OPTIMIZATION OF ADVANCED PRACTICE CLINICIAN BILLING: THE FIRST KEY STEP TO CREATING AN APC-SPECIFIC ONBOARDING WITHIN A HEALTHCARE ORGANIZATION

by

Jordan Marie Overstreet

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DEDICATION

This is dedicated to Aaron, Easton, and Everett.

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I would like to give special thanks to my family. I especially want to thank my husband, for your unwavering faith in me. Thank you for taking this journey with me. I am so blessed to have a partner as loving and kind and fun as you! To my two sweet boys, you are my reasons why. To my mom, my sounding board and editor-in-chief. Thank you, for talking me off more than one ledge. Special thanks to my committee: Dr. Yoshi Colclough, Dr. Susan Luparell, and Dr. Amanda Lucas. Thank you for your constant support and direction, I can't imagine having a better team in my corner. I credit much of my personal growth throughout this process to the three of you. Lastly, to my site stakeholders (who know who they are), you donated many hours of your own time to help me succeed and for that, I am forever grateful.

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ABSTRACT

Advanced practice clinicians (APCs) have proven to be a cost-effective solution to meet the demands of increasing needs for providing high-quality healthcare, these clinicians continue to report difficulty transitioning into their role. Organizations that employ APC-specific onboarding programs have resulted in improved role transition with reports of increased provider confidence, increased interdisciplinary collaboration, and improved provider competencies. One healthcare organization sought to develop and implement an APC-specific onboarding program. *Problem*: A healthcare organization was lacking an APC onboarding program to support and provide professional development for APCs. A needs assessment of 90 APCs in the organization resulted in over 30% of responses, reporting feeling less than confident in the skills to independently select billing codes for patient encounters. Also, 60% of respondents were interested in education for the optimization of billing practices. *Methods:* After collaborating with organizational stakeholders, it was determined a comprehensive educational intervention would be created. A video series of 15 educational modules was created and disseminated to all APCs along with a post-interventional survey. *Results:* 7 of the 90 APCs responded to the post-interventional survey resulting in positive, but inconclusive data. Due to slowed billing resulting from the pandemic, billing data was unavailable for analysis during the timeline for the project. Of the survey responses, 57% reported the intervention was useful for providers of all experience levels and 43% reported it was most beneficial for newly licensed or hired providers. *Conclusions:* While the project cannot state the intervention resulted in the optimization of APC billing practices, a comprehensive educational program was created and disseminated with positive responses from APCs participating in the survey. More work needs to be done to determine the effects of the education on billing practices. However, positive survey feedback indicates the intervention would be a feasible, beneficial first step and contributed to the development of a comprehensive onboarding program for all APCs within a healthcare organization.

CHAPTER ONE

INTRODUCTION

Introduction

In the absence of structured onboarding or training, newly licensed nurse practitioners (NPs) face a gap in the role transition from registered nurse (RN) to advanced practice clinician (APC). By implementing a structured framework to onboard newly licensed APCs, providers will show increased competence in several areas of practice. Specifically, providers will have improved documentation competence resulting in a decreased rate of billing and coding errors. Implementation of this portion of an onboarding structure has the potential to improve reimbursement rates and decrease administrative costs associated with billing and coding. This project lays the groundwork to potentially improve provider revenue with optimized billing, resulting in financial support to create a sustainable APC-specific onboarding process.

Background

Nurse practitioners are nurses who received advanced training, typically a master's or doctorate-level degree. They are a subset of APCs who provide high-quality care with improved patient outcomes in primary, acute, and critical care settings. Other APCs include physician assistants (PAs), certified nurse midwives (CNMs), certified registered nurse anesthetists (CRNAs), and clinical nurse specialists (CNSs). The utilization of these highly skilled APCs is a strategy to decrease costs within the current healthcare climate, while continuing to improve the quality of care (Kleinpell et al., 2019; Liu, et al., 2020). In a 2010 position statement, the

Institute of Medicine (IOM) supported postgraduate educational programs for NPs. However, the American Academy of Nurse Practitioners (AANP) does not support *mandated* nurse practitioner residency programs for new graduate practitioners (2019). Wiltse Nicely & Fairman (2015) suggest that the AANP has taken this stance to maintain a role of autonomy within the profession and separate the education and training experiences of NPs from their medical doctor counterparts, who are required to complete residencies after completing medical school. Currently, research supporting transitional training for NPs focuses on the impact of such programs on provider satisfaction, retention rates, and confidence to practice independently. As Wiltse Nicely and Fairman (2015) point out, indirect correlations can be made between improved provider confidence and satisfaction with patient outcomes, yet the data is still needed to support this position.

Because research linking quality of care, patient outcomes, and formalized APC onboarding is limited, organizations can initially focus on the financial implications for improving the transition to practice for APCs, as finance is the base to support their utilization. The process for reimbursement requires specific documentation on the part of the practitioner, which is then reviewed by coding specialists for accuracy. It is frequently documented that APCs state inadequate training with coding and billing, as this subject is not comprehensively taught in APC educational programs. As of 2013, half of NP programs in the US provided structured education on billing and coding; no updated data was available in terms of NP education for provider billing (Magdic, 2013).

Most published APC onboarding and training programs have a dedicated portion to billing, which is necessary for the providers to follow organizational-specific direction as to how they can best document and select billing codes for accurate reimbursement. While APCs have proven to provide high-quality care with decreased costs to the organization, it is imperative that they accurately code for patient visits, not only substantiating their monetary benefit within the organization but also supporting the use of such onboarding programs in return. It is necessary that providers precisely document in the patient's medical record to assure that the accurate International Classification of Disease, 10^{th} Revision (ICD-10) code has been selected. The ICD-10 code is used for tracking patient visits, diseases, outcomes, and billing for the patient's payor source (i.e., Medicare/Medicaid, private insurance, or self-pay) for the visit (Olmstead, 2018).

Scope of Problem at Project Site

The site for this project is a hospital system in Southwest Montana, which runs two hospitals and several urgent care sites, as well as offering out-patient specialties such as internal medicine, family practice, pediatrics, and other subspecialties. The organization employs an APC manager who oversees the daily operations of 90 APCs within the organization. The position of APC Manager was created in 2019, thus, many facets of APC support, training, and improvement are continually being modified to meet the changing needs of the organization.

Upon formal interviews with the APC manager, it was noted that the organization needed to create an APC-specific onboarding process. The current standard was that APCs were hired and received formal human resource training like all other employees of the hospital, and then they are sent to their respective fields to practice fully independently within their scope. Some new hires are employed in specialty areas with more APCs already in place who may serve as informal mentors, while other new hires do not have any resources or support from fellow APCs. The APC manager spoke specifically of the need for creating expectations, evaluation dates, as well as improved credentialing within the medical staffing office.

Organizational Goals

Fortunately, the System Director and Education and Development Coordinator have voiced support for creating a template for a new graduate NP program within the facility. At this time, the pandemic and other financial constraints have paused the discussion for further development of this template. While an NP residency program is still on hold, the system employs a method of cross-walking between quality and safety education for nurses (QSEN), the IOM, and other organizations to meet their nursing education competencies, mainly for RNs. This model is a recommended approach for the orientation and continuing education of advanced practice registered nurses (APRNs) as well (Hicks et al., 2018). One aspect of QSEN competencies is proficiency in quality as well as informatics, which includes comprehensive, accurate documentation and billing.

Through various informal interviews within the education leadership, current APCs, and managers, a gap in transition to practice for newly hired APCs has been identified. A 5-Whys analysis was performed to determine the barriers to transition for APCs (see Appendix A). Stakeholders implied a multifactorial culture that caused the perceived lack of support for APCs within the organization. The first factor being that the organization historically has been behind in adapting programs for APCs, due in part to its location, as was a lack of a network with larger healthcare systems or medical training programs. In addition, the organization has not had a history of employing many APCs. Thus, APCs did not have a strong presence to voice a need for change and development of an APC training program.

Finally, site stakeholders voiced an additional factor in the lack of robust programs for

APCs was based on perceived relationships between physicians and APCs. According to stakeholders, historically physicians see APCs as competitors and hesitate to hire them with fear of losing profits. Physicians' strong power in the organization may have prevented from developing a program for APCs improvements. This barrier may have resulted in reluctance to silo finances strictly for the improvement of APCs. In contrast, literature supports *improved* profit margins for physicians and increased patient volumes with the use of APCs (Brooks & Fulton, 2019). However, it is important to note that this is one barrier for improved role transition and professional development of APCs.

However, with the rapidly increasing population and associated burden on the healthcare system, as well as competing healthcare organizations moving into the area, this organization has been exploring improving methods for delivering an increased volume of high-quality care in more economically savvy ways. This translated to the utilization of additional APCs throughout the organization. In the last three years, the number of APCs within the organization have nearly tripled. Because of this rapid growth of APCs, the organization now has increased pressure to properly onboard and train APCs. Adequate onboarding is necessary to ensure that the highest quality of care is provided, and providers have sustained job satisfaction (anecdotally correlating to increased engagement and retention rates). In addition, this provided optimal timing for project implementation.

Needs Survey

To pursue the organizational improvement of APCs' billing competence, a needs-assessment survey (Appendix E) was disseminated to all 90 APCs within the system. With a 33% response rate from all APCs in the organization (n=31), 6.45% of providers reported being

"Not confident at all" and 35.48% stated "Somewhat confident" with billing and coding;, and 61.29% and 16.13% reported being "interested" or "very interested", respectively, in additional education to optimize billing practices. With the negative financial impacts of the 2020 pandemic and economic strain on healthcare facilities, a rapidly growing population in the area of the organization, and an increased use of APCs to provide care for the community, the organization will benefit from an improved APC's competence by implementation of a billing and coding training plan.

Purpose

This project aimed to improve the transition for newly hired APCs. The objective was to create a process improvement with the implementation of an educational module to optimize APC billing practices. With the implementation of a pilot APC billing training program, the ultimate goal of the project was to create a foundation of a comprehensive onboarding program for all newly hired APCs and expand to an organization-wide practice.

Project Adaptations

During the development of the intervention for the project, site stakeholders expressed the need for a more comprehensive model for APC billing education. This request prolonged the development phase of the intervention, shortening the period for which APC providers could participate and data could be collected. Additionally, due to revenue holds and delays caused by the COVID-19 pandemic, the site informed that billing processes were now facing delays from 2 to 5 months. The original proposal for the project included assessment of provider billing data. While voluntarily reported billing data could still be collected using anonymous surveys of participating APCs, this data were considered to be minimally impacted due to current billing delays. Because billing data had low probability of significant change during the project, providers were only asked to participate in the interventional module and then a post-intervention survey. Post-intervention survey data would assess for the efficacy and appropriateness of the intervention, indicating potential feasibly for long term use of the intervention.

CHAPTER TWO

REVIEW OF LITERATURE

Search Methods

An exhaustive review of the literature was performed using several online databases. Web of Science, CINAHL, and OVID were utilized to perform searches of literature pertaining to “APC billing optimization”, “guidelines for healthcare billing education”, and methods for “reducing downcoding by healthcare providers”. Search parameters were set for data within the last ten years. Additional keywords searched included: *billing errors, coding, onboarding, training, residency, fellowship, mentorship, and* other billing keywords all with parameters of literature pertaining to APCs. Limited literature was found, and a meeting with the dedicated library specialist for the College of Nursing expanded the search to include business and financial databases. Further, searches included literature for evidence to support specific interventions, which improved provider coding and billing accuracy. A total of 15 articles pertinent to the search parameters were found, see Appendix F for table of literature review.

Literature was reviewed to determine: A) the implications for APC-specific training B) the effects of lack of training for APCs, C) different process improvement plans for improving provider billing, and D) APC-specific interventions focused on improved provider billing and coding.

Implications for APC-Specific Training

The researcher found data supported positive patient outcomes with NP primary care providers, however NP educational options vary widely across the nation, and NPs continually express the difficulty transitioning roles from RNs to APCs (Urbanowicz, 2019). However, recent work suggests improved role transition with the use of postgraduate training or APC-specific onboarding programs (Spychalla et al., 2014; Taylor et al., 2017; Zapatka et al. 2014). Current findings reflect improved provider confidence, interprofessional collaboration, and decreased costs to healthcare organizations with the use of such programs. However, many healthcare organizations do not utilize APC-specific onboarding or training programs and risk increased turnover, costs to the organization, provider dissatisfaction, and impaired interprofessional collaboration (Bush et al.; Taylor et al. 2017; Zapatka et al. 2014).

Effects of Lack of Adequate Training

Provider coding errors resulting from providers selecting codes that are lower than the difficulty and complexity of the patient encounter are referred to as downcoding errors. The Centers for Medicare and Medicaid Services (CMS) reports that in 2019, over $1 billion in revenue was projected to be lost for downcoding errors alone (CMS, 2019). In one retrospective study of specialty cardiovascular procedures, over $600,000 of revenue was lost from provider downcoding errors over a five-year-period (Ayub et al, 2018).

Literature supports a lack of universal training for billing, not only for APCs but physicians as well. Numerous studies and reviews assessed the need for billing and coding education. Up to 75% of surveyed providers completely disagreed that their medical training adequately prepared them to accurately bill and code for patient encounters (Waugh, 2014). When APCs were surveyed, NPs as well as PAs, emphasized a need for additional training to improve knowledge with billing and coding (Brooks & Fulton, 2020).

<u>Improving Provider Billing</u>

Data from projects (below) for billing improvement focused on targeted training for resident physicians as well as APCs over a wide variety of healthcare settings and specialties. Various interventions have been assessed for improved provider confidence and accuracy with medical billing. In addition to improved documentation compliance and reimbursement, all providers saw increased accuracy of billing and coding (Brooks & Fulton, 2019; Bang et al. 2018). Moreover, these sources supported a variety of process changes and interventions, which resulted in provider billing improvement represented by provider feedback as well as chart auditing (Joshi-Patel et al., 2019; Gala & Chiag, 2012; Peacock et al., 2019; Nguyen et al., 2017; Waugh, 2014). Studies that utilized interventions to improve provider billing and coder accuracy saw increased revenue of over $200 per provider note (Waugh, 2014), over $2,000 per provider weekly (Gala & Chiag, 2012).

<u>APC-Specific Interventions</u>

Improved provider billing and coding competencies resulted from the use of various interventions. Interventions varied from online learning modules, desktop, or pocket-size billing prompt cards, in-person learning, and classroom lectures. All studies resulted in improved accuracy of selected billing and encounter codes except for one isolated finding. Nguyen et al. (2017) found that structured in-person educational sessions with additional small group discussions did not result in statistically significant improved provider billing and coding. The authors cite this intervention has otherwise been supported as successful to improve provider billing competency. A potential reason could be that providers were not incentivized by the billing and coding selection as it was a military setting; thus, reimbursement was not altered by their billing/coding as it is in other healthcare settings. At this time, there are no published data to support one singular intervention as being superior for improving APC confidence or accuracy relating to billing and coding. Additionally, there are no specific guidelines for methods to improve billing and coding education for APCs.

Summary

APCs report improved job satisfaction, competence, confidence, and interprofessional collaboration when a specific APC training framework is employed to orient newly hired providers into an organization. One integral component of provider training is billing and coding, which, if done incorrectly, can result in immense reimbursement discrepancies. Literature supports several interventions that result in improved provider billing and coding accuracy such as online learning modules, pocket billing cards, and in-person training. However, no specific APC-targeted training guideline has been developed or studied.

CHAPTER THREE

METHODS

Process Improvement Framework

To illustrate how a billing improvement intervention was arrived, Appendix C outlined contributions of this intervention to the long-term goal of improved APC role transition within the organization. The needs assessment previously explained used a rapid cycle performance improvement (RCPI), more specifically, a plan-do-study-act (PDSA) cycle. A PDSA was appropriate specifically as the intent was to implement small interventions and monitor progress and changes more frequently. This system is an action-based framework that cycles through different implementations as outcomes implicate and alterations must be made to reach the goal of the project. This framework was particularly useful as evidence was lacking for this specific intervention, thus requiring a fluid plan to alter as needed (Tehaar et al., 2021). Examples of PDSA cycles for this project are presented on Appendix D.

Agency Description

The site for the project was a healthcare organization which operates two hospitals, outpatient clinics, specialty clinics, and stand-alone urgent care sites. The target population of the project was all APCs who bill for service. All 90 APCs were included in the distribution of the intervention; however, some worked as administrators or did not bill for patient care, thus a lower response rate was anticipated. Key stakeholders included all APCs, specifically those who voiced interest in the needs assessment survey. Additional stakeholders includes the compliance department and billing and coding specialists who would potentially see a benefit from improved documentation and billing compliance as a result of the intervention. Recruitment was done via email, facilitated through the APC manager and system director who sent reminders to the target population Primary barriers to the implementation included time constraints and either missing the email or the lack of necessity to complete the intervention. Those providers who reported high confidence with billing and coding and no interest in further education likely did not participate in the project. An initial strengths, weaknesses, opportunities, and threats (SWOT) analysis was performed to address and prevent possible barriers to implementation (Appendix B).

Design

The objective of this project was to optimize APC billing and coding through the implementation of a process change. The plan for implementation was to create and distribute an online educational module which was distributed to all 90 APCs within the organization. Online education was selected based on the results from the needs assessment survey. A pilot-study intervention—the educational module—was created using Microsoft PowerPoint and disseminated to all APCs. Survey data included provider's perceptions of the intervention, perceived benefits for providers within the organization, and if providers felt they could improve their billing practices. Simple, descriptive statistics were used to describe the findings. As discussed previously at the end of Chapter 1, modifications to this plan were necessary due to unforeseen delays in implementation. Amended goals based on the restricted timeline and limited data became 30% of survey responses that would support the use of the pilot training.

Additionally, the goal was for the majority of survey responses to support that the tool was useful for either newly hired providers or all providers within the organization.

Development of Online Educational Intervention

For the development of online education, information was utilized from the 2021 CMS regulations for provider billing and coding. This updated information included how providers can use time alone to support a selected CPT code for patient encounters. Because the organization requested comprehensive billing education covering all practice areas, rather than brief introductory education, 15 separate educational videos were created. Information from multiple publications was assembled to optimize billing and coding such as adequate documentation to support a selected billing code and classifying the difference between different encounter types (Jaqua et al, 2020; Eramo, 2020; Millette, 2020; Nicoletti, 2016;).

Additional resources were compiled to give providers a streamline approach to understanding the requirements to meet the selected billing code (Schuman, 2018). Another module focused on tips to include in documentation to support additional interventions. These interventions are ones which the APC provides but may not be accurately capturing within their billing and coding selection (Nicoletti, 2016). Videos were then uploaded to a YouTube website. The list of informational video titles was: (a) Introduction to APC Billing Optimization, (b) Components of Documentation, (c) Introduction to Billing and Coding Definitions, (d) Advanced Billing and Coding, I Explanation of (relative value units) RVUs, (f) Preventing Undercoding, (g) Frequently Missed Billing Codes, (h) Primary Care, (i) Inpatient Documentation and Billing, (j) House Calls and SNF Documentation, (k) Home Health

Documentation, (l) Procedural Documentation and Billing, (m) Explanation of Desk Prompts, (n) Billing Nurse Visits, and (o) Billing and Documentation Reminders.

Module Distribution

The APC manager emailed the APCs a link to instructions and educational modules via organizational system. A follow-up survey was sent simultaneously, to be completed after providers viewed the intervention. The training modules were available for four weeks, and providers were able to utilize any pertinent training modules for their current practice or experience level.

Data Collection

Initial data was collected through the 5 Whys analysis through information interviews of stakeholders (Appendix A). Surveys were created and assessed using the website Survey Monkey. Simple descriptive statistics were used to analyze both the needs assessment survey and as well as the post-intervention survey. Data collection of both the needs assessment survey and post-intervention survey lasted four weeks. The last portion of the survey allowed the participants qualitative feedback on the billing optimization educational modules.

IRB Procedures

For this project Institutional Review Board (IRB) exemption was approved by the Montana State University IRB committee. No patient data or protected health information (PHI) was collected. Providers participation was voluntary and their identity (i.e., names/title/practice setting) was anonymous. All information was stored on the DNP student's laptop with password protection.

CHAPTER FOUR

RESULTS

Results

The purpose of this project was the optimization of APC billing practices within a healthcare organization. A pilot study intervention was created to lay the foundation for a robust APC onboarding process change. Out of 90 APCs who received the intervention and survey, seven APCs responded to the survey. The analytics from the YouTube website revealed the channel was viewed by 70 separate viewers and 31% of those views (22) were from the link to the introduction video. The website analytics did not differentiate if individual views were from unique internet IP addresses. The demographic data for survey respondents are listed in Table 1. Of the seven responding APCs, five were NPs and two were PAs. Years of experience ranged from 1-5 years up to greater than 20 years.

Table 1. Survey Respondent Demographics (n=7)

Educational background	
	Nurse Practitioner: 5 (71.43%)
	Physician's Assistant: 2 (28.57%)
Years of Experience	
	<1 year: 0
	1-5 years: 2 (28.57%)
	6-10 years: 3 (42.86%)
	11-15 years: 1 (14.29%)
	16-20 years: 0
	>20 years: 1 (14.29%)

Data from the post-intervention survey (n=7) revealed five of the seven APCs felt the intervention contained new or useful information to apply to clinical practice; two responses were neutral. When asked if the information provided in the learning modules improved provider confidence to independently select billing codes for patient encounters, one strongly agreed, five agreed, and one was neutral. When asked if the educational module was useful for APCs within the organization, four reported the intervention was "a useful tool for providers of all experience levels," and three reported the intervention would be "most useful to newly licensed or newly hired providers." None of the survey respondents reported the tool was not useful for APCs within the organization. Table 2 illustrates each question related to the perceived impact of the intervention on APCs.

Table 2. Survey Questions and Responses

Table 2: Survey Questions and Responses	
Question	Response
The module contained new or useful information for practice as an APC	Agree 5: (61.43%) Neutral: 2 (28.57%)
Based on the information or tools provided, I feel more confident to independently select billing codes for patient encounters	Strongly agree: 1 (14.29%) Agree: 5 (71.43%) Neither agree or disagree: 1 (14.29%) Disagree: 0 Strongly Disagree: 0
The educational module:	Is a useful tool for providers of all experience levels: 4 (57.14%) Would be most useful to newly licensed of hired providers: 3 (42.86%) Is not useful for APCs in this organization: 0
The most useful/beneficial piece of the module was:	Explanation of billing codes: 2 (28.57%) Review of necessary documentation: 0 Review of newest guidelines: 0 Printable desk prompts: 0 Tools/tips to optimize billing practice: 3 (42.86%) Entire module: 2 (28.57%)

When comparing survey response data, those who responded feeling neutral to the module's newness and usefulness reported 6–10 years of work experience as an APC, and those who reported the module would be most beneficial for newly licensed and newly hired APCs were the same group. Four participants who reported the module provided new/useful information were NPs while a neutral response to this statement was one NP and two PAs.

In the qualitative feedback portion, three of the seven participants responded with the following remarks: “(name redacted), this is excellent. Your project will be impactful for so many”, “appreciate the content”, and “will be helpful for new grads for sure. Should be part of the didactic as well.”

CHAPTER FIVE

DISCUSSION

Discussion

This project aimed to improve the role transition for newly hired APCs. The objective was to create a process improvement with the implementation of an educational module to optimize APC billing practices. While the objective was met, it is not entirely clear how well the intervention improved the optimization of APC billing practices as a result of limited data. The original plan called for assessment of post-training billing data to assess effectiveness, but due to the COVID-19 pandemic, billing cycles were delayed which prevented collection of data outside of survey responses about perceived effectiveness. Despite, this module would serve as the foundation for a larger process improvement for onboarding APCs within a healthcare system.

Outcomes Related to Literature and Framework

While the focus of this work was to create a process change for onboarding of newly hired APCs, the majority of participants (57%) felt the intervention was beneficial for all APCs in the organization. This supports the objective of optimizing APC billing practices. In addition, 71% agreed that the intervention improved their confidence with their ability to independently select billing codes for patient encounters. Survey data conclude that the majority of participants felt the intervention supplied new information that would either be beneficial to all providers within the organization or newly hired/licensed APCs. Additionally, qualitative responses supported the intervention would be beneficial for newly licensed or hired APCs, which indicates that the project can assist the role transition for new APCs.

These findings align with literature that supports the use of *any* intervention (in-person education, online lecture, desk prompts, etc.) to significantly improve provider billing practices. Only one study (Nguyen et al., 2017) was found to have no significant impact on provider billing practices. This work utilized in-person information sessions, which was originally considered but this result and circumstance led to have chosen online training. It will be interesting to compare such educational modalities when possible.

Within the survey, most providers found several individual modules most beneficial for improving their billing practices, while only two of the providers responded that the entire module was beneficial. To analyze this aspect, more detail information such as how long each visit were spent will be required, which is beyond this DNP project. Qualitative responses are also congruent with literature findings of gaps in medical billing education for APCs. Previous research has resulted in significant increases in provider billing data from similar interventions. While billing data was not available due to the intentional delays caused by the pandemic, this data might also be assessed for future projects within the organization.

The majority of the PDSA framework was within the development of the intervention tool itself. An original pilot-program was developed and then redesigned based on feedback from organizational stakeholders. The final question of qualitative feedback in the survey asked for the participant to suggest adaptions the intervention as needed to improve its use and efficacy. Feedback suggests the intervention be disseminated to not only newly licensed or newly hired APCs, but also the academic setting.

Challenges

The major barrier to the implementation of the intervention was the request by organizational stakeholders to create a robust training program after a pilot-study intervention was created and ready for recruitment. The time spent revising the intervention, along with predetermined timelines from the academic requirements, grossly prohibited time for recruitment and restricted data collection. Additionally, the challenges of billing changes resulting from COVID-19 impacted the quality of data collected. Because billing cycles were limited, it was not feasible to have providers track billing data and report changes.

In considering tracking billing data, relative value units (RVUs), are an option for assessing billing practices. RVUs are used to represent many factors of patient care: complexity of care delivered as well as the time, level of medical decision-making, and expenses required to care for the patient (Pickard, 2014). This factor can create a more balanced reflection of provider productivity as an APC may see fewer patients who are higher in complexity compare with a colleague. Additionally, many providers are reimbursed by their employer based on RVU averages. The proposal for this project planned for the assessment of RVU data as to assess billing optimization. However, previously mentioned limitations resulted in the removal of this data analysis. Nonetheless, the potential for longer term assessment of the outcomes certainly exists.

Chavarkar, et al. (2021) discuss several barriers to successfully implement DNP projects. One point is the discussion of the readiness of the organization to implement change. Unlike the recommendations by Chavarkar, et al. (2021), this project did not utilize a formal tool to evaluate the readiness of organizational stakeholders. The use of a formal tool may have been prevented a restricted timeline due to adjusting the intervention for several weeks. Although an initial SWOT analysis was performed to address and prevent these barriers to implementation, it likely resulted in bias as Chavarkar et al. (2021) indicated. A more hands-on relationship with stakeholders and additional time collaborating to develop projects will help for future projects.

The first possible reason for low participation was inconvenience. The survey link was in the email rather than in the module. However, it may have been easier for providers to have the survey link within the educational modules. Additionally, this intervention was released coinciding with major billing and documentation changes implemented by CMS. Providers may have experienced “burn-out” with excessive discussion and education that the facility offered in-person Q&A sessions with billing specialists to address new billing and coding changes. These updates were overlapped with the project modules; thus, the timing of this project was not ideal and may have resulted in decreased provider interest. In addition, the timing of this project coinciding with pandemic, providers may not have had additional capacity for practice change. The buy-in for participation was under-appreciated in the SWOT analysis, which may have contributed in impaired recruitment.

A final possible reason for the small participation rate is this author’s experience with providers’ informal discussions relating to billing and coding. Often providers have voiced disinterest in billing and coding as they have a perception that the monetizing care diminishes the purpose of their calling to work in healthcare. Tang et al. (2017) discussed the disconnect between healthcare providers and coders, and their qualitative data suggested at times these disconnected relationships resulted in perceived barriers. This study along with the anecdotal experience of discussions with APCs has supported a sense of negative perceptions towards billing.

Limitations

While a needs-assessment survey supported the interest and need for improved APC billing and coding education, there was limited participation from the convenience sample of APCs with a total of seven out of the 90 APCs. Since website analysis supported at least 22 individual visits to the module, it is assumed that more than these seven viewed the modules. Due to the small sample size and sampling techniques, the project cannot state the intervention optimized APC billing practices.

Recommendations for Future Work

While the purpose of the project focused on implementation in a healthcare organization, survey data support the use of this educational module, or similar education, within an APC program. One participant added the comment, “this should be part of the didactic,” implying the need for billing guidelines to be covered in the academic setting of APC programs. The current curriculum for this author’s educational program contains a course on healthcare finance and budgets; however, this course does not cover instruction on provider billing and coding education. This DNP student suggests considering including the billing and coding education in new curriculum.

DNP Essentials

The development of this project addresses several aspects of the Doctor of Nursing Practice essentials. The initial interest of this project was inspired by the middle-range Nursing Intellectual Capital Theory (NIC), which came to light in clinical practice when the author saw an anecdotal decrease in APCs' undervaluing the care provided during patient encounters. The emphasis of this theory incorporates organizational collaboration among the healthcare team via social capital, human capital sustaining professional development of the nurse, structural capital which supports the growth of the nurse, and so on (Covell, 2008). All of these foundations have an influence on patient outcomes as well as the organizational outcomes .

These components correlate to many of the DNP essentials such as Essential I: scientific underpinnings for practice. This was achieved with the integration of theoretical underpinnings as well as use of scientific literature to support the development of the intervention. Essential II: organizational and systems leadership for quality improvement, was met through various meetings with organizational stakeholders as well as integration of quality improvement models (QSEN). This aligned organizational values with evidence-based practices. Essential IV: information systems for the improvement and transformation of health care was met with the integration of how information systems are utilized properly to optimize billing practices, as well as data collection to assess provider billing data. Essential VI: inter-professional collaboration for improving patient and population health outcomes was achieved through the collaboration of stakeholders of various roles within the healthcare team. Theoretical underpinnings also supported the advancement of nursing practice with an intent to increase interdisciplinary collaboration and improve patient outcomes. Lastly, Essential VIII: advanced nursing practice was central to the heart of the project. The goal of implementing onboarding interventions was to foster improved role transition for APRNs. While the objective was to create a process improvement intervention focused on optimization of APC billing practices, the aim was to improve the role transition for newly hired APCs. This aim has a much broader implication to improved patient outcomes, increased interdisciplinary collaboration, and improved competency of the APC.

Feasibility and Plan for Sustainability

The purpose of this project was to implement a pilot intervention for process improvement, leading to the optimization of APC billing practices in a health care organization. Limitations of implementation relating to the pandemic and limited survey results did not yield robust data to conclude the intervention use resulted in optimized billing practices. The survey results *did* indicate a positive learning experience for the APCs resulting in a perceived improved confidence with billing practices and indicated value for newly licensed or newly hired APCs. This project creates a foundation for future projects to build upon to develop comprehensive APC onboarding to promote improved role transition, interprofessional collaboration, competency, and confidence of the APCs.

The project intervention served as a feasible process change to easily implement for new-hire APCs. The intervention is easily sustainable with little-to-no cost to the organization as the intervention would need to be updated with any new regulatory changes to billing. It is easily accessed by providers from personal or work devices and can be referenced as needed. Also, because the modules are split into shorter videos, content can be accessed based on need or area of practice, rather than long informational sessions, which may not be pertinent to all APCs. In conclusion, this DNP project has created a foundation of a comprehensive onboarding program for all newly hired APCs. Thus, this DNP project can be a model of such program components and further can be expanded to an organization-wide practice.

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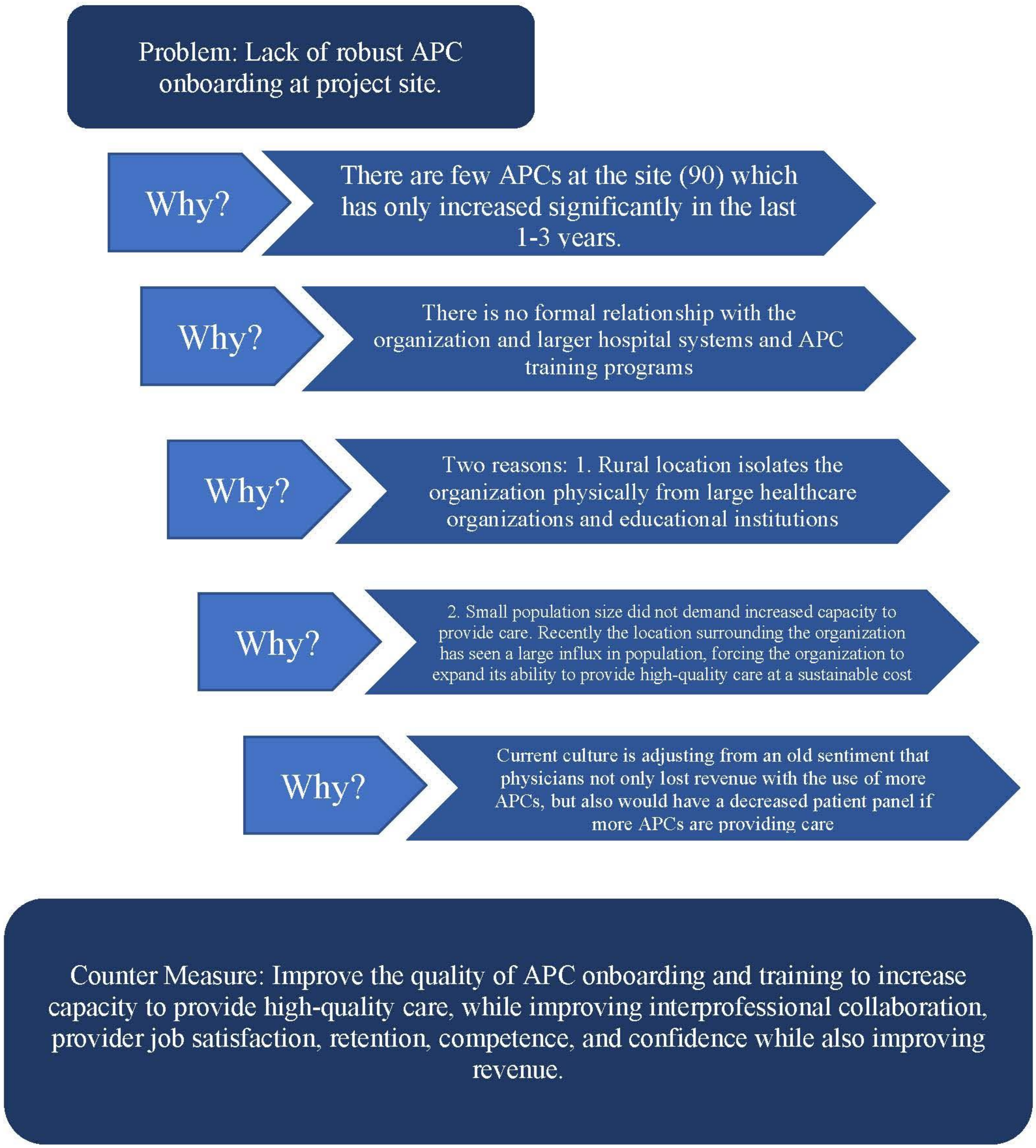
APPENDICES

APPENDIX A

5 WHYS ANALYSIS


Problem: Lack of robust APC onboarding at project site.
Why?
There are few APCs at the site (90) which has only increased significantly in the last 1-3 years.
Why?
There is no formal relationship with the organization and larger hospital systems and APC training programs
Why?
Two reasons: 1. Rural location isolates the organization physically from large healthcare organizations and educational institutions
Why?
2. Small population size did not demand increased capacity to provide care. Recently the location surrounding the organization has seen a large influx in population, forcing the organization to expand its ability to provide high-quality care at a sustainable cost
Why?
Current culture is adjusting from an old sentiment that physicians not only lost revenue with the use of more APCs, but also would have a decreased patient panel if more APCs are providing care
Counter Measure: Improve the quality of APC onboarding and training to increase capacity to provide high-quality care, while improving interprofessional collaboration, provider job satisfaction, retention, competence, and confidence while also improving revenue.

APPENDIX B

SWOT ANALYSIS

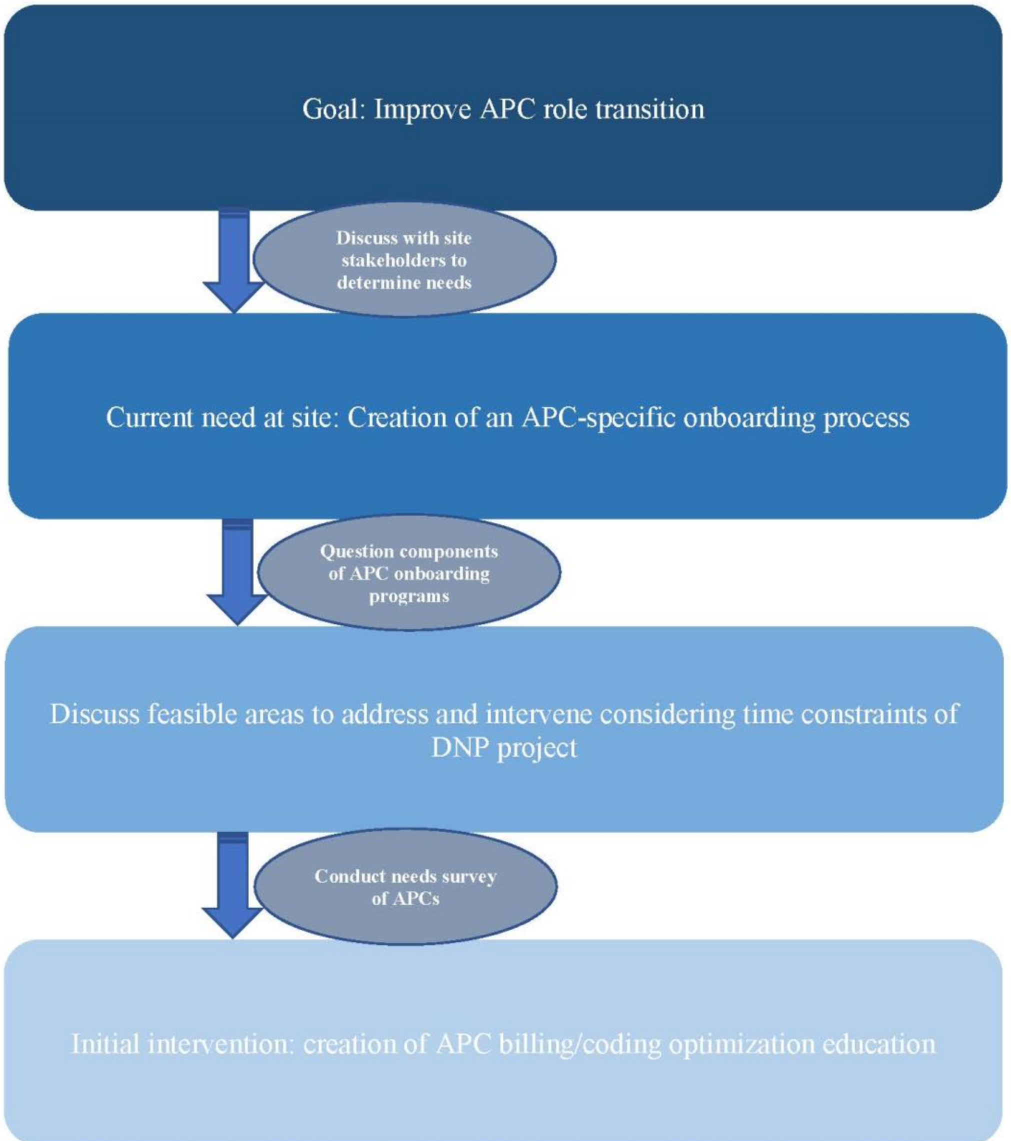
SWOT Analysis

Strengths	Weaknesses
Approval from the APC director and manager and voiced need for formalized on-boarding structure Initial piece of a structured onboarding program. Support from educational department head APC reflect need for structured on-boarding, report deficit in training with billing Possibility to generate improved reimbursement, improved provider valuation of for degree of complex of medical decision-making and complexity of care Providers may be motivated by compensation or increased RVU to participate	No direct pressure or need for providers to participate Takes additional time for providers to complete more education Potentially will not increase the existing knowledge Online educational module may not be completed in full, no way to monitor how engaged provider is in learning activity Single component to a larger process improvement for APC onboarding; may have a small or minimal impact related to the overall goal of improved role transition for APCs
Opportunities	**Threats**
Opportunities for providers to see increased bonuses and productivity with improved documentation/billing Supports a just culture of learning, professional growth, and interdisciplinary teamwork Opportunity to create financial support for a more robust APC training program: Opportunities to monitor provider progress, provide feedback and clinical decision making and plans of care, and fostering confidence	Potential to have no effect on RVU values, thus no change in reimbursement Increased awareness in provider documentation and billing may result in increased awareness which results in changes not directly related to the education itself Current healthcare changes due to the pandemic may result in fewer patient encounters or increased telehealth visits which may alter billing data Time requires to complete ad adapt modules and meet academic requirements

APPENDIX C

ARRIVAL AT BILLING OPTIMIZATION IMPROVEMENT AS A PIECE OF APC ROLE TRANSITION IMPROVEMENT

Arrival at Billing Optimization Improvement as a Piece of APC Role Transition Improvement



APPENDIX D

PDSA CYCLES

PDSA Cycles

Cycle 1:

Plan: Assess need or interest in billing/coding optimization by APCs

Do: Survey APCs for need and interest in intervention

Study: Evaluate data from provider survey

Act: Implement online intervention for optimization of billing and coding based on provider survey response

Cycle 2:

Plan: Collect pre-intervention data from provider dashboards

Do: Implement online billing/coding education

Study: Evaluate provider dashboard data after educational module completed

Act: Adjust module to add desk prompt cards OR continue to assess data for longer period before altering intervention

APPENDIX E

APC SURVEY WITH RESPONSES

APC Survey with Responses

1. What is your educational background?
   - Advanced Practice Nurse: 22 (70.97%)
   - Physician Assistant: 9 (29.03%)

2. How long have you been practicing as an APC?
   - Less than 1 year: 2 (6.45%)
   - 1-5 years: 5 (16.13%)
   - 6-10 years: 11 (35.48%)
   - 11-15 years: 6 (19.35%)
   - 16-20 years: 3 (9.68%)
   - >20 years: 4 (12.9%)

3. How long have you been working for the organization as an APC?
   - Less than 1 year: 8 (25.81%)
   - 1-5 years: 15 (48.39%)
   - 6-10 years: 4 (12.9%)
   - 11-15 years: 4 (12.9%)
   - 16-20 years: 0
   - >20 years: 0

4. Did your APC education program include training for billing and coding for patient encounters?
   - Yes: 17 (54.84%)
   - No: 14 (45.16%)

5. If you have received additional training for billing and coding, how long ago was this training?
   - NA: 9 (29.03%)
   - 1 year or less: 3 (9.68%)
   - Between 1-5 years ago: 15 (48.39%)
   - Greater than 5 years ago: 4 (12.9%)

6. How confident are you with your current knowledge to accurately select billing codes for patient encounters?
   - Not confident at all: 2 (6.45%)
   - Somewhat confident: 11 (35.48%)
   - Confident: 12 (38.71%)
   - Very Confident: 3 (9.68%)
   - Extremely confident: 3 (9.68%)

7. Please select the following statement which most accurately reflects your understanding of the role of billers and coders:
   - "It is the job of the biller/coder to ensure my documentation accurately reflects the billing code I've selected for the patient encounter": 29 (93.55%)
   - "Billers/coders may up-code a patient encounter if my documentation supports a higher CPT code": 1 (3.23%)
   - "Billers/coders will down-code my patient encounter if my documentation does not support the CPT code selected": 1 (3.23%)

8. I have a strong understanding of what an RVU is and how this value affects my productivity and compensation as an APC:
   - Completely Agree: 7 (22.58%)
   - I would like more education on RVUs: 18 (58.06%)
   - RVUs are not tracked for my position and do not affect my productivity or compensation: 6 (19.35%)

9. I feel my onboarding experience within the organization adequately trained me to confidently select billing codes for patient encounters:
   - Agree: 4 (12.9%)
   - Neutral: 13 (41.94%)
   - Disagree: 14 (45.16%)

10. I am interested in additional training to optimize billing and coding for patient encounters:
    - Very interested: 5 (16.13%)
    - Interested: 19 (61.29%)
    - Not interested: 7 (22.58%)

11. The following education would be most beneficial to me to improve and optimize my billing (select all that apply):
    - In-person training: 11 (35.48%)
    - Online educational module: 17 (54.84%)
    - Stream-lined billing algorithm hand outs: 12 (38.71%)
    - N/A, I do not need additional billing/coding training: 5 (12.13%)

12. Provide additional comments or needs for APCs at this organization regarding billing/coding, personal experience with billing/coding as an APC, or ways to improve this education:
(3 responses)
    - "Additional time codes in snf are challenging for me"
    - "We need clarity on state laws regarding reimbursement. Is it truly less that physician providers? Are PAs and NPs different? XXX (removed for anonymity) has seemingly used this as a way to limit APCs from seeing new patients."
    - "Meeting with my coding and billing person has been the most helpful since I became an APC"

APPENDIX F

LITERATURE REVIEW TABLE

Citation:	Conceptual Framework	Design/ Method	Sample/ Setting	Major Variables Studied and Their Definitions	Measurement of Major Variables	Data Analysis	Study Findings	Strength of the Evidence
1	None, emphasis on the Flinter Model discussed	Qualitative Descriptive Study	N=9 Post graduate training programs, with purposeful convenience sampling. Recorded online phone interviews analysis of training programs for NPs/PAs	Compared competencies set by QSEN and NONPF and mapping of program curricula within the competencies	Expert panel coding of audio recordings to extract themes	Modified verbatim transcription model with two-person coder systematically reviewed to derive themes	All domains of QSEN and NONPF were present in each program's curriculum. Variability present in areas of autonomy/confidence, chronic disease mgmt., professionalism, and stress mgmt.. Most frequent competencies of safety, PCC, HC delivery systems, and independent practice. Least frequent: ethics, policy, IT, and scientific foundation.	Development of a 12-point matrix to satisfy QSEN and NONPF competencies to be utilized by programs for refining or developing NGNP training Cross-walking between competencies to ensure comprehensive education Limitations: sites chosen based on directors who were members of two professional organizations which may dictate the modeling of program curriculum. Level of Evidence: IV
2	NA	Program description	Mayo Clinic, Rochester, MN. Div. of HIM	Formalized onboarding for APCs	NA	Post orientation survey	Provide frequent performance feedback throughout orientation	Level of evidence: V
3	NA	Survey Design	N = 254 Nationwide (U.S.). Convenience sampling, email/online survey sent from NP program directors to graduates with power analysis	DV – Job satisfaction scores IV – Participation in postgraduate NP education program	Misner NP Job Satisfaction Scale, individual factor analysis for reliability/validity of scale (6-item scale) Cronbach's alpha of 0.97	t-test, two-tailed	Significant difference in mean scores for those in the intervention group on 4/6 scale items with p-values of: Collegiality - .007 Autonomy - .002 Interaction - .006 Growth - <.001 Also significant difference in overall job satisfaction scores for the intervention group p = .003 with multiple	Limitations: emailed/online surveys, highly unpredictable response rate, postgraduate education is internally funded and unregulated and can vary widely between organizations, and data collected from large variety of clinical settings (acute, rural, clinic) without consideration of variance between work sites. Level of evidence: III

							linear regression based on years of experience and regulatory agencies as cofounding variables	
4	Grounded Theory; states using the framework utilized by cited authors	Practice Recommendation, Expert Opinion, Literature Review	N = 6 studies reviewed	Analysis of themes from APRN transition to practice relating to postgraduate training/residency	NA	NA	Recommendations: 1. justify program based on cost of turnover, create structured training program with contracted 1-3-year employment, and determine required training hours based on program outcomes. 2. Budget for compensating skilled, experience APRN preceptors/mentors. 3. Utilize standardized tools for program evaluation 4. Need for increased national support of transition programs	Expert opinion, literature review: Level VI. No mention of how literature review was conducted, inclusion or exclusion criteria. Author does note limited literature/data. Author credentials and experience as well as cited resources increase reliability. Found in JBI Translational Research Database
5	NA	Descriptive Critical Appraisal	N = 158 (fellows in 7 cohorts), 4 different clinical sites for APC through different CHS CAP sites in 3 states over a period of 4 years (2013-2016)	Provider workforce cost, turnover cost, revenue collected, and recruitment costs	Not stated	Not stated	APCs hired significantly increased, no data provided, decreasing provider salary expenses. 50% decrease in attrition rates of APCs. Increased revenue. Significant (no data) decrease is recruitment costs.	Level of evidence: V While level of evidence is low, data collection, analysis, etc. not described, this strategic outline provides a model for other prospective APRN/APC postgraduate programs along with persuasive results for the benefits for organizations to create a program of this nature.
6	Grounded Theory	Cohort study, qualitative interviews	N = 7 NP fellows in a VA interprofessional postgraduate fellowship program, West	DV – dialogue from semi structured interviews at 3 intervals before, during, and after the program	Software used for uploading recorded interviews to code themes; categories reviewed by coinvestigators and	Validity and reliability ensured by coauthors and staff meeting	Themes: important to bridge into professional practice from the classroom; increased understanding of health professional roles; commitment to	Level of evidence: II Implications: use of this program creates a bridge for successful transition to primary care provider practice with increased appreciation and understanding of interprofessional roles and collaboration. Limitations: small sample lacking

			Haven, CT. In-person interviewing			regularly and use of content experts for review	interprofessional healthcare team; the need for mentorship as a postgraduate NP	diversity: mostly women from 3 different nursing schools
7	NA	Literature review	Not stated	NP/PA transition to practice	Four themes of importance for transition to practice	Recorded themes	Four major needs to transition to independent practice: gradual clinical responsibility, professional mentorship, educator guidance, enhanced education	Methods not discussed. Limited by literature primarily on primary care setting. Level of Evidence: II
8	NA	Quasi experimental	South Carolina, MUSC Health, all APCs	IV= APC billing algorithm DV = billing error rates, RVU data	Not stated	Not stated	Decreased compliance errors, RVU appropriately attributed to APC, increased physician RVUs,	III Does not state how data was analyzed. Supports use of simplified algorithm for improved APC billing and compliance. Algorithm is used for incident-to billing, which is not used at the site for this project, thus the algorithm cannot be implemented, but still supports improved billing and provider productivity with intervention.
9	NA	Retrospective review	N = 104 EVAR cases reviewed from 2010-2015	Review of patient encounters for accuracy of billing code and correlation with reimbursement data	Not stated	Not stated	Miscoding resulting in a loss of $646,455	III Significant revenue loss due to inaccurate coding
10	NA	Process Improvement Project. PDSA cycles.	Academic children's hospital, Pre and post-intervention chart review	DV = Rates of critical care codes billed IV = Provider education, workshops, and chart reviews	Not stated	Not stated	Increase in monthly averages of critical care billing codes from 42 to 74	IV No control group, increased awareness of billing. Intervention showed 176% increase in accurate billing codes. Implies emphasis on billing accuracies using different modalities improves billing and documentation compliances. Supports PDSA cycles for this form of PI.
11	NA	Quasi-experimental	N= 22, OBGYN residents at an Alabama OBGYN Clinic	DV= coding errors IV = billing and coding curriculum	Chart audits, pre and post-intervention	Paired t-tests, Risher exact test comparison pre & post curriculum	Significant (p=0.007) improvement in undercoding and chart correctly coded charts (p=0.03)	Potential for improved revenue increase of $2,442 for each resident weekly. Supports use of billing/coding curriculum, especially in new providers to optimize billing and improve revenue.

12	NA	Quasi experimental	N=14 Review of revenue from APCs over 12 months in a critical care ICU	DV = revenue generated by APCs IV = billing intervention	Revenue audits, post-intervention surveys	Not stated	Statistics not provided, 16% revenue increase from 2016 to 2016. Post survey = 100% of participants stated satisfaction with education	III Minimal details provided. Supports improved revenue from APCs with billing education interventions
13	NA	Quasi experimental, pretest, posttest over 2-year period	N = 25 Physician and resident learners at an academic family practice (location not stated)	DV= coding accuracy of physicians IV= coding educational interventions	Coders review of 50-60% of patient encounters	Paired t-test, ANOVA	P= 0.90 for change in coding accuracy	III No statistically significant coding accuracy changes post-intervention. Hypothesized lack of improved coding relating to military environment with less incentives for coding accuracy -Supports possible differing ways to intervene and improve provider coding accuracies
14	NA	Quasi experimental	Boston's Children's Hospital, Neurology Department N = 24-27 residents per year over 3 years	DV = chart review accuracies IV = billing and coding interventions for resident neurology practitioners	Review of patient encounter notes and selected coding and billing and correlated revenue associated with the correct billing and coding	Kruskal-Wallis one-way analysis	Doubling of chart accuracy from 44% to 95% accuracy, mean reimbursement rate per note increased by 38%	III Significant increase in revenue, >$30,000 per provider per year. Utilized 4 hours of didactic lecture time, specific to specialty to train for accurate documentation, billing, and coding.
15	NA	RCT	N = 11 3rd year ER residents at a level 1 trauma center	DV = chart reviews for billing/coding, RVU averages, and average hourly income IV = assignment to intervention group for preliminary billing/coding education (classroom in-person lectures)	Review of charts with coding for demographics and specific documentation/charges. Average hourly wage based on reimbursement acquired from billing code as well as RVU.	Multivariate logistical regression, chi-square test	Intervention group with significantly higher RVU to revenue per hour ratio ($p = 0.0112$) and significantly higher odds of using higher levels of coding ($p= 0.0025$)	I Limited to ER residents only with a small sample size; some residence have more experience with charting/billing/coding with other specialty rotations. Emphasizes improved accuracy of higher-level coding with higher reimbursement rates and RVU averages.

APC/APP – Advanced Practice Clinician/Provider
APRN – Advanced Practice Registered Nurse
CAP – Center for Advanced Practice
CHS – Carolinas Health-Care System
DV – Dependent variable
HIM – Hospital internal medicine
IV – Independent variable
NGNP – new graduate nurse practitioner
NONPF – National Organization of Nurse Practitioner Faculties
NP – nurse practitioner
OBGYN – Obstetrics/Gynecology
PCC – Patient centered care
PCP – Primary care provider
PDSA – Plan-Do-Study-Act
QSEN – Quality and Safety Education for Nurses
RVU – Relative Value Units

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APPENDIX G

IRB APPROVAL FORM

MONTANA
STATE UNIVERSITY

INSTITUTIONAL REVIEW BOARD
For the Protection of Human Subjects
FWA 00000165

2155 Analysis Drive
c/o Microbiology & Immunology
Montana State University
Bozeman, MT 59718
Telephone: 406-994-4706
FAX: 406-994-4303
E-mail: cherylj@montana.edu

Chair: Mark Quinn
406-994-4707
mquinn@montana.edu
Administrator:
Cheryl Johnson
406-994-4706
cherylj@montana.edu

MEMORANDUM

TO: Jordan Overstreet and Yoshi Colclough

FROM: Mark Quinn *Mark Quinn CJ*
Chair, Institutional Review Board for the Protection of Human Subjects

DATE: December 17, 2020

RE: *"Optimization of Advanced Practice Provider Billing: The First Key Piece to APP-Specific Onboarding within a Healthcare Organization" [JO121720-EX]*

The above research, described in your submission of December 15, 2020, is exempt from the requirement of review by the Institutional Review Board in accordance with the Code of Federal regulations, Part 46, section 101. The specific paragraph which applies to your research is:

____ (b) (1) Research conducted in established or commonly accepted educational settings, involving normal educational practices such as (i) research on regular and special education instructional strategies, or (ii) research on the effectiveness of or the comparison among instructional techniques, curricula, or classroom management methods.

_X_ (b) (2) Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior, unless: (i) information obtained is recorded in such a manner that human subjects can be identified, directly or through identifiers linked to the subjects; and (ii) any disclosure of the human subjects' responses outside the research could reasonably place the subjects at risk of criminal or civil liability, or be damaging to the subjects' financial standing, employability, or reputation; and (iii) the information obtained is recorded by the investigator in such a manner that the identity of the human subjects can readily be ascertained, directly or through identifiers linked to the subjects, and an IRB conducts a limited IRB review to make the determination required by section 16.111(a)(7).

____ (b) (3) Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures, or observation of public behavior that is not exempt under paragraph (b)(2) of this section, if: (i) the human subjects are elected or appointed public officials or candidates for public office; or (ii) federal statute(s) without exception that the confidentiality of the personally identifiable information will be maintained throughout the research and thereafter.

____ (b) (4) Research involving the collection or study of existing data, documents, records, pathological specimens, or diagnostic specimens, if these sources are publicly available, or if the information is recorded by the investigator in such a manner that the subjects cannot be identified, directly or through identifiers linked to the subjects.

____ (b) (5) Research and demonstration projects, which are conducted by or subject to the approval of department or agency heads, and which are designed to study, evaluate, or otherwise examine: (i) public benefit or service programs; (ii) procedures for obtaining benefits or services under those programs; (iii) possible changes in or alternatives to those programs or procedures; or (iv) possible changes in methods or levels of payment for benefits or services under those programs.

____ (b) (6) Taste and food quality evaluation and consumer acceptance studies, (i) if wholesome foods without additives are consumed, or (ii) if a food is consumed that contains a food ingredient at or below the level and for a use found to be safe, or agricultural chemical or environmental contaminant at or below the level found to be safe, by the FDA, or approved by the EPA, or the Food Safety and Inspection Service of the USDA.

Although review by the Institutional Review Board is not required for the above research, the Committee will be glad to review it. If you wish a review and committee approval, please submit 3 copies of the usual application form and it will be processed by expedited review.

CONSENT FORM FOR PARTICIPATION IN HUMAN RESEARCH AT MONTANA STATE UNIVERSITY

Study title: Optimization of advanced practice provider billing: The first key piece to APP onboarding withing a healthcare organization.

You are being asked to participate in a research study for optimizing advanced practice provider billing. This may help us obtain a better understanding of how to adequately provide billing education to providers and support a more robust onboarding program in the future. This subject was identified as a need both in discussion with the APC Director and Manager as well as supported by anonymous survey data from 31 of 90 APCs within the organization.

Participating is voluntary. If you agree to participate you will be asked to provide data from your provider dashboard which will be deidentified and then engage in a brief learning module for optimizing provider billing. You will be asked to fill out a post-education survey and you can choose not to answer any questions you do not want to answer and/or you may stop at any time. The educational module should take no more than 15 minutes to complete. Finally, you will be asked to submit provider dashboard information two months after the implementation of the educational module.

There are no foreseen risks for participating in this study. Potential benefits for participating in the study include improved understanding of optimal billing practices. This study is not funded and is of no cost to the organization or participant. Please feel free to contact the student researcher directly with any questions or concerns related to the project via the contact email provided. You may email Jordan.overstreet1@student.montana.edu with any questions or concerns and are encouraged to do so. If you have additional questions regarding the rights of human subjects, you may contact the Chair of the Institutional Review Board, Mark Quinn (406) 994-4707, mquinn@montana.edu.

Confidentiality: Your participation will remain confidential with all forms and provider dashboard information kept in password-protected files. No forms with your information will be printed or stored elsewhere. Provider names will be converted to a 4-digit code which will only be known to the student researcher for data analysis and will appear nowhere within the study paper.

AUTHORIZATION: I have read the above and understand the discomforts, inconvenience and risk of this study. I, ________________________ (*name of subject*), agree to participate in this research. I understand that I may later refuse to participate and that I may withdraw from the study at any time. I have received a copy of this consent form for my own records.

Signed:______________________________

Investigator:__________________________

Date:________________

APPROVED
MSU IRB
12/17/2020
Date approved