td>Agree</td> <td>33%</td> </tr> <tr> <td>No Change</td> <td>10%</td> </tr> <tr> <td>Disagree</td> <td>10%</td> </tr> </tbody> </table>	Response	Percentage	Strongly Agree	48%	Agree	33%	No Change	10%	Disagree	10%
Response	Percentage										
Strongly Agree	48%										
Agree	33%										
No Change	10%										
Disagree	10%										
I believe the CMA's tasks (ex., medication administration) appropriately met the demands of the unit.	20 Responses Strongly Agree Agree Neutral Disagree Strongly Disagree <table border="1"> <thead> <tr> <th>Response</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Strongly Agree</td> <td>40%</td> </tr> <tr> <td>Agree</td> <td>50%</td> </tr> <tr> <td>Neutral</td> <td>5%</td> </tr> <tr> <td>Disagree</td> <td>5%</td> </tr> </tbody> </table>	Response	Percentage	Strongly Agree	40%	Agree	50%	Neutral	5%	Disagree	5%
Response	Percentage										
Strongly Agree	40%										
Agree	50%										
Neutral	5%										
Disagree	5%										
Because of the support of the CMA role, I had more time to use my skills effectively.	20 Responses Strongly Agree Agree Neutral Disagree Strongly Disagree <table border="1"> <thead> <tr> <th>Response</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Strongly Agree</td> <td>45%</td> </tr> <tr> <td>Agree</td> <td>45%</td> </tr> <tr> <td>Neutral</td> <td>5%</td> </tr> <tr> <td>Disagree</td> <td>5%</td> </tr> </tbody> </table>	Response	Percentage	Strongly Agree	45%	Agree	45%	Neutral	5%	Disagree	5%
Response	Percentage										
Strongly Agree	45%										
Agree	45%										
Neutral	5%										
Disagree	5%										
Did you have any concerns about the CMA role into the unit?	20 Responses No Concerns Minor Concerns Moderate Concerns Major Concerns Very Significant Concerns <table border="1"> <thead> <tr> <th>Response</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>No Concerns</td> <td>85%</td> </tr> <tr> <td>Minor Concerns</td> <td>10%</td> </tr> <tr> <td>Very Significant Concerns</td> <td>5%</td> </tr> </tbody> </table>	Response	Percentage	No Concerns	85%	Minor Concerns	10%	Very Significant Concerns	5%		
Response	Percentage										
No Concerns	85%										
Minor Concerns	10%										
Very Significant Concerns	5%										
How satisfied are you with the implementation and impact of the CMA role on your work?	20 Responses Very Satisfied Satisfied Neutral Dissatisfied Very Dissatisfied <table border="1"> <thead> <tr> <th>Response</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Very Satisfied</td> <td>55%</td> </tr> <tr> <td>Satisfied</td> <td>35%</td> </tr> <tr> <td>Neutral</td> <td>5%</td> </tr> <tr> <td>Dissatisfied</td> <td>5%</td> </tr> </tbody> </table>	Response	Percentage	Very Satisfied	55%	Satisfied	35%	Neutral	5%	Dissatisfied	5%
Response	Percentage										
Very Satisfied	55%										
Satisfied	35%										
Neutral	5%										
Dissatisfied	5%										
The PASA role has decreased my workload.	16 Responses Strongly Agree Agree No Change Disagree Strongly Disagree <table border="1"> <thead> <tr> <th>Response</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Strongly Agree</td> <td>38%</td> </tr> <tr> <td>Agree</td> <td>38%</td> </tr> <tr> <td>No Change</td> <td>19%</td> </tr> <tr> <td>Disagree</td> <td>6%</td> </tr> </tbody> </table>	Response	Percentage	Strongly Agree	38%	Agree	38%	No Change	19%	Disagree	6%
Response	Percentage										
Strongly Agree	38%										
Agree	38%										
No Change	19%										
Disagree	6%										
I believe the PASA's tasks (ex., toileting, turning, feeding, and ambulating) appropriately met the demands of the unit.	16 Responses Strongly Agree Agree Neutral Disagree Strongly Disagree <table border="1"> <thead> <tr> <th>Response</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Strongly Agree</td> <td>38%</td> </tr> <tr> <td>Agree</td> <td>44%</td> </tr> <tr> <td>Neutral</td> <td>6%</td> </tr> <tr> <td>Disagree</td> <td>13%</td> </tr> </tbody> </table>	Response	Percentage	Strongly Agree	38%	Agree	44%	Neutral	6%	Disagree	13%
Response	Percentage										
Strongly Agree	38%										
Agree	44%										
Neutral	6%										
Disagree	13%										

Because of the support of the PASA role, I had more time to use my skills effectively.	16 Responses Legend: Strongly Agree (Red), Agree (Purple), Neutral (Blue), Disagree (Green), Strongly Disagree (Yellow) <table border="1"> <thead> <tr> <th>Response</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Strongly Agree</td> <td>31%</td> </tr> <tr> <td>Agree</td> <td>44%</td> </tr> <tr> <td>Neutral</td> <td>13%</td> </tr> <tr> <td>Disagree</td> <td>6%</td> </tr> <tr> <td>Strongly Disagree</td> <td>6%</td> </tr> </tbody> </table>	Response	Percentage	Strongly Agree	31%	Agree	44%	Neutral	13%	Disagree	6%	Strongly Disagree	6%
Response	Percentage												
Strongly Agree	31%												
Agree	44%												
Neutral	13%												
Disagree	6%												
Strongly Disagree	6%												
Did you have any concerns about the PASA role into the unit?	16 Responses Legend: No Concerns (Red), Minor Concerns (Purple), Moderate Concerns (Blue), Major Concerns (Green), Very Significant Concerns (Yellow) <table border="1"> <thead> <tr> <th>Response</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>No Concerns</td> <td>50%</td> </tr> <tr> <td>Minor Concerns</td> <td>38%</td> </tr> <tr> <td>Moderate Concerns</td> <td>13%</td> </tr> </tbody> </table>	Response	Percentage	No Concerns	50%	Minor Concerns	38%	Moderate Concerns	13%				
Response	Percentage												
No Concerns	50%												
Minor Concerns	38%												
Moderate Concerns	13%												
How satisfied are you with the implementation and impact of the PASA role on your work?	16 Responses Legend: Very Satisfied (Red), Satisfied (Purple), Neutral (Blue), Dissatisfied (Green), Very Dissatisfied (Yellow) <table border="1"> <thead> <tr> <th>Response</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Very Satisfied</td> <td>25%</td> </tr> <tr> <td>Satisfied</td> <td>44%</td> </tr> <tr> <td>Neutral</td> <td>19%</td> </tr> <tr> <td>Dissatisfied</td> <td>13%</td> </tr> </tbody> </table>	Response	Percentage	Very Satisfied	25%	Satisfied	44%	Neutral	19%	Dissatisfied	13%		
Response	Percentage												
Very Satisfied	25%												
Satisfied	44%												
Neutral	19%												
Dissatisfied	13%												
My work unit is adequately staffed.	16 Responses Legend: Strongly Agree (Red), Agree (Purple), Neutral (Blue), Disagree (Green), Strongly Disagree (Yellow) <table border="1"> <thead> <tr> <th>Response</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Strongly Agree</td> <td>44%</td> </tr> <tr> <td>Agree</td> <td>31%</td> </tr> <tr> <td>Neutral</td> <td>19%</td> </tr> <tr> <td>Disagree</td> <td>6%</td> </tr> </tbody> </table>	Response	Percentage	Strongly Agree	44%	Agree	31%	Neutral	19%	Disagree	6%		
Response	Percentage												
Strongly Agree	44%												
Agree	31%												
Neutral	19%												
Disagree	6%												

Appendix I

Itemized Budget for Staffing Model Project

Item	Description	Cost	Total Cost
Research	PL time spent researching UAP roles	\$39/hour x 35 hours	\$1,365
Planning Meetings	Meeting with CNO, HR and PL to develop plan for hiring new roles.	\$325 (CNO) + \$117 (PL + HR) x 3 one-hour meetings	\$1,326
Hiring New Roles	Cost of: CMA x 2	257/shift CMA (six 12-hr shifts per week)	\$1542
	PASA x1	18/hour PASA (40 hours per week)	\$720
Implementation Meetings	Two Staff meetings with Unit to prepare them for the project start.	\$225/hour of approx. 30 staff per meeting for 15 minutes of a 1 hour meeting	\$450
Unit Leadership Rounds	Weekly rounds with project leadership team (NM 50/hr, 3ANM 40/hr, CNS 50/hr, PL39/hr)	\$130 x 16 thirty-minute check in with staff and leadership	\$2080
Post Implementation Meetings	Meetings with staff for Data collection (PL, NM, 1ANM, HR)	\$350 x 4 thirty-minute meetings	\$1400
Data Analysis	Time spent analyzing the data	\$39/hour x 48 hours	\$1872
Publication of Data	Time spent search where to submit manuscript and presenting results	\$39/hour x 10 hours	\$975
			\$11,730