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Nurse Practitioner Clinical Education: Evaluation of a Clinical Residency Model

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California State University, Northern California Consortium Doctor of Nursing Practice

NURSE PRACTITIONER CLINICAL EDUCATION: EVALUATION OF A CLINICAL RESIDENCY MODEL

A new clinical residency education model was developed and implemented in response to a family nurse practitioner program's difficulty in securing and maintaining qualified preceptors and clinical sites for students in the program, and a community hospital's shortage of nurse practitioners for their rural healthcare clinics. This Doctor of Nursing Practice project conducted an evaluation on this new model. The evaluation results showed that the clinical residency model met standards of nurse practitioner education, incorporated nursing leader recommendations for new clinical models, and proved to be an effective model for clinical education.

Lisa Wilson Hood
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CHAPTER 1: INTRODUCTION

This chapter includes today's healthcare environment changes and the inefficiencies of traditional nurse practitioner (NP) clinical education that have prevented NP programs from increasing growth. A background is given on traditional and popular practices of NP clinical education, standards of NP education, and what changes the nursing profession leaders have recommended as solutions to the problem. This Doctor of Nursing Practice (DNP) project purposed to evaluate a new clinical residency model and its implemented pilot as a possible alternative for clinical education. The new clinical model key points, rationale, and the implemented pilot description are given. Lastly, the theoretical framework will explain the foundation upon which the project was based.

The Problem

The U.S. Department of Health and Human Services has predicted a primary care physician (PCP) shortage of over 20,000 by the year 2020 (USHHS, 2013) that will hit especially hard rural clinics that support a growing underserved population (Siomas, Bavis, Swartwout, Danko, & Delaney, 2016). The many changes in the nation's healthcare, including the increased aging population, the increased population of persons living with multiple chronic diseases, demographic changes, and changes made to insurance policy and reimbursement have contributed to the shortage and need for more PCPs. Since NPs have proven success in patient health outcomes, patient satisfaction, and giving cost-effective care (American Academy of Nurse Practitioners [AANP], 2016), they have been identified as an effective and recognized alternative to filling the PCP shortage gap.

Nurses have noticed the need and increased NP employment opportunities and are responding by seeking more NP education and certification. The public has responded by requesting more undergraduate and graduate nursing programs. The nursing profession and universities have also responded to this demand by opening more traditional, online, and blended NP programs, and increasing enrollment. Even so, programs continue to fall short of demand (Forsberg et al., 2015).

There are several challenges to producing enough well-prepared NPs. The American Association of Colleges of Nursing (AACN) showed that thousands of NP program applicants were denied admission due to faculty, preceptor, and clinical site shortages (AACN, 2012). Universities continue to report a worsening faculty shortage in NP programs (AACN, 2016). Large disparities between NP program faculty and NP clinician salaries contribute to that shortage (Rosseter, 2017). Because of the many changes in healthcare over the last few decades and demand for PCPs, there are simply not enough qualified preceptors for the number of NP programs and students requesting them (Giddens et al., 2014). The 2013 Clerkship Survey found that most NP programs cannot find enough clinical sites and preceptors to sustain their programs (HHS, 2013). The clinical education is a significant portion of the NP program and requires a minimum of 500 hours supervised by a preceptor in an appropriate clinical site. Physician, physician assistant (PA), and NP students all need similar preceptors and clinical sites. The demand for more PCPs has created an increase in these programs and competition for the same preceptors and clinical sites, creating increased competition for a shrinking pool of professionals. The traditional apprenticeship-style NP clinical education model that once worked well is no longer sustainable in the current scarcity of faculty and preceptors (Giddens et al., 2014). Furthermore, beyond the

numerous reasons qualified preceptors and clinical sites are reluctant to participate in NP clinical education, there are simply too few incentives to balance the challenges in educating NP students in today's healthcare environment (Forsberg et al., 2015). All of these difficulties have contributed to NP programs graduating too few NPs to meet the nation's demand.

Problem Statement

Nursing leaders have called for innovative ideas and solutions for these challenges. Healthcare experts want more NPs to fill the shortage and to lead the way in healthcare reform (Institute of Medicine [IOM], 2011). New clinical education models that address current NP program challenges must be explored and developed. Updating NP clinical education is an important issue, one that is of national concern for the nursing profession and the nation's health. If the nursing profession does not answer the demand with sustained growth of clinically well-prepared NPs, they risk losing their rightful place in healthcare reform as they seek to fulfill a significant healthcare need (Giddens et al., 2014).

Purpose

A new NP clinical residency education model was developed in response to a university family nurse practitioner (FNP) program's paucity of qualified preceptors and clinical sites for its current students, and a rural community hospital's shortage of NPs. A new clinical program based on the new model started its first cohort of students in 2017. The purpose of this project was to evaluate the new clinical residency education model and provide data on whether it was developed upon the foundation of NP education standards, incorporated nursing leaders' and healthcare experts' ideals and recommendations for new

clinical education models, and was an effective model for the clinical education of NP students.

Faculty of the university's FNP program and student NP preceptors employed by the hospital were asked to review and evaluate the new clinical residency model used in the newly implemented clinical program. The study results and findings determined whether this new pregraduate residency-style model was an effective and feasible alternative to the previously used apprenticeship-type model at the university. It could substantiate the continued use of the new clinical program and identify strengths and weaknesses of the new model for its improvement.

The study also contributes to the nursing body of knowledge available on nontraditional NP clinical education models in use, and if the model or a similar model may be a viable option for other NP programs. The research on why the current popular education model is not working is abundant, but few new models have been put forth for testing. Innovative and successful clinical NP education models are of interest to the nursing profession and may have significance for the future of clinical NP education.

Background

A background is important for understanding the significance of the problem and the relevancy of the DNP project results and findings. Current and traditional NP clinical education methods, challenges of securing and maintaining preceptors and clinical sites, along with other challenges to growing programs (like the shortage of faculty, NP education best practices and standards, and current national nursing leaders and healthcare expert's recommendations for new clinical models) all contribute to and influence the current NP demand.

The Faculty Burden of the Apprenticeship-style Clinical Model

The apprenticeship-style model of one volunteer preceptor (NP or physician) to one NP student has been used for NP clinical education since the role first developed over 50 years ago (AANP, 2016) and remains the most popular model today. In this traditional model, each NP student finds his or her own preceptor(s) with the assistance of faculty. The program's clinical education takes place at the preceptor's clinical practice and involves the preceptor's patients. Under the supervision of the preceptor, the student gets to practice all the knowledge, theory, and skills he or she has learned in the classroom. Given the wide variety of preceptors and clinical sites, it is unlikely that the students are receiving experiences of equal uniformity, standardization, or even quality.

Faculty assess the clinical site appropriateness for the student and qualifications of the preceptor. The clinical site needs to be safe and provide enough exposure to patients of varied ages and stages who have multiple and varying types of complex problems. The preceptor needs to meet minimum qualifications of clinical experience, academic degree, and certification. The preceptor must have an interest in teaching students, feel comfortable teaching, and have good communication skills. The faculty evaluates whether the student will have a good clinical learning experience with the preceptor, the clinical site, and their patient population. Even after the initial evaluation and meeting, faculty will routinely check the appropriateness and suitability of the preceptor and clinical site and provide ongoing preceptor education on program expectations and student needs. Faculty must also regularly evaluate the student's clinical performance and progress at the clinical site. It is here that students receive valuable feedback from faculty to improve their clinical knowledge and skills, and

where faculty can consult with the preceptor to provide direction and answer questions. Students who are performing poorly or progressing slowly may require more visits from faculty or need to move to another clinical site and/or another preceptor to improve their learning and progress. Faculty must continually evaluate the effectiveness and quality of a site and preceptor and the clinical growth of the student.

The majority of the NP students have multiple preceptors. It can be difficult to find a preceptor and clinical site with a patient population that encompasses all the required types of patients and patient problems that an NP program requires. Instead of one family practice provider, a student may choose to work under an obstetrician and gynecologist, a pediatrician, and a PCP or internist to get all the required elements and hours needed. Students may also elect to do clinical hours in one or more particular specialties, thus, adding another preceptor and clinical site for the faculty to monitor. The sheer number of faculty visits for these assessments burden the NP programs, who generally suffer from a shortage of faculty.

Securing and maintaining contracts with quality preceptors and clinical sites is an additional faculty task. Most times, the preceptor, the owner/officer of the clinical site, and the person who schedules student clinical hours and orientation are not the same person. Sometimes two contracts are required for a preceptor relationship at the clinical site: one for the clinical site and one for the company that employs the providers that care for the clinical site's patients. All of these responsibilities make for a burdensome workload for a traditional clinical program.

The healthcare environment has gradually changed from the 1960s, when there were fewer NP programs and students, and less demand for them. This

meant a lighter burden on programs, faculty, preceptors, and clinical sites. The National Organization of Nurse Practitioner Faculties recommended that one faculty member can indirectly supervise six clinical students, including the planning and coordination required for site visits, assessments, and preceptor education (National Task Force, 2016). This is in addition to time spent for contracting. This can be a tremendous faculty demand for NP programs already experiencing a faculty shortage, further decreasing the ability to provide standardized and excellent clinical education experiences for all students.

Preceptor Barriers

The insufficient supply of preceptors exists because, quite simply, the disadvantages outweigh the advantages, causing reluctance (Forsberg et al., 2014; Webb, Lopez, & Guarino, 2015). The most common barriers have included decreased productivity and the amount of time needed to educate students (Forsberg et al., 2014; Morgan, Brewer, Buchhalter, Collette, & Parrott, 2017). Currently, more preceptors work for large medical organizations instead of, as private practitioners. The demands on productivity have increased due to decreased insurance reimbursement for services, resulting in less time for student education. Preceptor fatigue can ensue when trying to simultaneously accommodate all the needs of the employer, the patient, and the student (Forsberg et al., 2014). Keough, Arciero, and Connolly (2015) stated that some preceptors felt that taking students meant extra work and repeating assessments because students were not prepared for the practicum. Orientation and electronic medical record training have decreased productivity further, while preceptor mobility between jobs has further decreased their availability (Forsberg et al., 2014). Due to limited funding streams from the government for graduate nursing education

(GNE), including preceptor or clinical site remuneration compared to graduate medical education (GME), most NP programs have been unable to pay preceptors, sacrificing a valuable incentive (Forsberg et al., 2014). Even so, universities generally have not been expected to pay, as most programs have relied upon close relationships with preceptors, preceptors' personal ties to the university, and the preceptors' love of teaching or feelings of contribution to the nursing profession as ways to secure and maintain their services (Morgan et al., 2018; Webb et al., 2015). These strings of connection have thinned in the recent past, further straining the shortage.

Recommendations and Standards for NP Clinical Education

Multiple leaders and experts in the healthcare and nursing profession have called for NP clinical education reform. *The Future of Nursing: Leading Change, Advancing Health* is a landmark initiative by the IOM that called for an increased advanced practice nurse (APN) leadership role in healthcare. It examines how the nursing profession, which is the nation's largest healthcare professional group, can change and grow to become a major contributor in transforming America's healthcare for the better (IOM, 2011). It addresses an increased need for APNs, like NPs. It recommended improved NP education, more NP programs, and increased NP leadership and involvement in healthcare reform. It called for increased autonomy and freedom to practice to the full extent of their education, increased APN mentorship, and increased postgraduate competency-based residency programs in rural and critical access areas to improve NP graduates' clinical skills and confidence (IOM, 2011). It also called for nurses to innovate and collaborate with other healthcare professionals in implementing new patient-centered models to improve patient outcomes (IOM, 2011).

The AACN (2011) recently updated the *Essentials of Master's Education in Nursing* (*Essentials …)*. The *AACN Essentials …* are considered the standards of NP education and incorporating them into program curriculum is required for accreditation. The following is a summary of each Essential:

- Essential I: Background for Practice from Sciences and Humanities – Recognizes that the master's-prepared nurse integrates scientific findings from nursing, biopsychosocial fields, genetics, public health, quality improvement, and organizational sciences for the continual improvement of nursing care across diverse settings (p. 4).
- Essential II: Organizational and Systems Leadership – Recognizes that organizational and systems leadership are critical to the promotion of high quality and safe patient care. Leadership skills are needed that emphasize ethical and critical decision making, effective working relationships, and a systems-perspective (p. 4).
- Essential III: Quality Improvement and Safety – Recognizes that a master's-prepared nurse must be articulate in the methods, tools, performance measures, and standards related to quality, as well as prepared to apply quality principles within an organization (p. 4).
- Essential IV: Translating and Integrating Scholarship into Practice – Recognizes that the master's-prepared nurse applies research outcomes within the practice setting, resolves practice problems, works as a change agent, and disseminates results (p. 4).
- Essential V: Informatics and Healthcare Technologies – Recognizes that the master's-prepared nurse uses patient-care technologies to deliver and enhance care and uses communication technologies to integrate and coordinate care (p. 4-5).

- Essential VI: Health Policy and Advocacy – Recognizes that the master's-prepared nurse is able to intervene at the system level through the policy development process and to employ advocacy strategies to influence health and health care (p. 5).
- Essential VII: Interprofessional Collaboration for Improving Patient and Population Health Outcomes – Recognizes that the master's-prepared nurse, as a member and leader of interprofessional teams, communicates, collaborates, and consults with other health professionals to manage and coordinate care (p. 5).
- Essential VIII: Clinical Prevention and Population Health for Improving Health – Recognizes that the master's-prepared nurse applies and integrates broad, organizational, client-centered, and culturally appropriate concepts in the planning, delivery, management, and evaluation of evidence-based clinical prevention and population care and services to individuals, families, and aggregates/identified populations (p. 5).
- Essential IX: Master's-Level Nursing Practice – Recognizes that nursing practice, at the master's level, is broadly defined as any form of nursing intervention that influences healthcare outcomes for individuals, populations, or systems. Master's-level nursing graduates must have an advanced level of understanding of nursing and relevant sciences as well as the ability to integrate this knowledge into practice. Nursing practice interventions include both direct and indirect care components (p. 5).

The clinical experience allows students opportunities to integrate classroom learning into practice (AACN, 2011). Even though the *Essentials …* has been recently updated, little has changed within clinical education. The AACN has stated that APNs have limited resources for clinical education and they

recommended that NP programs “explore, implement, and test innovative or less traditional clinical models” (2015, p. 34) for possible solutions. Therefore, when developing new clinical education models and evaluating them for effectiveness, it is important to ensure they align with NP education standards.

Nursing leaders have discussed the preceptor shortage and its burden on the current model of the NP clinical education model on a national level. Some have made recommendations regarding what new clinical models should incorporate to address weaknesses in current NP education. A think tank of nursing leaders (Giddens et al., 2014) convened on the need for NP clinical education reform and listed several reasons for the needed reform, including preceptor shortage and lack of efficiency and standardization.

Seven themes emerged toward improving the model of clinical education: (a) a collaboration and co-design of NP clinical education between faculty leaders and practice leaders at the national and local levels; (b) standardization of preclinical preparation for student NP clinical practice; (c) standardized examinations of student’s knowledge, skills, and capabilities done preclinically and throughout the clinical program; (d) the clinical program should be competency-based and measure mastery of skills instead of the completion of a set number of clinical hours; (e) immersive clinical experiences instead of episodic experiences; (f) increased interdisciplinary collaboration and experiences; and (g) new innovative teaching methods involving current technologies from the academic and practice environments (Giddens et al., 2014). Trying to improve NP clinical education by implementing these think tank recommendations make working with each student and all their individual preceptors from different organizations nearly impossible.

Nursing leaders and healthcare experts offer important recommendations to consider when developing and evaluating new NP clinical education models. Yet, no new clinical model has been widely accepted as effective and feasible, or popular enough, to replace the apprenticeship-type model.

Background Summary

NP programs face significant challenges in providing quality student clinical education. The popular traditional model used is not without its problems. Other viable options must be explored that meet the standards of NP education and recommendations for changes, while offering solutions for the preceptor shortage and clinical faculty burden of the traditional model.

Family Nurse Practitioner Partnered Residency Education Program

A recent innovative NP clinical residency program has been developed based on the new model: Family Nurse Practitioner Partnered Residency Education Program (FNP PREP). It was implemented in 2017 and was co-designed by nursing faculty of a private university in Central California, and a nearby rural community hospital's executive leadership for the university's FNP program. It attempted to: (a) standardize student clinical education and (b) improve the quality of the student clinical experience amid the preceptor shortage. The concepts of the model and the development process and rationale between the two institutions will be discussed here. A review of the development of this new clinical residency model will specifically evaluate the university clinical program for effectiveness and suitability for other programs.

Key Concepts

The new clinical residency model has two key concepts: First, one university NP program and one practice organization will partner to implement a clinical residency and mentorship program for its NP students. The practice organization supplies the clinical sites and all the preceptors that are employed or affiliated with the practice organization needed to clinically educate all the students of the university's NP program. With this, there is a sufficiently large pool of qualified preceptors, removing the need to look outside for more.

Second, the university's faculty leadership and the practice organization's executive nursing leadership collaborate and co-design the clinical program. They share resources, knowledge, and expertise in order to benefit the clinical program and the NP students. These two key concepts allow for increased involvement of faculty in the student clinical learning experience and at the clinical site and standardization of student clinical education experiences, student assessments, and preceptor education. The clinical program requires a set number of hours that foster clinical skill mastery and develop expertise. The designated student clinical experiences provide a comprehensive assortment of clinically immersive experiences rich with professional interdisciplinary collaborative experiences.

Rationale for a Clinical Residency Model of Education

Instead of working with multiple individual preceptors and clinical sites, the university established an academic/clinical partnership with a community hospital organization within the general community to find clinical placements for all of its students. This hospital organization was a good clinical partner because of its commitment to community involvement and healthcare education, its strong nursing presence in the executive administration, and its large hospital-run rural

health care clinics. It was also chosen because this hospital organization provides care to a diverse, underserved, and disadvantaged population with complex medical problems. Its clinics serve the medically underserved and one is in a critical access site. The academic-clinical partnership co-developed and co-designed the clinical program. A designated NP program faculty member and the hospital's chief executive officer who was an NP designed the program to meet the needs of both the university program and its students, the hospital organization's clinical sites, and its preceptors. It was the mutual collaboration of the academic and clinical practice leaders' visions, needs, and resources that brought forth the implementation of FNP PREP.

The potential benefit from designing the clinical program this way is that all providers and other healthcare clinicians of the hospital are included in the program experience. All of the hospital's providers who meet the standards for quality NP preceptors are encouraged to contribute to the clinical residency as partners and student mentors in the clinical program. Affiliated medical providers who have privileges at the hospital were also encouraged to be preceptors and mentors for the students. The entire hospital organization is encouraged to adopt a mentorship attitude towards the NP students. This collaboration allows for a rich supply of preceptors for the program.

Since all these preceptors were within or affiliated with one organization, there was no longer a need for numerous contracts with multiple providers and organizations. This freed up valuable time for the university's nursing faculty to be present at the clinical site or to further develop the clinical program. More time is allowed for involvement in student clinical experiences at the clinical site, to do more student assessments, to collaborate more with preceptors, and to provide preceptor feedback and education. It allowed time for faculty to routinely meet

with students collectively to discuss the residency, review patient cases, do hands-on procedure-skills workshops, and perform other activities that contribute to clinical learning. It also allowed time and greater ease to standardize student and preceptor education and design a higher quality clinical learning experience that was more comprehensive.

The university and hospital shared resources within the clinical program and for the benefit of the partnership. For example, the hospital contributed equipment for the skills lab and supplies for procedure workshops. The university supplied a skilled pool of student hospital-trained FNP graduates from which the hospital can recruit, thus lowering hospital employment training costs. The collaboration and sharing of the faculty's knowledge of teaching, curriculum, and education standards, and the hospital's executive leadership knowledge of available practice opportunities, preceptors, patients, equipment, and other resources improved the potential of the new clinical residency education model and improved the student clinical experiences.

Overall, this model enhanced and elevated the role and status of preceptors, executive nursing leadership, faculty, and the NP student to each other. It also strengthened the academic/clinical partnership and ownership of its goals.

Standardization

The new model standardized the student clinical experience and clinical assessments of knowledge, skills, and professionalism. Every student had the same clinical sites with similar patient experiences, similar rotations, and similar preceptors. Focus was then placed on helping students master NP practice skills instead of finding qualified preceptors.

The population of patients who visited this hospital and its clinics presented with a variety of complex medical problems. All students had the benefit of serving this diverse and underserved population with education, primary care, and illness and disease management. They learned to be creative and resourceful with the precise type of patient population for which the role of NP was created.

The new model allowed for routine and standardized preceptor training by both nursing faculty and executive nursing leadership. This enforced the preceptor expectations of the hospital organization's clinicians and a mentorship attitude towards the university and students. Collaboration of faculty and preceptors on student clinical experiences are expected to increase due to the routine presence and involvement of faculty at the clinical site. Furthermore, the potential for more collaboration between preceptors and faculty is encouraged. Preceptors were invited to present their expertise to the program and to instruct hands-on procedural skill workshops at the university. Qualified preceptors worked as adjunct faculty and indirectly supervised student NPs in the program. Overall, this new clinical residency model allowed for more collaboration and improved relations between practice leaders in the hospital organization and faculty.

Clinical Rotations

The FNP PREP specializes in primary care, so the student clinical rotations focused on what is most relevant to primary care and family practice. The rotations varied and were immersive (instead of episodic) to allow for increased learning. Specialty rotations were provided and introduced the extraordinary and expanding role of NPs in today's healthcare environment. The majority of the clinical time was spent in primary care rural health clinics and affiliated community physicians' medical offices.

The hospital organization has four different areas in their rural health clinics and has plans for more. Clinic one was a large critical access primary care clinic with visiting specialists that served a small rural community of mostly poor patients. Clinic two was a large clinic near the hospital that was open seven days and evenings a week. It supported mostly a poor population of patients who had Medicaid or no health insurance. This clinic also provided the occupational health needs of the hospital and worker's compensation services for multiple organizations. Near the hospital's emergency department (ED) was a strategically placed rural health clinic that was open late into the evenings and served mostly patients who had day jobs and responsibilities, or those who needed urgent care. Another area of the rural health clinic was specifically dedicated to Medicaid insured or uninsured patients. It contracted with varying specialists, approximately 23, who assisted with initiating and managing highly specialized care and treatment plans for patients with complex medical problems.

Other student clinical rotations involved various hospital specialties and medical offices. The students did clinical rotations with radiology, laboratory, and nuclear medicine departments and learned how to read x-rays, correctly order common primary care tests, and observe and assist in patient procedures. Students rotated through the ED examining and treating patients under the supervision of NP and physician preceptors. Students worked with the intensivist and participated in hospital intensive care unit rounds. They joined the hospitalist team rounds and were supervised while caring for hospitalized inpatients. Students experienced a surgical rotation too.

Community physician practices affiliated with the hospital also joined the clinical program because they were owned by the hospital, or they were also in need of NPs and wanted to join the training and hiring of a potential pool of new

NP graduates. These providers offered additional clinical sites in primary care and specialized care important to primary care and family practice. These sites offered a contrasting experience to the rural health care clinics that have multiple employed providers who are mostly NPs and PAs. These sites were individual or small group practices of pediatricians, obstetricians and gynecologists, family medicine physicians, cardiologists, internal medicine physicians, gastrointestinal specialists, infectious disease specialists, and general surgeons. These preceptors offered students increased opportunities in general surgery office procedures, routine specialty testing and office procedures done in private offices, pediatric chronic and genetic diseases, obstetrics and gynecology, and smaller physician-owned offices.

The partnership also invited the NP students and the program's clinical faculty and leadership to participate in meetings for rural health clinic providers and hospital leadership. The meetings provided disease state education to providers, fostered provider and management relationships over dinner, and discussed activities to improve practice. The NP clinical program was a regular agenda item and allowed faculty and preceptors to discuss ways to improve the student NP clinical education. Likewise, the university provided opportunities for the hospital's preceptors to collaborate with faculty in the classroom and with university leadership at the university campus.

The hospital's executive leadership team included an APN who was an FNP and held the position of chief executive officer (CEO). She used a hands-on mentor approach with the students at the clinical site and was available to answer students' questions and evaluate their clinical performance. This contributed to the mentorship of the students in the clinical program and demonstrated the high-level leadership and management potential of NPs in today's healthcare setting.

Every week faculty met with the NP students to discuss clinical cases, conduct procedure skill workshops, or review students' program needs. Assignments included reflective essays, journaling, case presentations, and SOAP notes. These assignments increased clinical learning and reflection and offered insight on student progress and how to improve the program and student clinical experiences.

Program Goals

The following clinical program's goals incorporated the priorities of both the university and the hospital organization: (a) the clinical program is an educational collaborative designed by the university faculty and the hospital's executive nursing leadership; (b) the student NP clinical education and assessment will be standardized and measurable, with a focus on mastering clinical competencies; (c) the student will have a comprehensive clinical experience with increased professional interdisciplinary collaborative experiences; (d) the student will develop a large network of mentors and colleagues within the community; (e) students will be prepared and confident to care for the underserved and medically disadvantaged community in an NP role upon graduation; (f) the hospital organization will have a large pool of trained and mentored NP graduates to recruit from; and (g) the university program and the hospital organization will each be able to market the clinical residency program to their customers.

Summary of the New Model

This model boasted a challenging educational opportunity and a more clinically robust experience in comparison to most apprenticeship-style clinical programs. It allowed NP programs to reduce time spent on managing contracts, recruiting preceptors, and checking clinical sites. Instead, more time was spent

collaborating with practice leaders to design better curriculum and clinical experiences. It provided the opportunity to standardize the clinical education so that all students enjoyed a quality learning experience. This collaboration elevated and strengthened all participant roles it involved and the new clinical education model offered a larger exposure to different preceptors, types of patients, and specialties than most traditional clinical education models. The review of key concepts of the new clinical model, and how this model was specifically developed, designed, and implemented was knowledge needed for evaluating it.

Theoretical Framework

The theoretical framework used for this project was Kolb's experiential learning theory, which states that knowledge is gained by experience. He described learning as a recurrent process of the students interacting with their surroundings wherein they develop feelings, perceptions, thoughts, and behaviors. The theory is useful for educators who develop and evaluate new learning experiences or for those who critically evaluate new learning education models (Kolb, 1984).

The theory assumes four stages of learning: (a) the Concrete Experience, where the student is experiencing or participating in a new activity, like a patient encounter; (b) the Reflective Observation, where the student is reflecting on the experience; (c) Abstract Conceptualization, where students use logic and analysis to develop symbolic representations and new conclusions; and (d) Active Experimentation, where the students apply new learning into future experiences, thus testing their learning (Kolb, 1984). Concrete Experience and Reflective Observation represent methods of learning or experiences, and Abstract Conceptualization and Active Experimentation represent methods of managing

information or experiences (Compton & Compton, 2017). Effective learning occurs when the student has completed all four stages in the cycle (Kolb, 1984).

In Concrete Experience, the student participates in a new clinical activity. The students spent the entire year in new clinical experiences and integrated the knowledge learned from the classroom into patient care and practice. There were a multitude of tasks and experiences to perform and/or observe, such as office procedures, patient examinations, collaborative meetings, expert clinical practices and surgeries, and varying diagnoses and treatment plans. These were hands-on experiences with mostly patients in clinical practice, but also in the faculty/NP students' weekly meetings and procedural workshops. The new clinical education model gave the students a comprehensive exposure to many types of patients and clinical settings, including specialties.

Reflective Observation is experienced in many ways. First, students must reflect on the history and physical examinations performed on the patients and then formulate a preceptor report and possible plan based on their knowledge and clinical judgement for possible diagnosis and treatment plan. Reflective Observation is inherent to typical NP clinical education. The new clinical education model incorporated further activities to reflect on the experiences. For example, the new model involved weekly meetings between students and faculty to review and share patient cases and other learning experiences. In the new model, students also participated in journaling their overall clinical experiences and their own strengths and needs. This kind of activity was done throughout the clinical practicum. Students had many more preceptors and rotations in this new model, which gave them more and different experiences to reflect upon.

Abstract Conceptualization provides students with new conclusions and learning from experiences. This is also inherent in NP clinical education. For

example, every time the students gave preceptor reports, they received the preceptor's feedback on their performance. This was done several times daily on each patient, each procedure, or intervention. There is new learning in this exercise in that it offers more preceptors for feedback on specialty rotations. The weekly faculty/student meetings also fostered more learning and new conclusions about the activities from the previous week. The required journaling allowed for more in depth sharing as well.

Active Experimentation is the last stage of learning, although the whole cycle is continuous throughout all stages. Again, applying new learning and skills in new experiences is inherent in the typical NP clinical education. The new clinical education model simply added a more robust opportunity for working with different kinds of clinicians, more preceptors of different specialties, and more rotations and experiences than the norm. Its combination of multiple clinical opportunities made it appealing. The increased faculty involvement in the clinical experience and new curriculum and activities to support clinical learning gave the students many ways to actively experiment.

Kolb's experiential learning theory proposed that the four stages of the learning cycle incorporate the preferred learning for the four main learning styles: Divergers, Assimilators, Convergers, and Accomadators. Learning experiences and activities should allow students to use their preferred learning style. Divergers do well with Concrete Experience and Reflective Observation; they are people-oriented and prefer concrete situations versus abstract ideas. Assimilators are strong at Reflective Observation and Abstract Conceptualization and prefer symbolic and thoughtful learning experiences. Convergers do well at Abstract Conceptualization and Active Experimentation; they like to solve problems and test their theories. Accomodators are strong at Active Experimentation and

Concrete Experiences; they excel at problem-solving and goal-setting (Spence Laschinger, 1990). It is suggested that certain types of disciplines gravitate towards particular experiences and competencies. For instance, those in human service disciplines, like nursing, prefer the learning styles of Accommodators and Divergers. Although individuals may lean toward one or two learning styles, they possess the ability to do well in all of them (Kolb, 1984).

The new clinical residency model incorporated NP clinical standards of education and expert recommendations for new and innovative NP clinical models and provided a quality learning experience for the student. The four stages of learning are inherent in NP clinical education; however, the new clinical model incorporated multiple opportunities to go through all four stages using the student's preferred learning style.

The new clinical residency model and FNP PREP appeals to multiple types of learners. It offers multiple activities and clinical experiences, integrating all four learning stages that are relevant to NP education. Leader recommendations for new models are also woven through these stages of learning. Kolb's experiential learning theory is a fitting framework for this DNP project. It will assist faculty and preceptors in evaluating the new residency model for effectiveness in clinically educating NP students.

Summary

New NP clinical education models need to be developed and tested. The new clinical residency model presented here was an opportunity for one university and community hospital to collaborate and provide a more robust, comprehensive, and efficient method of clinically educating NP students. The DNP project evaluated the new model. Standards of NP education, recommendations of nursing

leaders and healthcare experts, and effectiveness were considered in the evaluation. The evaluation determined if the new model can be an alternate means of clinically educating NP students in today's changing healthcare environment that is facing a shortage of preceptors.

CHAPTER 2: REVIEW OF THE LITERATURE

This chapter discusses the literature reviewed for the DNP project. It was helpful in the development and evaluation of the new clinical residency model. A preliminary literature search was conducted to identify existing pregraduate NP residency-style clinical education models. No articles were found, which suggests that this new model may be the first of its kind. The search was widened to include postgraduate residencies and other pregraduate clinical education models exclusive to NP education. Recommendations for the development and evaluation of alternative clinical education models, including residencies, were also searched. This information was helpful for comparing and evaluating the new clinical residency model. Additionally, a search was conducted for NP clinical education best practices that made recommendations for improving the clinical learning experience. The search was limited to only recent peer-reviewed articles.

The review of literature is divided by recommendations for residencies and new clinical models of education, alternative models of NP clinical education, postgraduate residencies, and best practices for NP clinical education. A gap analysis is included because of the lack of pregraduate residencies found in the literature.

Recommendations for NP Residencies

The IOM's (2011) landmark initiative, *The Future of Nursing: Leading Change, Advancing Health,* called for an expansion of postgraduate transitions to practice residency programs and resources to fund them. In general, the research showed that postgraduate NP residency programs support transition to practice.

Brown, Poppe, Kaminezky, Wipf, and Woods (2015) administered a written questionnaire using a Likert scale and focus group discussions with

attendees at a regional NP residency forum in September 2013 in Seattle, Washington. Questionnaires and forum discussions centered around key outcomes and cost measures for sustainability within an NP residency program. There were 52 participants, with 96% women, 89% from the West Coast, and 44% interested in or planning on developing a residency program. Most of the participants were practicing as certified NPs and teaching in medical centers, with the majority performing as clinicians. More than 150 recommendations were rated on impact and feasibility, a unique strength of this study. Thirty percent were considered both high impact and high feasibility. Eleven percent were considered easy to implement. The highest-ranking impacts were having a leadership component and an interprofessional nature and collaborative practice. This was a small study and may not be generalizable due to its size.

Sciacca and Reville (2016) did a literature review to find guideline, design, and evaluation methods of postgraduate NP residencies. Residencies found were for both general transition to practice and specialty residencies that were 9 and 12 months in length. They found a limited amount of information on residencies and evaluation methods for residencies and suggested that this information be published. They called for accrediting bodies to adopt uniform definitions for programs to use. They recommended that residencies use evaluation methods that included (a) a capability tool with competencies and milestones, (b) self-reflection exercise, (c) mentorship, and (d) learning goals. It recommended the use of e-portfolios for the residents to create comprehensive clinical portfolios during the residency program (Sciacca & Reville, 2016). These studies and recommendations are relevant for developing and implementing new NP clinical education models resembling residencies.

Recommendations for New Models of Clinical Education

A think tank of nursing leaders (Giddens et al., 2014) convened to discuss the need for NP clinical education reform. There was general agreement that with today's shortage of preceptors, there is a need for an updated model of clinical education to meet the growing NP demand. They made recommendations for programs to develop and share innovative models of NP clinical education incorporating the following changes: (a) collaboration and co-design of NP clinical education between faculty leaders and practice leaders, (b) standardization of preclinical preparation, (c) standardized student examinations, (d) competency-based assessments, (e) immersive clinical experiences, (f) increased interdisciplinary collaboration and experiences, and (g) new innovative teaching methods involving current technologies from the academic and practice environments (Giddens et al., 2014).

Van Leuven (2014) stated that universities need to allow faculty of NP programs more time for clinical practice. She encouraged academic/clinical partnerships to assist with securing preceptors for programs. She stated the partnerships would allow clinical sites to "grow their own" providers by recruiting NP graduates who rotate through their sites as students. Overall, she stated the demand for NPs nationally warranted increased NP program funding.

Sheikh (2014) promoted using service learning to expand clinical sites for NP education. She encouraged partnerships between NP programs and local and state agencies to provide for the community's underserved population needs. She recommended adding service learning to the practicum to embed community cultural competence and increase students' experiences of working with patients with limited resources.

Drayton-Brooks, Gray, Turner, and Newland (2017) stated that today's challenges in securing preceptors and clinical sites for the traditional model of clinical education warrants a new look at alternative models and untapped sources for clinical capacity. They listed geriatrics and long-term care, low-risk observational units, convenience care retail clinics, federally qualified healthcare clinics, school-based primary care clinics, wellness centers, occupational health centers, and correctional centers as potential sites for NP clinical education. They also recommended expanded clinical hours for NP students who are placed at clinical sites that are open weekends, evenings, and nights, like hospitals. Additionally, encouragement was given for maximizing academic/clinical partnerships and offered advice on keeping those partnerships strong by building stakeholder relationships, showing appreciation to preceptors, streamlining the evaluation process, assuring student readiness for practicum, and developing and maximizing the clinical educating capacity.

Alternative Models of NP Clinical Education

Within this section, various models of NP clinical education are presented. Clark, Kent, and Riesner (2018) implemented a dyad model in their pediatric NP program. They paired two students with one preceptor to combat difficulties in securing preceptors amid competition with other schools. They also combined the role of preceptor and adjunct faculty and filled this position with providers who worked at partner community healthcare centers (CHCs). This decreased the number of preceptors and clinical sites needed and reallocated money otherwise spent on adjunct faculty to the CHCs to incentivize the preceptor/faculty and the CHCs. The "faculty preceptors" were given adjunct faculty status and preceptor training. Each faculty preceptor and the paired students shared the patient

assignment/schedule for the day. The students consulted with each other and reported to their supervising preceptors/faculty. The faculty preceptors reported to the program coordinator and full-time faculty in charge. Their program received good student feedback on the new model's use and expect that the change will allow for more growth in their program (Clark et al., 2018).

The NP attending model is much like the dyad model assigning two students to one NP preceptor. This model was piloted between a community health center and a public university and improved clinical productivity and educational effects (Keough, Arciero, & Connolly, 2015).

Drayton-Brooks et al. (2017) discussed several models of clinical education that could be "revisited and expanded" to combat the preceptor shortage and competition among schools for clinical sites. One of these models was the master teaching/master clinician clerkship model. Students rotate through different clinical assignments where two students join with each preceptor and six preceptor/student teams report to an on-site master teacher/clinician. This type of model was originally used in medical models and works best when used within large teaching institutions (Drayton-Brooks et al., 2017).

Drayton-Brooks et al. (2017) also discussed using interprofessional education (IPE) to combat the shortage of preceptors and clinical sites. This model fosters a team approach of two or more professions or students of different disciplines collaborating to give quality patient-centered care and master individual professional competencies in the clinical environment, usually at a large teaching hospital. It can improve interprofessional collaboration and appreciation for different healthcare roles. Although it requires change in curriculum, as well as changes in traditional NP faculty and profession perspectives, it coordinates with other schools, faculty, and students of different disciplines. It must allow for NP

students to be precepted by more than NPs and physicians (Drayton-Brooks et al., 2017). It is an additional strategy for NP clinical education that requires fewer preceptors and sites and shares these with schools of different disciplines.

The Veterans Affairs (VA) Centers of Excellence in Primary Care Education (CoEPCE) is a good example of interprofessional education (Rugen et al., 2014). It was a 5-year project that transformed five VA sites from existing physician residency programs to IPEs. This project joined both pregraduate and postgraduate NP residents with other postgraduate professional residents, like physician residents, pharmacy residents, and psychology fellows. Among other responsibilities, the postgraduate NP residents precepted NP students who were part of the IPE/residency programs (Rugen et al., 2014).

Postgraduate Residencies

The VA CoEPCE also offers a postgraduate residency within its IPE model with other professional residents. Students must be recent NP graduates with national certification. “The residency curriculum focuses on the advancement of clinical and diagnostic skills as well as leadership skills through interprofessional experiential learning opportunities and collaborative care … to support the transition to a fully competent and confident provider” (Rugen et al., 2016, p. 268). They share patients with their faculty supervisors and physician residents in a partnership model. There are optional specialty rotations and some have inpatient rotations. They are assigned a faculty mentor and are required to precept NP students in the last half of the program. It is a yearlong program and the NP residents receive a stipend with benefits that equal about half the salary of a full-time NP position (Rugen et al., 2016). Rugen et al. (2016) designed an NP competency tool that found that NP residents had significant improvement in all

competency domains tested. Their study found that the NP residents' competency results were highly correlated with their faculty mentors' evaluations. Additionally, they found that NP residents indicated high satisfaction with the residency program.

Thabault, Mylott, and Patterson (2015) described a pilot residency for newly graduated NPs in a retail health clinic that was an academic-service partnership between MinuteClinic and Northeastern University School of Nursing. It was a 1-year program that paired new NPs with experienced NPs. It focused on providing clinical and business education, transition to autonomous retail practice, and socialization with the various employees involved. Both preceptors and residents were satisfied with the experience and it succeeded in retaining all eight residents for full-time work once the residency was complete.

Best practices for NP Clinical Education

By way of a cross-sectional descriptive study of 698 licensed and practicing NPs who graduated between 2006 and 2011 from an NP program, Hart and Bowen (2016) surveyed perceptions of preparedness for clinical practice in different procedural skills and clinical topics at graduation and in year one of clinical practice. NPs were also asked about their interest in postgraduate residency programs. The survey included an open-ended question regarding preparation for NP practice, of which 354 of the total respondents answered. Ninety-four percent of the survey respondents were women, with an average age of 42. Eighty-six percent of the respondents were nonHispanic White. Sixty-nine percent of them graduated from a FNP program and 90% of them from a MSN program. Respondents felt most prepared for assessment, wellness, pathophysiology, and episodic care. They felt least prepared for chronic conditions, complex patients,

ordering and interpreting diagnostic tests, coding, specialty areas, and coding and billing. Most respondents (62.6%) felt clinically supported in their first year of practice, but most did not agree to having a mentor during that first year. Nearly half (49%) reported that they felt they were practicing outside their comfort or competence levels in their first year of practice. Most respondents (90%) stated they would have been interested in a postgraduate residency program. This was a large study that evaluated NP preparedness at graduation and interest in further education in a residency.

Brooks and Niederhauser (2010) conducted a study at the University of Hawaii at Manoa between 2003 and 2004 on student NP preceptors' perceptions about the importance of faculty member activities at site visits; timing and frequency of site visits; and interaction between the preceptor, faculty, and student. It is important for programs to keep preceptors satisfied and the results revealed that 57% of the preceptors expected faculty to observe NP students with at least two patients at the site visit. Seventy percent of preceptors said the ideal length for a site visit was one to two hours, with more site visits scheduled for students who were having trouble. Concerning faculty and preceptor interactions, 51% of the preceptors said the ideal number of site visits was two per clinical semester, with 90% stating that the first visit should be between weeks one and six, and 68% stating the second site visit should be between weeks five and 10. Sixty-eight percent thought faculty should demonstrate correct techniques and desired behaviors to students. Preceptors were mostly female NPs in their forties, with a mean clinical experience of nearly 12 years. The study was small (n = 108), but substantial.

Bazzell and Dains (2017) reviewed the evidence on preceptor education. Even though the literature was limited on preceptor education for NP clinical

education programs, they found that when there was a structured method used for preceptor education, there was also improvement in the preceptors' clinical reasoning. They also recommended that organizations consider the pressure placed on novice NPs to precept students because it could affect job satisfaction, retention rates, and patient care (Bazzell & Dains, 2017).

Scheibmeir, Stevens, Fund, Carrico, and Crenshaw (2015) studied differences between the amount of time spent on clinical procedural skills in NP and PA programs, and the importance of teaching various clinical procedural skills within the clinical program. One hundred and six respondents of 297 NP (35.6 % response rate) programs and 47 respondents (37.6% response rate) of 125 PA programs contacted participated in the study. Results showed the highest ranking clinical skills were interpreting laboratory, EKG, and performing radiology diagnostic tests, suturing, office procedures, and coding. Overall, PA programs placed more importance and spent more time on clinical procedures than on NP programs. Concurrent evaluation of both NP and PA curriculum is not common, making this study strong. This study showed that clinical faculty of NP programs need to increase learning time spent on procedural skills to improve NP clinical competence and confidence during the first-year practice. NP programs must remain competitive, especially compared to other professional programs since their graduates compete for the same positions as NP graduates.

Wallace and Boller (2014) stated that competencies and reflective journaling are important aspects of NP clinical education. Both help new NPs with role transition and ensure safe and effective care in their new NP jobs. They administered two qualitative surveys to evaluate each rubric they designed. The majority of the experts stated the competencies in the rubric were the most "essential elements of the NP role for a new NP transitioning into practice"

(Wallace & Boller, 2014, p. e16). Both rubrics in the study showed they would be helpful in evaluating NP clinical education and transition to practice. Limitations of this study were that the participation was low (n = 7, n = 8) (Wallace & Boller, 2014). The relevancy of this study was that reflective journaling and meeting clinical competencies was important in the evaluation of the effectiveness of the overall NP clinical education.

A number of factors have led to the current shortage of preceptors for NP students. Among the top perceived barriers were decreased productivity and the amount of time needed to educate students (Forsberg et al., 2015; Morgan et al., 2017; Webb et al., 2015). Furthermore, most NP programs do not pay preceptors for this extra work, like medical and PA programs do (Forsberg et al., 2015), making it harder to compete for preceptors. If new models can motivate preceptors to participate, then NP clinical education can be more successful.

The literature discussed for best practices provides evidence that is helpful in developing clinical curriculum and learning experiences that can be incorporated into a new clinical education model to support improved NP student and graduate competence and confidence. Knowing the barriers and challenges in securing and maintaining preceptors for NP clinical education is also important in developing and evaluating new models for effectiveness.

Gap Analysis

Notably, there were some large gaps in the literature. First, there was no literature regarding pregraduate residency programs for NPs who are not embedded within IPE residency models, only postgraduate residencies. This indicated that no successful, standalone pregraduate NP clinical residency models may exist. However, there was a selection of postgraduate NP residencies both for

primary care and different specialties, although they were not widely available. The postgraduate residencies were generally satisfactory for residents and an effective transition to autonomous practice. In fact, healthcare leaders have called for more postgraduate residencies for NPs. Some recommendations for postgraduate NP residencies were found, but recommendations for new pregraduate models did not mention residencies. Presumably, if postgraduate residencies were effective, would not pregraduate residencies also be an effective model to develop?

No literature emerged that offered standardized evaluation tools for pregraduate residency models. Surely, this is related to the lack of these types of models.

There were a few pregraduate models in use that did not resemble residencies. There were some academic/clinical partnerships found. The literature alluded to this becoming more prevalent in the future. Academic service partnerships were also found and recommended. The literature suggested that innovative new models, rethinking alternative models, and using clinical sites that have been untapped may provide more clinical capacity for NP students.

There was an abundance of information on why the traditional apprenticeship-style model was not working or sustainable, and recommendations for best practices pertaining to NP clinical education. However, it was limited on newly developed and implemented models for examples. It was clear that leaders have not yet found a model they can recommend to generally replace the popular and traditional model, but have called for programs to be innovative and entrepreneurial about implementing new models and requested they share their experiences with the nursing community. Any pregraduate residency-style clinical

education model study would certainly add to the body of nursing knowledge, regardless of its success.

Summary

Overall, the literature search and review showed a lack of pregraduate NP clinical residency models and therefore also a lack of pregraduate residency evaluation tools. There were few alternative models for pregraduate NP clinical education in use. There were some postgraduate residency models that were showing effective results with high satisfaction. There was some success with academic/clinical partnerships. There were recommendations found for both new clinical education models and for postgraduate NP residency models, but none for pregraduate residencies. There was also literature contributing to best practices and incentivizing preceptors for NP clinical education that would be helpful in developing and evaluating new pregraduate residency models.

CHAPTER 3: METHODOLOGY

Design

The focus of this DNP project was to evaluate a newly developed NP clinical residency model. The model was evaluated on whether it met NP clinical education standards, incorporated nursing leaders and healthcare experts' recommendations for new clinical education models, and if it was an effective clinical education model with which to clinically educate student NPs. The evaluation was accomplished by administering an original survey to the university's NP faculty and the hospital organization's preceptors involved in the new clinical program. The survey was developed after researching other possible clinical model evaluation surveys of undergraduate nursing programs and NP postgraduate residency programs that did not fully capture all data wanted. The survey was then reviewed and approved by a panel of nursing leaders with experience in research and publishing, academia, and nursing practice to ensure content validity. The survey study was quantitative in design; however, there was an optional comment space available to solicit subjective comments for each question; this portion of the study was qualitative. There were no investigational, experimental, or special procedures involving subjects in this study.

Sample

The university FNP program's faculty and the hospital organization's preceptors were the intended sample. They consisted of faculty with an NP license who taught theory and clinical classes; faculty who were registered nurses (RNs) without an NP license teaching theory classes; and preceptors who were NPs, physicians, and PAs. Not only were they easily accessible, but they were knowledgeable on NP education and regulation, and were experienced clinicians.

Because they were associated with the clinical program, FNP PREP, they would also be the ideal sample to evaluate the pilot and provide comments for its improvement.

Recruitment and Duration

The subjects were recruited via a survey package with a cover letter explaining why they were chosen and asking for their participation (see Appendix A). The university nursing department and the hospital organization provided the mailing and email addresses for the subjects. The participants received email or post card reminders about the survey every week during the 6-week period in the fall of 2017.

Instrumentation

Nonexperimental survey research was conducted via a 29-question survey, with an additional demographic survey of 9 questions, for a total of 38 participant questions (see Appendix B) . The questions evaluated whether the new clinical education model (a) met the AACN's (2011) *Essentials'...* academic and practice standards of NP education; (b) addressed nursing leaders' and healthcare experts' recommendations for innovative new clinical education models; and (c) was an overall effective design in training NPs. The demographic section included standard questions on race/ethnicity, age, and gender. The survey also requested participant credentials, education level, type of practice, years practiced, NP educator role in the program, and educator experience. The program evaluation section asked the participants to read statements containing desired elements for the new clinical model. Then, they were asked to indicate their agreement that the new clinical residency model allowed for or incorporated that element. Answers followed a 4-point Likert scale, with choices of "Strongly agree," "Agree,"

"Disagree," and "Strongly disagree." The survey was attached to a packet including the description and rationale for the new clinical residency model, and the AACN's *The Essentials* ... (2011) (see Appendix C). The purpose of the packet material was to refamiliarize the participants with the standards of NP education and explain the design and rationale of the new clinical residency model and how it was implemented in the clinical program. The participants were encouraged to review the packet material prior to taking the survey and could refer to it while taking the survey.

Procedure for Data Collection

Participants returned the survey to the university nursing office via mail, email, or hand delivery. Survey collection boxes were placed in the nursing office at the university, at the main hospital clinic in the provider office, and in the front office of the second hospital clinic. The boxes were collected at the end of the survey period and sorted by the primary investigator. Internal Review Board (IRB) Approval was sought and received from Fresno Pacific University Institutional Research, Madera Community Hospital, the Nursing Department of Fresno Pacific University, and California State University, Fresno School of Nursing (see Appendix D). This researcher also successfully completed the NIH online training course "Protecting Human Research Participants" (see Appendix E).

Data Analysis

Data were uploaded onto SPSS. Survey answers for each question were assigned a score according to the respondents' Likert scale answers. "Strongly agree" became a 4, "Agree" a 3, "Disagree" a 2, and "Strongly disagree" a 1. Likert scale answer scores were also entered according to demographic information of the surveyed participant. Descriptive statistics and variability

studies were conducted for each of the survey answers and answers were grouped by topic. Comparison studies of responses from participants with different demographics was conducted to find any statistically significant differences among demographic groups and to detect demographic bias. Comments left on the survey's comment section of each question were listed by survey question. Comparisons on qualitative answers were made.

CHAPTER 4: RESULTS AND FINDINGS

The DNP project evaluated the new clinical residency model. This chapter reports the data from participants who were either faculty of the university NP program or preceptors employed by or affiliated with the hospital organization given on the original survey that evaluated the new model. The results and findings were used to support modifications of the new model and clinical program and substantiate the continued use of it.

The study hypothesized that the survey participants would agree that the new NP clinical residency model

- was developed upon the foundation of NP education standard,
- incorporated nursing leaders and healthcare expert ideals and recommendations for new NP clinical education models, and
- is an effective clinical model to use in educating NP students.

The new model's key concepts are:

- One NP program and one practice organization partner to implement a clinical residency and mentorship program for its students, where the practice organization supplies the clinical sites and all the preceptors needed to educate all the students of the NP program, eliminating the need for outside preceptors,
- The university's faculty leadership and practice organization's leadership collaborate and co-design the clinical program sharing resources, knowledge, and expertise,
- Increased involvement of faculty in the student clinical learning experience at the clinical site,

- A wide range of clinically immersive experiences rich with professional interdisciplinary collaboration,
- Competency-based program with a minimum number of hours to develop mastery through experience,
- Standardized student assessment, and
- Standardized preceptor training.

The clinical program, FNP PREP, that was based on the key concepts of the new clinical residency model, was implemented May 2017. The goals of FNP PREP were:

- To be an academic/clinical partnership that is co-designed by university NP program faculty and the practice organization's leadership to meet the needs of both organizations,
- The NP clinical education and assessment will be standardized and measurable with focus on mastering clinical competencies,
- The student will have a wide range of clinically immersive experiences rich with professional interdisciplinary collaboration,
- The students will develop a large network of mentors and colleagues within the community,
- The students will be prepared and confident for the NP role within the community upon graduation,
- The hospital organization will have a large pool of new NP graduates who they have trained in their community to recruit from, and
- Both the university FNP program and the hospital organization can market the program to their customers.

This new model and clinical program was an innovative opportunity for the university, faculty, hospital organization, preceptors, and students. It was a

collaboration that elevated and strengthened all participant roles involved with it. It has many benefits and many challenges for all involved. It offers a new way of securing preceptors amid the shortage, standardizing student clinical experience, recruiting NPs for hire, collaborating with community partners to improve NP education, and creating multiple mentors for students. The study produced feedback regarding the model's strengths and weaknesses.

Survey Questions

The survey's 29 questions, each measuring different aspects of the new clinical model, asked whether the new model was developed upon the foundation of NP education standards, specifically the AACN *Essentials …*, the national nursing leaders and healthcare expert ideals and recommendations for new NP clinical education models. It further asked if the new NP clinical education model is effective for use in educating NP students (see Table 1).

Survey questions 1 through 15 represented general leadership and clinical skills that supported the AACN *Essentials …* and measured whether educational standards were met by the new clinical model. *The Essentials …* (AACN, 2011) are as follows:

- Essential I: Background for Practice from Sciences and Humanities
- Essential II: Organizational and Systems Leadership
- Essential III: Quality Improvement and Safety
- Essential IV: Translating and Integrating Scholarship into Practice
- Essential V: Informatics and Healthcare
- Essential VI: Health Policy and Advocacy
- Essential VII: Interprofessional Collaboration for Improving Patient and Population Health

- Essential VIII: Clinical Prevention and Population Health for Improving
- Essential IX: Master's-Level Nursing Practice

Survey questions 16 through 22 addressed whether the new model incorporated national nursing leaders' and healthcare experts' recommendations for changes needed in future NP clinical education models, specifically the recommendations pertaining to the seven themes found in the national leaders' dialogue in 2014. The themes were:

- A collaboration and co-design of NP clinical education between faculty leaders and practice leaders both at the national and local level,
- Standardization of preclinical preparation for student NP clinical practice,
- Standardized examinations of student's knowledge, skills and capabilities done preclinically and throughout the clinical program,
- The clinical program should be competency-based and measure mastery of skills instead of the completion of a set number of clinical hours,
- Immersive clinical experiences instead of episodic experiences,
- Increased interdisciplinary collaboration and experiences, and
- Innovative teaching methods involving current technologies from the academic and practice environments (Giddens et al., 2014).

The remaining questions measured other aspects of the new model that were important to the success and sustainability of FNP PREP. They measured if the new model allowed for items like:

- Feasibility of implementation (Question 23)
- A solution for maintaining qualified preceptors (Question 24)
- Standardization of preceptor education (Questions 25)
- Standardization of overall clinical experience (Question 26)

- Faculty involvement at the clinical site (Question 27)
- Increased preceptor involvement in developing the student clinical experience (Question 28)
- Overall effectiveness in preparing NP students for clinical practice (Question 29)

Respondents could answer according to the following Likert scale: “Strongly agree,” “Agree,” “Disagree,” and “Strongly disagree” (No neutral option was given in an effort to elicit critical analysis and decision-making.). Answers were given the following point values: 4 = “Strongly agree,” 3 = “Agree,” 2 = “Disagree,” and 1 = “Strongly disagree.” A rating of 3 or above for each question or topic generally indicated that the area had met the criteria. A rating of 1 to 2 represented the absence of criteria being met. A rating above 2 and below 3 indicated mixed results regarding the meeting of the criteria.

Table 1

Survey Topics and Questions

#	Topic	Question
		Indicate the degree you agree that the new model allows NP students to practice:
1	AACN Essentials	Conducting a comprehensive and systemic assessment as a foundation for decision-making.
2	AACN Essentials	Applying the best available evidence from nursing and other sciences as the foundation for practice.
3	AACN Essentials	Advocating for patients, families, caregivers, communities, and members of the healthcare team.
4	AACN Essentials	Using information and communication technologies to advance patient education, enhance accessibility of care, analyze practice patterns, and improve health care outcomes, including nurse sensitive outcomes.
5	AACN Essentials	Using leadership skill to teach, coach, and mentor other members of the healthcare team.
6	AACN Essentials	Using epidemiological, social, and environmental data in drawing inferences regarding the health status of patient populations and interventions to promote and preserve health and healthy lifestyles.
7	AACN Essentials	Using knowledge of illness and disease management to provide evidence-based care to populations, perform risk assessments, and design plans or programs of care.
8	AACN Essentials	Incorporating core scientific and ethical principles in identifying potential and actual ethical issues arising from practice, including the use of technologies, and in assisting patients and other healthcare providers to address such issues.
9	AACN Essentials	Applying advanced knowledge of the effects of global environmental, individual and population characteristics to the design, implementation, and evaluation of care.
10	AACN Essentials	Employing knowledge and skills in economics, business principles, and systems in the design, delivery, and evaluation of care.
11	AACN Essentials	Applying theories and evidence-based knowledge in leading, as appropriate, the healthcare team to design, coordinate, and evaluate the delivery of care.
12	AACN Essentials	Applying learning, and teaching principles to the design, implementation, and evaluation of health education programs for individuals or groups in a variety of settings.
13	AACN Essentials	Establishing therapeutic relationships to negotiate patient-centered, culturally appropriate, evidence-based goals and modalities of care.
14	AACN Essentials	Designing strategies that promote lifelong learning of self and peers and that incorporate professional nursing standards and accountability for practice.

(continued)

#	Topic	Question
15	AACN Essentials	Integrating an evolving personal philosophy of nursing and healthcare into one's practice.
	AACN Essentials	Indicate to what degree that you are in agreement that the following recommendations from the national nurse leaders and healthcare experts have been incorporated into the new model:
16	Recommendations	A collaboration and co-design of NP clinical education between faculty leaders and practice leaders.
17	Recommendations	Standardization of preclinical preparation for NP student clinical practice.
18	Recommendations	Standardized examinations of students' knowledge, skills and capabilities are conducted preclinically and throughout the program.
19	Recommendations	The clinical program is focused on mastering competencies instead of completion of a set number of clinical hours.
20	Recommendations	Immersive clinical experiences instead of episodic experiences.
21	Recommendations	Clinical opportunities for interprofessional collaboration and team-based care are incorporated into the program.
22	Recommendations	Innovative and technological education methods are integrated into the clinical practicum.
		Indicate to what degree you are in agreement that the new model allows for the following:
23	Feasibility	Feasibility of implementation.
24	Secure preceptors	Securing and maintaining enough qualified preceptors for the number of students in the NP program.
25	Standardization of preceptor education	Standardization of preceptor education and expectations.
26	Standardization of clinical experience	Standardization of the overall clinical experience.
27	Faculty involvement	Increased faculty presence at the clinical site with the student and preceptors.
28	Preceptor involvement	Increased preceptor involvement in developing the student clinical experience.
29	Overall effectiveness	The new model is effective in preparing the student for clinical practice upon graduation.

Sample

Surveys were distributed to 45 professionals who were faculty in the university's NP program or preceptors to NP students in the clinical program. Although all faculty in the NP program, and all preceptors of the clinical program, received surveys, all were not uniformly familiar and involved with the new model and clinical program. Altogether 23 completed surveys were collected: 9 (39%) from faculty and 14 (61%) from preceptors, with a total response rate of 51%. One respondent did not use the survey tool as it was intended, altered the tool to add an extra Likert scale answer option that was selected, and commented on the survey that some of the answers selected were not accurate reflections of his or her opinions. Therefore, this respondent's invalidated survey data were not used. The final sample size was 22 (n = 22).

Demographics

Of the 22 finalized respondents, the majority were White (68%) females (59%) aged 50-59 years (46%) working as NPs (59%). Three (14%) were RNs with doctorate degrees without NP licenses, two (9%) were physicians, and four (18%) were PAs. This was a well-educated sample, as 91% had graduate degrees and 50% had at least one master's degree. The sample also was well-experienced, as most had worked as a faculty member and/or clinician for more than 10 years (68%). The majority of the respondents indicated their roles were in educating student NPs as a preceptor in the clinical program (64%), while eight (36%) indicated they were faculty in the university's NP program. With regard to years of experience in the NP student educator role of either faculty or preceptor in the program, answers varied, but the majority (8, 36%) indicated that they had been in their role for more than 10 years. Although the preceptors may have indicated many years in educating NP students in the preceptor role, all of the preceptors

were new to the university's new clinical program since it had been implemented only 6 months prior to the survey (see Table 2).

Results

Descriptive statistics measured answers to each question individually. Descriptive statistics also measured answers on the collective group of questions 1 through 15 addressing NP education standards, and questions 16 through 22 addressing national nursing leaders' and healthcare experts' recommendations for changes needed in future NP clinical education.

Each individual survey question had a mean score above 3, with a range of 3.32 to 3.73 (see Table 3). Because many of the survey questions addressed the model on NP standards of education (questions one through 15) and incorporating nursing leader and expert recommendations (questions 16 through 22), questions were grouped by topic, with the exception of 23 through 29. Mean values were then calculated for survey answers on topics which showed a mean score above 3, with a range of 3.32 to 3.68 (see Table 4).

The minimum and maximum ranges for survey answers selected was 2 – "Disagree" to 4 – "Strongly agree." There were no "Strongly disagree" answers selected for any question, meaning that no one area of clinical model measurement showed low results from any demographic group surveyed. Most questions' lowest scores were 3 – "Agree". The mean score of all individual questions was 3.54, indicating that most respondents generally agreed that the criteria of a topic had been met. The ratings for the new clinical residency model were high, indicating that it was considered an effective model for use in clinically educating NP students. The survey results supported the hypothesis.

Table 2

Respondent Demographics

Demographic variable		N	Percentage
Credential			
	MD	2	9.1
	NP	13	59.1
	RN	3	13.6
	PA	4	13.6
	Total	22	100.0
Highest education level			
	Bachelor's	2	9.1
	Master's	11	50
	Doctorate	9	40.9
	Total	22	100.0
Years' experience in faculty/clinical role			
	Less than 1 year	0	0
	1 to 5 years	5	22.7
	6 to 10 years	2	9.1
	More than 10 years	15	68.2
	Total	22	100.0
Role in educating NP students			
	Faculty	8	36.3
	Preceptor	14	63.7
	Total	22	100.0
Years' experience in educator/preceptor role for NP students			
	Less than 1 year	5	22.7
	1 to 5 years	7	31.8
	6 to 10 years	2	9.1
	More than 20 years	8	36.4
	Total	22	100.0
Gender			
	Female	13	59.1
	Male	9	40.9
	Total	22	100.0

(continued)

Demographic variable		N	Percentage
Age range in years			
	20-29	1	4.5
	30-39	3	13.6
	40-49	4	18.2
	50-59	10	45.5
	60+	4	18.2
	Total	22	100.0
Race/ethnicity			
	American Indian/Alaska native	0	0.0
	Asian	3	13.6
	Black or African American	0	0.0
	Hawaiian/Pacific Islander	0	0.0
	Hispanic or Latino	2	9.1
	Nonresident alien	0	0.0
	Unknown	0	0.0
	Two or more	2	9.1
	White	15	68.2
	Other	0	0.0
	Total	22	100.0

Table 3

Descriptive Statistics of Individual Question Responses

Question #	N	Min.	Max.	Mean	SD
1	22	3	4	3.64	.492
2	22	3	4	3.59	.503
3	22	3	4	3.50	.512
4	22	3	4	3.55	.510
5	22	3	4	3.55	.510
6	22	3	4	3.55	.510
7	22	3	4	3.73	.456
8	22	3	4	3.59	.503
9	22	3	4	3.33	.483
10	22	2	4	3.32	.568
11	22	3	4	3.64	.492
12	22	3	4	3.50	.512
13	22	3	4	3.55	.510
14	22	3	4	3.59	.503
15	22	2	4	3.45	.596
16	22	2	4	3.55	.596
17	22	3	4	3.71	.463
18	22	3	4	3.64	.492
19	22	2	4	3.50	.598
20	22	3	4	3.59	.503
21	22	3	4	3.64	.492
22	22	3	4	3.55	.510
23	22	3	4	3.50	.512
24	22	2	4	3.32	.646
25	22	3	4	3.50	.512
26	22	3	4	3.68	.477
27	22	2	4	3.38	.590
28	22	3	4	3.57	.507
29	22	3	4	3.55	.510
Total	22	2	4	3.54	.520

Table 4

Descriptive Statistics of Grouped Topic Question Responses

Question #	N	Min.	Max.	Mean	SD
1-15	22	2	4	3.54	.380
16-22	22	2	4	3.60	.522
23	22	3	4	3.50	.512
24	22	2	4	3.32	.646
25	22	3	4	3.50	.512
26	22	3	4	3.68	.477
27	22	2	4	3.38	.590
28	22	3	4	3.57	.507
29	22	3	4	3.55	.510

Six questions of the survey received a 2 – "Disagree" answer. Of all the answers, only one of the 22 respondents answered with a 2 – "Disagree" for questions 10, 15, 16, and 27; two respondents answered a 2 – "Disagree" on question 24. Although the "Disagree" answers, compared to "Agree" and "Strongly agree" answers, were not statistically significant, the feedback is worth considering. All of the "Disagree" answers derived from different topics, except questions 10 and 15, which came from two different AACN *Essentials …* within the NP standards of education topic.

Question 24 asked if the model allowed for securing and maintaining enough qualified preceptors for the number of students in the NP program. Only two out of 22 respondents answered "Disagree." One of the "Disagree" answers came from a doctorate prepared NP with 10+ years of experience who taught mostly clinical courses and was familiar with FNP PREP. The other was from a

PA of 10+ years of experience who had only rarely served as a preceptor in FNP PREP.

Question 10 asked if the model allowed for the NP student to employ knowledge in economics, business principles, and systems in the design, delivery, and evaluation of care. The question addressed if the model met NP education standards, specifically AACN essential number two, which addresses organizational and systems leadership. One respondent out of 22 answered "Disagree," and this from a preceptor who had served in FNP PREP only rarely.

Question 15 asked if the model allows for the NP student to practice integrating a personal philosophy of nursing and healthcare into one's practice. This question addressed if the model met NP education standards, specifically AACN Essential nine, which addresses master's-level nursing practice. This respondent was a preceptor in the program who rarely supervised students in FNP PREP.

Question 16 asked if the model incorporated the nursing leaders and experts' recommendation of a collaboration and co-design of NP clinical education between faculty and practice leaders. Of 22 respondents, one disagreed. This respondent was a doctorate prepared NP with 10+ years of experience in the role of faculty teaching mostly clinical courses and was not directly involved in FNP PREP.

The last question (#27) received one "Disagree." It asked whether the model allowed for increased faculty presence at the clinical site with the student and preceptors. The respondent was a master's prepared NP preceptor working in a specialty practice for 10+ years who rarely took any students in FNP PREP.

Interestingly, of the six “Disagree” answers, three derived from a preceptor who was a PA with 10+ years of experience, but who rarely supervised students in FNP PREP.

Demographic Bias

Differences in answers among the demographic variables were measured. Statistically significant differences among these groups may improve the survey by supplying important considerations for the clinical model. Parametric tests were used because the number scores of 1, 2, 3, and 4 were applied to Likert scale answers. Tukey HSD post hoc calculations were used in comparing means in more than two subgroups within a demographic variable. Statistical significance was then double-checked with Bonferroni tests. T-tests were used when comparing mean values of only two subgroups within a demographic variable.

The demographic variables of Credential, Highest level of education, Educator role of preceptor or faculty, Age range, and Race/ethnicity were found to have no statistically significant differences in respondent answers. There were a few statistical differences to some individual questions among the subgroups of demographic variables in professional years of experience as faculty or clinician, years of experience in the educator or preceptor role for NP students, and gender. The following show results for the few that were found.

Years of experience as faculty or clinician. Since only two participants indicated having 6 to 10 years of experience as faculty or a clinician, they were added to the more experienced group of more than 10 years of experience. The group was given a new name of 6+ years of experience and totaled 17 participants. This left only two groups to compare since there were no participants who had

fewer than one year of experience. There were two questions with statistically significant differences below the alpha level 0.05 for this demographic variable.

Question 20 specifically asked if the new model incorporated immersive clinical experiences instead of episodic experiences. Those with 6+ years of experience rated the new model higher (mean = 3.71) than did those with 1 to 5 years of experience (mean = 3.20). This was a statistically significant difference ($p = 0.045$).

Question 27 specifically asked if the new model allows for increased faculty presence at the clinical site with the students and preceptors. Those with 6+ years of experience rated it higher (mean = 3.47) than did those with 1 to 5 years of experience (mean = 3.00). This was a statistically significant difference ($p = 0.007$).

It was difficult to determine why the more experienced groups rated them higher. It is possible that those with more experience were more knowledgeable or comfortable with how it could be accomplished within the new clinical model.

Years of experience in the role of educator or preceptor of NP students. There were statistically significant differences below the alpha level 0.05 for the demographic variable group of years of experience in the role of NP educator or preceptor for questions 5, 7, 8, 17, 18, 19, 20, and 21. Only two participants rated themselves as having 6 to 10 years of experience in the role of faculty or preceptor for NP students. These two participants were combined with the 8 participants of the 10+ years of experience and the group was renamed 6+ years of experience in the role of faculty or preceptor for NP students. Of these eight questions, all found that the more experienced group (6+ years) gave a statistically significant higher rating than did the 1 to 5 years group, except for question 8. On question 8, those

with 6+ years of experience had a statistically significant higher rated response than the group with less than one year of experience.

Question 5 specifically asked if the model met the NP educational standard of using leader skills to teach, coach, and mentor other members of the healthcare team. Those with 6+ years of experience rated it higher (mean = 3.80) than did those with 1 to 5 years of experience (mean = 3.14). This was a statistically significant difference ($p = 0.07$).

Using knowledge of illness and disease management to provide evidence-based care, perform risk assessments, and design plans or programs of care was question seven. There was a statistically significant difference ($p = 0.21$) between the more experienced group (mean = 4.0) and the group with 1 to 5 years of experience (mean = 3.43).

Question 8 asked if the model met the NP educational standard of incorporating core scientific and ethical principles in identifying potential and actual ethical issues arising from practice, including the use of technologies, and in assisting patients and other healthcare providers to address such issues. It found that those with 6+ years of experience had a statistically significant higher rating (mean = 3.90) than those with less than 1 year of experience (mean = 3.20) ($p = 0.019$). It can be assumed that the more experienced group would more strongly identify whether a model addressed ethical issues than someone who was new (less than 1 year) in the NP educator role.

Incorporating standardization of preclinical preparation for NP student clinical practice was addressed in question 17. There was a statistically significant difference between the 6+ years group and the 1 to 5 years group ($p = 0.029$). The 6+ years group rated it higher (mean = 4.0) than did the 1 to 5 years group (mean = 3.43).

Question 18 asked if the standardized examination of student' knowledge, skills, and capabilities were conducted preclinically and throughout the program. There was a statistically significant difference between the 6+ years group and the 1 to 5 group ($p = 0.024$). The group with more experience rated it higher (mean = 3.90) than did the latter (mean = 3.29).

Question 19 specifically asked if the new model incorporated a focus on mastering competencies instead of completion of a set number of clinical hours. Those with 6+ years of experience rated it higher (mean = 3.80) than those with 1 to 5 years of experience (mean = 3.00). This was a statistically significant difference.

Question 20 asked if the new model incorporated immersive clinical experiences instead of episodic experiences. Those with more 6+ years of experience as a faculty or preceptor of NP students rated it higher (mean = 3.90) than those with 1 to 5 years of experience (mean = 3.14). This was a statistically significant difference ($p = 0.003$).

The last question with statistically significant differences ($p = 0.024$) for the years of experience in an NP educator role of faculty or preceptor was question 21. It addressed if the model incorporated clinical opportunities for interprofessional collaboration and team-based care. The group with 6+ years rated it higher (mean = 3.90) while the 1 to 5 group rated it lower (mean = 3.29).

It is reasonable that the more experienced group would more ably judge whether the new clinical model allowed or incorporated the elements on the questions than the less experienced group. However, in seven of these questions, the lesser experienced group (fewer than 1 years) found no statistical difference than did the other two more experienced groups, and they generally rated it higher

than did the 1 to 5 group and lower than did the 6+ years group in the seven questions. There is no known explanation for this phenomenon.

Gender. There were statistically significant differences below the alpha level of 0.05 for gender on questions 1 and 21 ($p = 0.029$). Question 1 specifically asked if the new model met NP standards of education on conducting a comprehensive and systematic assessment as a foundation for decision-making. Male respondents rated the question higher (mean = 3.89) than did the female respondents (mean = 3.46). Question 21 specifically asked if the new model incorporated clinical opportunities for interprofessional collaboration and team-based care. Males rated the question higher (mean = 3.89) than did the females (mean = 3.46). No reason emerged for why males viewed these specific topics more highly.

Overall, there were few biases on questions due to demographic variables. The sample sizes were small and could have contributed to the differences found.

Question Comment Findings

The survey contained comment spaces for each of the 29 questions. Comments were left regarding nursing leader and expert recommendations that should be incorporated into the model, feasibility of the model, whether the model allowed for enough preceptors for students in the program, faculty presence at the clinical site, preceptor involvement in developing the student clinical experience, and overall effectiveness of the model (see Table 5). These represented qualitative data findings that may be used to improve the survey or clinical model.

Table 5

Comments to Questions

Q	Topic	Comment
16	Recommendations	It is still maturing this collaboration – we need to continue and improve.
19	Recommendations	Very important concept -competencies.
19	Recommendations	Very important.
19	Recommendations	I agree philosophically but wonder about that natural benefit of time on task/experience.
19	Recommendations	It seems as if it would be easier to have certain days versus hours, but I know it's hard since most students are still working and have to adapt work with school and clinical hours.
19	Recommendations	Mastering does require multiple hours: doing it correctly once doesn't mean mastering.
23	Feasibility	Students required to have completed appropriate number of clinical hours.
23	Feasibility	Difficulties are still present, but we are improving.
24	Securing preceptors	University requires preceptor be experienced in years of practice, volunteer to be preceptor.
24	Securing preceptors	NP versus PA, need to increase NP preceptors.
27	Faculty presence at site	Team meeting with preceptor to ensure preceptor and student are communicating.
27	Faculty presence at site	Students may feel more pressure to perform and feel stress, but it may be good to continue to monitor pressure and see where students are having difficulties.
28	Preceptor involvement	Preceptor, student, and faculty should all work together.
29	Overall effectiveness	Program still in infancy stage. Need additional terms, graduated students to take post-evaluation from students who have completed residency in its totality.
29	Overall effectiveness	Again, my comment is that the model allows for a more cohesive educational setting because of the diversity of the practice; it does not limit experience.

The most comments appeared with Question 19, which asked to what degree did the new clinical residency model focus on mastering competencies instead of completion of a set number of clinical hours. Two of the participants commented that competencies were “Very important” to include in the model. One participant agreed philosophically with being competency-based, but wondered if there was a natural benefit to time on task and experience in practicing competencies. Another participant who was a preceptor in a specialty practice correctly pointed out that mastering competencies requires multiple clinical hours of experience and that correctly performing a competency once does not constitute mastery. The last comment questioned whether the current scheduling system affected time on competencies, pointing out that most NP students worked full-time as nurses while attending school full-time, thus decreasing availability for clinical rotations and mastering competencies. Clearly, competencies are an important topic in evaluating clinical models of NP education.

Noteworthy comments came from question 23, which addressed whether the new model allows for feasibility of implementation. One participant commented that students were required to have an appropriate number of hours completed. The other comment stated, “Difficulties are present, but we are improving.” Both participants were doctoral-prepared faculty not involved in FNP PREP. However, their knowledge of NP education showed an awareness of the required number of hours and that difficulties are to be expected in changing a clinical model from the long-used apprenticeship-type model.

Important aspects of the new model were raised on question 24, which asked whether the model allows for securing and maintaining enough preceptors for the program. One comment correctly established that the university has requirements for preceptors and that preceptors are volunteers. The other

participant commented that the program needed more NP preceptors, especially to balance out the number of PAs in the program. This is a significant issue, as there is a shortage of NPs and PCPs, and a shortage of qualified preceptors to clinically educate NP students. PAs are not approved to be primary preceptors for NP students.

Question 27 addressed whether the new model allowed for an increased faculty presence at the clinical site with the student and preceptors. A doctoral-prepared faculty member who primarily taught clinical courses stated that faculty needed to ensure that the preceptor and student are communicating well. Another preceptor pointed out that students may feel pressure to perform if faculty have an increased presence at the clinical site, but that it would be something useful to monitor in the clinical program.

Question 29 asked participants if the new clinical residency model was an overall effective model to use to clinically educate NP students. Both participants who commented were doctoral-prepared faculty members with 10+ years of experience, but who also had worked as preceptors in the past. One stated that the new model allowed "for a more cohesive educational setting because of the diversity of the practice; it doesn't limit experience." This is a definite strength of the program, but was balanced by the other comment: "program is still in its infancy stage," suggesting that more time and information needed to be gathered, particularly on students who have completed their entire clinical programs through the new model.

A valuable comment of how the faculty, preceptor, and student should all work together was given in response to question 28, which addressed whether the new model allowed for increased preceptor involvement in the developing of the

student clinical experience. This preceptor may have been reluctant to take on that responsibility themselves.

Finally, the last valuable comment was to question 16, which asked about the national nurse leaders and healthcare experts' recommendation that the new model incorporate collaboration and co-design between faculty leaders and practice leaders. The participant stated the collaboration was "still maturing" and needed more time to improve. This is wise insight and appropriate for a new clinical residency model that is yet untried. There has been a lot of learning, trial and error, success, and areas needing improvement for faculty, preceptors, clinical sites, and students. It is, indeed, a maturing project showing ongoing growth and improvement.

Summary of Results and Findings

The new clinical residency model and implemented pilot, FNP PREP, was rated high by the participating faculty and preceptors of the university and employed or affiliated with the hospital organization. The majority of participants were mature, highly educated, and well-experienced NPs. Some were directly involved and familiar with FNP PREP, some were not. Overall, the mean score for all questions was 3.54 out of a possible 4. The range was 3.32 to 3.73, showing that most answers were a "Strongly agree" and "Agree." There were no "Strongly disagree" responses. The hypothesis was supported, indicating that the new model was suitable for clinically educating student NPs. There were very rare statistically significant results for demographic bias on responses. Respondent comments showed knowledge of their roles, reasonable concerns, and wisdom in knowing that the clinical program is new and a work in progress.

CHAPTER 5: DISCUSSION

This chapter discusses the conclusion and implications of the evaluation of a newly developed and recently implemented NP clinical residency model, called FNP PREP. It was developed in response to a university NP program and a community hospital looking for solutions to the preceptor shortage and the NP/PCP shortage that is prevalent in today's healthcare environment, especially in the rural areas of Central California.

Faculty of the NP program were looking for ways to improve and standardize the clinical learning experience for all students and to secure enough preceptors for their growing program. The hospital was looking for creative ways to grow their own PCPs for their rural health clinics and the community they served. The academic/clinical partnership allowed them to collaborate, share resources, and co-design a new clinical residency model to meet the needs of both organizations. Although effort was specifically made to address the nursing profession's concern for a popular traditional clinical education model that was unsustainable, the model incorporated recommendations from nursing leaders and healthcare experts for new models of clinical education.

A survey was conducted to determine if the model included standards of NP education, included recommendations of leaders, and was effectiveness of clinically educating NP students. It was also used to examine strengths and weaknesses and serve as a process to improve the model itself. This evaluation provided feedback from knowledgeable and experienced faculty, clinicians, and preceptors who were associated with FNP PREP to improve the program further.

Discussion of Results and Findings

Overwhelming encouragement was received from the general responses on the individual questions and topics included in the survey. Overall, the new

clinical model was highly rated (total mean of individual questions = 3.54) for meeting NP standards of education, incorporating nursing leader and healthcare experts' recommendations for new clinical models, and for being an effective model to clinically educate NP students. The majority of the responses were "Agree" or "Strongly agree."

The high ratings on the survey substantiate the program's continued use of the new clinical residency model. However, the high ratings do not necessarily substantiate the continuance of the program by the hospital. They will be interested to see if the model yields more NPs employed from the program, in addition to the overall improvement in productivity and general attitude and acceptance of its preceptors towards clinically educating the university's students. This has not been determined and is an important consideration for further study. However, it is promising that the majority of the respondents were preceptors from the hospital.

A continued assessment of whether FNP PREP is meeting its goals would reveal modifications to be made as needed. Those goals include: (a) co-designed by the faculty and practice leaders; (b) standardized and measurable focus on a mastery of competencies; (c) comprehensive student clinical learning experiences with increased professional interdisciplinary collaborative experiences; (d) a large network of mentors and colleagues within the community; (e) confident and prepared students for NP practice with an underserved and medically disadvantaged patient population; (f) hospital able to recruit NP graduates from the program; and (g) advertising the clinical education program to the organization's customers.

The participants provided valuable feedback regarding (a) concerns for NP and preceptor shortages at the clinical site, scheduling around students' full-time

job schedules, and increased presence of faculty at the clinical site; (b) recommendations for the model/program; and (c) encouragement and need for further evaluations for the program given its new status. Most of the comments addressed competencies. It was clear that the new model should be competency-based. However, some warned that becoming proficient and mastering competencies takes many hours and that being competency-based should not replace a required minimum number of clinical hours. They stated that both should be maintained. Perhaps if the question had stated that the clinical program was focused on mastering competencies and the time needed to develop mastery, instead of just a set number of completed hours, it would have been more agreeable and elicited fewer comments. This is a recommendation of improvement for the survey.

Some were concerned about the model and stated that more NPs were needed at the clinical site to precept students, students working full-time jobs could cause scheduling difficulties, and that increased faculty presence could increase pressure on the student.

A need for more NPs in the clinics was one of the original problems that led to developing and implementing the new model. With the sudden influx of students from FNP PREP, this problem became more apparent. The main clinics employed providers who were primarily NPs and PAs. Occasionally, PAs were used as preceptors when NPs were not available, for example, if the NPs called in sick, were on vacation, or took leaves of absence. Because of the way the clinics scheduled their providers, some days were filled with NPs available to precept and other days saw more available PAs than NPs. To compensate, the hospital and faculty recruited more employed and affiliated physicians to serve as preceptors for NP students in FNP PREP. This was a good solution, as it allowed a smaller

private-practice clinical site to experience a large practice clinic the students were receiving. This is a recommendation for others trying a similar model. Additionally, it is recommended that scheduling considerations be made on the daily NP:PA ratio to allow for enough NP preceptors for scheduled students. Amid the preceptor shortage and demand for more NPs and NP education, considerations should be made for allowing other healthcare professionals who are not physicians, like NPs and midwives, to serve as preceptors for a specified time or for interprofessional education and collaborative learning experiences (Drayton-Brooks et al., 2017).

Another participant was concerned about students' full-time jobs causing scheduling difficulties. This was apparent in FNP PREP. The majority of the students had jobs of varying schedules. The FNP PREP student schedule lacked uniformity and preceptors were commonly confused as to why it was not more consistent. Sometimes it caused inconsistent preceptor and student pairings when at the clinics, especially because the preceptors also had inconsistent days of the week scheduled. Students who were available for clinical hours only on Fridays and the weekends were limited in the types of rotations they could participate in. They missed opportunities for community physician rotations and hospital departments that were only available on weekdays, like surgery and nuclear medicine. Students made their requests for scheduled clinical time online. Faculty tentatively scheduled them according to their requests and rotation availability. Then, the hospital organization verified all preceptor ability to meet the requests. This method of finalizing student/rotation schedules was a time-consuming for faculty members that should be improved.

The hospital organization and preceptors commonly inquired to why students were not just given a set clinical schedule of several days a week that was

required by the program, similar to what medical or PA schools traditionally do. They did not realize that most NP students worked full-time. Many times, PA programs compete for the same clinical sites and preceptors that NP programs do. This was a concern. A balance between student rotations and clinical experiences for student learning that preceptors can depend on is important. However, many NP students must remain employed during the program and some have acute care nursing jobs that have alternating schedules that include long hours and evening, night, and weekend shifts. Requiring NP students to do a set clinical rotation schedule with no flexibility regarding their jobs would undoubtedly cost the program many students and applicants to other NP programs. However, without some semblance of uniformity and consistency, NP programs may lose preceptors. It is a balance.

Refinements in FNP PREP scheduling can be made. Currently, we are considering ways to more consistently schedule providers in the rural health clinics. Providing a selection of rotations that run on set days of the week for students to pick from is also being considered for future cohorts. This may improve consistency in student scheduling. If the schedules of clinic preceptors and students can be better matched, more consistent student-preceptor assignments, and student and preceptor satisfaction, should result.

Refinements are also being made for improvement of each rotation. Consultations for feedback from students and the different rotation's preceptors have actively been sought through the pilot to continually improve the clinical experience for both preceptors and students. For instance, feedback has influenced how long each rotation should be. Some rotations like radiology, laboratory, and surgery have had the clinical hours assigned to it decreased, while others, including hospitalist rotations, cardiology, and women's health have been

increased. This is just one example of the type of time invested by the academic and practice leader into the management and standardization of a residency model versus the traditional model of clinical education.

One respondent thought that increased faculty presence at the clinical site may increase student anxiety. In the traditional model of education, faculty were at the clinical site only to make assessments on either the site, preceptor, or student's progression and performance, so this assumption makes sense. However, the students in FNP PREP have become accustomed to faculty being on site regularly for a multitude of reasons and not just assessments. Faculty may be there for student instruction, student orientation and EMR training, meetings with hospital leadership, collaborating with and checking in with preceptors on their needs, or discussing scheduling. Over time this should reduce student anxiety and reset their expectations of faculty involvement at the clinical site. Hopefully, more resources at the site will also increase student confidence.

Participants commented on things about the model they agreed with and also made recommendations. They mostly conveyed the importance of communication among the preceptors, clinical sites, students, and faculty. Indeed it is since there are many more parties working together in this model compared to the traditional model. It is critical that the academic leader and practice leader co-designing the program share the same core values, needs, and vision to the others. They must demonstrate the dedication and commitment to the partnership and continue to encourage the other parties to do the same. There must be clear guidelines of student and preceptor expectations, and generally agreed upon communication patterns between individual students and preceptors.

Some respondents agreed that it is important for the program to be competency-based. Some participants warned, however, that mastery of

competencies takes time. At this time, FNP PREP will keep the minimum hours component to ensure students have adequate time to practice and develop mastery on basic competencies. This also promotes student confidence. Having a minimum number of required clinical hours to complete along with required competencies can go together—they are not mutually exclusive.

Lastly, respondents generally expressed that the program was new and would take time to mature and improve. The evaluation of the model was preliminary since it was done within five to six months of its initial implementation. Further study of effectiveness will need to be conducted after a full cohort has completed FNP PREP from start to finish. One encouraging comment summed up the reasons for trying a new model: "The model allows for a more cohesive educational setting because of the diversity of the practice" and "it does not limit experience."

Limitations

The study was small (n = 22), resulting in less opportunity to find significant differences on comparison studies of participant demographic variables due to the scant data. Additionally, the results may not be generalizable due to participants either being faculty of the FNP program or preceptors in FNP PREP. There was also possible participant bias due to personal involvement with the program.

Recommendations

The academic leader and practice leader relationship is key, as this type of clinical education model takes true partnership and trust. They must both put forth effort, time, and commitment to have successful implementation. They should

regularly communicate needs and goal assessments. This relationship should not be underestimated.

The relationship between faculty and preceptors is also important. They should meet regularly to answer questions and discuss concerns in order to improve confidence in the program, especially in the initial implementation phase. Refinements of preceptor education may improve preceptor and faculty collaboration.

Although this model took substantial time to design, it was worthwhile. Time saved in securing and managing the different preceptors from different organizations from the previous model was invested into building a more standardized program that included comprehensive quality student clinical learning experiences for all students.

Next Steps

Assessment of the effectiveness of this model in clinically educating NP students is ongoing. An evaluation by the cohort of students who complete the FNP PREP pilot in its entirety would be valuable. Further study in satisfaction levels of students who have completed FNP PREP in its entirety, compared to students who have completed the traditional clinical model would be valuable. Studies should determine whether the model meets its goals, especially regarding student confidence in the NP role at graduation, and if the model increased the hospital organization's recruitment of NP graduates for employment. Further study may also include FNP PREP preceptors' general satisfaction and acceptance of precepting NP students. These data would help to improve FNP PREP. Further exploration should evaluate preceptor education with comparisons between novice and experienced NP preceptors and how that affects job satisfaction, retention, and

patient outcomes. Replicating this study with a larger sample that is not affiliated with FNP PREP is also recommended.

Conclusion

The preliminary evaluation of the new clinical residency model and FNP PREP was positive. Participants agreed that the new clinical residency model met the NP education standards and incorporated leader recommendations for new models of clinical education. The overall satisfactory evaluation of its effectiveness substantiates the continuation of FNP PREP.

This project contributes to the knowledge on NP pregraduate residency models of clinical education. The new model may be a viable solution for other programs that are also struggling to secure and maintain supplies of qualified preceptors amid the shortage while providing a comprehensive and more standardized clinical learning experience for all its students.

Partnerships between academic and practice leaders enrich pregraduate NP clinical education. They expand the amount of mentorship and clinical opportunities for the students to improve their confidence and readiness for the NP role. It allows faculty to standardize the clinical program and strengthen relationships with preceptors. It increases the practice organization’s opportunities to recruit graduate NPs for employment. The benefits of this type of partnership and collaboration hold promise for alternative models of NP clinical education.

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APPENDICES

APPENDIX A: SURVEY COVER LETTER

October 7, 2017

Dear Colleague:

Fresno Pacific University has just started implementing the New Nurse Practitioner Clinical Residency Model in collaboration with Madera Community Hospital. This new model is different than the typical apprenticeship-style model of clinical education used in most nurse practitioner (NP) programs. It may be the first of its kind, as a literature search showed no pre-graduate NP clinical residencies in existence. I am conducting a survey to evaluate this new clinical education model.

Because of your experience and expertise in NP education and your involvement with the Fresno Pacific University family nurse practitioner program, I am seeking your feedback on this new clinical education model. Your input is important in identifying the strengths and weaknesses of the model and will help in improving it. The survey will be asking you to evaluate the new model on its ability to meet the AACN's *The Essential of Master's Education in Nursing* standards, and the overall effectiveness of the model.

Please find the survey packet. The *Essentials of Master's Education in Nursing* and the New Nurse Practitioner Clinical Residency Model key concepts outline, and description and rationale is provided in the packet. Please review this information prior to taking the survey.

Your participation in this survey is completely voluntary. This survey is anonymous; no names or addresses will be mentioned in the report. You may skip a question or exit the survey at any time. There is a demographic section and the model evaluation section totaling 38 questions. It will take approximately 15-30 minutes to complete the question and answer portion of the survey. There is no compensation for participating in this survey.

Your participation is very important, and appreciated. If you have any questions about this survey, or want to be informed of the final findings of the survey, please contact me.
Respectfully,

Lisa W. Hood, DNP-c, MSN, RN, FNP-C,
Doctoral Student
California State University, Northern California Consortium
Doctorate of Nursing Practice
lisahood@mail.fresnostate.edu
(559) 779-6486

APPENDIX B: MODEL EVALUATION SURVEY INSTRUCTION AND CONSENT

New Nurse Practitioner Clinical Residency Model Evaluation Survey

Instruction and Consent

You are invited to participate in this survey because of your experience and expertise in nurse practitioner education, and your involvement with the Fresno Pacific University family nurse practitioner program. Your honest opinions are needed about the recently developed New Nurse Practitioner Clinical Residency Model. This survey will be asking you to evaluate the new model on its ability to meet the AACN's *The Essential of Master's Education in Nursing* standards, and the overall effectiveness of the model. Your input is important in identifying the strengths and weaknesses of the model and will help in improving it.

Thank you for your participation in this voluntary survey. This survey is anonymous; no names will be mentioned in the report. There is a demographic section and the model evaluation section totaling 38 questions. It will take approximately 15- 30 minutes to complete the question and answer portion of the survey.
The New Nurse Practitioner Clinical Residency Model description and rationale is provided in the packet. Please review it prior to taking the survey. Also, the *Essentials of Master's Education in Nursing* (AACN, 2011) is provided as a reference.

This project does not involve patients or students. It is only based on your opinions of the New Nurse Practitioner Clinical Residency Model. This project has no or very minimal potential psychological, social, physical, or legal risks. There is no compensation for participating in this survey.

Please return only the survey portion of the packet on or before Monday, December 11, 2017. You may return it by mail in the enclosed and stamped envelope to Fresno Pacific University's Nursing Office, *or* you may email it to Fresno Pacific University's Nursing Department Assistant at Gold.Moua@fresno.edu. You may also choose instead to place the completed survey in one of the survey drop boxes located at Fresno Pacific University's Nursing Department Office, Family Health Services' Provider Office, or Chowchilla Medical Center's front office.

If you have any questions about this project or survey, please contact Lisa Hood, MSN, FNP-C at (559) 779-6486 or lisa.hood@fresno.edu.

I understand this information and agree to participate fully under the conditions stated above.

- o Agree to participate
- o Do not agree

Signature: _____ Date:_____

Participant Demographic Information

1. What is your credential?

    - DO
    - MD
    - NP
    - PA
    - Other _____

2. What is your highest educational level?

    - High school
    - Associates
    - Bachelors
    - Masters
    - Doctorate
    - Other _____

3. How long have you practiced as a provider/clinician?

    - Less than 1 year
    - 1-5 years
    - 6-10 years
    - More than 10 years

4. What is your role in educating nurse practitioner students?

    - As a clinical preceptor in a family medicine, primary care, or internal medicine practice
    - As a clinical preceptor in a women's health/obstetrician and gynecology or pediatric practice
    - As a clinical preceptor in another specialty practice
    - As a university faculty member teaching mostly theory classes
    - As a university faculty member teaching mostly clinical classes
    - As a hospital/medical center or professional nursing organization executive leadership or nursing administrator at a level of chief nurse officer or higher
    - Other _____

5. How many years of experience in the NP educator role?

    - Less than 1 year
    - 1-5 years
    - 6-10 years
    - More than 10 years
    - N/A

6. How many years of experience in the preceptor role?

    - Less than 1 year
    - 1-5 years
    - 6-10 years
    - More than 10 years
    - N/A

7. What is your gender?

    - Female
    - Male

8. What is your age?

    - 20-29
    - 30-39
    - 40-49
    - 50-59
    - 60+

9. What is your race/ethnicity?

    - American Indian/Alaska Native
    - Asian
    - Black or African American
    - Hawaiian/Pacific Islander
    - Hispanic or Latino
    - Non-Resident Alien
    - Race/Ethnicity Unknown
    - Two or More Races
    - White
    - Other (please describe) _____

New Nurse Practitioner Clinical Residency Model Evaluation
Participant Survey

Please read the following and indicate the degree you agree that the New Nurse Practitioner Clinical Residency Model allows NP students to practice and participate in activities that support the following standards known as the AACN Essentials:

	Strongly Agree	Agree	Disagree	Strongly Disagree
1. Conducting a comprehensive and systematic assessment as a foundation for decision making. Comments:	o	o	o	o
2. Applying the best available evidence from nursing and other sciences as the foundation for practice. Comments:	o	o	o	o
3. Advocating for patients, families, caregivers, communities, and members of the healthcare team. Comments:	o	o	o	o
4. Using information and communication technologies to advance patient education, enhance accessibility of care, analyze practice patterns, and improve health care outcomes, including nurse sensitive outcomes. Comments:	o	o	o	o
5. Using leadership skills to teach, coach, and mentor other members of the healthcare team. Comments:	o	o	o	o

	Strongly Agree	Agree	Disagree	Strongly Disagree
6. Using epidemiological, social, and environmental data in drawing inferences regarding the health status of patient populations and interventions to promote and preserve health and healthy lifestyles. Comments:	o	o	o	o
7. Using knowledge of illness and disease management to provide evidence-based care to populations, perform risk assessments, and design plans or programs of care. Comments:	o	o	o	o
8. Incorporating core scientific and ethical principles in identifying potential and actual ethical issues arising from practice, including the use of technologies, and in assisting patients and other healthcare providers to address such issues. Comments:	o	o	o	o
9. Applying advanced knowledge of the effects of global environmental, individual and population characteristics to the design, implementation, and evaluation of care. Comments:	o	o	o	o
10. Employing knowledge and skills in economics, business principles, and systems in the design, delivery, and evaluation of care. Comments:	o	o	o	o
11. Applying theories and evidence-based knowledge in leading, as appropriate, the healthcare team to design, coordinate, and evaluate the delivery of care. Comments:	o	o	o	o

	Strongly Agree	Agree	Disagree	Strongly Disagree
12. Applying learning, and teaching principles to the design, implementation, and evaluation of health education programs for individuals or groups in a variety of settings. Comments:	o	o	o	o
13. Establishing therapeutic relationships to negotiate patient-centered, culturally appropriate, evidence-based goals and modalities of care. Comments:	o	o	o	o
14. Designing strategies that promote lifelong learning of self and peers and that incorporate professional nursing standards and accountability for practice. Comments:	o	o	o	o
15. Integrating an evolving personal philosophy of nursing and healthcare into one's practice. Comments:	o	o	o	o

Please indicate to what degree you are in agreement that the following recommendations from the national nurse leaders and healthcare experts have been incorporated into the New Nurse Practitioner Clinical Residency Model.

16. A collaboration and co-design of NP clinical education between faculty leaders and practice leaders. Comments:	o	o	o	o
17. Standardization of preclinical preparation for NP student clinical practice. Comments:	o	o	o	o
18. Standardized examinations of students' knowledge, skills and capabilities are conducted preclinically and throughout the program. Comments:	o	o	o	o

	Strongly Agree	Agree	Disagree	Strongly Disagree
19. The clinical program is focused on mastering competencies instead of completion of a set number of clinical hours. Comments:	o	o	o	o
20. Immersive clinical experiences instead of episodic experiences. Comments:	o	o	o	o
21. Clinical opportunities for interprofessional collaboration and team-based care are incorporated in to the program. Comments:	o	o	o	o
22. Innovative and technological education methods are integrated into the clinical practicum. Comments:	o	o	o	o

Please read and indicate to what degree you are in agreement that the New Nurse Practitioner Clinical Residency Model allows for the following:

23. Feasibility of implementation. Comments:	o	o	o	o
24. Securing and maintaining enough qualified preceptors for the number of students in the NP program. Comments:	o	o	o	o
25. Standardization of preceptor education and expectations. Comments:	o	o	o	o
26. Standardization of the overall clinical experience. Comments:	o	o	o	o

	Strongly Agree	Agree	Disagree	Strongly Disagree
27. Increased faculty presence at the clinical site with the student and preceptors. Comments:	o	o	o	o
28. Increased preceptor involvement in developing the student clinical experience. Comments:	o	o	o	o

Please read the following statement and indicate to what degree you are in agreement with it.

29. The New Nurse Practitioner Clinical Residency Model is effective in preparing the student for clinical practice upon graduation. Comments:	o	o	o	o

Thank you for completing the survey!

If you would like to be informed about the final findings of the survey study, please contact Lisa Hood at Lisa.Hood@fresno.edu or (559) 779-6486.

APPENDIX C: KEY CONCEPTS DESCRIPTION AND RATIONALE

The New Nurse Practitioner Clinical Residency Model Key Concepts

I. An established partnership between one university NP program and one practice organization (instead of multiple practice organizations).

   A. All members of the partnership including APN leadership, preceptors, faculty, and students take ownership of the partnership.

   B. The university and the practice organization share resources to be utilized in the clinical program.

   C. Practice organization recommendations to meet needs of the residency:

      1. The practice organization is a hospital, medical center, or large network of clinics.
      2. The practice organization employs enough qualified preceptors (NPs, MDs, or DOs) to clinically precept and accommodate all students of the university's NP program.
      3. The practice organization employs an APN on the executive leadership team.
      4. The practice organization patient population includes vulnerable and underserved populations.
      5. The practice organization provides primary care to many patients that have complex chronic medical problems and needs of varying kinds.

II. The practice organization provides a minimum of three specialty services in addition to primary care/family medicine, women's health, and pediatric care.

   A. Faculty routinely participates in the clinical experiences.

      1. Faculty collaborates with preceptors on the clinical curriculum, and evaluation of the student and clinical program.
      2. Faculty conducts routine clinical classes with the students for clinical preparation including skills lab practice and procedural workshops, review and reflection exercises on clinical experiences and learning.
      3. Faculty conducts routine clinical classes with the students for clinical preparation including skills lab practice and procedural workshops, review and reflection exercises on clinical experiences and learning.

   B. Student clinical education is standardized and competency-based.

      1. Grading is scored on clinical knowledge, the progression of skills mastered, and professionalism.
      2. Students will have professional interdisciplinary collaboration experiences.
      3. Rotations will be immersive.

   C. Preceptor education is routine and standardized.

The New Nurse Practitioner Clinical Residency Model Description and Rationale

An innovative and new clinical education model has been developed for a FNP program at a private university in central California. Nursing faculty was developed as an attempt to: 1) standardize student clinical education and preceptor training; and 2) improve the quality of the student clinical experience, amid the preceptor shortage. The concepts of the model will be introduced, and the development process and rationale will be discussed here. A review of the development of this new clinical residency model will specifically help to evaluate the university clinical program's effectiveness, and the suitability of its use for other programs.

Key Concepts

The key concepts of the new NP clinical residency education model are as follows. First, one university NP program and one practice organization partner to implement a clinical residency and mentorship program for its NP students. The practice organization supplies the clinical sites and all the preceptors that are employed or affiliated with the practice organization needed to clinically educate all students of the university's NP program. With this, there is no outside need for more preceptors. Two, the university's faculty leadership and the practice organization's executive APN leadership collaborate and co-design the clinical program. They share resources, knowledge, and expertise in order to benefit the clinical program and the NP students. These two key concepts allow for the following to occur. There is an increased involvement of faculty in the student clinical learning experience and at the clinical site. The model includes standardized student clinical education experience including assessments, and standardized preceptor education. The clinical program is focused on mastering competencies. The designed student clinical experiences provide a wide range of clinically immersive experiences rich with professional interdisciplinary collaborative experiences.

Rationale for a Clinical Residency Approach

Instead of working with individual preceptors, the university's faculty approached a large community hospital organization within the general community. This organization was chosen

because of its strong APN presence in the executive administration and leadership, and its large network of hospital affiliated rural health care clinics. It was also chosen because this hospital organization provides care to a diverse, underserved, and disadvantaged population with complex medical problems. Some of the clinic sites are critical access sites. The FNP program faculty initiated and created an academic-clinical partnership with the hospital organization to develop a pregraduate FNP clinical residency program that would take all FNP students from the university. Both faculty and the APN practice leader co-designed the clinical model and are assisting in its implementation for the university's FNP clinical program.

The potential benefit from designing the clinical program this way is that all providers and other healthcare clinicians of the hospital organization are included as part of the program experience. All of the hospital organization's providers that meet standards of being a quality NP preceptor are encouraged to contribute to the clinical residency; it is an employment expectation as a partner in the clinical program. Affiliated medical providers who have privileges at the hospital are also encouraged to participate in being preceptors for the students. The entire hospital organization is encouraged to adopt a mentorship attitude towards the NP students. This collaboration allows for a rich supply of preceptors available for students.

Since all these preceptors are within one organization, there is no longer a need for contracts with multiple providers and organizations. This will free up time for the university's nursing faculty to be involved in the student clinical experience at the clinical site, and collaborate with preceptors. It frees up time for faculty to routinely meet with students collectively to discuss the residency, review patient-cases, do hands-on procedure workshops, and other clinical learning experiences. It also allows time and greater ease to standardize student and preceptor education, and design a wider and higher quality clinical learning experience.

The university and hospital organization are able to share resources that can be utilized in the clinical program. For example, both can supply equipment for the skills lab and supplies for procedure workshops. Additionally, the residency provides a rich pool of NP graduates that have

been trained in-house that the hospital organization can recruit from to lower employment training costs of new NP hires. The collaboration and sharing of the faculty's knowledge of teaching, curriculum, and education standards, and the hospital organization's APN executive leadership's knowledge of available practice opportunities, preceptors, patients, equipment, and other resources improve the potential of new clinical education model and enhance the student clinical experiences.

Overall, this model enhances and elevates the role and status of preceptors, executive APN practice leadership, faculty, and the NP student to each other. It strengthens the partnership and ownership of the educational collaborative.

Standardization

The residency model allows for a standardization of the student clinical experience and the student clinical assessments of knowledge, skills, and professionalism. Every student will have the same clinical sites with similar patient experiences, similar rotations, and similar preceptors. Focus can now be on helping students master NP practice skills instead of trying to find a qualified preceptor and meet a requirement of clinical hours. It can be a strong competency-based program.

Many of the patients at this hospital organization have complex medical problems of varying kinds. All students have the benefit of working with this diverse and underserved population that has limited health resources, literacy, and knowledge. This population is one where there is a national demand for primary providers to work in. Students can learn to be creative and resourceful in generating treatment and education plans, and learn what and where community resources are available for these types of patients, in addition to providing basic primary healthcare needs and preventative education.

The residency model allows preceptor training to be done routinely in a standardized fashion at the hospital organization by both nursing faculty and executive APN administration. This enforces the preceptor expectations of the hospital organization's clinicians, and a

mentorship attitude towards the university and students. Collaboration of faculty and preceptors on student clinical experiences will increase due to the routine presence and involvement of faculty at the clinical site. Furthermore, selected preceptors are also encouraged to be guest speakers in their area of expertise and instruct hands-on procedural skill workshops at the university that will help prepare the student for their clinical experience. Overall, this new clinical education model allows for improved preceptor and faculty relations.

Clinical Rotations

Because of the family practice specialty of the program, the students' clinical rotations will concentrate on what is most relevant to primary care and family practice. The rotations should vary and be immersive and not episodic to allow for increased learning. Other specialty rotations will be limited but provide a glimpse of the extraordinary and expanding role of the NP in today's healthcare. The majority of the clinical time will be spent in primary care rural health clinics.

The hospital organization currently has rural health clinics with four clinical areas of practice. They have plans for more; when new clinics are opened, student residents will participate in rotations there also. Clinic one is a large primary care rural health clinic with visiting specialists. It is a critical access clinic that serves a small community of mostly poor patients. Clinic two is a large clinic near the hospital that is open seven days a week into the evening. It supports mostly a Medicaid population or those with no health insurance. It also provides the occupational health needs of the hospital, worker's compensation services for multiple organizations, in addition to a few specialists who work there routinely. There is an afterhours clinic area that is open late into the evenings and is strategically placed on hospital grounds next to the hospital emergency department. This clientele is mostly patients who have day jobs and responsibilities who come for acute needs. There are patients with urgent care needs who choose to go there instead of waiting for the emergency room. Another clinic area serves primarily patients on Medicaid or no insurance at all. It has multiple specialist, approximately 23

that participate and work with primary care providers initiating care and treatment plans for patients with complex medical problems.

The other clinical rotations consist of time within different hospital departments and medical offices. The students will spend clinical time with radiologists learning how to read x-rays, in the laboratory and nuclear medicine department learning how and why ordering common primary care tests and procedures should be done. They will rotate through the emergency department examining and treating patients of the participating preceptors. Students will work with the intensivist and participate in hospital intensive care unit rounds. They will also join the hospitalist team and participate in hospital in-patient care. Students will experience a surgical rotation too.

There are also rotations included with community providers that have privileges in the hospital who want to be part of the implemented model. For example, there are two pediatricians and one cardiologist who participate in the program. Students will have a rotation with one or both pediatricians, and the cardiologist. Rotations in a pediatric office gives students increased clinical experiences with pediatric patients who have chronic and genetic diseases. Rotations with a cardiologist provide students immersive time practicing with patients who have many of the cardiac diseases that impact patients in primary care. Also, rotations are done with an affiliated physician practice that takes private pay patients. The site has a primary care provider, and other specialists including an obstetrician and gynecologist, infectious disease specialist, and a general surgeon. Students will be able to work with these providers and see specialized care like observing deliveries and surgical procedures for women's care.

The hospital organization has monthly provider meetings. They have extended invitations for the current student NP residents and program faculty. These monthly meetings provide disease state information, foster provider and administration relationships over dinner, and talk about activities to improve practice. The meetings will now add to the regular agenda time to discuss the residency. This will be an educational activity that will foster collaboration and

mentoring of the NP student. It also allows faculty and preceptors to talk about how to improve the student NP clinical education. Likewise, the university will provide opportunities for the hospital organization's preceptors to get to know the university executive administration and leadership in addition to nursing department on a routine basis at the university campus.

While the student is on the clinical site, the APN executive practice leader will be using a hands-on approach to mentorship. She will be available to the students if they have needs. She will also invite students to observe some of her responsibilities, and occasionally meet with them. Being mentored by a FNP practicing at the hospital Chief Executive Officer level is excellent opportunity, just as many of these other clinical rotations are.

Program Goals

The clinical education program goals incorporate the priorities of both the university and the hospital organization. The goals are the following: 1) the clinical program is an educational collaborative designed by the university faculty and the hospital organization's APN executive leadership; 2) the student NP clinical education and assessment will be standardized and measurable with focus on mastering clinical competencies; 3) the student will have an improved clinical experience with increased professional interdisciplinary collaborative experiences; 4) students will develop a large network of mentors and colleagues within the community; 5) students will be prepared for primary care practice and confident upon graduation, 6) the hospital organization will have a large pool of new NP graduates who have been trained and mentored in-house to recruit from, and 7) the university program and the hospital organization will each be able to market the residency to increase visibility and reputation in central California.

Summary of the New Model

This model boasts a challenging educational opportunity and a more clinically robust clinical experience in comparison to most apprenticeship style clinical programs. It allows NP programs to reduce time spent on managing contracts, recruiting preceptors, and clinical site checks. Instead, that that time can be spent to collaborate with practice leaders to design better

curriculum and clinical experiences, and be involved where the learning is. It offers the ability to standardize the clinical education so that all students have a quality learning experience. The shared benefits of this collaboration are many. The new clinical model is a collaboration that elevates and strengthens all participant roles involved with it. The review of key concepts of the new clinical model, and how this model was specifically developed is knowledge needed for evaluating it.

APPENDIX D: IRB APPROVAL LETTERS

Lisa Hood

From: FPU Institutional Research
Sent: Thursday, August 10, 2017 8:54 AM
To: Lisa Hood
Subject: IRB Approval

Dear Lisa,

The IRB has approved your IRB proposal as expedited, numbered 1718.006. Data collection may now begin. Please be advised, however, of the following stipulations of approval: **NONE.**

- FPU IRB approval for proposal 1718.006 expires one year from the date of approval. If data collection should need to take place after [ONE YEAR FROM DATE OF APPROVAL], you will need to submit a "Research Project Continuation" form (available on the FPU website).

- If you decide to make any changes in your study, you must submit those changes to the IRB within three (3) working days and wait for approval by the IRB before you implement them (i.e., changes in the study's methodology, investigator, consent forms, etc.).

- If any unanticipated risks or new information that may impact the risks and/or benefits to study participants arise, you must report them to the IRB within three (3) working days and wait for their approval by the IRB before continuing with your study.

- If any serious and unexpected adverse event occurs, it must be reported to the IRB within twenty-four (24) hours. Less serious adverse events must be reported to the IRB within three (3) working days.

The IRB maintains the authority to terminate or suspend approval of research that is not being conducted in accordance with the proposal approved by the IRB or that has been associated with unexpected serious harm to subjects.

Please keep a copy of this e-mail for your records. Should you have any questions or concerns, please do not hesitate to contact me. Please note, all IRB requests will now be processed through The Office of Institutional Research, as of 3/1/2016. You can reply directly to IRB@fresno.edu or at (559) 453-7161.

-INSTITUTIONAL REVIEW BOARD

MCH
Madera Community Hospital

August 7, 2017

Lisa W. Hood, MSN, FNP-C
5239 N. Van Ness Blvd
Fresno, CA 93711

Re: DNP Project and Survey Study Proposal

Dear Ms. Hood:

I am pleased to provide you with this letter of support and permission for your Doctor in Nursing Practice project titled Development and Evaluation of a New Nurse Practitioner Clinical Residency Education Model.

I have reviewed your Doctor in Nursing Practice project and survey study proposal, and found it to be satisfactory. The evaluation of the new clinical education model by the survey of nurse practitioner and physician preceptors from our organization is feasible. I support you doing your research at Madera Community Hospital and surveying those preceptors who are employed or affiliated with our hospital and who currently assist in educating the Fresno Pacific University Family Nurse Practitioner Program students. The survey will give us valuable feedback on the strengths and weaknesses of this new clinical education model.

I am excited and look forward to working with you on this important project. Please feel free to contact me if you have any questions.

Sincerely,

Karen Paolinelli, FNP
Chief Operating Officer

1250 EAST ALMOND AVENUE • MADERA, CALIFORNIA 93637 • TELEPHONE (559) 675-5555

North Fresno Center
5 River Park Place West
Suite 303
Fresno, CA 93720

tel/559-573-7800
fax/559-573-7898
fpu.edu/northfresno

FRESNO PACIFIC
UNIVERSITY

June 1, 2017

Dear Lisa Hood,

The Nursing Department at Fresno Pacific University is happy to participate in your research and pilot study for your Thesis/Project at Fresno State University. We will grant you access to all information needed and are willing to participate in data collection.

Please let us know how we can assist you during your research.

Thank You,

Stacy A Manning, DNP, NP-C, MSN
Director of Nursing
Director, Family Nurse Practitioner Program
Fresno Pacific University
North Fresno Center
5 River Park Place, Suite 303
Fresno, Ca. 93720
559-573-7834

FRESNO STATE
Discovery. Diversity. Distinction.

SAN JOSÉ STATE UNIVERSITY

California State University, Northern California Consortium Doctor of Nursing Practice

California State University,
Fresno School of Nursing
IRB Approval

September 6, 2017

RE: DNP1710 Developing and Evaluating a New Nurse Practitioner Clinical Education Model

Dear Lisa Hood,

As the Chair of the Department of Nursing Research Committee, serving as the Institutional Review Board for the Department of Nursing, I have reviewed and approved your review request for the above-referenced project for a period of 12 months. I have determined your study to meet the criteria for Minimal Risk IRB review.

Under the Policy and Procedures for Research with Human Subjects at California State University, Fresno, your proposal meets minimal risk criteria according to section 3.3.7: Research in which the risks of harm anticipated are not greater, probability and magnitude, than those ordinarily encountered in daily life or during the performance of routine physical or psychological examinations or tests.

The Research Committee may periodically wish to assess the adequacy of research process.
If, in the course of the study, you consider making any changes in the protocol or consent form, you must forward this information to the Research Committee prior to implementation unless the change is necessary to eliminate an apparent immediate hazard to the research participant(s).

This study expires: September 6, 2018

The Research Committee is authorized to periodically assess the adequacy of the consent and research process. All problems having to do with subject safety must be reported to the Research Committee. Please maintain proper data control and confidentiality.

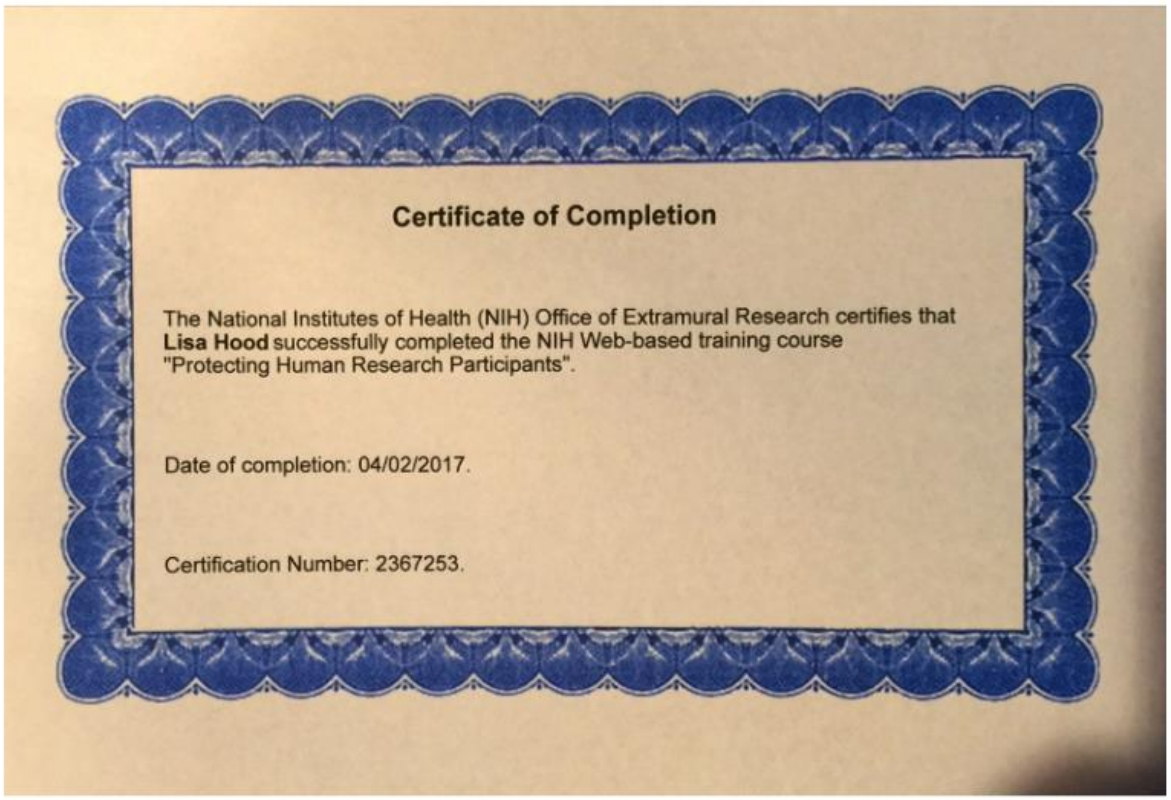
If you have any questions, please contact me through the CSU, Fresno School of Nursing Research Committee at symiller@csufresno.edu.

Sincerely,

Sylvia Miller

Sylvia Miller, EdD, RN, FNP-C
School of Nursing, Research Committee, Chair

APPENDIX E: CERTIFICATE OF COMPLETION



Certificate of Completion

The National Institutes of Health (NIH) Office of Extramural Research certifies that **Lisa Hood** successfully completed the NIH Web-based training course "Protecting Human Research Participants".

Date of completion: 04/02/2017.

Certification Number: 2367253.