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Establishing a Nurse Practitioner Residency Program in a Rural Federally Qualified Health Center: A Feasibility Analysis and Pilot Study

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Establishing a Nurse Practitioner Residency Program in a Rural Federally Qualified Health

Center: A Feasibility Analysis and Pilot Study

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Center: A Feasibility Analysis and Pilot Study

Abstract

Rural communities are disproportionately underserved and have been identified as a priority

population to improve health outcomes and access to care (Agency for Healthcare Research and

Quality [AHRQ], 2015). National organizations have recognized a deficit in primary care

providers, recommended nurse practitioners (NPs) as a solution, and supported NP residency

programs as a means to prepare and recruit qualified practitioners into communities (Institute of

Medicine [IOM], 2010; The Patient Protection and Affordable Care Act [PPACA], 2010).

However, there are only three primary care NP residency programs in rural California (National

Nurse Practitioner Residency and Fellowship Training Consortium [NNPRFTC], 2015). A pilot

NP residency program and feasibility analysis was designed to evaluate current program

structures and funding sources while promoting the development and implementation of NP

residency programs within rural Federally Qualified Health Centers (FQHCs). Evaluation

metrics included competency self-assessments, content-based evaluations of a web-based

didactic module, and qualitative program evaluations. The results of this pilot study showed an

increase in self-reported clinical competence as well as knowledge acquisition with the didactic

module. An opportunity exists to model new NP residency programs off the pilot activities and

structures identified in this project within rural FQHCs.

Key Words: Federally Qualified Health Center, FQHC, nurse practitioner, nurse practitioner

program, nurse practitioner residency, postgraduate education, primary care, residencies, rural

health

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Section II: Introduction

Problem Description

Rural communities in California are underserved (AHRQ, 2015). Utilization of advanced practice nurses has been identified nationally as a means to increase access to quality healthcare and improve health disparities in rural communities (AHRQ, 2015; PPACA, 2010; US Census Bureau, 2015). However, the transition into practice for a novice advanced practice nurse can be extremely challenging without specialized clinical support and training (Goudreau et al., 2011). The Institute of Medicine (2010) recognized the need for residency programs, making national recommendations to increase program implementation to support novice nurse practitioner clinical competence and retention. Since the IOM recommendation, several universities in California have established nurse practitioner residency programs; however, most new graduates enter the workplace without a formal post-graduate training program. According to the National Nurse Practitioner Residency and Fellowship Training Consortium (2015), there are only six primary care nurse practitioner (NP) residency programs in California located in Arcata, Berkeley, Los Angeles, Redding, San Francisco, and Santa Rosa, albeit not in the Sierra Nevada Region.

Western Sierra Medical Clinic (WSMC) is a FQHC that promotes health and wellness in the Sierra Nevada Region by delivering high quality, multidisciplinary primary care in a medical home model. The region served is diverse and vast. According to the University of Wisconsin Population Health Institute (2016) county health rankings in California, Placer County is ranked 5th for Health Outcomes and Yuba County is ranked 46th out of the 57 counties scored. Nevada and Sierra Counties reside in the middle with rankings of 17 and 26, respectively. The rankings represent measures that look specifically at life expectancy, premature death, low birth weight,

and poor physical and mental health. The county rankings were similar for health factors such as access to quality health care, socioeconomic standing, education, and environmental safety as well as modifiable behaviors such as diet, exercise, alcohol and tobacco use. By utilizing these rankings, opportunities for health improvement and access to care can be identified.

Although access to health services in rural communities has been a limiting factor in health promotion, rural communities have been identified nationally as a priority population to improve access and health outcomes (AHRQ, 2015). While the national rate of uninsured individuals decreased from 22.3% in 2010 to 15.6% in 2014, in rural Sierra County California, 20.4% of the population under 65 years is uninsured and 13.8% lives in poverty (US Census Bureau, 2015). WSMC is a FQHC that serves as a medical safety net for the Sierra Nevada Region. The implementation of a nurse practitioner residency program would provide clinical training opportunities to enhance the rural workforce and increase access to high quality primary care providers. The goal of this project was to perform a feasibility analysis with pilot activities for the implementation of a NP residency program within a rural Federally Qualified Health Center (FQHC) to support the transition to practice of new nurse practitioners and improve health outcomes of rural communities by promoting NP positions within the community.

Available Knowledge

Critical Appraisal of Evidence. A comprehensive literature review was performed using several databases including CINAHL Complete, PubMed, and Cochrane Library. Key search terms used were as follows: federally qualified health center, nurse practitioner, nurse residency, nurse practitioner residency, nurse practitioner and workforce development, and rural health. The searches were enriched using related articles as well as secondary sources. The John

Hopkins Nursing Evidence Based Practice appraisal tool was used to evaluate the quality and strength of the literature (Appendix A & B).

Review of the Evidence. Advanced practice nurses have provided and improved the quality of care to disparate communities since the 1960s (Saver, 2015). A systematic review comparing the outcomes in medical care of advanced practice nurses with physicians from 1990-2008, found that advanced practice nurses delivered health outcomes comparable to their physician counterparts when working in a collaborative environment (Centre for Reviews and Dissemination, 2011). Advanced practice nurses were also more cost-effective in delivering an equivalent quality of care to their patients. In addition, patients and families identified nurse practitioners as providing a more favorable level of service (Schuttelaar, Vermeulen, Drukker, & Coenraads, 2010). While the quality of care that nurse practitioners provide has been established, the utilization of NPs as primary care providers in rural settings, using the collaborative model has not gained significant ground (Centre for Reviews and Dissemination, 2011). The Patient Protection and Affordable Care Act (2010) recognized the efficiency and efficacy of nurse practitioners by supporting the utilization of NPs as a means to increase access to primary care in rural communities throughout the country.

The goal of FQHCs is to increase primary care services to medically underserved populations in urban and rural communities (U.S. Department of Health & Human Services, 2016). In rural communities, FQHCs deliver services to a disproportionate number of socioeconomically disadvantaged, ethnic and racial minorities, and uninsured or underinsured individuals (Flinter, 2010). According to the National Association of Community Health Centers (2015), FQHCs deliver care to 21,726,965 unique patients across the United States. Of those, 35% were uninsured and 41% Medicaid recipients. Although the number of uninsured has

decreased since the Affordable Care Act (2010), there has been a significant rise in the number

of patients requiring care in FQHCs. Conversely, the supply of primary care physicians is not

projected to meet to estimated demand of 20,400 physicians by 2020 (Health Resources and

Services Administration [HRSA], 2013). To help alleviate this deficit, nurse practitioners have

been identified as a potential solution in primary care. This argument is even more compelling

with NPs long history of serving vulnerable populations in community health settings (Morgan,

Everett, & Hing, 2015).

Nurse practice laws, regulations, and licensing requirements are governed by individual

states. According to American Association of Nurse Practitioners (2016), NPs in 21 states have

authority to practice to the full scope of their training. A systematic review examining scope of

practice regulations on the utilization and expansion of NPs into community based primary care

found that states with less restricted, independent practices utilized NPs to a greater extent,

subsequently providing a more robust primary care workforce (Xue, Ye, Brewer, & Spetz, 2016).

In deliberations held at the Nurse Practitioner Roundtable (2014), a collaborative agreement was

made by many nursing organizations stating that NPs are fully prepared to enter professional

practice at the time of graduation and no additional training is required. The two chief

components to this position are (a) educational programs have mentored clinical experiences

with standardized competencies to meet the demands of a complex healthcare environment, and

(b) NPs are highly qualified practitioners that can help meet the growing demands for healthcare

services. Nevertheless, opportunities for postgraduate training were identified as beneficial for

NPs in community health centers that serve complex patients with multiple co-morbidities.

New NPs meet clinical demands that are more complex than ever before; there is an

aging population and increasing burden of chronic disease. A study by Hart and Macnee (2007)

of 562 participants found that only 10% of NPs felt that they were well prepared to enter practice as new graduates. Until 2007, with the birth of the first NP residency program in primary care, new NPs did not have formal training or support during the transition to practice (Flinter, 2012). Although significant research supports postgraduate residency placements for registered nurses (RNs), outcome data for NPs is only beginning to emerge (Missen, McKenna, & Beauchamp, 2014; Flinter, 2012). One of the more profound outcomes with post-graduate residency programs is the development of confidence, competence, and mastery in clinical practice (Brown et al., 2015; Flinter & Hart, 2016; Norwick, 2016). Flinter (2012) observed that by supporting the transition of new NPs, stress is relieved in the multidisciplinary team, the NP resident, and the organization. Post-residency statistics show scores for NP residents on clinical performance appraisals as 8% greater than the average for all other primary care providers (Bamrick, Corsino, & Flinter, 2016). Ultimately, NP retention in community clinics throughout the country is dependent on job satisfaction. A study by Bush and Lowery (2016) used the Misener Nurse Practitioner Job Satisfaction Scale to compare NPs who have had post-graduate training and those who have not in 30 different states. The results showed a statistical significance in job satisfaction with NPs who completed postgraduate training with a p value <0.001.

Since the implementation of the first residency program in Connecticut in 2007, over 35 post-graduate primary care NP residency programs have been developed nationally with more expected to emerge by the end of the year (National Nurse Practitioner Residency and Fellowship Training Consortium [NNPRFTC], 2015). However, with approximately 20,000 new NPs in the 2014-2015 year alone, residency placements are extremely limited in number and location (American Association of Nurse Practitioners [AANP], 2016). To support NPs

transition to practice and health outcomes of vulnerable populations, the continued development

new of NP residency programs in primary care is recommended.

The future of NP residency programs is expanding with the emergence of an

accreditation process. Once an organization develops a NP residency program and completes the

first year of implementation, they can apply for the voluntary, peer-reviewed accreditation

process. However, the process and requirements vary depending on the accreditation body. The

NNPRTC (2015) is the only organization to exclusively accredit NP residency and fellowship

programs and was modeled after innovators in the field using their design and rigor. The

consortium was founded to support novice nurse practitioners in the transition to practice and

expand access to high quality preparation, launching its inaugural year in 2016. The fee is

$10,000 and strictly follows the consortium accreditation standards. Comparably, the American

Nurses Credentialing Center (ANCC) (2016) promotes high quality nurse training and education

through global accreditation and certification. The ANCC Practice Transition Accreditation

Program maintains rigorous standards with evidenced-based criteria to accredit RN residencies,

fellowships, and advance practice nurse fellowships. The literature does not favorably

recommend either accreditation program over the other; however, prior to program development,

it is recommended to structure the program model, evaluation, and outcomes based on the

accrediting standards aligned with the mission and vision of the organization (ANCC, 2016;

NNPRTC, 2015).

Rationale

Residency programs have been shown to be effective in supporting the transition to

practice, producing competent practitioners as well as building a workforce to meet the needs of

the community (Brown et al., 2015; Flinter, 2010; Norwick, 2016). Although research supports

these program outcomes, a gap exists in the availability of residency programs for nurse

practitioners, particularly in rural health. All primary care NP residency programs in California

were contacted to examine their structure, funding sources, and financial sustainability. Of the

six programs identified, only three were located in rural communities. Even though all of the

program structures were based on the Flinter (2010) model, see Appendix E, for the development

and implementation of a NP residency program, the assumption was made that it is replicable in

the proposed FQHC for this project. The theoretical construct supporting this model was based in

experiential learning to support the new practitioner in role acquisition and skill mastery.

   Theoretical framework. Nursing programs have long based the educational process on

experiential learning and skill mastery (Lisko SA & O'Dell V, 2010). Kolb's Theory of

Experiential Learning postulates that a more profound understanding develops through direct

experience and in order to create knowledge, experiences are cognitively transformed through

introspection of that experience (Kolb, 1984). The learner progresses through four key stages in

the experiential learning cycle (a) they undergo a *concrete experience* of a new or reinterpreted

situation, (b) they have a *reflective observation* that identifies inconsistencies in the way they

understand or perceive the experience, (c) they have *abstract conceptualization* where reflection

cultivates a new idea, and (d) they participate in *active experimentation* where the learner applies

the new knowledge in practice (Appendix C) (McLeod, 2010).

   The theory of experiential learning suggests that a NP residency program will burgeon

within the theoretical construct. The key components of a residency program are precepted

clinical rotations and interactive didactic seminars with on-going self-assessments and reflective

journals (Flinter, 2012). To facilitate the experiential learning process, opportunities were

provided to discuss and reflect on clinical cases, professional development, and interpersonal

growth while encouraging the application of new skills and knowledge within future cases.

Based on Kolb's theory, the residency experiences will be transformed within the existing

cognitive framework and change patterns of behavior (Kolb, 1984; Lisko SA & O'Dell V, 2010).

Specific Aims

WSMC is dedicated to building a healthier community through innovative patient

centered care and recognizes that the strength of the organization is dependent on that of its

providers. Although WSMC has a robust clinical education program for nurse practitioner

students, a formal post-graduate residency program has not been established. Without a formal

training program, new graduate employees rely on the unstructured support of the

interprofessional staff for mentorship and role acquisition. However, formal nurse practitioner

residency programs have been shown to decrease stress within the interprofessional team and

organization as well as build confidence and competence in residents (Flinter, 2010; Flinter,

2016).

The aim of this project was to increase access to quality healthcare for underserved rural

populations in Northern California by supporting new nurse practitioners in the transition to

practice through a mentored clinical training program. There were three major components of

this project. First, collaborate with a rural FQHC on the development of a nurse practitioner

residency program. Second, develop a pilot program with initial rural health curriculum

materials. Third, develop a feasibility analysis of establishing a residency program within

WSMC by examining the structure and funding sources of all primary care nurse practitioner

residency programs in California.

Fundamental goals. The intention of this DNP project was to impact the nursing

profession in the following way:

- Increase access to quality healthcare for underserved rural populations in Northern California by training family nurse practitioners in a FQHC.

- Support new nurse practitioners in the transition to practice by facilitating a mentored clinical training program and developing web-based curriculum materials that speak to the unique needs of the communities served.

- Improve new NP clinical competency and confidence as well as job satisfaction and retention in residents who choose to work in rural FQHCs.

- Increase NPs trained to serve in leadership roles in rural healthcare settings.

Measurable outcomes. The elements necessary to establish a foundation to proceed with the development of a NP residency program were contingent on the following outcome measurements:

- Develop a feasibility analysis of the implementation of a NP residency program to present to WSMC leadership by May 2017.

- Establish a partnership with the University of San Francisco and Western Sierra Medical Clinics for the development and implementation of a pilot nurse practitioner residency program by May 2017.

- Evaluate the effectiveness of a web-based didactic rural health curriculum as evidenced by a 15% increase in learner knowledge and comprehension of a pilot module in a pre and post-seminar assessment.

- Develop and implement a 1-semester pilot of residency activities at WSMC with a 25% increase in student learner's self-assessment of clinical competence as evidenced by a pre and post-pilot evaluation.

Section III: Methods

Context

  Planning the intervention with key stakeholders. A literature review and needs assessment exposed an opportunity to establish the foundation of an innovative nurse practitioner residency program within a FQHC. WSMC leadership expressed interest in expanding clinical training opportunities for NPs within their organization in collaboration with the University of San Francisco School of Nursing and Health Professions (USFSONHP). The author met with WSMC leadership and proposed the development and implementation of a pilot program with a feasibility analysis for the potential establishment of a NP residency program at WSMC. The assistant medical director supported the author's mission to move forward with the pilot project. The DNP student author was responsible for communicating with key stakeholders, WSMC leadership and healthcare professionals, DNP committee members, and student learners, as well as maintaining the trajectory of the project to meet the goals.

  Planning started in August 2016, allowing for 8 months to complete the planning and intervention phases. Although significant time was required by the DNP student to prepare the project and collaborate with WSMC leadership, USF Chair, and student learners, overall resource requirements were nominal. Gleeson Library research databases were the backbone for an evidenced-based intervention. Technological resources included the Canvas web-based interactive learning site, excel programming for financial analysis, and word applications for document composition. Resident and preceptor participation in the pilot program as well as student participation in the didactic module was an invaluable resource.

  Setting. Western Sierra Medical Clinic is a comprehensive medical home that delivers health care across the age continuum in Nevada, Placer, Sierra, and Yuba counties though six

integrated sites. It is the largest outpatient health care provider in the region, serving

approximately 20,000 residents. The population served is low income, primarily English

speaking. The main location in Grass Valley provides medical, dental, pediatric, behavioral, and

maternity health services to the community Monday through Friday, 7am- 5pm, with urgent care

services extended through the weekend. The pilot nurse practitioner residency program was

facilitated at the Grass Valley site. Student learners participated in a 6-week primary care

rotation with a dedicated preceptor who guided their educational experience.

Interventions

In order to explore the feasibility of implementing a NP residency program within a

FQHC and to present a comprehensive representation of a working model for the pilot study, the

author contacted each primary care NP residency program in California to understand their

structure and funding sources (Appendix K). Several salient themes emerged after analyzing the

programs.

- The first of six programs was established in 2012 and is the only program accredited to

  date. The accreditation process can be initiated after one year of operation.

- The majority of the programs follow a 12-month, 40 hour per week, model; however,

  Santa Rosa Community Health Center built the structure around a 18-month model that

  allows for 6-months of supported practice without a dedicated preceptor to accrue

  additional return on investment.

- Although the programs have slightly different clinical and didactic schedules, they all

  follow a model that includes precepted clinical rotations with an exclusive or dedicated

  preceptor, specialty clinical rotations, and weekly didactic education.

- The number of residents per preceptor ranges from 2:1 to 3:1.

- The cohort size varies from 2-6 students annually depending on the size of the organization and breadth of the program with multiple sites scheduling 2 cohorts annually 6 moths apart.

- Evaluation frequency and tools are not standardized between any of the organizations; however, all programs utilize regular evaluations.

- Although the San Francisco and West Los Angeles VA Medical Centers have a strong internal financial backing of $1,000,000 annually for each interprofessional residency program, there is not substantial funding for other programs beyond initial grant funding for workforce development (Appendix Q) and targeted managed Medi-Cal provider funding.

- All of the programs yield a positive return on investment by the 3rd quarter using a billable patient visit revenue system. As residents gradually assume increased responsibility, they are able to manage an increased number of patient visits per day. Resident productivity is presented in the financial analysis (Appendix R).

The postgraduate primary care NP residency models above were presented to the leadership team at WSMC to conceptualize the structural components of a program and offer diverse interpretations with strong business plans.

Pilot Residency. The Community Health Center (CHC) in Connecticut has been a nationally recognized model of excellence for the development and implementation of primary care NP residency programs for the past decade (Flinter, 2010; Flinter, 2012). The pilot program was modeled after the key components of CHCs residency program: (a) full integration within the organization with intensive orientation, (b) gradual increase of responsibilities, (c) precepted clinical rotations, (d) didactic learning enrichment, (e) ongoing evaluation (Appendix E). After

establishing a relationship with the clinic providers, a preceptor and two student learners were

identified. The assistant medical director at WSMC recommended student learners that were

final semester, graduate family nurse practitioner students completing their clinical hours at

WSMC who were already oriented to the organization. Their onboarding paralleled that of a new

hire employee including electronic health system training, compliance, safety, and significant

orientation to the rural population served at WSMC. This allowed for maximum utilization of the

6-week time allotment with a dedicated clinical preceptor for the pilot residency. One clinical

rotation was selected for the pilot, primary care. A formal letter was drafted to invite student

learners to participate in the pilot (Appendix F).

      Didactic Module. Using the CHC model, a forum for didactic learning needed to be

produced for the pilot program. An on-line interactive site, Canvas, was chosen for its ease in

accessibility, simplicity of interface, and zero financial expenditure. Hypertension was selected

for the curriculum by analyzing the top diagnoses at WSMC (Appendix G) as well as national

data for most commonly diagnosed conditions in primary care (CDC, 2017). The module

consisted of an hour-long video, Best Practices in the Diagnosis and Management of Resistant

Hypertension, (Davis & Kountz, 2015), that was presented at the American Association of Nurse

Practitioners National Conference 2016. Additional hypertension resource materials were also

provided in the module. The didactic seminar was evaluated using a content-based evaluation

tool to identify learner knowledge and comprehension in pre and post assessment format

(Appendix H). See Appendix L for a 12-month sample didactic curriculum schedule.

      Evaluation. Evaluation tools were adapted from USFSONHP to meet the needs of the

pilot program (Appendix I). Self-assessment of clinical competency was evaluated prior to

initiation of the pilot as well as after completion. Along with the self-assessments, student

learners were asked to write weekly reflective journals to help guide the educational experience.

The preceptor utilized these tools to optimize the clinical experience and modifying it to meet the

needs of the individual learner. The methods for evaluation were also fashioned after the CHC

model for program evaluation (Appendix J).

Statement of the Work

Although the author was responsible for planning, developing, implementing, and

evaluating the project, the student learners and preceptor were accountable for participating in

and completing the pilot residency, didactic learning module, and evaluation tools. The

leadership team at WSMC and DNP faculty were integral members in the approval of all phases

of the project. See Appendix M for the work breakdown structure of the project's deliverables

and subdeliverables to build a foundation for the implementation of a NP residency program at

WSMC.

Time Summary

The timeline for the project was August 2016- May 2017 with key milestones listed

below. See Appendix N for a detailed GANTT chart.

- Aug 2016: Performed literature review

- Sept- Oct 2016: Identified key stakeholders and committee members; organized
  communication structure

- Nov 2016: Performed needs assessment and developed relationship with WSMC

- Dec 2016: Completed preliminary financial analysis and project prospectus

- Dec 2016: Identified pilot cohort and evaluation tools

- Dec 2016: Initiated curriculum and pilot development

- Jan 2017: Developed pilot self-assessment metrics

- Jan 2017: Initiated communication with primary care NP residency programs

- Feb 2017: Launched 6 week pilot NP residency in primary care

- March 2017: Launched web-based didactic seminar with evaluation metrics

- April 2017: Collected post-pilot self-assessment metrics

- April/May 2017: Presented pilot findings and feasibility analysis to WSMC leadership

Pilot Residency Cost Benefit Analysis

Development and implementation of the 6-week pilot residency program comprised the majority of the fiscal requirement for the project. Although it was projected that the student learner would be a licensed FNP who would be able to bill for services provided, that was not the case. The participants were graduate FNP students in their final semester. A dedicated preceptor supervised patient care, medication prescribing, lab ordering, and documentation. The student learners offset the lost patient revenue of the dedicated preceptor as they provided care to all of the patients on the panel. An average reimbursement rate for FQHCs was extrapolated from the pro-forma financial analysis of the Community Health Center (Bamrick et al., 2016). Using this data, the student learner's fiscal contribution to Western Sierra Medical Center is captured. Lost revenue to WSMC was unavoidable with a dedicated preceptor for a portion of the clinical hours as suggested in the literature (Flinter, 2012). Expenses included preceptor salary, compliance and computer training, technology support, and miscellaneous supplies. For a detailed budget with return on investment see Appendix O.

SWOT Analysis

A comprehensive analysis of the strengths, weaknesses, opportunities, and threats was outlined during the planning phase of the project (Appendix P). A principal strength in the

development of the project was the support of the University of San Francisco School of Nursing and Health Professions as well as WSMC. The author completed clinical training with WSMC and established relationships with the interprofessional team who informed the author of leaderships expressed interest in pursuing a post-graduate NP residency program at WSMC. This professional relationship led to a pre-identified pilot group. Weaknesses included low interest in rural health, scarcity of funding, and a lengthy resident commitment. Pilot program curriculum development was also a perceived weaknesses. Opportunities abounded in the alignment with the Institute of Medicine (2010) and Affordable Care Act (2010) recommendations to increase access to primary care in rural communities with the advancement of nurse practitioners and residency programs. The possibility to enhance workforce development was a driving force of the project. Furthermore, nationally recognized NP residency programs existed with replicable models for postgraduate training that could guide pilot activities. Threats included lack of organizational support, insufficient funding, and a paucity of employment opportunities. Community and provider push back was a perceived threat; however, evidenced-based research and strong interpersonal skills were used to mitigate any potential barriers.

Study of the Intervention

As mentioned above, the CHC's model for a post-graduate primary care NP residency program was utilized in the development of the pilot. Flinter (2012) outlined the need for ongoing evaluations and recommended a 3-point approach including: competency self-assessment, reflective journals, and bidirectional evaluations of clinical rotations and didactic seminars. However, standardized evaluation tools have not been developed or implemented nationally. To compensate for this area of needed research, self-assessment tools were adapted from the University of San Francisco School of Nursing and Health Professions (2016) that are

based on the National Organization of Nurse Practitioner Faculties Core Competencies (2011).

The adapted evaluation tools were based on the theoretical construct of Benner's (1982) model

of skill acquisition and proficiency that postulates one passes through five levels of competence

before mastery: (a) novice, (b) advanced beginner, (c) competent, (d) proficient, and (e) expert.

When applied to NP residency training, the significance of this theory conceptualizes how new

practitioners progressively acquire clinical competence through supported practice. Although a

4-point Likert-type scale was utilized for the adapted self-assessment tool, the student learners

were given an option of not applicable if they have not had an opportunity to perform the skill

that was suggestive of the novice practitioner (Appendix I).

Measures

The evaluation of this DNP project was based on three primary goals: a) to develop a

pilot NP residency program and increase the self-assessed clinical competence of student

learners, b) to evaluate the effectiveness of a web-based didactic module, and c) develop a

feasibility and sustainability plan for WSMC to utilize for the implementation of a NP residency

program. To guide the pilot program and evaluation modalities, Kolb's (1984) Theory of

Experiential Learning and Benner's (1982) model of skill acquisition were interwoven to create a

model that supported the learners journey through new experiences and the transformation of

knowledge into practice.

The self-assessment tool and the reflective journals generated a feedback loop between

the student learner, practitioner, and the preceptor. This afforded preceptors the opportunity to

individualize clinical care and content for the educational experience. Prior to the start of the

pilot residency program, each participant completed a baseline self-assessment (Appendix I).

Relevant statements such as "unable to perform" or "needed guidance to perform" were

extrapolated and collated from the learners' self-assessment to provide feedback to the preceptor

and help guide the pilot program. The same self-assessment tool was administered at the end of

the pilot to evaluate progress using a 4-point Likert-type scale. A similar technique was used to

evaluate the effectiveness of the didactic learning module. Post module knowledge acquisition

was assessed with a 10-question evaluation tool that was given a baseline prior to watching the

hypertension video and afterwards to assess knowledge acquisition (Appendix H). Finally, the

sustainability of implementing a NP residency program can be conceptualized on the 2-year

projected financial analysis (Appendix R).

Analysis

Qualitative and quantitative data were collected throughout the six-week pilot study. The

student learners rated their confidence in completing clinical skills at the beginning and end of

the pilot study using a 4-point Likert-type scale. With ordinal data, the distance between two

points can be ranked but not measured (Sullivan & Artino, 2013). It has been suggested that

analyzing ordinal data is best illustrated using median measurements and percentage in

frequency. Ordinal data from the quantitative self-assessment questionnaires were analyzed

using descriptive statistics and change point detection by analyzing the median score for each

question at the beginning and end of the pilot. Analogously, percentiles were used to detect the

change in learner comprehension prior to and after completing the didactic module. Microsoft

Word and Excel 2011 software was used for statistical analysis and chart composition.

Qualitative, reflective journals were also collected weekly and utilized by the preceptor to guide

clinical education during the pilot.

Programmatic evaluation was analyzed in two ways. Ordinal data were collected from the

student learners using a 5-point Likert scale to evaluate the quality of the material presented in

the didactic module, the student learners' "likeliness" to apply the learned material in clinical

practice, and the usefulness of the learning style in a NP residency program. The results were

analyzed using descriptive statistics. Two qualitative, open-ended program evaluation questions

were utilized to provide feedback and opportunity for program improvement. Additionally, a

framework of NP residency programs was analyzed to assess the feasibility of implementing the

program in a FQHC. The success of the framework was contingent on the financial analysis and

long term sustainability of the program.

Ethical Considerations

      The American Nurses Association (2015), Code of Ethics, which includes the ethical

principles of autonomy, beneficence, non-malfeasance, and justice, guided the author through the

development and implementation of this project to advance professional nursing practice and the

health of rural communities. A statement of non-research determination was submitted to the

Doctor of Nursing Practice (DNP) program at the University of San Francisco (Appendix D).

The project was approved as an evidenced-based change of practice and declared to be not

research with human subjects; therefore, exempt from Institutional Review Board (IRB). All

student learners voluntarily participated with full disclosure of the project. Clinical experiences

followed the policy and procedures of WSMC. No patient information was shared with the

author or outside of the clinical setting. There were no ethical issues or conflicts noted.

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Section IV: Results

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Pilot Residency

      Clinical confidence and competence have been shown to increase in practitioners who

have participated in residency programs (Flinter, 2012). This concept was examined with pre and

post pilot student learner self-assessments using 4-point Likert-type scale ranging from1=unable

to perform to 4= confident in performing independently. The median score for each question was

calculated based on the student learner (n=2) responses prior to participating in the pilot primary

care clinical residency as well as after the 6-week period. The line graph below represents the

trend in self-reported clinical competence throughout the pilot for each of the 33 questions

(Appendix I).
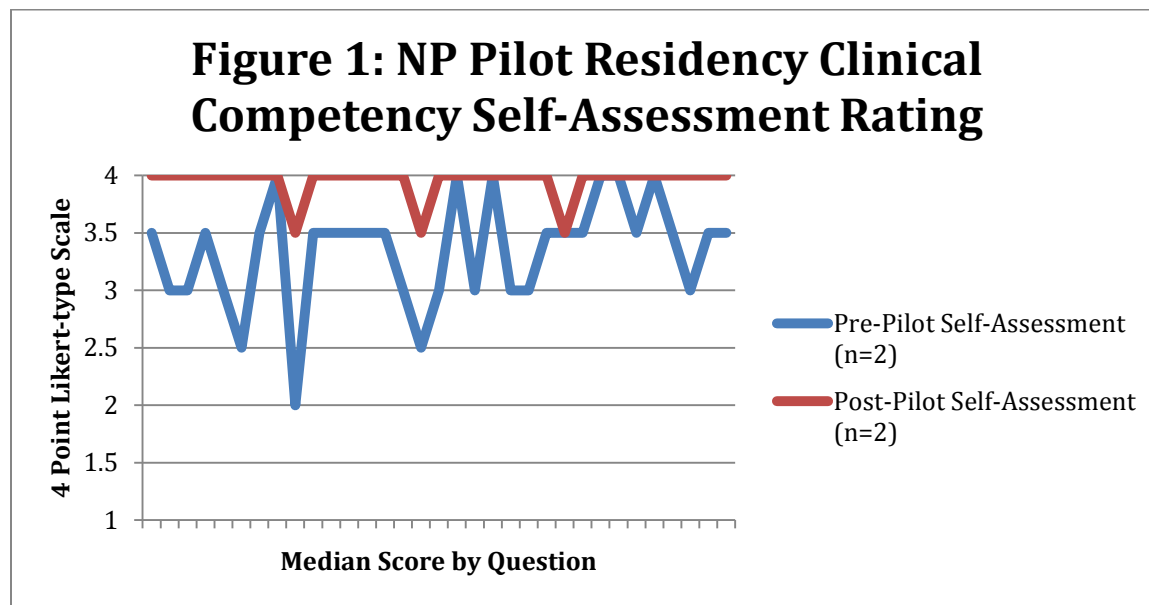
A percentage was calculated based on the sum of all points selected by the student learner

on the self-assessment tool divided by the total number of possible points. These figures were

used to compare the change in clinical competence from the baseline to the completion of the

pilot. Student learner #1 self-assessed clinical competence as 87% pre pilot and 100% post pilot

whereas Student learner #2 rated 80% and 97%, respectfully. The increase in clinical

competence ranges from 13% to 17% during the 6-week pilot residency. Although the increase

in clinical competence didn't meet the expected outcome of 25%, the margin of increase was too

tight to meet those parameters. The pre assessment values started at 80-87% allowing for a

maximum increase of 17-20%.

Figure 2: Clinical Competence Self-Assessment Metrics
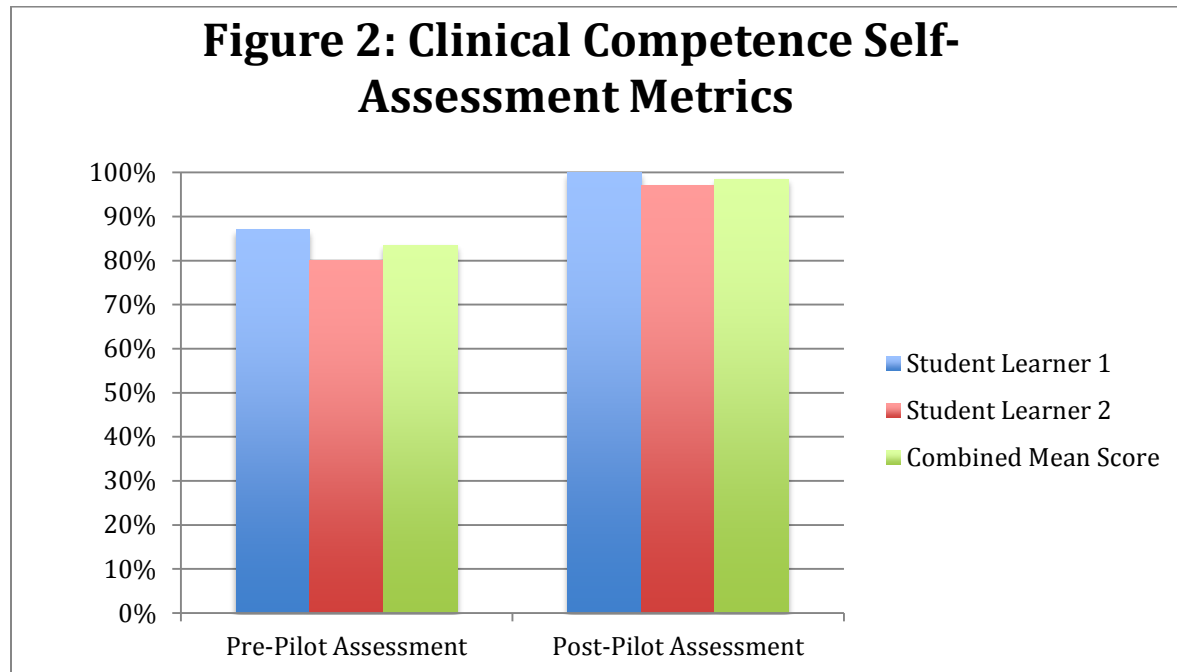
Didactic Module. Student learner knowledge and comprehension of the web-based

didactic module was assessed in two phases: pre and post participation in the hypertension

module. An identical 10-question, content based, multiple-choice assessment was given at both

phases. Although both participants completed the 6-week pilot residency clinical rotation, one of

the student learners failed to complete the didactic module and the reflective journals. Please see

Limitations for an in depth discussion of participant attrition. The remaining participant

completed the pre-module assessment with a score of 5/10 and the post-module assessment with

a score of 8/10, showing a 30% increase in student learner knowledge.

Figure 3: Pre and Post Didactic Module Content Based Assessment

Figure 3: Pre and Post Didactic Module Content Based Assessment
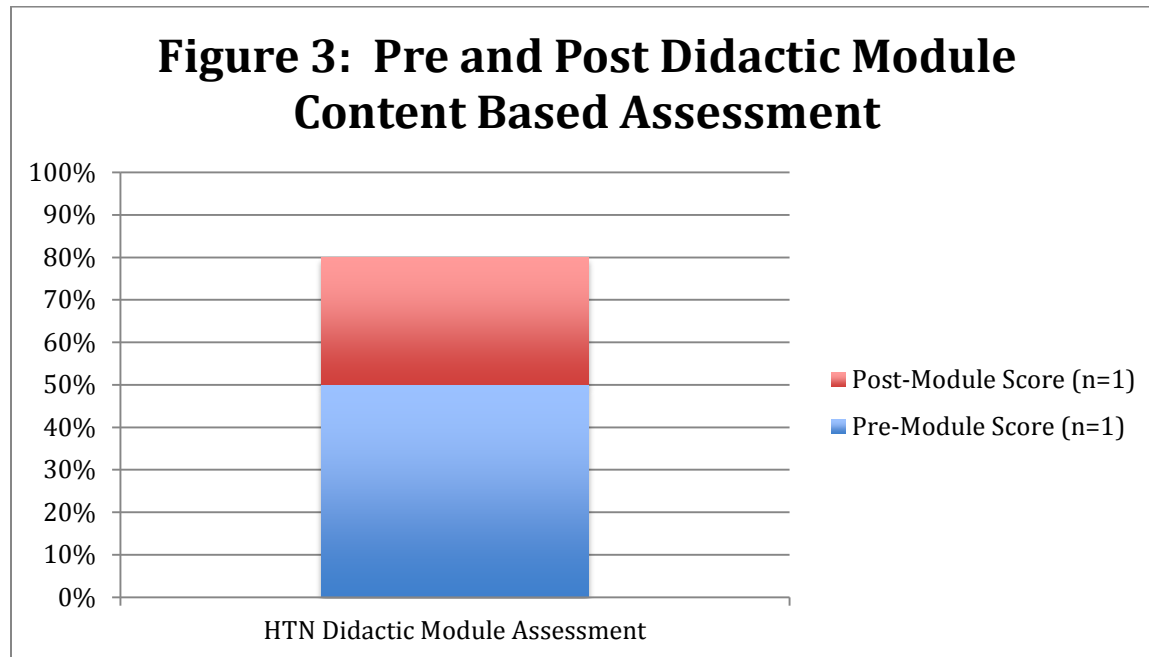
The effectiveness of the didactic module was evaluated by the student learner (n=1) using a 5-point Likert scale ranging from 1=strongly disagree to 5=strongly agree. All of the ratings were 4=agree to 5=strongly agree with a median score of 4, suggesting the module was an effective learning modality. When solicited if this module would be helpful if applied to other topics in a FNP residency program, student learner response was 4=agree.

Reflective Journals. Reflective journals were submitted weekly throughout the 6-week pilot residency to open the forum for discussion on clinical experiences, obstacles and achievements. Additionally, the preceptor used the journal to help guide the learning experience for the student. See Example below:

> I saw a 27 yo male who suffers from epilepsy. He had an event where he was binge
> drinking on his Topomax and has a seizure while driving. Pt lost his license and is
> suffering consequences of that. Today I struggled greatly with the insurance problem we
> have been having so much here. Pt is insured through the River City (which used to be
> the ACA covered by Anthem blue cross). We have NO local providers that accept River

City and only one lab in town that accepts it. This has been a nightmare for Prior Auths

(required for everything including x-rays). I struggled to keep up my schedule, while

outsourcing for help to find a location this pt could get this lab drawn at. (Student

Learner, Reflective journal entry #3)

Program Evaluation. The overall program was evaluated qualitatively to see if the

participants experience in the pilot residency program prepared them for practice and elicited

other activities to enhance program effectiveness. After analyzing the responses, several salient

themes arose: a) the pilot did help prepare for practice; b) working with a preceptor built

confidence in decision making; c) WSMC would be a great location for a NP residency program;

d) not sure what else to add to the program to enhance the experience; e) the program needs more

than pay to differentiate it from an intern experience. These findings support the foundation of

the pilot residency program; however they lack insight on how to improve the program before

consideration to implement a platform at WSMC.

Feasibility and Financial Analysis

WSMC is an ideal site to host a post-graduate clinical training program, as it serves as a

FQHC medical home to an underserved population delivering high quality, interprofessional

primary care services across the life span with affiliated multispecialty clinics. However, in order

to assess the feasibility of program development and implementation, several factors were

considered. There are four essential elements that an organization must have when considering a

NP residency program: a) a sufficient number of patients, b) enough exam rooms and staff, c)

interested, qualified preceptors and d) committed leadership (Norwick, 2016). WSMC was able

to meet all of these needs.

Since national funding for NP residency programs is not readily available, FQHCs

procure resources in two primary ways. First, the managed Medi-Cal prospective payment

system allows community clinics to bill per patient visit rather than charge by services provided.

The fee is substantially more than a private practice ranging from $150-190 per visit according to

the programs surveyed in California (Appendix K). This is advantageous in the planning of a

residency program as multiple NP residents can bill for patient visits and offset loss revenue

from a dedicated preceptor not seeing patients. A detailed 2-year budget with cost benefit

analysis of the implementation of a NP residency program at WSMC was performed (Appendix

Q). The NP resident contribution is based on a ramp up model of increased patient care

responsibility, ranging from 8 to 18 patient visits per day and averaging 1,940 visits per year.

With an average reimbursement rate of $150, each resident can bring in revenue of $291,000

annually. With 2 and 3 residents, revenue climbs to $582,000 and $873,000 respectfully. After

the lost preceptor revenue of $340, 200, WSMC's total revenue is $241,800-$532,800 depending

on the number of residents each year. Expenses remain fairly consistent not taking into account

inflation and increased base salary rates. However, in order to operate an effective program, the

residency director should have 0.2-0.3 FTEs dedicated to management of the program with an

additional 0.1 FTEs devoted curriculum development. The most significant expense is resident

salary albeit at 80% of market rate averaging $74,880 each. Quality, compliance, and computer

training along with materials and incidentals make up the remainder of the expenses totally

$211,260 annually the first year with 2 residents. With a net savings of $30,540 the return on

investment (ROI) is 14%. With each additional resident as well as the cost savings in subsequent

years for recruitment and onboarding, the ROI increases substantially (Appendix R).

The second source is supplemental grant funding. Although the U.S Department of Health and Human Services: Health Resources and Services Administration (HRSA) offers funding to community health centers under Section 330 of the Public Health Service Act for expanded services, there is currently not funding available. Additionally, HRSAs Workforce Development Grant, see Appendix Q, could be used for the training of new NP residents; however, the window to apply closed March 2017. The above grants were distributed to NP residency programs in California for workforce development in 2015 and continued funding may be available in the future depending on federal allocations. California Area Health Education Center Program (AEHC) is another resource that supports community-based and rural health training programs for health professionals; see Appendix S for a list of resources.

The final component in the feasibility analysis was to assess program readiness from a physical, financial, human, and organizational perspective (Weitzman Institute, 2016). The elements comprised in the assessment tool help identify the essential components necessary for developing a successful NP residency program as well as inherent strengths of the organization and areas for improvement prior to implementation (Appendix T). Physical requirements included: clinical site assignment, available workspace for residents, and weekly conference space with appropriate technology. Financial implications included: resident salary and benefit package and program budget. The human element identified key stakeholders, preceptors, specialty sites for clinical rotation, and presenters for didactic seminars. Organizational readiness involved communicating with departments central to the development and implementation of a residency program such as: board of directors, leadership, human resources, information technology, finance, operations, and clinical support staff.

The programmatic assessment identified the strengths and weakness WSMC faces in planning for the implementation of a NP residency program. Most importantly, strategic focus areas were identified for the allocation of program resources. All of the physical components including clinical site and workspace requirements have been met. Although the financial terms have been established, they are working estimates that will need leadership approval. The human factors such as program staff, preceptors, and clinical rotations have also been identified; however, formal positions will need to be created as well as didactic presenters established. Although WSMC leadership supports program development, a formal presentation to the Board of Directors is scheduled for May 2017. After which, each organizational department will be consulted regarding their specific contribution.

Sustainability Analysis

The success of the program was assessed not only in its capacity to be implemented but its ability to sustain over time. The sustainability of a program depends on a multitude of factors that must be addressed in order for the program to provide continued services to the public. Using the sustainability assessment tool from http://www.sustaintool.org, the author evaluated the program's capacity to continue over time based on the following areas: environmental, financial, infrastructure, partnerships, and communication. The ratings are fluid without set targets: however, lower scores indicate opportunities for improvement and program development. The key indicators can be used to develop strategic plans for sustainability, aligning the organization's program to make an ongoing impression.

Sustainability Capacity by Domain
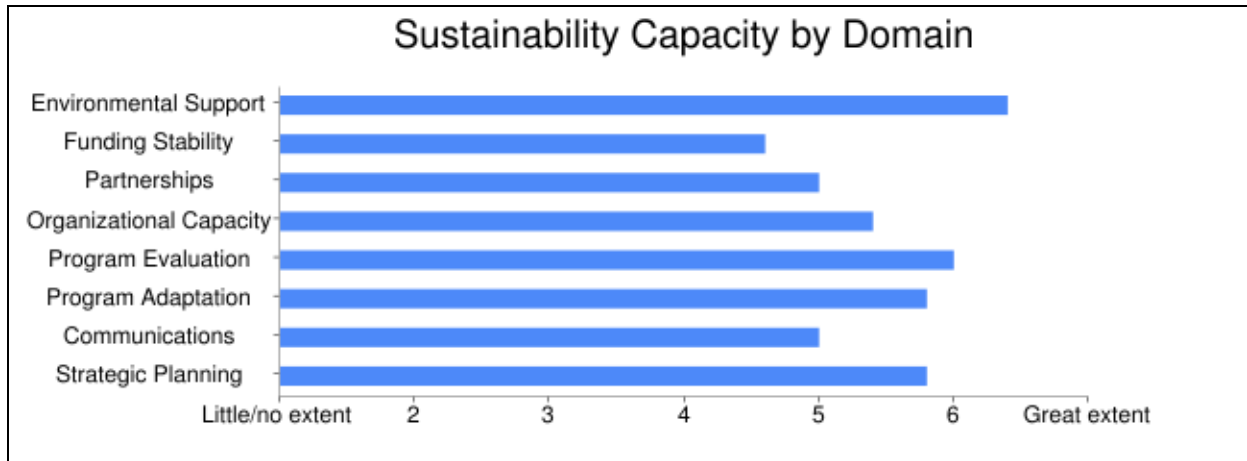
Section V: Discussion

Summary

The DNP project proved to be a successful partnership with a Federally Qualified Health Center for the development and implementation of a pilot NP residency program. Although outcome data were projected to meet a 25% increase in student learner clinical competence, the baseline data established a narrower margin for improvement at 20%. The student learners rated themselves at 97-100% competent at the completion of pilot program, which didn't meet the target increase of 25% but showed significant improvement. Outcome data for the web-based didactic module did meet the expected 15% increase in learner knowledge and comprehension, surpassing expectation with a 30% increase. Additionally, communicating with and examining all primary care NP residency programs in California established a strong structural composite of working residency programs. This information guided the development of a working budget for WSMC that produces a positive return on investment within the first year of implementation. These activities modeled a framework that may be utilized to establish a NP residency program within a FQHC.

The findings were formally disseminated to WSMC leadership, Medical Director and Assistant Medical Director/ Nurse Practitioner Educational Lead. Support was established to pursue partnership with the Board of Directors in a scheduled presentation May 2017.

The project impacts advanced nursing practice in several ways, primarily opening accesses for the development of a rural NP residency program within a FQHC. The pilot program supported student nurse practitioners in their transition to practice whereas future project implementation could improve the confidence and competence of NPs during their evolution to becoming a new provider. Building the rural nurse practitioner workforce in FQHCs, improves access to underserved populations. Both of the student learners were asked to interview with WSMC as candidates for employment as new FNPs. Finally, residency programs promote leadership within the nursing profession and train practitioners to serve in leadership roles within a rural healthcare setting.

Interpretation

The findings from this pilot residency program that support nurse practitioner confidence and competence as well as the structural framework discussed is consistent with available research by Brown et al. (2015), Flinter (2010), Flinter (2016), Herdrich and Lindsay (2006,) and Norwick (2016). Access to standardized evaluation tools was a limiting factor in the evaluation of this DNP project and current research by Sciacca and Reville (2016) describes the need for standardized evaluation and the dissemination of research to propel and validate the development of NP residency programs. However, Benner's (1982) theory of skill acquisition conceptualized in the development of the evaluation tools was supported by the findings in self-assessed clinical competence. Kolb's (1984) Theory of Experiential Learning advanced the student learners' ability to acquire new clinical skill, as it was the conceptual foundation behind precepted clinical

rotations. The fundamental goals of this project operate under the assumption that rural FQHCs

will proliferate the NP residency model described and develop a more robust rural workforce.

Limitations

The pilot study occurred within one organization with a limited sample size, ranging from

1-2 participants. Standardized evaluation tools were not available. The self-assessment

questionnaire and evaluation tools for this project were adapted by the DNP student author and

not tested for validity and reliability, which may have skewed the results. Certain evaluations

were only completed by one participant, which may present with bias. The findings from this

project are not generalizable to other programs or organizations. However, the data collected

from established primary care NP residency programs in California represents a cross section of

effective and efficient program structures that could be used as an outline to develop and

implement a NP residency program at WSMC.

Although one of the participants was lost to attrition for the didactic module, the pilot

clinical rotation and evaluations were completed. The student learners were limited in time and

prior obligations during the pilot program that made it difficult for them to participate in the

didactic model. As final semester FNP students, the addition of another responsibility proved to

be stressful, leading to the request for an extension from both participants. Efforts were made to

designate time during the clinical rotation for the didactic module but were unsuccessful.

Understanding this limitation simultaneously brings light to the benefit of a fully credentialed

FNP resident with full employment in the NP residency program with schedule interventions.

Conclusions

An opportunity for advancing post-graduate training for nurse practitioners is at a pivotal

time. National initiatives have identified the need for increased primary care services and

recommend expanding NP placements, primarily in rural and at-risk communities (HRSA, 2013; IOM, 2012; PPACA, 2010). Over the past decade, monumental strides have been made in the development of a framework for new programs to model (Flinter, 2012). Accreditation bodies have also stepped up to establish fundamental guidelines for rigor and evaluation (NNPRFTC, 2015). However, only a limited number of programs are established throughout the country.

The goal of this project was to perform a feasibility analysis with pilot activities for the implementation of a NP residency program within a rural Federally Qualified Health Center, to support the transition to practice of new nurse practitioners and improve health outcomes of rural communities by promoting NP positions within the community. The pilot program was developed using evidence available in the literature to support this goal as well as expert advice within the NP residency community. Outcome measures support the notion that residency programs increase clinical competence as well as a path to workforce development. Future research in standardizing evaluation tools and program structure has been identified as a need for the progression of NP residency programs. Organizational strengths and weaknesses for the planning phase of a NP residency program as well as a strong financial plan were identified in the feasibility analysis. Although targeted opportunities for improvement were recognized in the sustainability plan, the capacity for long-term success was indicated. Therefore, the recommendation to support the development and implementation of NP residency programs within rural FQHCs can be ascertained.

Section VI: Funding

For the development and implementation of this project, no outside funding was received. However, the DNP student lead did receive Song-Brown Grant funding through the University of

San Francisco for continued nurse practitioner training in rural health. The author declares that

there are no conflicts of interest.

References

Agency for Healthcare Research and Quality. (2015). 2014 National Healthcare Quality & Disparities Report. Retrieved March 16, 2016, from http://www.ahrq.gov/ research/ findings/nhqrdr/nhqdr14/index.html

American Association of Nurse Practitioners. (2016). NP fact sheet. Retrieved from https://www.aanp.org/all-about-nps/np-fact-sheet

American Nurses Association (2015). Code of ethics for nurses with interpretive statements. Retrieved from http://nursingworld.org/DocumentVault/Ethics-1/Code-of-Ethics-for-Nurses.html.

American Nurse Credentialing Center (2016). Practice transition accreditation program: 2016 application manual. Silver Spring, MD: ANCC. Retrieved from: http://www.nursecredentialing.org/Accreditation/PracticeTransition

Bamrick, K., Corsino, C., & Flinter, M. (2016). [Community Health Center, Inc. Pro Forma Financial Analysis]. Unpublished raw data.

Benner, P. (1982). From Novice To Expert. Journal of Nursing, 82(3), 402–407.

Brown, K., Poppe, A. M., Kaminetzky, C. M., Wipf, J., & Woods, N. F. (2015). Recommendations for nurse practitioner residency programs. Nurse Educator, 40(3), 148–151. http://doi.org/10.1097/NNE.0000000000000117

Bush, C. T., & Lowery, B. (2016). Original research: Postgraduate nurse practitioner education: Impact on job satisfaction. The Journal for Nurse Practitioners, 12, 226–234. https://doi.org/10.1016/j.nurpra.2015.11.018

Center for Disease Control and Prevention. (2017). National Hospital Ambulatory Medical Care

    Survey: 2013 State and National Summary Tables. Retrieved from:

    https://www.cdc.gov/nchs/fastats/physician-visits.htm

Centre for Reviews and Dissemination. (2011). Advanced practice nurse outcomes 1990-2008:

    A systematic review (Structured abstract). Nursing Economics, 29(5), 230–250.

Davis, L. & Kountz, D. (2015). Best practices in the diagnosis and management of resistant

    hypertension. American Association of Nurse Practitioners National Conference, New

    Orleans, LA. Retrieved from: CECenter@aanp.org

Flinter, M. (2010). From new nurse practitioner to primary care provider: A multiple case study

    of new nurse practitioners who completed a formal post-graduate residency training

    program (Doctoral dissertation). Retrieved from ProQuest. (UMI number: 3411460)

Flinter, M. (2012). From new nurse practitioner to primary care provider: Bridging the

    transition through FQHC-based residency training. Online Journal of Issues in Nursing,

    17(1), 1–1. https://doi.org/10.3912/OJIN.Vol17No01PPT04

Flinter, M., & Hart, A. M. (2016). Thematic elements of the postgraduate NP residency year

    and transition to the primary care provider role in a Federally Qualified Health Center.

    Journal of Nursing Education and Practice, 7(1), 95.

    https://doi.org/10.5430/jnep.v7n1p95

Goudreau, K. A., Ortman, M. I., Moore, J. D., Aldredge, L., Helland, M. K., Fernandes, L. A.,

    & Gibson, S. (2011). A nurse practitioner residency pilot program. Journal of Nursing

    Administration, 41(9), 382–387 6p. http://doi.org/10.1097/NNA.0b013e31822a731

Hart, A. M., & Macnee, C. L. (2007). How well are nurse practitioners prepared for practice:

Results of a 2004 questionnaire study. Journal of the American Academy of Nurse

Practitioners, 19(1), 35–42. https://doi.org/10.1111/j.1745-7599.2006.00191.x

Health Resource and Services Administration, National Center for Health Workforce Analysis.

(2013). Projecting future clinician supply and demand for primary care practitioners

through 2020. Rockville, Maryland: U.S. Department of Health and Human Services.

Herdrich B, & Lindsay A. (2006). Nurse residency programs: redesigning the transition into

practice. Journal for Nurses in Staff Development, 22(2), 55–64 10p.

Institute of Medicine of the National Academies. (2010). The future of nursing: leading the

change, advancing health. Retrieved from http://www.iom.edu/Reports/2010/The-future-

of-nursingleading-change-advancing-health.aspx

Kolb, D. a. (1984). Experiential learning: Experience as the source of learning and

development. Englewood cliffs, NJ: prentice Hall.

Lisko SA, & O'Dell V. (2010). Integration of theory and practice: experiential learning theory

and nursing education. Nursing Education Perspectives, 31(2), 106–108 3p.

McLeod, Saul. (2010). Kolb learning styles. Simple Psychology. Retrieved from:

https://www.simplypsychology.org/learning-kolb.jpg

Missen, K., McKenna, L., & Beauchamp, A. (2014). Satisfaction of newly graduated nurses

enrolled in transition-to-practice programs in their first year of employment: a systematic

review. Journal of Advanced Nursing, 70(11), 2419–2433.

https://doi.org/10.1111/jan.12464

Morgan, P., Everett, C., & Hing, E. (2015). Nurse practitioners, physician assistants, and

  physicians in community health centers, 2006-2010. Healthcare, 3(2), 102–107.

  https://doi.org/10.1016/j.hjdsi.2014.06.002

National Association of Community Health Centers. (2015). Key health center data by state,

  2013: Federally-Funded Health Centers only. Retrieved from http://nachc.org/wp-

  content/uploads/2015/06/2013-Key-facts-by-state-data.pdf

National Nurse Practitioner Residency & Fellowship Training Consortium. (2015). Postgraduate

  nurse practitioner training program accreditation standards. Washington, DC: NNPRFTC

  Office of Program Consultation and Accreditation. Retrieved from

  http://www.nppostgradtraining.com/Portals/0/Documents/2.0_NNPPTC_Accreditation_S

  tandards_1.5.16.pdf?ver=2016-01-13-070416-923

National Organization of Nurse Practitioner Faculties. (2011). Nurse practitioner core

  competences. Retrieved from https://www.pncb.org/ptistore/resource/

  content/about/2012_NP_Core_Competencies.pdf

Nurse Practitioner Roundtable. (2014). Nurse practitioner perspectives on education and post-

  graduate training. Retrieved from http://www.nursingworld.org/NP-Perspective-

  Education-Post-Graduate-Training

Patient Protection and Affordable Care Act (PPACA). (2010). Pub. L. No. 111-148, §2702, 124

  Stat. 119, 318-319. Retrieved from www.gpo.gov/fdsys/pkg/PLAW-

  111publ148/pdf/PLAW-111publ148.pdf

Saver, C. M. (2015). 50 years of NP excellence. Nurse Practitioner, 40(5), 15–21.

  https://doi.org/10.1097/01.NPR.0000463786.21636.47

Sciacca, K., & Reville, B. (2016). Evaluation of Nurse Practitioners Enrolled in Fellowship and

      Residency Programs: Methods and Trends. The Journal for Nurse Practitioners, 12(6),

      e275–e280. https://doi.org/10.1016/j.nurpra.2016.02.011

Schuttelaar ML, Vermeulen KM, Drukker N, & Coenraads PJ. (2010). A randomized controlled

      trial in children with eczema: nurse practitioner vs. dermatologist. British Journal of

      Dermatology, 162(1), 162–170.

Sullivan, G. M., & Artino, A. R. (2013). Analyzing and Interpreting Data From Likert-Type

      Scales. Journal of Graduate Medical Education, 5(4), 541–542.

      https://doi.org/10.4300/JGME-5-4-18

University of San Francisco School of Nursing and Health Professions (2016). Clinical

      evaluation of student_preceptor (FNP).

University of Wisconsin Population Health Institute. (2016). County health rankings:

      California. Retrieved from http://www.countyhealthrankings.org/app

U.S. Census Bureau, Population estimates, July 1, 2015. (2015). (n.d.). Retrieved March 16,

      2016, from //www.census.gov/quickfacts/table/PST045215/06091

U.S. Department of Health and Human Services. (2016). Federally qualified health center.

      Retrieved from https://www.cms.gov/Outreach-and-Education/Medicare-Learning-

      Network-MLN/MLNProducts/Downloads/FQHC-Text-Only-Factsheet.pdf

Weitzman Institute (2016). Programmatic resource assessment. Unpublished instrument.

Xue, Y., Ye, Z., Brewer, C., & Spetz, J. (2016). Impact of state nurse practitioner scope-of-

      practice regulation on health care delivery: Systematic review. Nursing Outlook, 64(1),

      71–85. https://doi.org/10.1016/j.outlook.2015.08.005

Appendix A

Johns Hopkins Nursing Evidence-based Practice Rating Scale

JHNEBP EVIDENCE RATING SCALES

STRENGTH of the Evidence
Level I Experimental study/randomized controlled trial (RCT) or meta analysis of RCT **Level II** Quasi-experimental study
Level III Non-experimental study, qualitative study, or meta-synthesis.
Level IV Opinion of nationally recognized experts based on research evidence or expert consensus panel (systematic review, clinical practice guidelines)
Level V Opinion of individual expert based on non-research evidence. (Includes case studies; literature review; organizational experience e.g., quality improvement and financial data; clinical expertise, or personal experience)

QUALITY of the Evidence		
A High	Research	consistent results with sufficient sample size, adequate control, and definitive conclusions; consistent recommendations based on extensive literature review that includes thoughtful reference to scientific evidence.
	Summative reviews	well-defined, reproducible search strategies; consistent results with sufficient numbers of well defined studies; criteria-based evaluation of overall scientific strength and quality of included studies; definitive conclusions.
	Organizational	well-defined methods using a rigorous approach; consistent results with sufficient sample size; use of reliable **and** valid measures
	Expert Opinion	expertise is clearly evident
B Good	Research	reasonably consistent results, sufficient sample size, some control, with fairly definitive conclusions; reasonably consistent recommendations based on fairly comprehensive literature review that includes some reference to scientific evidence
	Summative reviews	reasonably thorough and appropriate search; reasonably consistent results with sufficient numbers of well defined studies; evaluation of strengths and limitations of included studies; fairly definitive conclusions.
	Organizational	Well-defined methods; reasonably consistent results with sufficient numbers; use of **reliable and valid** measures; reasonably consistent recommendations
	Expert Opinion	expertise appears to be credible.
C Low quality or major flaws	Research	little evidence with inconsistent results, insufficient sample size, conclusions cannot be drawn
	Summative reviews	undefined, poorly defined, or limited search strategies; insufficient evidence with inconsistent results; conclusions cannot be drawn
	Organizational	Undefined, **or** poorly defined methods; insufficient sample size; inconsistent results; undefined, poorly defined or measures that lack adequate reliability or validity
	Expert Opinion	expertise is not discernable or is dubious.

Newhouse R, Dearholt S, Poe S, Pugh LC, White K. The Johns Hopkins Nursing Evidence-based Practice Rating Scale. 2005. Baltimore, MD, The Johns Hopkins Hospital; Johns Hopkins University School of Nursing.

Appendix B

Literature Review Utilizing John Hopkins Nursing Evidence Based Appraisal Tool

Author & Year	Study Design	Sample Size/Setting	Intervention	Key Findings	Evidence Rating: Strength & Quality
Brown et al, 2015	Cross-sectional descriptive and Qualitative Study	52 participants at NP residency forum in Seattle Washington	18 item questionnaire using a 5-point Likert rating from high to low impact identifying aspects in the design and cost of implementing NP residency programs as well as 2 roundtable discussion groups for cost and sustainability.	Results showed 30% of the items for the development of a NP residency were ranked high impact. 150 recommendations were identified in the qualitative analysis for cost and sustainability of NP residency programs.	Level III; Quality B
Bush & Lowery, 2016	Quasi-experimental, Nonequivalent group study design	Convenience sample NPs with postgraduate training/182 NPs surveyed without postgraduate training from over 30 states in the USA	Misener Nurse Practitioner Job Satisfaction Scale was used with 44-item survey comparing the two groups. Independent-samples t-tests of factor scores compared job satisfaction.	Mean job satisfaction scores for both groups were compared showing higher job satisfaction with the completion of postgraduate training p=0.028	Level II; Quality B
Flinter & Hart, 2016	Qualitative	24 participants who completed	Krippendorffs' content analysis of residents'	Major themes were extrapolated by month for	Level III; Quality B

		Connecticut's Community Health Clinics NP residency program	reflective journals to examine their experience in the transition from new to experienced practitioner	the 12 month residency showing a trend from feeling overwhelmed to becoming confident.	
Goudreau et al., 2011	Non-experimental descriptive	1 participant transitioning to NP role at Veteran's Health Center	Description of the development, implementing, and evaluation process of the first year NP residency program.	Anecdotally reported successful inaugural year with recommendations based on experience.	Level III; Quality C
Hart & Macnee, 2007	Cross-sectional descriptive study	564 participants from two NP conferences	32 item questionnaire examining the subjects level of preparedness after completing NP program	10% of NPs felt that they were well prepared to enter practice as new graduates; 51% felt that they were somewhat or minimally prepared	Level III; Quality B
Missen, McKenna, & Beaucham, 2014	Systematic Review	Quantitative studies published from 2000-2012 Purpose: analyze reported job satisfaction and confidence of 1st year nurses	Of 338 article identified, 11 met the inclusion criteria. The studies were rigorously appraised and 3 readers independently, blindly extracted and synthesized data.	Evidence suggests that transition to practice programs that support the new nurse in clinical environments are essential for job satisfaction. Higher job satisfaction was equal with retention rates.	Level I; Quality B
Xue, Ye, Brewer, & Spetz, 2016	Systematic Review	Examine the impact scope of practice regulations has on NP workforce,	Search electronic databases up to 2015, studies with time-series and cross-sectional research design included. Two independent authors retrieved and extracted data.	States with greater scope of practice distribution experience a more robust workforce particularly in rural and underserved areas. Additionally, these	Level 1; Quality B

		health care cost, and access and utilization of services.	Of the 529 identified, 15 were reviewed and synthesized.	states experience greater access and utilization of heath care.	

Appendix C

Kolb's Theory of Experiential Learning
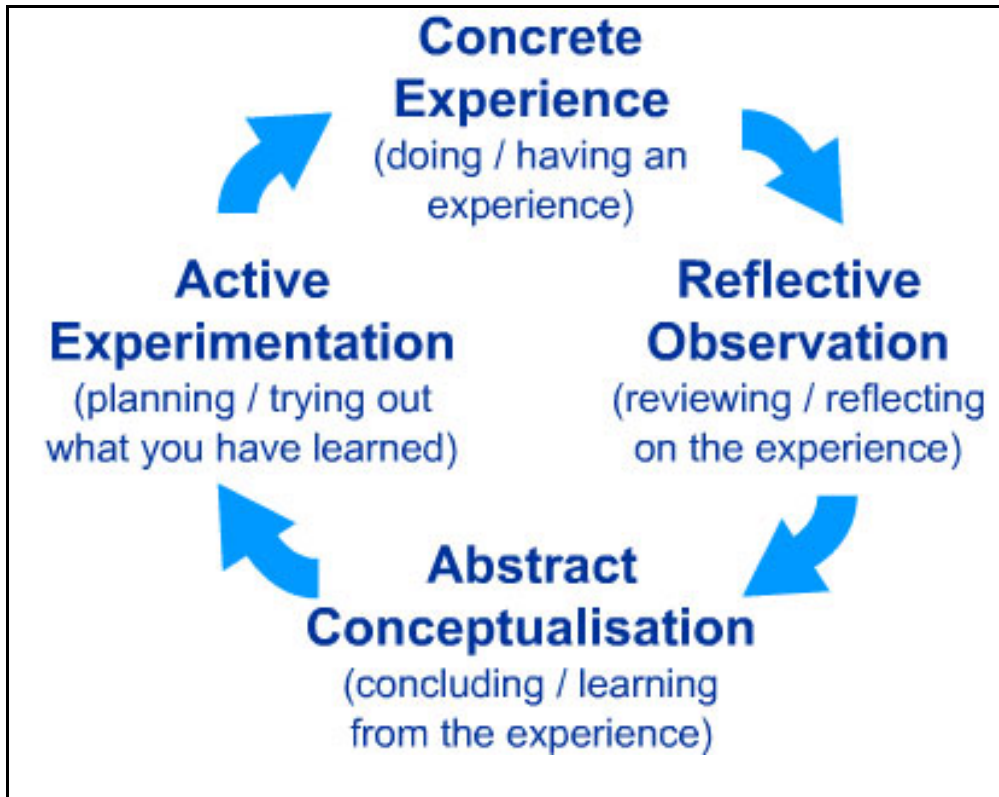
(McLeod, 2010)

Appendix D

DNP Statement of Non-Research Determination Form

Student Name: _Seson Kahn_____

Title of Project: Family Nurse Practitioner Residency Program in Rural Health

Brief Description of Project:
Rural communities in California are underserved (Agency for Healthcare Research and Quality [AHRQ], 2015). Utilization of advanced practice nurses has been identified nationally as a means to increase access to quality healthcare and improve health disparities in rural communities (AHRQ, 2015; The Patient Protection and Affordable Care Act, 2010; US Census Bureau, 2015). However, the transition into practice for a novice advanced practice nurse can be extremely challenging without specialized clinical support and training (Goudreau et al., 2011). The Institute of Medicine (2010) recognized the need for residency programs, making national recommendations to increase program implementation to support nurse practitioners clinical competence and retention. Since the IOM recommendation, several universities in California have instituted nurse practitioner residency programs; however, most new graduates enter the workplace without a formal post-graduate training program. According to the National Nurse Practitioner Residency and Fellowship Training Consortium (2015), there are only five primary care NP residency programs in California albeit not in the Sierra Nevada Region. The goal of the proposed project is to improve the transition-to practice for nurse practitioners and the health outcomes of disparate rural communities in Sierra, Nevada, and Placer Counties by working collaboratively with a Federally Qualified Health Center to develop the foundation for a primary care nurse practitioner residency program in rural health.

A) Aim Statement: The aim of this project is to improve rural health outcomes by supporting nurse practitioner transition to practice within a rural community through the implementation of a nurse practitioner residency.

B) Description of Intervention:
The proposed project would help bridge the gap between FNP completion and DNP graduation with a rural health residency program to support new FNPs as well as stimulate new placement opportunities in a rural health setting. There are two major components of this project:
1. Collaborate with a rural Federally Qualified Health Center on the development of a nurse practitioner residency program.
2. Develop rural health curriculum materials to support the transition to practice for NP students as well as communities within rural healthcare settings.

The DNP student leading this project has completed NP clinical training with Western Sierra Medical Clinics (WSMC) located in Nevada and Placer Counties California. The WSMC leadership has expressed interest in pursuing the development of a NP residency. This project will collaborate with the WSMC leadership to develop a feasibility analysis for a NP residency program with WSMC including a 1-semester pilot of residency activities. Also, a web-based rural health curriculum will be developed as part of this project to be used by NP residents and students at USF interested in rural health clinical placements.

C) How will this intervention change practice?
- Increase access to quality healthcare for underserved rural populations in Northern California by training family nurse practitioners in a FQHC.

- Support new nurse practitioners in the transition to practice by facilitating a mentored clinical training program and developing web-based curriculum materials that speak to the unique needs of the communities served.

- Improve new NP clinical competency and confidence as well as job satisfaction and retention in residents who choose to work in rural FQHCs.

- Increase NPs trained to serve in leadership roles in rural healthcare settings.

D) Outcome measurements:

- Establish a partnership with the University of San Francisco and Western Sierra Medical Clinics for the development and implementation of a nurse practitioner residency program by May 2017.

- Evaluate the effectiveness of a web-based didactic rural health curriculum as evidenced by a 15% increase in learner knowledge and comprehension of a pilot module in a pre and post-seminar assessment.

- Develop and implement a 1-semester pilot of residency activities at WSMC with a 25% increase in NP's self-assessment of clinical competence as evidenced by a pre and post-pilot evaluation.

- Disseminate feasibility analysis of program development and implementation to WSMC leadership by May 2017.

To qualify as an Evidence-based Change in Practice Project, rather than a Research Project, the criteria outlined in federal guidelines will be used: (http://answers.hhs.gov/ohrp/categories/1569)

X   This project meets the guidelines for an Evidence-based Change in Practice Project as outlined in the Project Checklist (attached). Student may proceed with implementation.

☐This project involves research with human subjects and must be submitted for IRB approval before project activity can commence.

Comments

EVIDENCE-BASED CHANGE OF PRACTICE PROJECT CHECKLIST *

Instructions: Answer YES or NO to each of the following statements:

Project Title: Family Nurse Practitioner Residency Program in Rural Health	**YES**	**NO**
The aim of the project is to improve the process or delivery of care with established/ accepted standards, or to implement evidence-based change. There is no intention of using the data for research purposes.	**yes**	
The specific aim is to improve performance on a specific service or program and **is a part of usual care**. ALL participants will receive standard of care.	**yes**	
The project is **NOT** designed to follow a research design, e.g., hypothesis testing or group comparison, randomization, control groups, prospective comparison groups, cross-sectional, case control). The project does **NOT** follow a protocol that overrides clinical decision-making.	**yes**	
The project involves implementation of established and tested quality standards and/or systematic monitoring, assessment or evaluation of the organization to ensure that existing quality standards are being met. The project does **NOT** develop paradigms or untested methods or new untested standards.	**yes**	
The project involves implementation of care practices and interventions that are consensus-based or evidence-based. The project does **NOT** seek to test an intervention that is beyond current science and experience.	**yes**	
The project is conducted by staff where the project will take place and involves staff who are working at an agency that has an agreement with USF SONHP.	**yes**	
The project has **NO** funding from federal agencies or research-focused organizations and is not receiving funding for implementation research.		
The agency or clinical practice unit agrees that this is a project that will be implemented to improve the process or delivery of care, i.e., **not** a personal research project that is dependent upon the voluntary participation of colleagues, students and/ or patients.	**yes**	

UNIVERSITY OF SAN FRANCISCO | School of Nursing and Health Professions
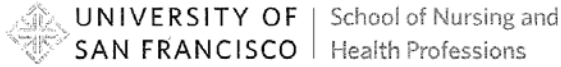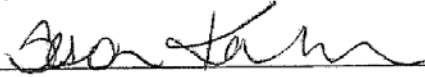
based change of practice project at X hospital or agency and as such was not formally supervised by the Institutional Review Board."		

ANSWER KEY: If the answer to **ALL** of these items is yes, the project can be considered an Evidence-based activity that does NOT meet the definition of research. **IRB review is not required. Keep a copy of this checklist in your files.** If the answer to ANY of these questions is **NO**, you must submit for IRB approval.

*Adapted with permission of Elizabeth L. Hohmann, MD, Director and Chair, Partners Human Research Committee, Partners Health System, Boston, MA.

STUDENT NAME (Please print): Seson Kahn

Signature of Student:

_____DATE___8/26/2016__

SUPERVISING FACULTY MEMBER (CHAIR) NAME (Please print):

Signature of Supervising Faculty Member (Chair):

_____Dr. Alexa Curtis_____ _DATE__8/26/2016

Appendix E

Community Health Clinic's NP Residency Program Structure

Community Health Center, Inc. Where health care is a right, *not a privilege*, since 1972.

Core Elements of CHC NP Residency

- 12 months, full time employment at CHC, Inc.

- Full integration into all aspects of the organization

- Continuous training to clinical complexity and a high performance model of care:
(team-based, inter-professional collaboration, fully integrated with behavioral health, continuous healing relationship with PCP, data driven quality improvement and expert use of technology)

1) **Precepted Continuity Clinics** (40%); residents develop and manage their own panel of patients with the exclusive attention of an expert preceptor NP, physician, or PA; primarily new patients

2) **Specialty Rotations** (20%); Areas that are high volume and high need in FQHCs: orthopedics, dermatology, women's health, adult and child behavioral health, geriatrics, pediatrics, newborn nursery, HIV, Hepatitis C care, and special settings (homeless shelters)

3) **Mentored Clinics** (30%); Focused on diversity of chief complaints, efficiency, episodic and acute care working within a primary care team

4) **Didactic Sessions** (10%); High volume/complexity/risk/burden topics. Includes participation in Project ECHO sessions for managing chronic pain, treating HIV, Hepatitis C, and opioid addiction

✓ Ongoing multi-input evaluation component using qualitative and quantitative measures

✓ Training to a high performance QI model, including clinical microsystems approach to improvement at the front lines, data driven QI, and leadership development

(Bamrick et al., 2016)

Appendix F

Student Learner Participation Request Letter

Dear_____,

I would like to formally invite you to participate in a pilot FNP residency program at Western Sierra Medical Clinic. The program will begin Feb.15th through March 30th and consist of your regularly scheduled clinical days with _____ as your preceptor and clinical mentor. In addition, we will enhance the learning opportunity with interactive didactic modules. The aim of this project is to improve rural health outcomes by supporting nurse practitioners transition to practice within a rural community by establishing a foundation for the development of a nurse practitioner residency program by May 2017. In order to attain these goals, I am humbly asking for your support in the participation and evaluation of the pilot and initial curriculum materials. The evaluation component will consist of a pre and post residency self-assessment, pre/post evaluation of the didactic module, weekly reflective journal (brief), and a final program/site evaluation. The results of the pilot along with a feasibility and sustainability analysis of the FNP residency program will be presented to the board of directors at WSMC. The organization is considering development and implementation of a paid residency program for new graduate FNPs next fall. Your participation is greatly appreciated and invaluable to the success of this project.

If you agree to participate, please fill out and return the attached self-assessment before Feb. 15th. More details to follow

Thank you!

Sincerely,

Seson

Seson Kahn, MSN, RN, FNP
University of San Francisco, DNP (c)
 slkahn@usfca.edu

Appendix G

Western Sierra Medical Clinic Top Diagnosis 2017

Top Diagnosis (Current Month)

ICD

- Z23
- I10
- Z00.129
- J40
- F41.9
- J06.9
- M54.5
- G89.29
- J02.9
- E55.9

Diagnosis Count
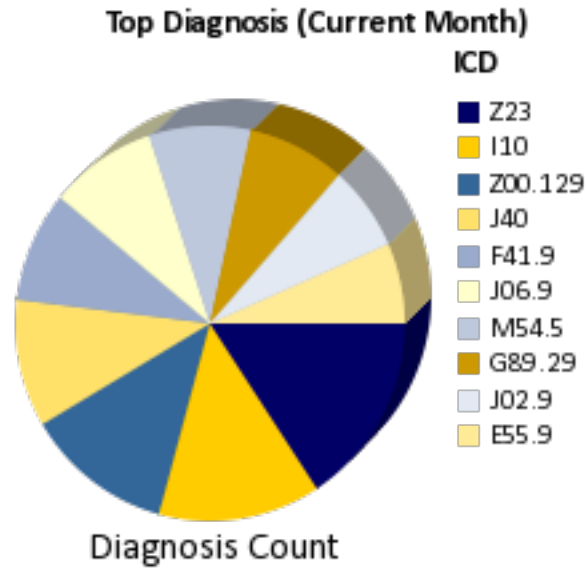
Diagnoses Ranked from Highest Frequency

1. ICD Z23: Immunizations
2. ICD I10: Hypertension
3. ICD Z00.129: Routine child health examination without abnormal finding
4. ICD J40: Bronchitis
5. ICD F41.9: Anxiety, unspecified
6. ICD J06.9: Acute upper respiratory infection, unspecified
7. ICD M54.4: Lumbago with sciatica
8. ICD G89.28: Chronic Pain
9. ICD J02.9: Acute Pharyngitis, unspecified
10. ICD E55.9: Vitamin D deficiency, unspecified

Appendix H

Diagnosis and Management of Resistant Hypertension
Pre/Post Assessment

Question 1

Resistant hypertension is defined as a blood pressure that remains above goal despite the
concurrent use of lifestyle modifications and_____

A. 2 anti-HTN agents at maximum dose
B. 2 anti-HTN agents of different classes
C. 3 anti-HTN agents of different classes
D. 3 anti-HTN agents at maximum doses

Question 2

Which of the following is a characteristic of primary hyperaldosterism?

A. Episodic hypertension
B. Hypokalemia not responsive to potassium supplementation
C. Differential in brachial and femoral pulse pressure
D. Unilateral small kidney

Question 3

Marilyn is a 45 year old patient being seen for management of her diabetes and obesity. The
clinic does not have a blood pressure (BP) cuff large enough to assess her resting BP. What
effect would using a cuff that is too small have on reading her BP?

A. Her BP reading will still be accurate, it will just take longer to assess.
B. Her BP reading will be accurate within +/- ten percent
C. Her BP reading will be falsely low
D. Her BP reading will be falsely high

Question 4

Peggy has been seen in outpatient clinic for 7 months. Her current medications include 50 mg
losartan daily, felodipine 10 mg daily, and furosemide 20 mg twice daily. Her hypertension
remains elevated above goal. You suspect that there may be s secondary cause for this elevation.
What would be the appropriate next step in managing this patient.

A. Refer the patient to a hypertension specialist
B. Increase the furosemide dosage to 40 mg twice daily
C. Add an alpha-blocker to the medication regimen
D. Increase the felodipine dosage to 10 mg twice daily

Question 5

5. Which of the following may lead to an inaccurate in-office blood pressure reading:

    A. Having a patient rest for 5 minutes
    B. Refraining form use of caffeine or tobacco products for 30 min
    C. Allowing the patient to cross their legs during the reading
    D. Having the medical assistant take the blood pressure

6. A 67 year old male has hypertension and has prescribed a thiazide diuretic, a calcium channel blocker, and an ACE inhibitor at optimal doses for the past year. His blood pressure (BP) has been uncontrolled for the past 9 months. At his last visit you noted that he had taken about half of his tablets form each medication bottle in the past month. Which of the following best describes this situation?

    A. This patient would be classified as "difficult to treat"
    B. This patient would be classified as having "resistant hypertension"
    C. This patient likely has secondary hypertension
    D. This patient likely has pseudo hypertension

7. Which of the following is true about a patient with suspected pseudo hypertension?

    A. The condition is more prevalent in young adults with hypertension
    B. If the patient has this condition and is prescribed antihypertensive medications their BP may go up
    C. The Osler maneuver is the most reliable method to assess for this condition
    D. An intra-arterial radial artery BP is the only way to accurately verify this condition

8. A benefit to implementing home blood pressure monitoring with patients with known or suspected hypertension includes determining if a patient has "masked hypertension". Which of the following best defines what "masked hypertension" is?

    A. The patient's BP is higher when they are being seen by a health car provider
    B. The patient's BP is higher at home compared to reading in the clinic/office
    C. The patient's BP is higher on one are compared to the other arm
    D. The patient's diastolic BP can he heard all the way down to "zero" when taking it manually

9. A common cause of resistant hypertension is fluid overload. Which of the following would help address this cause of resistant HTN in a patient who is on hydrochlorothiazide (HCTZ) 12.5 mg daily?

    A. Convert the HCTZ to an aldosterone antagonist like spironolactone
    B. Convert the HCTZ to a beta blocker like metoprolol
    C. Convert the HCTZ to a more potent thiazide diuretic like chlorthalidone

D. Stop the diuretic since the patient does not have peripheral edema

10. The nurse practitioner is teaching a female patient with hypertension about a commonly known substance that interferes with blood pressure control. Which of the following statements by the patient indicates that the patient needs more teaching?

A. "It's ok for me to take dietary supplements such as ephedra"
B. "It is ok for me to eat nuts and seeds as a part of the DASH diet"
C. "It is ok for me to drink alcohol as long as I limit it to one serving per day"
D. "It is ok to take one acetaminophen for pain on occasion"

Appendix I

**Family Nurse Practitioner Pilot Residency
Learner Self-Assessment**

Information

Learner Name:_____

Preceptor: _____

Site: Western Sierra Medical Clinic

Date:_____   **Learner Signature:**_____

Guidelines for Scoring

Complete this self-assessment using the following scale:

NA= Not applicable/ no opportunity to perform
1= Unable to perform, not confident performing
2= Need extensive prompting and guidance
3= Able to perform with minimal guidance/prompting
4= Confident in performing independently, effectively, and safely

Scientific Foundation/ Practice Inquiry

4= Confident performing; 3= Able to perform with minimal guidance; 2=Need guidance; 1= Unable to perform, NA= Not applicable

	4	3	2	1	NA
Able to use and analyze appropriate data to manage the care of the patient					
Able to apply research and knowledge to the plan of care and treatment decisions					
Recognize at risk patients in the given population					
Practice with the knowledge of ethical and legal considerations for the patient					
Use clinical guidelines for the individualized care of the patient					

Leadership and Cost Effective Care

4= Confident performing; 3= Able to perform with minimal guidance; 2=Need guidance; 1= Unable to perform, NA= Not applicable

	4	3	2	1	NA
Assume leadership role in managing the care of patient Use best available evidence to help improve the care of the patient					
Act an advocate for the patient					
Demonstrate knowledge in processes that include financial decisions affecting the client care					
Accept and promote peer review in applying skills and knowledge					

Practice and Safety

4= Confident performing; 3= Able to perform with minimal guidance; 2=Need guidance; 1= Unable to perform, NA= Not applicable

	4	3	2	1	NA
Communicate safely and effectively, both orally and written					
Prioritize health issues and form problem list					
Provide care that is appropriate to the developmental level of the patient					
Obtain a comprehensive/focused history as appropriate for the patient					
Analyze lab findings and diagnostic tests with accuracy to develop differential diagnosis and build plan of care					
Plan appropriate pharmacological and non-pharmacological interventions related to the care of the patient					
Differentiate between normal and abnormal findings					
Respond to patient in culturally/spiritually sensitive and appropriate ways					
Utilize the appropriate screening strategies to develop the diagnosis					
Develop patient-provider relationship and maintain good rapport with patient and family					
Negotiate plan of care with the patient					
Evaluate outcomes and make changes to the plan of care					
Use appropriate educational tools and resources to relay information to the patient					

Technology and Literacy

4= Confident performing; 3= Able to perform with minimal guidance; 2=Need guidance; 1= Unable to perform, NA= Not applicable

	4	3	2	1	NA
Able to integrate the use of health technology for the management of the patient					
Demonstrate information literacy in making complex decisions					

Ethical Principles and Care Delivery

4= Confident performing; 3= Able to perform with minimal guidance; 2=Need guidance; 1= Unable to perform, NA= Not applicable

	4	3	2	1	NA
Understand the scope and professional role of the Nurse Practitioner					
Assume responsibility of and understand consequences of clinical decisions					
Do not allow personal bias to guide decision making					
Consult with and seek assistance of preceptor in a timely manor					
Use appropriate resources for implementing ethical decisions (palliative, hospice, end of life care)					

Organizational Practice/Healthcare Systems

4= Confident performing; 3= Able to perform with minimal guidance; 2=Need guidance; 1= Unable to perform, NA= Not applicable

	4	3	2	1	NA
Can make appropriate referrals within the healthcare team					
Promote interdisciplinary communication and interactions with the patient care team					
Interact with other professionals, staff, and healthcare team in an appropriate manner					

Adapted from: University of San Francisco School of Nursing and Health Professions (2016). Clinical evaluation of student_preceptor (FNP).

Appendix J

Community Health Clinic's Program Evaluation Schedule

Program Evaluation

- Real-time, on-going, bi-directional evaluations of both qualitative and quantitative measures for all program components
- Program evaluations include:

Evaluation	Frequency	Completed By
Competency Self Assessments	Tri-annually	Resident
Precepted Continuity Clinics	Quarterly	Resident and Preceptors
Specialty Rotations	Monthly	Resident and Specialty Preceptors
Didactics	Weekly	Resident
Reflective Journals	Weekly	Resident

(Bamrick et al., 2016)

Appendix K

Postgraduate Primary Care NP Residency Programs in California

San Francisco VA Medical Center
A. Strewler (personal communication, February 23, 2017)

Established: 2012

Accredited: In process with National Nurse Practitioner Residency & Fellowship Training Consortium (NNPRFTC) expected Fall 2018

Length of Residency: 1 year

Hours Worked Per Week: 40 hours (50% clinical /50% curriculum development)

Resident Salary: 90% market rate

Number of Residents: 3-5 annually

Number of Residents Per Preceptor: Transition from 2:1 to 3:1

Resident Workload: 4-5 pts per ½ day (average 10 pts/day for organization)

Work Commitment Beyond Residency: No

Key Stake Holders: Center of Excellence Inter-professional faculty group; USCF; VA Office of Academic Affairs

Program Elements: 3-5 dedicated preceptors available all day NP& MD; 2 NP residents paired with 2 MD residents; Specialty rotations: Women's Health, Heme/Onc, ID, Neuromuscular, Pulm, Endo/Rheum, Pre-op, Liver etc; Didactic: Case Studies Morning 3x/week; Post-clinic

2x/week; also training in patient-center communication, QI, patient

safely, team-based care

Reflective Journals: No

Evaluations: Self-assessment Quarterly; Clinical Site/Specialty-

Annually; Didactic after every session ~5/weeks

Funding: $1 million per year grant from VA for inter-professional

program (3yrs); +ROI by July/Aug; NP Salary 90%; Residents increase

# of patient visits billed;

NP residents see 5 pts per half day, whereas NP faculties see a max of 6.

Santa Rosa Community Health Center
R. Norwick (personal communication, February 25, 2017 and March 22, 2017)

Established: 2012

Accredited: Yes: American Nurse Credentialing Center

Length of Residency: 18 months (1 year + 6 months supported

practice)

Hours Worked Per Week: 40 hours /week; 2 days/ week Continuity

Clinic; 1 day per week peds; 1 internal medicine clinic/ 1 patient group

visit/1 specialty clinic; 1.5 hours didactic/week; 4+ hrs admin

Resident Salary: 80% market rate

Number of Residents: 6 (2 cohorts of 3; Feb/Aug)

Number of Residents Per Preceptor: 3:1

Resident Workload: Start 1 pt /hr (goal 9 pts/ 4 hrs)

Work Commitment Beyond Residency: 6 months

Key Stake Holders: Program Director, Co-Director, Program Core

Faculty; Organization leadership

Program Elements: Orientation to FQHC 2 weeks; Precepted clinic

with exclusive preceptor; 2 days Continuity Clinic with resident panel;

Mentored Pediatric Clinic 1 day/wk; Didactic: Clinical Case Study 1 x

per week; Involved in all staff development meetings

Reflective Journals: No

Evaluations: Annual 360°evaluation

Funding: 2011 HRSA Grant with Sonoma State University for

workforce development. The budget goal is 1,900 patient visits/ year

per resident. The program is sustainable with 1,700.

Lifelong Medical Clinic
Berkeley, CA
C. Bissonnette (personal communication, February 17, 2017)

Established: 2015

Accredited: No

Length of Residency: 1 year

Hours Worked Per Week: 40 hours/ week; 3.5 days clinic; ½ day

specialty rotation; ½ day didactic; ½ day admin

Resident Salary: 70% market rate ($45/hr)

Number of Residents: 2 annually

Number of Residents Per Preceptor: 2:1

Resident Workload: Start 1pt/45min (increase 2 pts/month)

Work Commitment Beyond Residency: No

Key Stake Holders: Chief Medical Officer & CEO; Director of Program & Co-Director manages didactic

Program Elements: Precepted clinic with exclusive preceptor 3 days/week; External specialty rotation ½ day/week; Partnered clinic with provider as mentor (resident does not bill for this visit); Didactic session 4 hrs/week; Formal learning on issues common to FQHCs

Reflective Journals: No

Evaluations: Quarterly review of resident and preceptor (use standard organizational review)

Funding: No external funding; Last 3 months preceptor has ½ schedule that reduces cost from lost productivity; Average patient visits per resident 1800 per year; Break even by mid-year and +ROI after 1st year

| **Shasta Community Health Center** |
| **Redding, CA** |
| D. Bratton-Sandoval (personal communication, March, 31, 2017) |

Established: 2015

Accredited: No

Length of Residency: 1 year

Hours Worked Per Week: 40 hours

Resident Salary: 70% market rate with completion bonus and sign-on bonus

Number of Residents: 6 annually (3 per cohort every 6 months)

Number of Residents Per Preceptor: 3:1 exclusive for the first 6 months then preceptor available with full patient load

Resident Workload: Gradual assumption of responsibility (start 1 pt/hr and increase 1 pt/ 2 months) Start 4 patients per ½ day with goal 16 pts / day

Work Commitment Beyond Residency: No (however, residency is a 1 year onboarding and recruiting process)

Key Stake Holders: CEO, Chief Medical Director, Program Director 0.8 FTE, DNP Preceptor/ Curriculum Development 0.1 FTE, Program Faculty

Program Elements: Daily precepted clinic, ½- 1 day clinical specialty rotation per week, 4 hours didactic per week, administrative time built into patient visit time.

Reflective Journals: Yes, interactive web-based model using Edmodo

Evaluations: 360 degree assessment with clinical skill competency at 1, 6, 12 months

Funding: Partnership Health Plan /Managed Medical targeted funding; Grant funding through the Health Resources and Services Administration (HRSA) Bureau of Primary Health Care, under the

Health Center Program, as authorized by Section 330 of the Public Health Service Act "Supplemental Expanded Services Grant"
Open Door Community Health Center **Arcata, CA** B. Olmstead (personal communication, March 20, 2017)
Established: 2016 **Accredited:** No (inaugural year; plan to begin process after 2 year remote hosting contract with CHC) **Length of Residency:** 1 year **Hours Worked Per Week:** 40 hours **Resident Salary:** 80% market rate **Number of Residents:** 2 annually **Number of Residents Per Preceptor:** 2:1 **Resident Workload:** Gradual assumption of responsibility following CHC model (start 1 pt/45 min and increase 2 pts/ month) **Work Commitment Beyond Residency:** no **Key Stake Holders:** Executive Officers (Operations, HR, Medical, QI), Program Staff, core provider faculty and support staff, and clinic administrators **Program Elements:** Contracted with CHC and has adopted their model; 40% precepted clinics; 20% mentored clinics; 10 Specialty Clinic Rotations (Cardiology, Derm, Peds, Women's Health, Ophthalmology, ID, Homeless health, Nephrology, Adult Psychiatry, Suboxone, and Orthopedics); Didactic: CHC sets and delivers curriculum

Reflective Journals: yes

Evaluations: Evaluations Managed by CHC (Competency Self-

assessments; Clinical site evaluations; Didactic evaluations; Program

evaluation)

Funding: North Coast Area Health Education Center (AHEC): clinic

consortium of 15 community health centers in Del Norte, Humboldt,

and Trinity Counties. Provides continuing education and training for

rural health professions. Targeted financial support form Medi-Cal

Managed Care Provider, Partnership HealthPlan of California ($50,000)

to offset the enrollment fee from CHC Remote Hosting Program

Fee of $60,000 +$32,000 per resident = Total $124,000

VA West Los Angeles Medical Center
LA, CA
K. Kopelson(personal communication, February 17, 2017)

Established: 2016

Accredited: In process (NNPRFTC)~Fall 2018 (5 VA centers of

excellence working together for accreditation)

Length of Residency: 1 year

Hours Worked Per Week: 40 hours (½ day specialty rotation 2x

month)

Resident Salary: 80% market rate

Number of Residents: 2 annually

Number of Residents Per Preceptor: 2:1

Resident Workload: Start 1 pt per ½ day; goal 3-4 pts per ½ day;

(average 6 pts/day for organization)

Work Commitment Beyond Residency: No

Key Stake Holders: Center of Excellence Inter-professional faculty group; UCLA; VA Office of Academic Affairs

Program Elements: Precepted clinic with exclusive preceptor; Specialty rotations (Women's Health, Nephrology, Diabetes, Heart Failure, ED, Derm, Liver, etc); Didactic case conferences Monday; Topic Specific Case Conf. Thursday

Reflective Journals: Yes, on Fridays

Evaluations: Self-assessments and preceptor evaluations at 1,3,6,9, 12 month

Funding: $1 million per year grant from VA for inter-professional program (3yrs)

1st cohort Summer 2016

Appendix L

Didactic Curriculum Schedule

Community Health Center, Inc. Where health care is a right, *not a privilege*, since 1972.
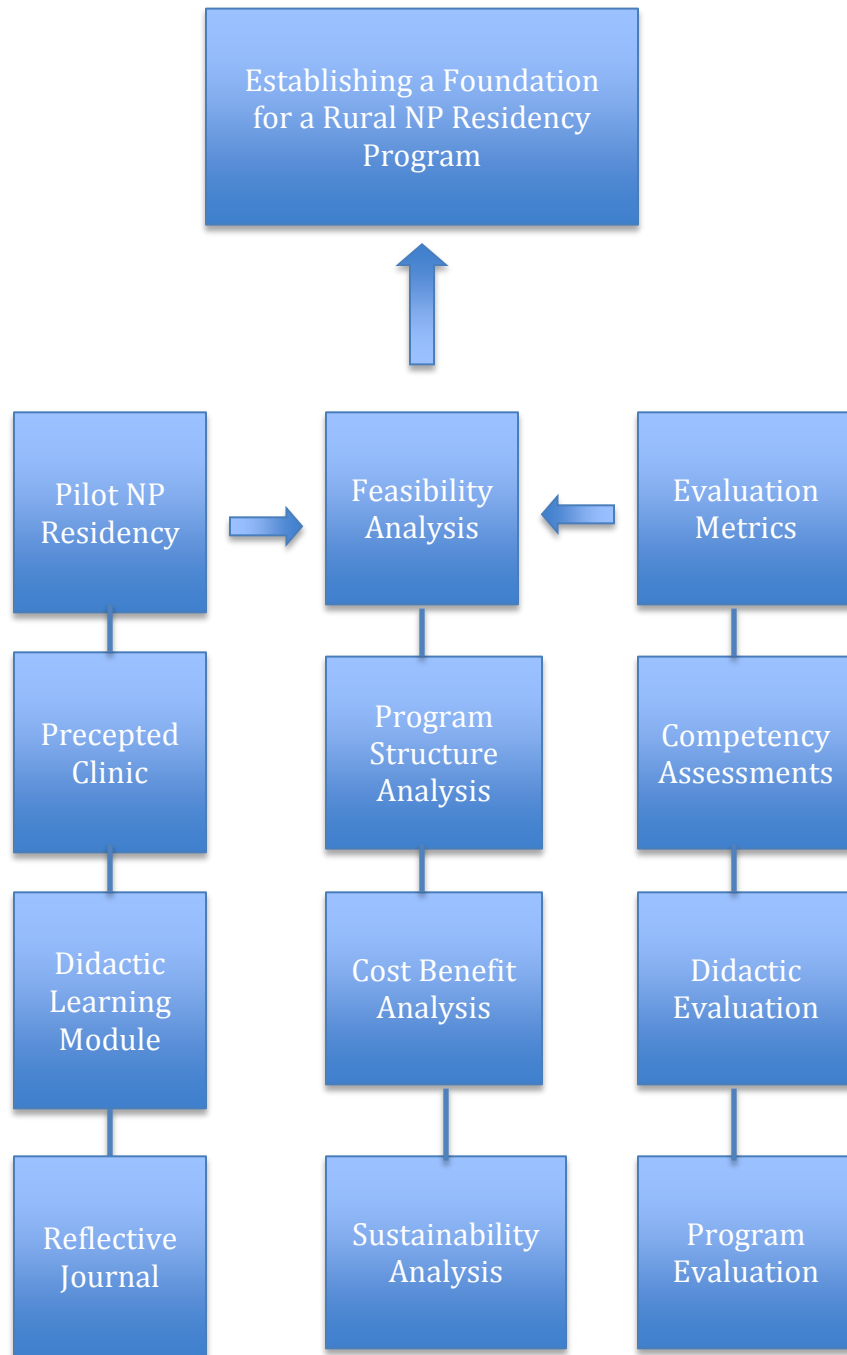
2015–2016 Didactics for CHC's Nurse Practitioner Residency Training Program

1. **History of the Community Health Center and Nurse Practitioner Movements**
2. **Focused History, Interviewing, and Documenting**
3. **Immunizations of Children and Adults:** Typical and atypical
4. **EKG Interpretation** (1st in series of 3 presentations)
5. **Laboratory Tests:** Selecting, ordering, and interpreting
6. **Initiating Insulin in the Diabetic Patient**
7. **Interprofessional Care and Collaborative Practice**
8. **Prescribing Opioids for Complex Patients in Community Health and Primary Care**
9. **Professional Boundaries Training**
10. **Initiating and Managing Anticoagulation Therapy**
11. **Pain Management:** Pharmacologic and non-pharmacologic approaches (1st in series of 2 presentations)
12. **Chronic Heart Failure:** Assessment, diagnosis, management, and patient education
13. **Pediatric Asthma:** Assessment, diagnosis, management and patient/family education
14. **Contraception:** Intrauterine devices—selection, insertion, counseling (1st in series of 2 presentations)
15. **Orthopedics:** Upper and lower extremities and back (1st in series of 3 presentations)
16. **Contraception:** Contraceptive methods and options
17. **Tobacco Cessation:** Evidence based interventions including motivational Interviewing
18. **Pediatric Growth and Development:** Screening, assessment, identification and referral (Part 1)
19. **Mindfulness Based Medication and Stress Reduction** (lecture plus experiential)
20. **Chronic Kidney Failure:** Assessment, diagnosis, management and patient education
21. **Chronic Liver Failure:** Assessment, diagnosis, management and patient education
22. **Conducting an Eye Exam in Primary Care**
23. **Anxiety and Depression:** Screening, assessment, diagnosis, management and patient education
24. **Interpreting Pap Smears and Managing Abnormal Results**
25. **IUD Insertion Training** (Mirena and Paragard)
26. **Nexplanon Training**
27. **Preforming the Pre-Op Physical**
28. **Pediatric Growth and Development** (Part 2)
29. **HIV/AIDS:** Overview, prevention, screening, testing (1st in series of 2 presentations)
30. **HIV/AIDS:** Pharmacologic management in primary care
31. **Hepatitis C:** Screening, assessment, management, patient education
32. **Caring for Patients with History of Trauma** (physical, sexual, emotional)
33. **Dermatology in Primary Care**
34. **Lactation Medicine:** "Medications and Mothers' Milk"
35. **Resident Case Presentations** (occurs twice/year)
36. **ADHD:** Screening, detection, assessment, treatment, patient/family education
37. **Oral Health:** Prevention, assessment, management, treatment of oral health problems
38. **Geriatrics:** Assessment and management of common geriatric concerns
39. **Podiatry:** Examination and assessment of the foot and common podiatric problems
40. **Stages of Change:** Training NPs on self-management in primary care setting (Series of 2)
41. **Suturing:** Simple closure
42. **Being On-call:** Managing patient concerns by telephone
43. **Managing Menopause:** Assessment, management, counseling, education
44. **Managing Neonatal Jaundice and Elevated Bilirubin**
45. **Adult Asthma:** Assessment, diagnosis, management, patient education
46. **Nutrition Management**
47. **Sexually Transmitted Disease:** Intensive, 3-day, off-site training sponsored by the The Sylvie Ratelle STD/HIV Prevention Training Center of New England
48. **Job Searching, Contracts and Negotiating**
49. **Motivational Interviewing**
50. **Self-Management Goal Setting**
51. **Treating Substance Abuse in Primary Care**
52. **Diagnostic Imaging**
53. **COPD**
54. **Spirometry**
55. **Quality Improvement Training and Meeting Facilitation**
56. **Use of the Microscope**
57. **Myofascial Pain Disorder**
58. **Caring for Pediatric Patients with Trauma**
59. **Adult Psychiatry in Primary Care and DCF Reporting**
60. **Professional Development and Leadership Training**
61. **Rheumatology**
62. **Health Care for the Homeless**
63. **Osteoporosis**
64. **Endocrinology**

(Bamrick et al., 2016)

Appendix M

Work Breakdown Structure

```
                    ┌─────────────────────────────┐
                    │  Establishing a Foundation  │
                    │   for a Rural NP Residency  │
                    │          Program            │
                    └─────────────────────────────┘
                                  ↑
```

Pilot NP Residency	→	Feasibility Analysis	←	Evaluation Metrics
Precepted Clinic		Program Structure Analysis		Competency Assessments
Didactic Learning Module		Cost Benefit Analysis		Didactic Evaluation
Reflective Journal		Sustainability Analysis		Program Evaluation

Appendix N

GANTT

DNP Project Development	2016					2017				
	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
Literature Review	▓	▓	▓	▓	▓					
Identify Key Elements	░	░	░							
Identify Stakeholders		▓	▓							
Preliminary Financial Analysis		░	░	░	░					
Select Project Committee			▓							
Review Progress with Dr. Curtis		░	░	░	░	░	░	░	░	░
Meet with WSMC Leadership				▓	▓	▓	▓	▓	▓	▓
Develop Relationship with WSMC/ Program leads throughout CA				░	░	░	░	░	░	
Write Project Prospectus		▓	▓	▓	▓					
Perform Needs Assessment				░						
Curriculum and Pilot Development						▓	▓	▓	▓	▓
Identify Pilot Cohort and Evaluation Tool							░			
Pre-pilot Self-Assessment						▓	▓			
Pilot Program Implementation							░	░	░	
Post-pilot Self-Assessment									▓	
Pilot didactic module							░	░		
Present Feasibility Analysis to WSMC Leadership										▓
Project Write-up				░	░	░	░	░	░	░

Appendix O

Pilot Residency Budget

Pilot NP Residency	
	Year 1
NP Resident Contribution (based on 12 visits per resident per week x 6*) n=2 residents	$20,448
Lost Patient Revenue from Dedicated Preceptor (15 visits per week x 6*)	($12,780)
REVENUE TO WSMC	**$7,668**
EXPENSES	
USF Clinical Staff (10 hrs x $60)	$600
Technology Support (4 hrs x $25)	$100
Student Program Development (135 hrs x $0)	$0
Resident Supplies	$50
NP Incentive Compensation	$500
NP Preceptor (Hourly Rate $85 x 48 (8 hours/day x 1 day /week x 6 weeks)	$4,080
Quality/Compliance/Computer Training (4 hrs x $25)	$100
TOTAL EXPENSES	**$5,430**
NET SAVINGS	**$2,238**
Return on Investment (ROI)	**58%**

*Average visit reimbursement rate of $142 based on Community Health Center Inc.

pro-forma financial analysis (Bamrick et al., 2016)

Appendix P

SWOT Analysis

	Strengths	Weaknesses
Internal Factors	• USF leadership support • WSMC leadership expressed interest in pursuing residency program • Student author completed NP clinical training at WSMC • Collaborative support from the Weitzman Institute • Pilot group identified	• Low interest in rural health program • Scarcity of internal funding • New curriculum development • Pilot program evaluation prior to contingency • Long commitment required of residents
	Opportunities	**Threats**
External Factors	• Alignment with Institute of Medicine recommendations • Alignment with Affordable Care Act's goal to increase access to primary care in rural communities • Model post-graduate training after a nationally recognized program • Job placement opportunities	• Lack of support from WSMC • Poor preceptor and practitioner buy-in • Inadequate community support • Insufficient funding • Paucity of employment opportunities • Changes in advanced practice nursing policies • National requirements for NP residency

Appendix Q

Health Workforce Funding

Department of Health and Human Services
Health Resources and Services Administration
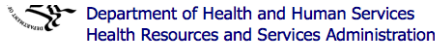
| SYNOPSIS | VERSION HISTORY | RELATED DOCUMENTS | PACKAGE |

Print Synopsis Details

If you would like to receive email notifications of changes to this grant opportunity click send me change notification emails. You only need to provide your email address.

General Information

Document Type:	Grants Notice	**Version:**	Synopsis 1
Funding Opportunity Number:	HRSA-17-071	**Posted Date:**	Dec 29, 2016
Funding Opportunity Title:	Area Health Education Centers Program	**Last Updated Date:**	Dec 29, 2016
Opportunity Category:	Discretionary	**Original Closing Date for Applications:**	Mar 29, 2017
Opportunity Category Explanation:		**Current Closing Date for Applications:**	Mar 29, 2017
Funding Instrument Type:	Cooperative Agreement	**Archive Date:**	May 28, 2017
Category of Funding Activity:	Health	**Estimated Total Program Funding:**	$28,400,000
Category Explanation:	https://grants.hrsa.gov/2010/Web2External/Interface/FundingCycle/ExternalView.aspx?fCycleID=ccc4f09b-e51e-4541-988b-ddc2c7593760	**Award Ceiling:**	$0
		Award Floor:	$0
Expected Number of Awards:	55		
CFDA Number(s):	93.107 -- Area Health Education Centers		
Cost Sharing or Matching Requirement:	Yes		

Eligibility

Eligible Applicants: Others (see text field entitled "Additional Information on Eligibility" for clarification)

Additional Information on Eligibility: Entities eligible to apply are public or nonprofit private accredited schools of allopathic medicine and osteopathic medicine and incorporated consortia made up of such schools or the parent institutions of such schools. In states and territories in which no AHEC Program is in operation, an accredited school of nursing is an eligible applicant. AHEC Requirements in Sections 751(d)(2)(A) and 751(d)(2)(B) of the PHS Act For Fiscal Year 2016, the Consolidated Appropriations Act, 2016 (Public Law 114-113) gives the Secretary authority to grant a waiver of the AHEC requirements under sections 751(d)(2)(A) and 751(d)(2)(B) of the PH S Act[i] to programs meeting certain requirements. Applicants seeking a waiver must submit their request with their grant application. Decisions regarding the waiver requests are contingent upon extension of the Secretary's waiver authority for Fiscal Year 2017 and HRSA administrative review of each waiver request. For instructions, please see Section 2. v. Attachments..[1] Foreign entities are not eligible for these awards. [1] § 751(d)(2)(A) of the Public Health Service Act (PHS Act) requires that each Area Health Education Center "is a public or private organization whose structure, governance, and operation is independent from the awardee and the parent institution of the awardee." PHS Act sec. 751(d)(2)(B) requires that each Area Health Education Center "is not a school of medicine or osteopathic medicine, the parent institution of such a school, or a branch campus or other subunit of a school of medicine or osteopathic medicine or its parent institution, or a consortium of such entities."

Additional Information

Agency Name: Health Resources and Services Administration

Description: This announcement solicits applications for the Area Health Education Centers Program. Program Purpose The purpose of the AHEC Program is to develop and enhance education and training networks within communities, academic institutions, and community-based organizations. In turn, these networks support BHW's strategic priorities to increase diversity among health professionals, broaden the distribution of the health workforce, enhance health care quality, and improve health care delivery to rural and underserved areas and populations.

Appendix R

Financial Analysis

NP Residency Program			
		Year 1	Year 2
REVENUE			
# of Residents	2	3	2
NP Resident Contribution (Based ~1940 visits per year* with average reimbursement rate of $150**)	$291,000 per resident	$291,000 per resident	$291,000 per resident
Total Residency Revenue	$582,000	$873,000	$582,000
Lost Patient Revenue from Dedicated Preceptor ***	($340,200)	($340,200)	($340,200)
REVENUE TO WSMC	**$241,800**	**$532,800**	**$241,800**
EXPENSES			
Residency Director (0.3 FTE at $150,000/ year)	$45,000	$45,000	$45,000
Curriculum Development (0.1 FTE at $120,000/ year)	$12,000	$12,000	$12,000
Resident's Salary 1 FTE (80% market rate = $74,880)	$149,760	$224,640	$149,760
Quality/Compliance/Computer Training	$2,500	$2,500	$2,500
Materials/Incidentals	$2,000	$2,000	$2,000
TOTAL EXPENSES	**$211,260**	**$286,140**	**$211,260**
Cost Savings Recruitment & On-boarding Fee ($20,000 per hire)			($40,000)
NET SAVINGS	**$30,540**	**$246,660**	**$70,540**
Return on Investment (ROI)	**14 %**	**86%**	**33%**

WSMC's average patient visit reimbursement rate of $150 D. Butz (personal communication, March 9, 2017)**

NP Resident Productivity*

	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	
Minutes per patient visit	45-60	30-45	20-30	15-20	
Average patient visits per day	8	13	15	18	
Days per week	3	3	3	3	
Average visits per week	24	39	45	54	
Average visits per quarter	288	468	540	648	
Total visits per year					1944

Based on Flinter's (2012) and Norwick's (2016) NP resident model of gradual assumption of responsibility.

Lost Productivity from Preceptor***

	Months 1-9 Dedicated Preceptor	Months 10-12 Preceptor with ½ schedule	
Average patient visits per day	18	9	
Days per week	3	3	
Average visits per week	54	27	
Average visits per month	216	108	
Total patient visits	1944	324	2268 per year

Appendix S

Potential Funding Sources and Resources for Rural Health Programs

Retrieved from: http://www.cal-ahec.org/links.html

Appendix T

Programmatic Resource Assessment

PHYSICAL	HUMAN
Have you identified the site will your residents be assigned? ☐ Y ☐ N Have you identified a dedicated workspace for the residents? ☐ Y ☐ N If Y to question 2, is the space integrated as part of a primary care team? ☐ Y ☐ N Do you have available conference space and video technology for weekly educational programming? ☐ Y ☐ N	Have you identified key program staff (if yes list positions)? ☐ Y ☐ N Have you identified potential preceptors (NPs) or supervisors (Post Doc) for the program? ☐ Y ☐ N Have you identified potential specialty rotations for the program? ☐ Y ☐ N Have you identified potential didactics/seminars presenters for the residents? ☐ Y ☐ N
FINANCIAL	**ORGANIZATIONAL**
Have you established the terms of employment (salary and benefits)? ☐ Y ☐ N Have you developed a program budget? ☐ Y ☐ N	Have you discussed with the following departments about the launch of your post-graduate residency program? • Board of Directors ☐ Y ☐ N • Leadership – commitment to training program ☐ Y ☐ N • Human Resources – recruitment, retention, onboarding, credentialing, benefits ☐ Y ☐ N • IT – hardware, software, EMR, conferencing technology ☐ Y ☐ N • Finance - resident salaries/benefits, payroll, billing ☐ Y ☐ N • Operations – scheduling, front desk ☐ Y ☐ N • Clinical Support staff – support of clinical care for resident patient care experiences ☐ Y ☐ N

(Weitzman Institute, 2016)