University of Northern Colorado
Scholarship & Creative Works @ Digital UNC

Capstones & Scholarly Projects | Student Work

12-1-2021

Recruitment and Retention of Advanced Practice Primary Care Providers in Rural Communities

Nicole Suppes
University of Northern Colorado

Follow this and additional works at: https://digscholarship.unco.edu/capstones

Recommended Citation
Suppes, Nicole, "Recruitment and Retention of Advanced Practice Primary Care Providers in Rural Communities" (2021). *Capstones & Scholarly Projects*. 89.
https://digscholarship.unco.edu/capstones/89

This Scholarly Project is brought to you for free and open access by the Student Work at Scholarship & Creative Works @ Digital UNC. It has been accepted for inclusion in Capstones & Scholarly Projects by an authorized administrator of Scholarship & Creative Works @ Digital UNC. For more information, please contact Nicole.Webber@unco.edu.

UNIVERSITY OF NORTHERN COLORADO

Greeley, Colorado

The Graduate School

RECRUITMENT AND RETENTION OF ADVANCED PRACTICE PRIMARY CARE PROVIDERS IN RURAL COMMUNITIES

A Scholarly Research Project Submitted in Partial
Fulfillment of the Requirements for the Degree
of Doctor of Nursing Practice

Nicole Jeanette Suppes

College of Natural and Health Sciences
School of Nursing
Nursing Practice

December 2021

This Scholarly Research Project by: Nicole Jeanette Suppes

Entitled: *Recruitment and Retention of Advanced Practice Primary Care Providers in Rural Communities*

has been approved as meeting the requirement for the Degree of Doctor of Nurse Practitioner in the College of Health Sciences, in the School of Nursing, Program of Nursing Practice

Accepted by the Scholarly Research Project Committee

____

Natalie Pool, Ph.D., RN, Research Advisor

____

Kathleen Dunemn, Ph.D., APRN, CNM-BC, Committee Member

____

Michael Aldridge, Ph.D., RN, CNE, Committee Member

____

Helene Christner, FNP, DNP, Committee Member

Accepted by the Graduate School

____

Jeri-Anne Lyons, Ph.D.
Dean of the Graduate School
Associate Vice President for Research

ABSTRACT

Suppes, Nicole Jeanette. *Recruitment and Retention of Advanced Practice Primary Care Providers in Rural Communities*. Unpublished Doctor of Nursing Practice scholarly research project, University of Northern Colorado, 2021.

Rural healthcare workforce shortages continue to be a challenge faced by many communities in the United States. Inadequate healthcare staff in these underserved areas could lead to (a) an inability to maintain hospital facilities or clinics, (b) increased pressure on existing staff, (c) providers working longer hours, (d) expectations of providers to provide a broad range of services and procedures, (e) extensive travel for patients to access care, and (f) increased healthcare costs. The purpose of this project was to identify reasons why advanced practice primary care providers chose rural communities and strategies for the effective recruitment and retention of providers in rural communities. This was accomplished through an extensive literature review and polling of currently practicing rural healthcare providers ($N = 17$) as guided by Havelock's theory of planned change (White et al., 2019). Synthesis of the results demonstrated that prior rural exposure, displaying an attractive community, and providing a supportive work environment were strongly supported as effective recruitment and retention tactics whereas enabling full scope of practice and offering financial incentives such as loan forgiveness require further investigation. This project resulted in the development of a new policy for recruitment and retention of rural primary care providers that could lead to improved cost-effectiveness, staff turn-over, continuity of care, patient wait times, staff satisfaction, and overall quality of care.

Keywords: Rural Heath, Advanced Practice Providers, Primary Care, Recruitment, Retention

TABLE OF CONTENTS

CHAPTER I. INTRODUCTION 1

Background 1
Statement of the Problem 2
Purpose of the Project 3
Need for the Project 3
Study Question 3
Objectives of the Project 4
Definition of Terms 4
Summary 5

CHAPTER II. REVIEW OF THE LITERATURE 6

Historical Background 6
Literature Review 8
Theoretical Framework 14

CHAPTER III. METHODOLOGY 17

Design 17
Setting 17
Sample 18
Project Mission, Vision, and Objectives 18
Project Plan 19
Instrumentation 21
Data Analysis Procedures 23
Duration of the Project 25
Ethical Considerations 25

CHAPTER IV. RESULTS AND DATA ANALYSIS 27

Objectives 27
Answer to Project Question 49

CHAPTER V. DISCUSSION 50

Project Summary 50
Conclusions 51
Limitations 53

Recommendations for Future Practice 55
Reflections on Executing a Successful Doctor of Nursing Practice Project 57
Final Summary 59

REFERENCES 60

APPENDIX A. PREFERRED REPORTING ITEMS FOR SYSTEMATIC REVIEWS AND META-ANALYSES DIAGRAM 66

APPENDIX B. TABLE OF EVIDENCE 68

APPENDIX C. POLL 89

APPENDIX D. INSTITUTIONAL REVIEW BOARD APPROVAL 94

APPENDIX E. POLICY BRIEF FOR IMPROVED RECRUITMENT AND RETENTION OF ADVANCED PRACTICE PRIMARY CARE PROVIDERS IN RURAL COMMUNITIES 97

LIST OF TABLES

1. Poll Participant Demographics 30

2. Policy Criteria Analysis 48

B1 Evidence Table...69

LIST OF FIGURES

1. Rural Community Exposures Prior to Current Professional Career 31

2. Motivating Factors for Choosing Current Rural Practice Location 32

3. Prior Recruitment Tactics of Value 34

4. Current Retention Tactics of Value 35

5. Level of Satisfaction with Current Rural Practice Position 36

6. Factors Contributing to Dissatisfaction with Current Rural Practice Position 37

7. Confidence in Continued Practice in Rural Setting 38

8. Factors Contributing to Lack of Confidence 39

CHAPTER I

INTRODUCTION

Disparities in the rural healthcare workforce continue to be an issue faced by many Americans. Twenty percent of the U.S. population lives in rural communities (Hempel et al., 2015) so it would be assumed a similar number of primary care providers would also practice in these communities, but the evidence suggests otherwise. Only one-tenth of all physicians practice in a rural setting although more than one-fifth of the U.S. population lives outside of urban areas (Hempel et al., 2015). According to MacDowell et al. (2010),

> A nationwide US survey was conducted of 1031 rural hospital CEOs and identified physician shortages reported by 75.4% of the rural CEOs, and 70.3% indicated shortages of two or more primary care specialties. The most frequently reported shortage was family medicine. (p. 1)

Although this study was completed a decade ago, the rural primary care provider shortage has only increased in recent years (Streeter et al., 2017).

Background

This lack of providers accompanied by a population of older and sicker residents in rural area leads to patients seeking health care at greater distances (Hempel et al., 2015). Patients in rural communities are suffering because of shortages of primary healthcare providers (PCPs) and lack of retention of PCPs. The shortages in these communities are only predicted to get worse while primary care continues to have declining interest as a specialty area for physicians. “Thirty-seven states are projected to have shortages of primary care physicians in

2025, and nine states are projected to have shortages of both primary care physicians and PAs [physician assistants]" (Streeter et al., 2017, p. 481).

The need for physicians varies depending upon the region of the United States. Due to the vast open spaces in the western region, more rural communities are present. Colorado is one of the states located in the western region with 73% of its landmass considered rural and 13% of its population residing in these areas (Colorado Rural Health Center, 2016): "36 of the 47 rural and frontier counties in Colorado are designated as health professional shortages areas" (p. 4). These areas need providers in multiple specialties area as well as primary care preceptors to train students and new providers.

Advance practice providers such as nurse practitioners (NP) have become increasingly important as we continue to face these rural health care shortages. Nurse practitioners have the unique opportunity to bridge the gap created by the shortage of primary care physicians in rural areas. While many medical students are opting out of the family care specialty, a majority of NPs practice in family care. Seventy-eight percent of NPs practice in family care whereas only 33% of physicians practice in this specialty (Heath, 2018). One obstacle that prevents NPs from further reducing the rural healthcare provider shortages is inconsistencies in practice scope from state to state. Each state has their own scope of NP practice laws that range from restricted to full scope while practicing. Sixteen states allow for full scope of practice for NPs and 12 states only allow for NPs to practice under direct supervision from a physician, preventing many capable NPs from practicing in rural communities (Heath, 2018).

Statement of the Problem

Rural healthcare workforce shortages continue to be a challenge faced by many communities in the United States. Inadequate healthcare staff in these underserved areas could

lead to an inability to maintain hospital facilities or clinics, increased pressure on existing staff, providers working longer hours, expectations of providers to provide an excessive range of services and procedures, extensive travel for patients seeking care, and increased healthcare costs.

Purpose of the Project

The purpose of this project was to explore the reasons why advanced practice providers with a primary care specialty choose rural communities and what strategies are known to be effective in recruitment and retention of these providers in rural communities. Outcomes from this investigation would contribute to the development of in an innovative recruitment and retention policy designed to be implemented in a rural healthcare system.

Need for the Project

While many studies have identified common themes associated with providers who chose to stay and practice in rural communities, many have failed to evaluate less commonly identified explanations for remaining in rural practice such as spousal support, community attractiveness, and workload. If additional motives of rural providers are identified in the literature and through a brief poll of currently practicing primary care providers in rural areas, an improved recruitment and retention policy could be developed that might attract additional providers and reduce staff turn-over and burnout rates among those already in practice in rural areas.

Study Question

Q1 How will identification of the motives among advanced practice primary care providers currently practicing in rural communities influence the development of an innovative recruitment and retention policy?

Objectives of the Project

This project had the following objectives:

1. Utilize the literature to create a brief poll for advance practice providers in rural communities. Collect and analyze data obtained from the poll including information on demographics, advanced practice discipline (i.e., Doctor of Medicine [MD], Doctor of Osteopathic Medicine [DO], nurse practitioners [NPs], physician assistants [PAs]), number of years in the current position, whether or not they completed a rural track during training, why they chose their current practice location, recruitment and retention tactics, and their potential for leaving their current position.
2. Compare and contrast the poll findings with findings from a comprehensive literature review focused on known strategies for recruiting and retaining primary care providers in rural areas including existing policies.
3. Synthesize the poll findings with the current literature to create a provider-informed and evidence-based improved policy for rural primary care provider recruitment and retention.

Definition of Terms

Advanced practice providers. Includes Doctor of Medicine, Doctor of Osteopathic Medicine, nurse practitioners, and physician assistants.

Family care. Providing the full range of healthcare services for all populations from birth to death.

Primary care provider (PCP). A primary care provider working in family care.

Recruitment. Process of identifying and attracting suitable candidates for rural healthcare positions.

Retention. Efforts used to motivate and retain employees in healthcare positions in rural communities.

Rural area. Defined by the U.S. Department of Agriculture (2020) as a non-metro county with a rural urban commuting area code (RUCA) of 4 and greater. This includes open countryside rural communities of 2,500 people or less and urban areas of 2,500-49,999 that are not included in a metropolitan area (U.S. Department of Agriculture, 2020).

Summary

The United States continues to face a shortage of primary care providers in rural communities and the situation is predicted to intensify in the coming decades. Nurse practitioners have an opportunity to alleviate this burden by providing access to care in rural and other underserved areas, although barriers such as limitations on scope of practice continue to be a challenge. These restrictions create a scenarios where rural residents are sicker and might lack adequate and timely care. It has become increasingly important to identify the motives of rural providers in order to aid in recruitment and retention policy efforts to attract additional providers and to prevent turnover and burn out among those already practicing in rural areas. As supported by the literature, the purpose of this scholarly project was to explore the reasons why advanced practice providers with a primary care specialty chose rural communities and what strategies are known to be effective in the recruitment and retention of these providers. The goal was to develop an improved recruitment and retention policy that could be adapted and utilized across rural healthcare systems.

CHAPTER II

REVIEW OF THE LITERATURE

This chapter describes findings from an integrated literature review and presents a historical background on the topic of interest. The literature review identified articles related to why providers chose rural communities for practice, recruitment and retention tactics, recruitment/retention efforts in Colorado specifically, experiences of rural providers versus urban providers, burnout among rural health providers, and shortages of rural healthcare providers and projected needs. The literature was analyzed for level of evidence and relation to the study question presented in Chapter I. Havelock's theory of planned change (All Answers Ltd., 2018) is discussed in detail and was utilized as the underlying theoretical framework that guided a pathway to policy change.

Historical Background

Rural healthcare workforce disparities have been an issue in the United States for decades (Ortiz et al., 2018). These shortages place residents residing in rural communities at risk for complications caused by lack of access to care. "From 2013 to 2017, 67 rural hospitals closed, 23 of which were 20 or more miles away from the next closest hospital" (Cox, 2020, p. 1). Although complex, some of these closures could be attributed to staffing shortages that continue to worsen. According to Nielsen et al. (2017), the federal government projects a shortage of over 20,000 primary care physicians in rural areas by 2025. These needs are based on decreased hours worked, future provider retirement, and the increasing age of the general population.

Different scopes of practice for NPs continue to be a challenge for implementing a workforce to rural areas. With an average of 16,000 NPs graduating yearly and 87% of these graduates practicing in family care, it should provide an advantage to increase the provider numbers in rural areas (Heath, 2018). However, with restrictions present in more than 50% of states to NP scope of practice, it makes it increasingly difficult to place more advanced practice providers in these areas where physicians might not be present to supervise. This has direct consequences for rural patients as “following expansion of NP scope of practice, the number of patients living in a county with a PCP shortage would go down from 44 million to 13 million nationwide” (Heath, 2018, p. 1). The literature suggested many NPs are motivated to practice in the rural health setting so allowing for full practice authority in all states would be beneficial to increasing the workforce available for rural areas (National Rural Health Association, 2019). Ortiz et al. (2018) stated,

> The Institute of Medicine (IOM) recommends that the nursing community, other health professions groups, and policy makers, establish a common ground to remove scope of practice restrictions and increase interprofessional collaboration. Relaxing scope of practice restrictions could help APNPs meet the critical demand for primary care services in rural (and urban) areas. (p. 2)

Historically, planning for workforce needs in rural areas has focused on identifying future needs early. This is best accomplished by anticipating providers leaving practice and beginning early recruitment tactics to fill these positions promptly (Rural Health Information Hub, 2020). Some additional known strategies that entice NPs to rural communities are engaged preceptors, rural clinic rotations during training, rural clinic sites that are open to students, rural clinics

whose patient panel are open to students, and funding for students who are pursuing rural clinic rotations (National Rural Health Association, 2019).

Previous strategies to deal with rural provider shortages have also included improving telehealth services, expanding provider practice scope to its full potential, and helping to plan for future needs (Rural Health Information Hub, 2020). Telehealth services have become more frequently utilized after the COVID-19 pandemic as an alternative to receiving face-to-face services. Although it does have its limitations, telehealth has been somewhat helpful in filling gaps in care caused by rural healthcare workforce shortages but does not alleviate the problem sufficiently (Rural Health Information Hub, 2020). Additional strategies that have been attempted include state level financial incentive programs that could be implemented through offering grants, loans, scholarships, and loan forgiveness plans to providers who commit to practicing in rural areas for a minimum period of time. States have also used special funds to help stimulate rural training programs in schools, supplemental rural clinic trainings, and rural health residency programs (Rural Health Information Hub, 2020).

Literature Review

Methodology

During a search for literature, the following databases were accessed: EBSCO, PubMed, CINAHL, and Google Scholar. The search phrases/terms included rural healthcare, healthcare personnel, recruitment and retention, shortage of healthcare personnel, incentive programs, causes of healthcare workforce shortages in rural healthcare, predictions for healthcare workforce shortages in rural healthcare, and turnover of healthcare staff. Each term was searched individually as well as with the Boolean operator “AND” for terms rural healthcare and incentive programs, rural healthcare and shortage of healthcare personnel, and rural healthcare and

recruitment and retention. The search criteria included full articles published in English language from 2007 to 2020 from the United States, Australia, or Europe that addressed the lack of primary care providers. Physicians and advanced practice providers in rural settings were considered as well as any recruitment and retention tactics. Rural (non-urban) was defined by the study authors. Studies were excluded if they provided feedback on specialty care providers (such as obstetrics/gynecology, dentistry, or psychiatry), if they were outside the timeline of 2007 to 2020, and if they were not included in the countries or language established above. Additional search strategies focused on why providers chose rural locations for practice as well as rural provider burnout and turnover rates. This literature search resulted in 141 articles that initially met the inclusion criteria. These articles abstracts were independently reviewed and 21 were selected for inclusion. Appendix A demonstrates the preferred reporting items for systematic reviews and meta-analyses flow chart for selection of material.

Synthesis

Overall

Of the 21 selected sources, four articles reported on shortages, three reported on why providers chose rural areas to practice, 13 articles focused on retention and recruitment, two reported on burnout in rural providers, and one reported on rural practice environments versus urban. Some articles had multiple foci such as identifying why providers chose rural communities as well as successful recruitment and retention tactics. The GRADE ("What is GRADE," 2021) evidence scoring was used to critically appraise evidence provided by the selected articles. Level of evidence as well as summaries for the selected articles are provided in Appendix B using a table of evidence.

Why Providers Chose Rural Communities for Practice

Three articles were identified for providing evidence as to why providers chose rural communities for practice location: (a) Asghari et al. (2017)—a qualitative research study conducted through phone interviews of physicians exploring their decisions to practice in rural areas, (b) Hancock et al. (2009)—a qualitative survey identifying which events/experiences were important to rural practice retention and choice of practice location, and (c) MacQueen et al. (2018)—a systematic review aimed at assessing the reasons why providers chose their current geographical locations. Central themes identified within these articles of rural exposure during training or school, a supportive work environment, and rural upbringing or having a rural hometown all positively influenced providers' decisions to practice in rural areas. The strongest evidence supported rural upbringing as an indicator of future practice in rural area association, $N = 683$; $p < .05$ (MacQueen et al., 2018). Other areas the literature identified as important that might need further investigation included community involvement, sense of place, familiarity, and self-actualization (Hancock et al., 2009).

Recruitment and Retention

Thirteen articles focused on retention and recruitment techniques: Bourque et al. (2020), Daniels et al. (2007), Danish et al. (2020), Halaas et al. (2008), Hempel et al. (2015), Johnson (2017), Jutzi et al. (2009), Lee and Nichols (2014), MacQueen et al. (2018), Mbemba et al. (2013), Renner et al. (2010), Rohatinsky et al. (2020), and Rourke (2010). Some of these articles were also useful in other areas of the literature review. Successful recruitment techniques identified across the 13 articles included targeting those with rural training exposure, providing financial incentives/loan forgiveness, offering competitive salaries, displaying an attractive community, and providing opportunities for professional growth. Most attention has been

directed toward financial incentives/loan forgiveness as this seemed to be the most effective tactic but there were concerns that after these obligations were completed, long-term retention waned (Renner et al., 2010). Some additional themes recognized in the above literature were spousal support, positive work environment, perceived community need, and mentorship programs.

Recruitment/Retention Efforts in Colorado

One article in particular by Renner et al. (2010) evaluated the effects of loan repayment on recruitment and retention of healthcare providers in rural versus urban communities in Colorado. Colorado healthcare providers who were engaged in loan repayment programs in Colorado were surveyed and 38% of rural care providers identified loan repayment as the most important recruitment tactic. Other factors associated with choice of rural practice location were scope of practice, family fit, and location. Additionally, it was found that rural providers who had attended high school in a rural area were more likely to practice in a rural community. Renner et al. found retention of rural providers after their loan forgiveness term had ended was 64%. This literature sparked further interest as it demonstrated that loan repayment was not only effective in recruitment efforts but also potentially aided in a moderate level of long-term retention.

Experiences of Rural Versus Urban Providers

Several articles were reviewed that compared the experiences of rural and urban providers. One article compared NPs in rural practice to those in urban practice (Germack et al., 2020). This article included a survey that focused on differences in practice patterns, demographics, job satisfaction, work environment, and burnout. The findings suggested NPs in

both environments had similar education, age, and genders but had some noted differences in racial diversity, hours worked, specialty, patient panel, and burnout rates. Rural NPs were identified as working more hours per week (40.1 vs 38.2, $p < .001$), having a higher rate of family certification (88.1% vs 70.8%, $p <.001$), higher burnout rate (32% vs 27%, $p = .079$), and managing their patient panels independently ($p < .001$; Germack et al., 2020, p. 4). This article demonstrated a high level of evidence and warrants further investigation into the differences in practice between urban and rural settings for advance practice providers, which might help to identify areas for improvement.

Conflicting evidence was identified in two separate articles selected for review in relation to burnout of rural healthcare providers (Germack et al., 2020; Hogue & Huntington, 2019). As reviewed above, Germack et al. (2020) discussed burnout by comparing rural and urban NPs. Conversely, Hogue and Huntington (2019) published a pilot study that evaluated burnout rates among physicians in rural areas versus those in urban areas. This study was conducted through email surveys administered to Sioux Falls Family Medicine Residency Program graduates. This study found burnout was statistically more prevalent in metropolitan area providers, $p =.0183$ (Hogue & Huntington, 2019). This evidence was contraindicatory to Germack et al. who found rural NPs were more likely to experience burnout than urban NPs (32% vs 27%, $p =.079$). This conflict suggested further investigation is needed to better understand the differences between rural physicians and NPs in relation to burnout.

Shortages of Rural Healthcare Providers and Projected Needs

Four articles were identified and reviewed that addressed provider shortages in rural health care and projected rural healthcare needs (Hempel et al., 2015; MacDowell et al., 2010; Streeter et al., 2017; Weinhold & Gurtner, 2014). A common theme identified in the articles was

a current as well as a projected need for rural healthcare providers with an emphasis on the family care specialty. MacDowell et al. (2010) reported a 35% need for nurse practitioners and a 58.3% shortage of family medicine providers in rural communities. Hempel et al. (2015) identified the ratio of rural providers to patients as one quarter that of urban communities. Streeter et al. (2017) predicted a shortage of primary care providers in 29 states with 18 of these states predicted to have a greater than 10% deficit in healthcare providers and the demand for primary care continuing to climb. Weinhold and Gurtner (2014) acknowledged these current and predicted shortages and explored the underlying reasons for them. The authors identified six categories contributing to the rural provider shortage: physical/infrastructure challenges, professional preference, educational experiences, socio-cultural factors, economic considerations, and political context. This suggested there was no single solution to this problem, although detailed attention to infrastructure and economic issues would possibly reap the most beneficial outcomes (Weinhold & Gurtner, 2014).

Summary of the Integrated Literature Review

The reviewed literature identified multiple themes for the ongoing rural advanced practice provider shortage discussed in detail above. The highest level of evidence demonstrated a gap in research when identifying primary care providers' motivations to practice and stay in rural communities. There might be a potential benefit from further investigative efforts focused on comparison of NPs in rural versus urban practice. Although much of the research was physician-centric, which was a potential draw back because this project was focused on advanced practice family care providers across the disciplines, some aspects of it could likely apply to the NP and PA experience as well.

Theoretical Framework

Havelock's Theory of Planned Change

Havelock's theory of planned change was established in 1973 and evolved from Lewin's earlier established theory of change (White et al., 2019). Havelock developed this theory based on the idea that change is a cycle that is made up of six steps or actions that are repeated as change advances: care, relate, examine, acquire, try, extend, and renew (White et al., 2019).

Havelock's theory of planned change (All Answers Ltd., 2018) provided a reference to help improve and generate new policies and procedures through identification of necessary interventions and improvements using evidence-based research. This theory created an opportunity for innovation in rural healthcare recruitment/retention programs by utilizing the six steps of change. These six steps easily lent themselves to the process of identifying barriers to recruiting rural healthcare staff and creating a plan of change aimed at increasing retention and satisfaction with rural practice. Although implementation of an actual recruitment/retention program was not the focus of this project, the last two steps of change lent to acceptance of the policy by future rural stakeholders. The last step provided an opportunity for additional input from staff to further revise and eventually implement the policy.

Application of Havelock's theory (All Answers Ltd., 2018) to this project was demonstrated using the six steps of change, which are not always performed in a linear fashion. Step 0 is Care, meaning someone must care about the issue in order to develop a necessary change. During application of this stage, the researcher as well as the staff, organization, and the community must care about the identified issue of disparities in the rural healthcare workforce for the change to be successful. This concern was identified by the primary investigator in discussions with staff and providers at a rural primary care clinic and other members in the rural

community who had expressed their interest in and support of this scholarly project. Step 1—Relate states that building positive relationships is one of the keys to changing an environment. During this phase, the primary investigator was immersed in the community and established relationships with the rural advanced practice provider workforce to better understand the issue presented. This was accomplished by advertising the project and participation in the planned poll as well as face-to-face encounters and meetings to generate conversations about and explain the purpose of the project. Some informal meetings took place to encourage interest and motivation. Step 2 is Examine. In this phase, the problem or issue is identified and analyzed. For example, the primary investigator decided whether or not better recruitment and retention techniques were needed or desired. This step was completed through multiple conversations with leadership at a rural primary care facility and further supported by the findings of the integrated literature review that suggested rural provider recruitment/retention is both a local and a national issue. Step 3 is Acquire where the necessary, relevant resources to address the issue are collected. Relevant resources were acquired by the primary investigator in the form of poll data from rural providers that were collected and analyzed followed by critical evaluation of both the literature and existing recruitment/retention policies. Once synthesized, this information was used to propose a solution to the problem. Step 4 is Try where a solution is selected and implemented to create the sought change. The primary investigator selected and built a solution to the problem by developing a new retention/recruitment policy for future implementation. This policy was built on knowledge gathered from the “acquire” step of change. Step 5 is Extend—an important phase for gathering support from individuals and institutions through effective communication. This phase helps in making sure the new change is applied and gains acceptance by staff members, which could be difficult due to resistance to change. It is imperative the change

becomes part of the routine and is accepted, which can be accomplished through education, resources, and support. In this project, this phase was accomplished by forming the DNP scholarly project committee to present the new policy for evaluation. The committee had the opportunity to provide feedback on the policy, which would be more likely to increase acceptance by others. In addition, findings from this project will be disseminated through the University of Northern Colorado's dissertation and scholarly project repository. The last step is Renew; this phase focuses on evaluating if the change was successful and whether it created a positive or negative outcome. At this stage, if the change implemented developed a desired response, it should be stabilized and maintained. This stage would be accomplished by taking critiques identified by committee members and future stakeholders and further tweaking the proposed retention/recruitment policy. Ideally, the policy would become sustained after future implementation in one or more rural clinical settings.

CHAPTER III

METHODOLOGY

In this chapter, the design and methods used in this DNP scholarly project are discussed. This includes detail of the project design, setting, sample, and instrumentation. The plan and analysis of data are presented and ethical considerations including Institutional Review Board (IRB) approval are described.

Design

The DNP project used evidence-based articles collected and analyzed through an extensive literature review and a poll of rural providers to identify why advanced practice providers were attracted to and chose to practice in rural areas. This analysis led to the development of a policy recommendation for recruitment and retention of rural primary care providers in family care. Although the primary investigator was located in rural northeastern Colorado, this policy would potentially be adaptable to different rural practice settings throughout the United States.

Setting

The primary investigator is based out of a family health clinic in Sterling, Colorado with an estimated 14,777 residents (City of Sterling, 2017). The clinic has 13 advanced practice primary care providers consisting of three PAs, seven MDs and three NPs who serve a diverse population of rural residents. However, the poll of rural primary care providers was distributed using the professional networking and snowball methods to better inform the development of a

generalizable recruitment/retention policy. The policy was not implemented in the primary investigator's clinic or any other during this project.

Sample

The sample included all types of polled rural primary care providers with the goal of recruiting 20 participants. The inclusion criterion was the provider was a licensed MD, DO, PA, or NP currently practicing in a rural primary care setting, which was defined by the primary investigator. Registered nurses, licensed practical nurses, and medical assistants were not included in this project. Advanced practice providers were also excluded if the only care provided was specialized such as obstetrics/gynecology, cardiology, podiatry, neurology, etc. Recruitment of poll participants was achieved using the snowball method via the professional networks of the primary investigator and committee members.

Project Mission, Vision, and Objectives

The mission was to create an improved recruitment/retention policy for rural primary care providers to help alleviate existing rural healthcare inequities. The vision was to identify ways to entice providers to practice in rural communities while also better understanding retention and satisfaction factors of those already in practice in these areas. This project had the following objectives:

1. Utilize the literature to create a brief poll for advance practice providers in rural communities. Collect and analyze data obtained from the poll including information on demographics, advanced practice discipline (i.e., MD, DO, PA, NP), number of years in the current position, whether or not they completed a rural track during training, why they chose their current practice location, recruitment and retention tactics, and their potential for leaving their current position.

- Demographics of poll participants: age, gender, credentials/professional title, number of years in practice, and number of years practicing in one or more rural communities.
- Collect and analyze outcome measures of the poll (see Instrumentation section).

2. Compare and contrast the poll findings with findings from a comprehensive literature review focused on known strategies for recruiting and retaining primary care providers in rural areas including existing policies. This was achieved by applying descriptive statistical analyses to the collected poll data to identify the variables influencing recruitment, retention, and satisfaction. These findings were compared/contrasted to the integrated literature review findings using a back-and-forth process between the primary investigator and project Chair to identify the most salient components of a potential policy.
3. Synthesize the poll findings with the current literature to create a provider-informed and evidence-based improved policy for rural primary care provider recruitment and retention. Key identified areas for recruitment and retention were integrated into a proposed policy. This provider-informed and evidence-based policy draft was presented to the scholarly project committee for feedback and a final policy was developed based on the feedback received.

Project Plan

The plan for this DNP scholarly project consisted of the following:

1. Assembled a committee for project proposal and review comprised of doctoral prepared leaders from the School of Nursing at the University of Northern Colorado

(UNCO), a doctoral prepared individual at UNCO from an additional department, and a doctoral prepared NP with rural primary care expertise.

2. Presented the proposal for the planned study through a written document and an oral PowerPoint presentation to the project committee for approval.
3. Submitted the University of Northern Colorado IRB application.
4. Created a brief online poll using the survey software Qualtrics that began with five questions collecting basic demographic information followed by six close-ended recruitment/retention questions with an optional brief comment space at the end of each question (120-character limit).
5. Using the professional networks of the primary investigator and committee members, compiled an email list of currently practicing advanced practice family care providers in rural areas.
6. Administered the poll via email to a sample of individuals with a target number of 20 completed polls over a two-week period. Weekly reminder emails were sent to the email list to encourage completion of the poll.
7. Collected and reviewed the results of the returned polls once the target number had been achieved or at the conclusion of the two-week period, whichever came first. Applied basic descriptive statistical procedures to the poll data using Statistical Package for the Social Sciences (SPSS) statistical software under the supervision of the committee.
8. Compared/contrasted the poll findings with the findings from the integrated literature review to identify the most salient components of a potential

recruitment/retention policy for rural primary care providers. Engaged in a back-and-forth process with the project Chair until preliminary consensus was reached.

9. Created a first draft policy for recruitment and retention of rural providers. Presented the draft to the full doctoral project committee via email for written feedback and to ensure the policy was logical and clear.
10. Collected the written feedback provided by the doctoral project committee and revised the existing policy to develop a final draft.
11. Presented the final policy draft with the completed project to the project committee through PowerPoint presentation via live video stream (Zoom) and published the completed research findings in the UNCO thesis and doctoral projects repository.

Instrumentation

Instrumentation utilized for this project was an online poll created using Qualtrics survey software. Invitations to participate in the poll were provided by email (see Appendix C). The poll requested the following demographic data from participants: age, gender, credentials/profession, total number of years in practice, and the number of years practicing in one or more rural communities. The poll began with five questions collecting basic demographic information followed by six close-ended recruitment/retention questions with an optional brief comment space at the end of each question (120-character limit). Reliability and validity of polling was similar to that of surveying but more simplistic overall (Rutgers University, 2021). For the poll to be considered valid, it needed to include information on the data collection method (Qualtrics), population that was sampled, size of sample, and percentages upon which conclusions were based (Rutgers University, 2021). Margins of error also needed to be taken into consideration regarding poll results; however, the margin of error was expected to be elevated

with a small sample size such as the one for this project. Accuracy and usability of the poll were predetermined by testing it on the project Chair before administering to the project sample. The poll questions focused on the following areas as guided by the completed integrated literature review and were primarily composed of pre-selected responses:

- Exposure to rural communities before initiating their professional career in a rural setting (i.e., rural tracks in school, rural clinical rotations, rural work trainings, rural upbringing, rural hometown, etc.)
- Motivating factors for choosing their current rural practice location (i.e., geographical local, attractive community, interest in/passion for rural health, spousal approval, etc.)
- Identification of prior recruitment tactics that were of most value (i.e., sign on bonus, loan repayment/forgiveness, attractive community, housing assistance, support with spousal career, low provider/patient ratios, ability to practice to full scope, etc.)
- Identification of retention tactics that have been of most value (i.e., quarterly bonuses, loan reimbursement/forgiveness, supportive work environment, continuing education opportunities, low provider/patient ratios, ability to practice to full scope, etc.)
- Satisfaction and retention intentions (i.e., satisfaction with current position, intention to leave current position in next 12 months, intention to leave current position in next five years, etc.)
- Reasons for dissatisfaction or intention to leave (i.e., low wages, staffing shortages, patient panel load, rural environment, etc.)

Data Analysis Procedures

Initial analysis of the literature has already been completed. Further data analysis began by entering in all data from returned polls into SPSS software. Data variables were assigned to created values. For example, if gender was the variable, each gender was assigned a value (Male=1, Female=2). Descriptive statistics and graphs were generated from the aggregated data to present trends. Incomplete polls were discarded and not considered in the analysis. Further analysis and development of the proposed policy was conducted using the Bardach and Patashnik (2016) framework. This framework was developed to help guide problem solving at the policy level (Moran et al., 2020) and entailed the following analysis procedures:

- Defining the problem: This was addressed in Chapter I of the DNP proposal under the Statement of the Problem section.
- Assemble evidence: This step was implemented through an integrated literature review and brief polling with analysis of rural primary care providers.
- Construct alternatives: The primary investigator synthesized evidence gathered in the literature review and poll to develop policy options that would be effective in recruitment and retention of rural providers. All policy options were considered and a rationale for what should be done as opposed to what is currently being done to mitigate the problem was identified.
- Select the criteria: The proposed policy improvement needed to be evaluated for the projected outcome. The first draft of the policy was presented to the project committee at which time the potential outcome of this policy was evaluated. This particular project of policy development had little personal risk involved so outcomes that were negative would be minimal. The possibility of increasing

recruitment and retention of rural providers, which decreases costs to rural primary care clinics and improves rural population health, were anticipated as positive outcomes.

- Project outcomes: As the first draft of the policy was presented to the project committee, this provided an opportunity to reflect on scenarios in which the project could fail, understand potential undesirable effects, and remain realistic about outcomes. Feedback received from the committee was then applied to the existing draft, resulting in a final draft.
- Confront trade-offs: At this stage, the most important aspects of the proposed policy that would have the largest impact needed to be acknowledged. This was completed by the primary investigator through identification of the positive implications of the policy and considering the trade-offs this might represent, i.e., the costs of recruiting and retaining providers through loan reimbursements. The literature suggested the cost of recruiting providers through loan reimbursement to rural areas was very high and retention was only moderately successful. So, the benefits and risks of providing loan reimbursement for recruitment must also demonstrate desirable retention rates in order to be included in the policy.
- Decide: The best options to solve the problem were determined and included in the new policy. The primary investigator also needed to take into consideration what was most likely to be adopted/accepted by rural primary care facilities in the future. During later policy implementation, this could be accomplished by identifying potential stakeholders who might be resistant to change such as clinic or human

resource managers who were committed to or comfortable with current policy approaches.

- Tell your story: The final policy was presented to the DNP project committee and later disseminated once approved. Dissemination of the policy and evidence developed in the project were accomplished through publishing the project in the UNCO theses and doctoral dissertation repository and performing outreach to rural communities and their primary care practices after completion of the project.

Duration of the Project

Planning, implementation, and evaluation of the project took approximately four months. The project was scheduled to be completed when at least 20 completed polls had been analyzed but data collection efforts ceased after two weeks due to a decline in the response rate, resulting in 17 completed polls. Policy brief development and completion of the written project required another two months, resulting in a total duration of six months for the project.

Ethical Considerations

Ethical considerations were applied during this research project through multiple methods. This DNP scholarly project aimed at evaluating a policy so it was important to obtain IRB approval under supervision of the project committee, which was aimed at collecting and analyzing poll data of primary care providers. The IRB review addressed potential conflicts of interest, confidentiality of the poll, safety of participants, and informed consent. Approval from the IRB was obtained before initiating this DNP project (see Appendix D for approval letter).

Information gathered from polling of rural primary care providers was de-identified and stored electronically on a password protected device; names and any other potentially identifying

information (such as the name or location of the clinic/facility in which they are currently employed) were not collected. Informed consent was obtained when participants agreed to participate in the online poll (see Appendix C). Participants were informed of what data would be collected, the project purpose, and how the data would be utilized and protected. If there was an inquiry from a participant, this was addressed on a case-by-case basis by the primary investigator via email communication under the guidance of the project Chair. No stipend or payment was provided to participants for completion of the poll. Only identification numbers were utilized in all data analysis tables. There was no patient involvement, which avoided risks to patients.

CHAPTER IV

RESULTS AND DATA ANALYSIS

This chapter presents the results and data analysis of the DNP project. Each objective of the DNP scholarly project is reviewed, analyzed, and discussed in detail. The purpose of this project was to explore the reasons why advanced practice providers with a primary care specialty chose rural communities and what strategies were effective for recruitment and retention of these providers. Outcomes from this investigation contributed to the development of in an innovative recruitment and retention policy designed to be implemented in a rural healthcare system.

Objectives

Objective 1: Utilize the Literature to Create a Brief Poll for Advanced Practice Providers in Rural Communities

A brief poll was created based on a preliminary literature review. This extensive literature review was performed focusing on the topic recruitment and retention tactics used to obtain physicians and advanced practice providers for rural healthcare settings. Additional search strategies focused on why providers chose rural locations for practice as well as rural provider burnout and turnover rates. This literature search resulted in 141 articles that initially met the inclusion criteria. As described in Chapter II, the article abstracts were independently reviewed for relevance to this project and 21 were selected for inclusion. Of the 21 selected sources, four reported on primary care provider shortages, three reported on why providers chose rural areas to practice, 13 focused on retention and recruitment, two reported on burnout among rural providers, and one reported on rural practice environments versus urban. Some articles had

multiple foci such as identifying why providers chose rural communities as well as successful recruitment and retention tactics.

Themes with the strongest evidence were identified and used to help develop potential poll responses. For example, the strongest evidence in the literature suggested rural upbringing/hometown was a contributing factor in the current geographical location of rural healthcare providers (MacQueen et al., 2018) so this evidence was incorporated into the response options for multiple questions within the poll. Another example was the literature showed some evidence that rural clinical rotations, rural residency programs, and previous professional careers in rural areas impacted the decision for some primary care providers to work in rural areas (Asghari et al., 2017; Hancock et al., 2009; MacQueen et al., 2018) so this was also included in the poll.

An initial draft of the poll questions and answers was created by the primary investigator based on the literature review and submitted to the project Chair for feedback. We then engaged in a back-and-forth process until a final draft was completed and subsequently submitted as an attachment with the IRB application. After IRB approval was granted (see Appendix C), an electronic poll was created using Qualtrics Survey Software and was tested by the project Chair prior to administration.

Participant Recruitment and Administration of the Brief Poll

Recruitment of poll participants was achieved using the snowball method via professional networks of the primary investigator and committee members. The primary investigator and chair compiled a list of 12 potential candidates of primary care providers practicing in rural areas using their professional networks. An additional 50 potential participants were identified from a list of recent preceptors used with family nurse practitioner students at the University of

Northern Colorado School of Nursing. Potential participants were invited to participate via an initial introductory email and were encouraged to forward the email/poll to any colleagues who were also advanced practice primary care clinicians in rural areas. A single follow-up/reminder email was sent approximately one week later to the original 12 potential candidates to encourage participation. A decision not to send a reminder email to the email list of family nurse practitioner preceptors was made by School of Nursing leadership in an effort not to overwhelm or exploit this crucial group of providers.

The poll was estimated to take approximately five minutes to complete and participants electronically agreed to participate (see Appendix D for poll). The poll began with five questions collecting basic demographic information followed by six close-ended recruitment/retention questions with an optional brief comment space at the end of each question (120-character limit). Two of the six close-ended questions required additional conditional responses if certain answers were selected regarding the respondents' reasons for their dissatisfaction with their current positions. A total of 19 polls were returned in the two-week data collection time frame; two of these polls were excluded from data analysis due to incomplete or partial responses. Thus, 17 polls were included in the data analysis.

Description of the Sample

Basic demographic information of the 17 participants who completed the poll is provided in Table 1. The demographics of this poll demonstrated an unbalanced representation of all advanced practice providers with a majority being nurse practitioners. This was likely due to the primary investigator also being an NP and having a greater connection to this network. Regarding other basic demographics, most of the sample was comprised of advanced practice

providers who were between the ages of 30-59, female, located in Colorado, and who had been practicing in their current role for 5-10 years.

Table 1

Poll Participant Demographics

Sample Characteristics	*n*	%
Gender		
Female	11	64.71
Male	6	35.29
Nonbinary	0	0
Age (years)		
20-29	2	11.76
30-39	4	23.53
40-49	4	23.53
50-59	5	29.41
60-69	2	11.76
70+	0	0
Advanced Practice Credentialing		
DO or MD	5	29.41
PA	3	17.65
NP	9	52.94
State of Practice		
Colorado	14	82
Wyoming	1	6
Nebraska	1	6
Arizona	1	6
Number of years in practice		
0-5	3	17.65
5-10	6	35.29
10-15	1	5.88
15-20	3	17.65
20+	4	23.53

Note: $N = 17$. Abbreviations: DO, Doctor of Osteopathic Medicine; MD, Doctor of Medicine; NP, Nurse Practitioner; PA, Physician Assistant.

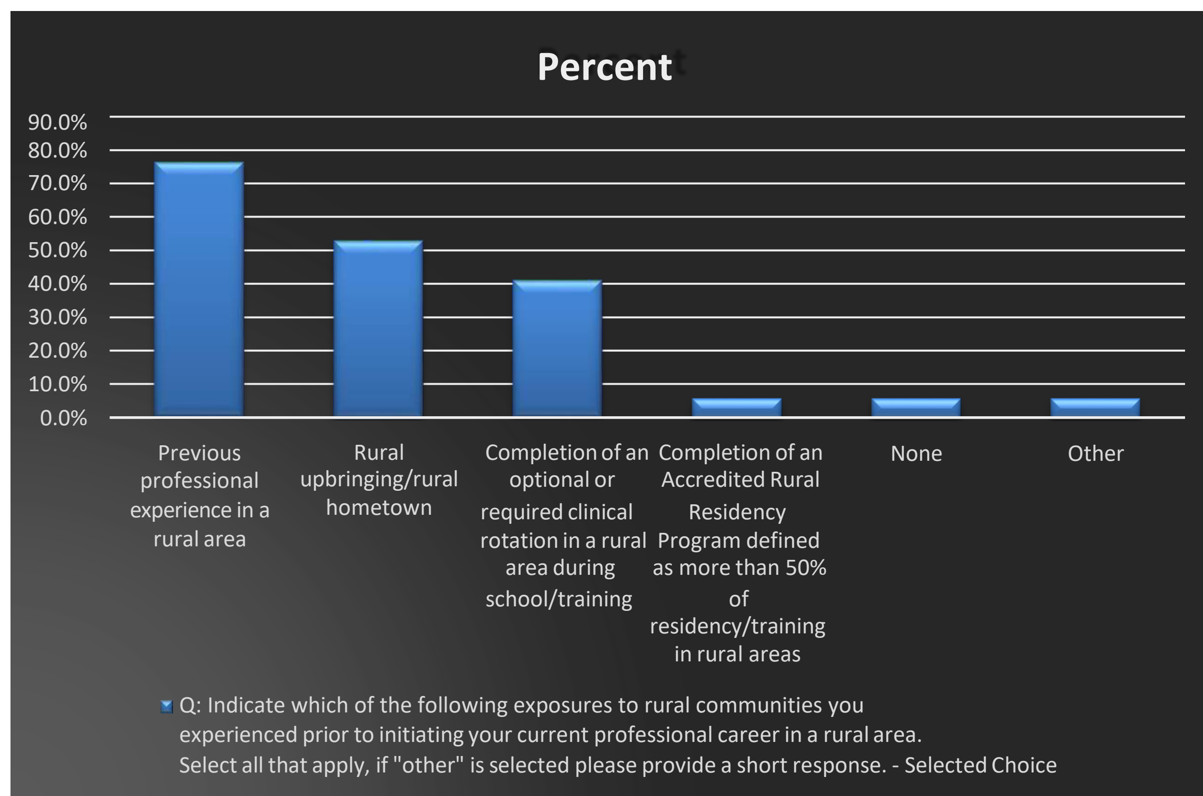
Description of Additional Poll Findings

The following figures display the results of the six close-ended questions and open text responses addressing the experiences of the poll participants with rural primary care recruitment and retention.

Poll participants were asked to indicate which exposures to rural communities they experienced prior to initiating their current professional career in a rural area (see Figure 1). Results of the poll indicated most advance practice providers experienced rural exposure through their previous professional careers in a rural area (76.5%) which was followed by rural upbringing/hometown (52.9%) as well as completion of an optional or required clinical rotation in a rural area during school/training (41.2%). Only one participant attended an accredited rural residency program. Of note, one other participant selected "other" and indicated in their brief free text response that their exposure to rural communities prior to their current professional career was through recreational activities in the wilderness or remote areas.

Figure 1

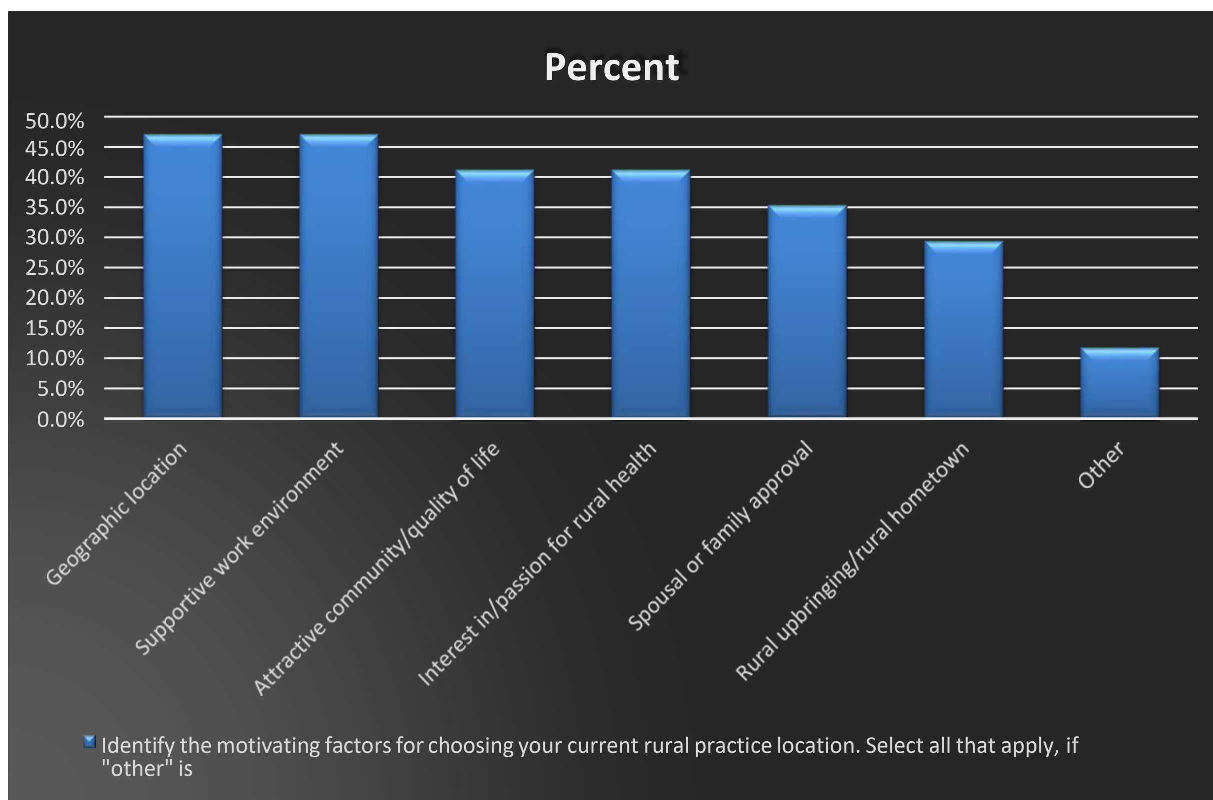
Rural Community Exposures Prior to Current Professional Career



Poll participants were asked to identify the motivating factors for choosing their current rural practice location (see Figure 2). The top recognized motivating factors for choosing current rural practice location were geographical location (47.1%) and supportive work environment (47.1%). Being in an attractive community/quality of life (41.2%) and having an interest in/passion for rural healthcare (41.2%) were also motivating factors for the poll participants followed by spousal or family approval (35.3%) and rural upbringing/rural hometown (29.4%). Written responses for the participants who selected "other" were "lower cost of living versus income" and "I had no other options at the time."

Figure 2

Motivating Factors for Choosing Current Rural Practice Location



Poll participants were asked to identify prior recruitment tactics that were of value to them when choosing their current rural practice location (see Figure 3). Prior recruitment tactics found to be of most value to the participants included the ability to practice to the full scope of their credentialing (76.5%) followed by perceived community need (58.8%) and attractive community/quality of life (52.9%). This was followed by other factors such as opportunities for professional growth (47.1%), loan reimbursement/forgiveness (41.2%), sign on bonuses (29.4%), mentorship (23.5%), support with spousal career and family relocation (17.6%), low patient load or patient to provider ratio (5.9%). For "Other" (11.8%), reasons stated in free text were the "need to practice where hope can be given" and "no longer there." The first statement might indicate a similarity to 'perceived community need' or 'passion for rural healthcare' but the following comment "no longer there" was an unclear statement and interpretation of this data might be identified as a future limitation. This statement could be perceived as misleading, indicating the poll participant no longer lived or practiced in rural healthcare, although this could not be determined with absolute certainty.

Participants were asked to identify retention tactics that have been of most value to them at their current rural practice location (see Figure 4). The most chosen options were the ability to practice to their full scope (76.5%) and being in a supportive work environment (70.6%). This was followed by continuing education opportunities (41.2%), opportunities for personal growth (41.2%), loan reimbursement/forgiveness (35.3%), mentorship (35.3%), quarterly/semi-annual or annual bonuses (17.6%), low patient panel load or patient/provider ratio (5.9%), and other (11.8%). Two participants who selected "other" responded with the following statements: "I own my own practice" and "no other choices."

Figure 3

Prior Recruitment Tactics of Value

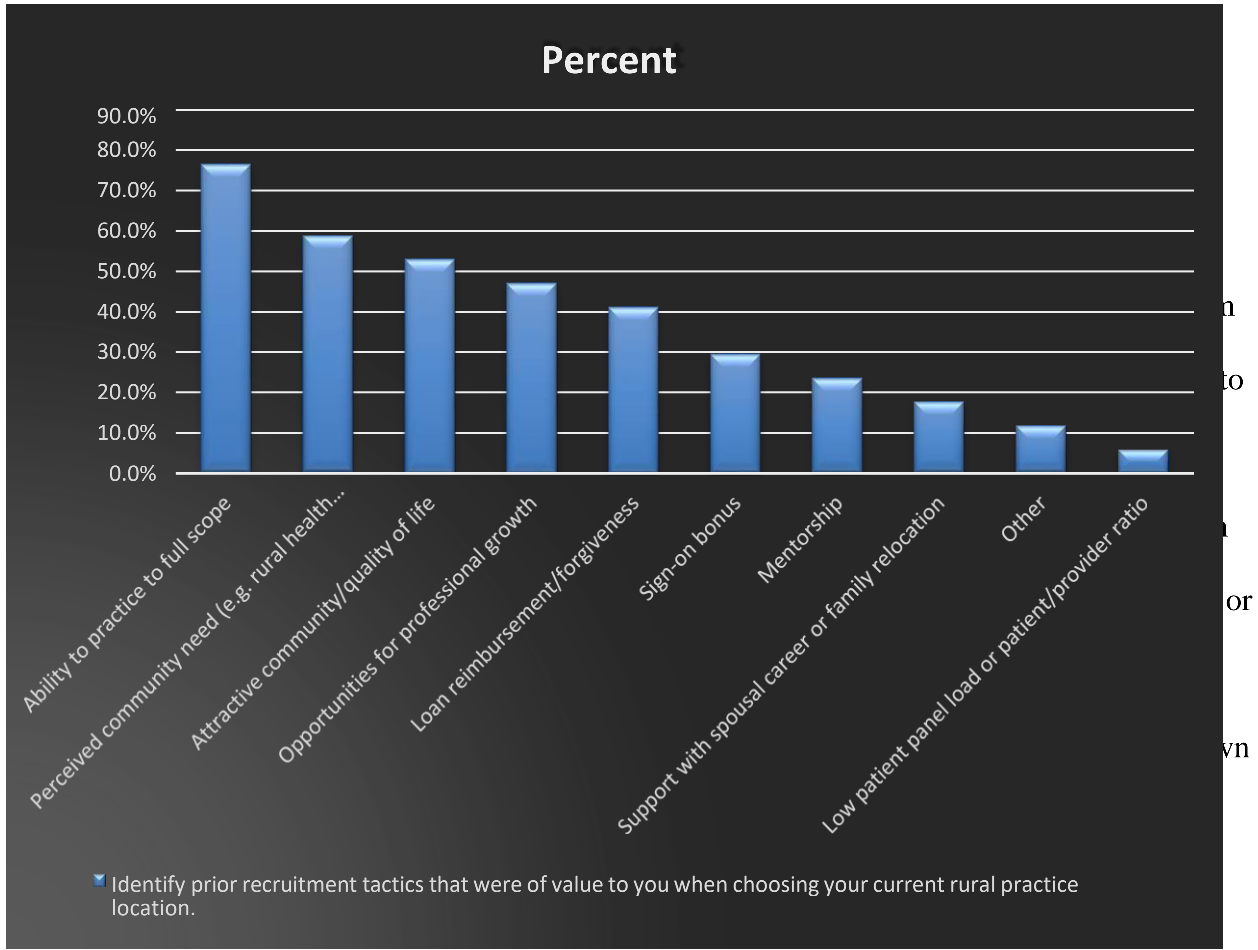
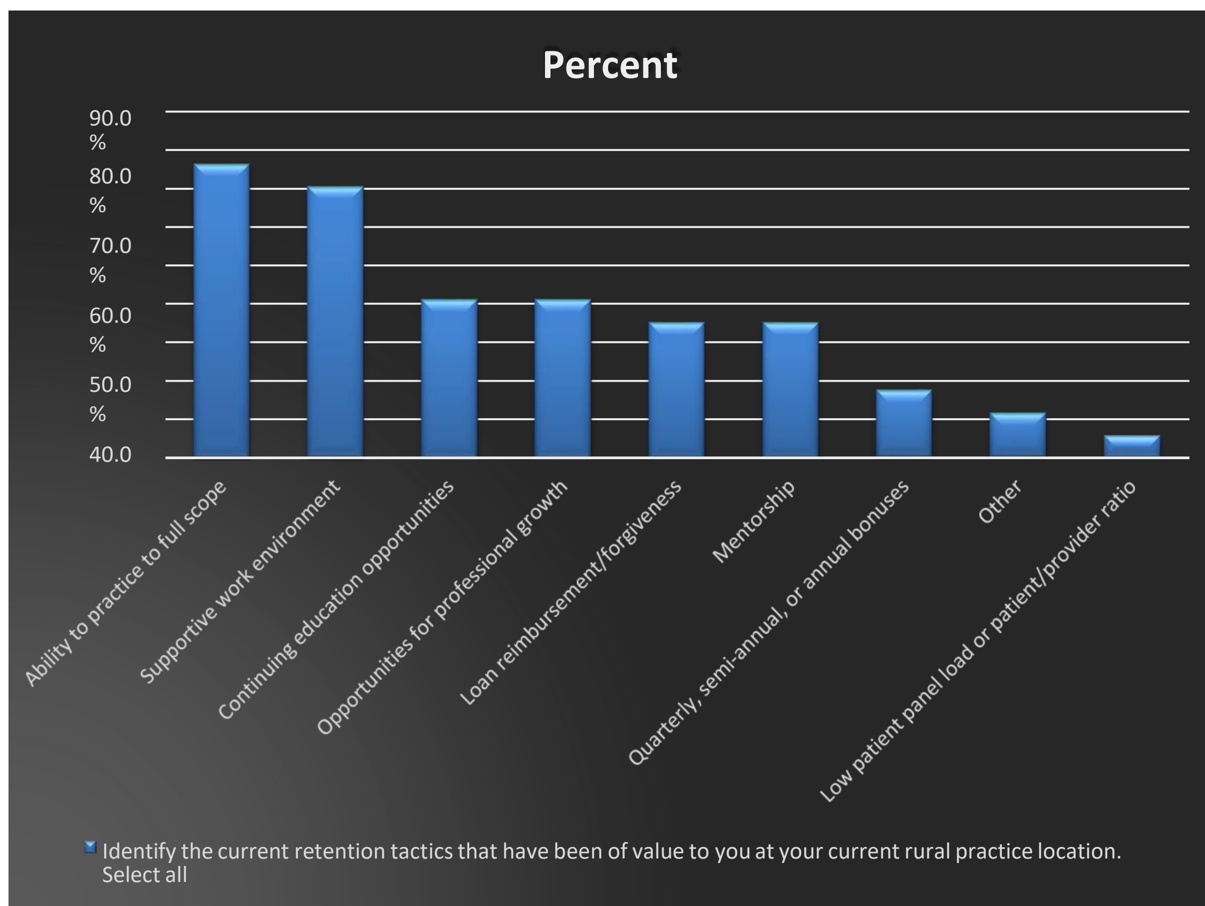


Figure 4

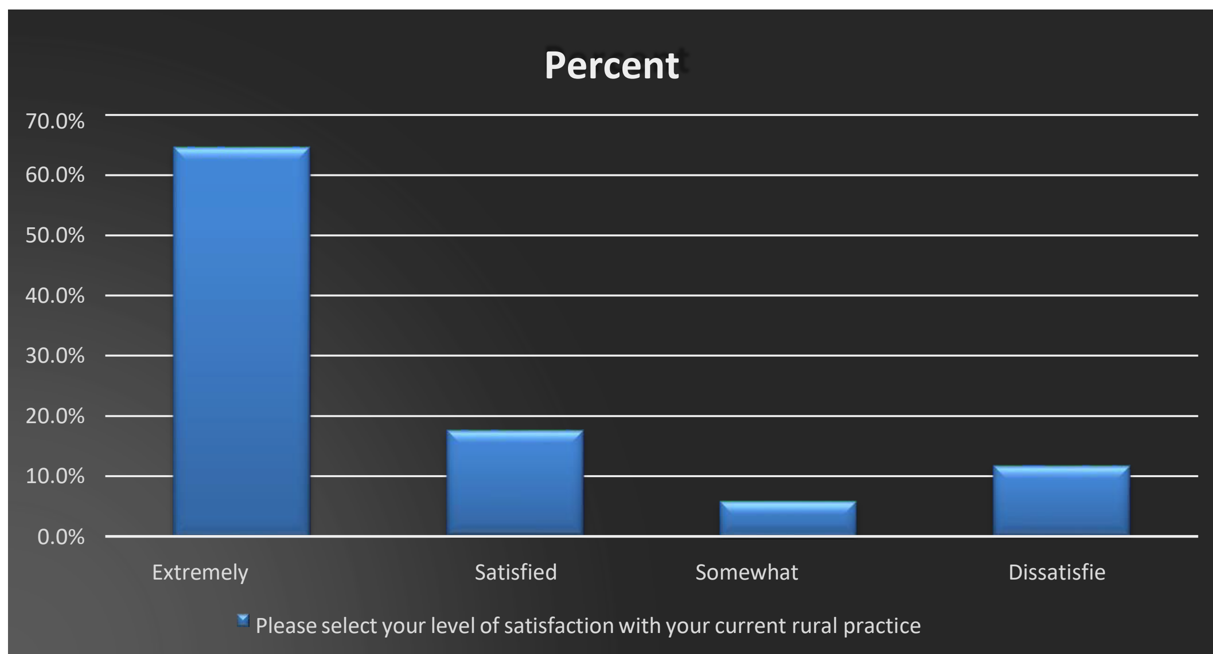
Current Retention Tactics of Value



Participants were asked to select their level of satisfaction with their current rural practice position (see Figure 5). The level of satisfaction was high among the rural primary care providers who participated in the poll with 64.71% considering themselves extremely satisfied with their current rural practice position. Collectively, most participants (82.4%) considered themselves either extremely satisfied or satisfied with their current rural practice position and only 5.88% were dissatisfied.

Figure 5

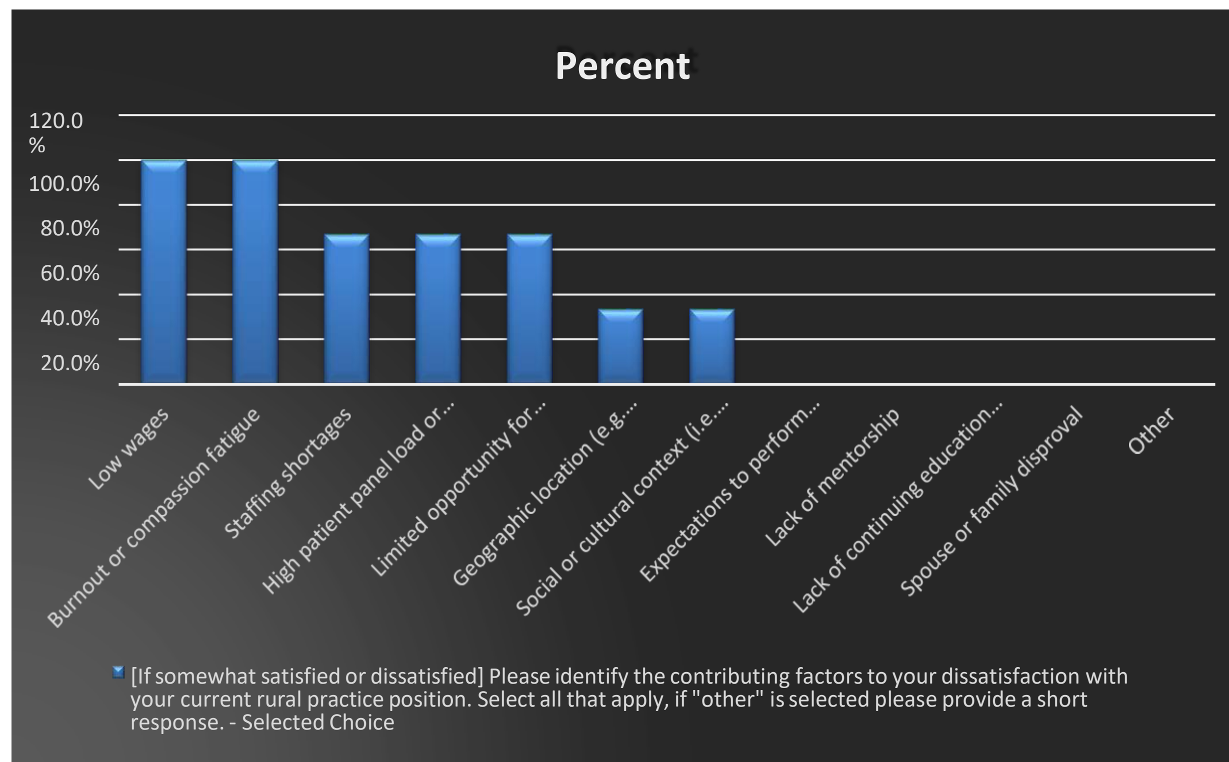
Level of Satisfaction with Current Rural Practice Position



If participants were somewhat satisfied or dissatisfied with their current rural practice position, they were asked to identify contributing factors (see Figure 6). The top two reasons identified by the participants (n = 3) who fell into the somewhat satisfied or dissatisfied categories were burnout/compassion fatigue (100%) and low wages (100%). This subgroup also identified staffing shortages (66.7%), high patient panel load/provider ratio (66.7%), and limited opportunity for professional growth (66.7%) as being important. This was followed by geographical location (33.3%) and social or cultural context (33.3%). Dissatisfaction was not influenced by expectations to perform outside of scope, lack of mentorship, lack of continuing education opportunities, or spouse/family disapproval.

Figure 6

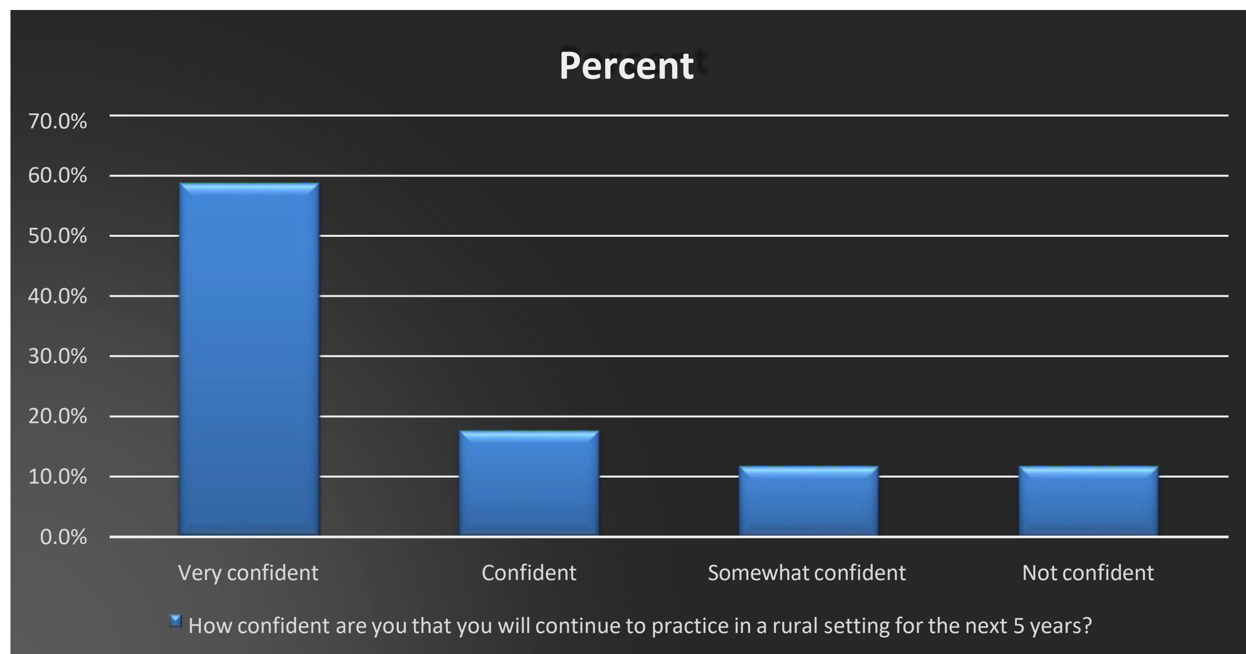
Factors Contributing to Dissatisfaction with Current Rural Practice Position



Participants were asked how confident they were that they would continue to practice in a rural setting for the next five years (see Figure 7). Of note, 76.5% of participants stated they were very confident (58.8%) or confident (17.6%) they would continue practice for the next five years in a rural setting. Participants who were somewhat confident made up 11.8% of poll respondents and not confident was another 11.8% of participants.

Figure 7

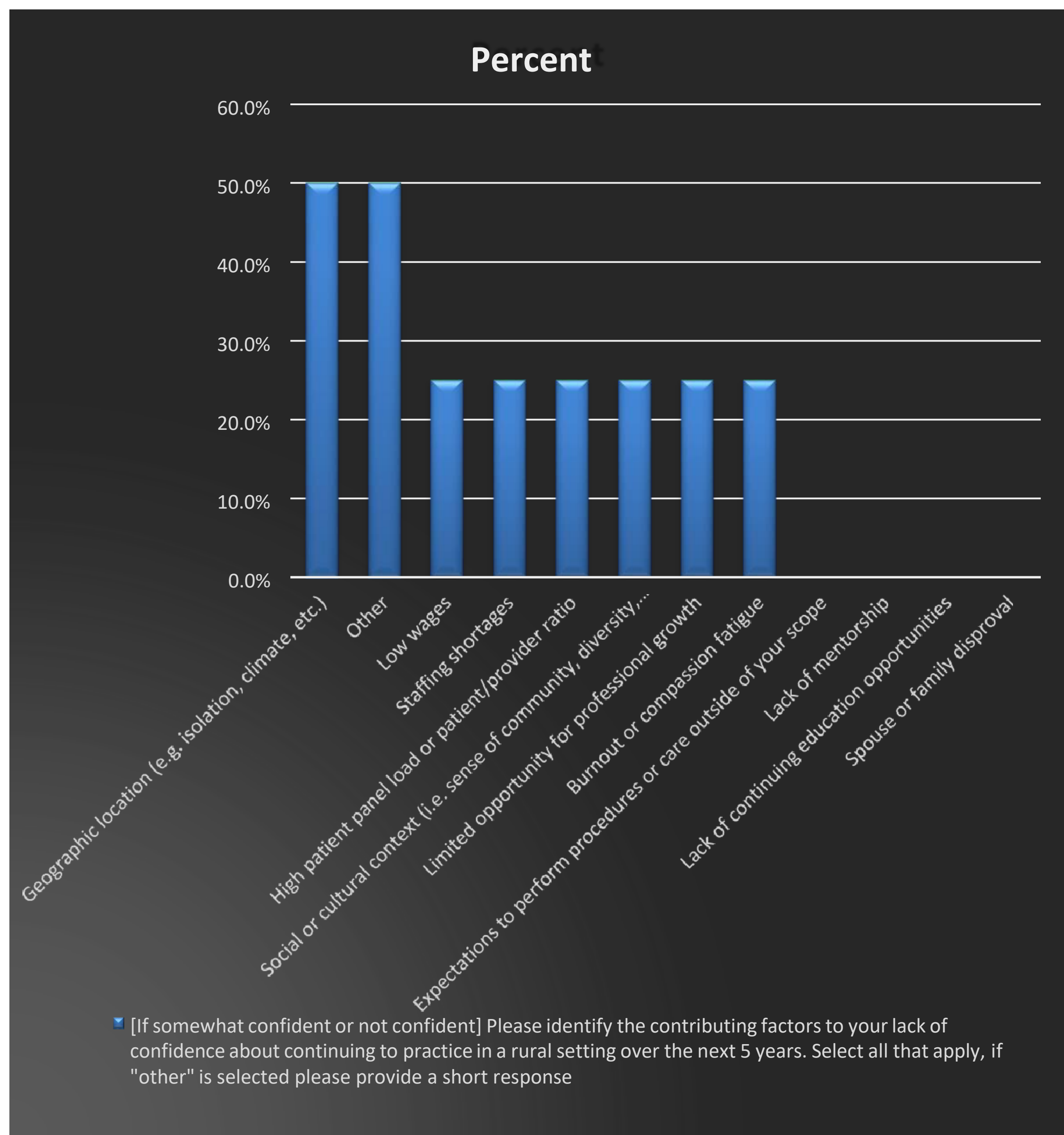
Confidence in Continued Practice in Rural Setting



Those participants who identified themselves as being somewhat confident or not confident ($n = 4$) that they would continue to practice in a rural community for the next five years were asked to identify the contributing factors (see Figure 8). The top two influences identified were geographical isolation (50%) and “other” (50%). Some reasons listed by participants in short text responses referred to forced retirement due to declining health and no longer living in the rural location. These were followed by equal responses (25%) for burnout or compassion fatigue, staffing shortages, high patient panel load/provider ratio, social or cultural context, low wages, and limited opportunity for professional growth. The intention to continue practicing in a rural area was not influenced by expectations to perform outside of scope, lack of mentorship, lack of continuing education opportunities, or spouse/family disapproval.

Figure 8

Factors Contributing to Lack of Confidence



Objective 2: Compare and Contrast the Poll Findings with Findings from a Comprehensive Literature Review

The following section compares and contrasts the poll findings with findings from the comprehensive literature review including existing policies that were focused on known strategies for recruiting and retaining primary care providers in rural areas.

Why Providers Chose Rural Communities for Practice

During the literature review, three articles were identified for providing evidence as to why providers chose rural communities for practice location. Central themes identified within these articles were rural exposure during training or school, a supportive work environment, and rural upbringing or having a rural hometown; all positively influenced providers' decisions to practice in rural areas. The strongest evidence supported rural upbringing as an indicator of future practice in a rural area.

Results from the poll indicated most advance practice providers experienced rural exposure through previous professional careers in a rural area. A significant number of participants selected rural upbringing/hometown as being a factor, which was also demonstrated in the literature (MacQueen et al., 2018).

The poll results also demonstrated that a significant number of participants completed an optional or required clinical rotation in a rural area during school/training. However, limited evidence supported this in the current published literature, which indicated only 30-65% of students who engaged in rural-focused training during school ended up in the rural healthcare setting with minimal improvement since 2006 (MacQueen et al., 2018). In the poll, only one participant did not have any exposure to a rural community before beginning their professional career. Although both the poll and literature suggested any type of rural exposure might be

beneficial to rural recruitment and retention efforts, the poll provided new information by also including previous professional careers in rural communities, which was not identified in the literature review.

Findings from the poll suggested a supportive work environment was a top motivating factor when advanced practice providers were choosing rural communities for practice. This was also supported by the literature review as an influential factor in selecting a rural community for practice and it might have helped limit burnout and turnover in staff (Asghari et al., 2017). Geographical location was also selected as a motivating factor for choosing a rural community, which was further supported by the literature. Asghari et al. (2017) supported this poll data, demonstrating that individuals with previous rural experiences who enjoyed nature or the outdoors found rural practice locations appealing. This was captured in a poll response from a participant who stated in a short textual response, “I recreate in the wilderness/remote areas often.”

Attractive community/quality of life and interest/passion for rural healthcare were also selected in the poll as reasons why providers chose rural communities for practice, although the former was investigated more often in the literature than the latter. Asghari et al. (2017) demonstrated that providers found communities that appreciated their services and were welcoming as attractive, which could be demonstrated through showing respect for providers. Hancock et al. (2009) cited an attractive community as a primary motivation for choosing a rural practice but described this attractiveness as desiring close-knit relationships between patients and staff. Interest/passion for rural health care was demonstrated by Daniels et al. (2007) and Hancock et al. (2009) through desire to work in a community of need or with an underserved population.

Provider Recruitment and Retention in Rural Communities

During the literature review, 13 articles were identified that focused on retention and recruitment techniques for rural primary care providers. Successful recruitment techniques identified included targeting those with rural training exposure, providing financial incentives/loan forgiveness, offering competitive salaries, displaying an attractive community, and providing opportunities for professional growth (Bourque et al., 2020; Daniels et al., 2007; Danish et al., 2020; Halaas et al., 2008; Hempel et al., 2015; Johnson, 2017; Jutzi et al., 2009; Lee & Nichols, 2014; MacQueen et al., 2018; Mbemba et al., 2013; Renner et al., 2010; Rohatinsky et al., 2020; Rourke, 2010).

The literature and poll shared coinciding evidence in relation to identifying those with rural training exposure and displaying an attractive community. As discussed above, strong literature and poll evidence suggested rural exposure was beneficial in the recruitment of providers to rural areas. In the poll, attractive community/quality of life was one of the top three recruitment tactics of value that was also supported in the literature by Jutzi et al. (2009) who found lifestyle incentives a community provided had become increasingly important for influencing a provider's practice choice of location.

Some additional literature supported 'perceived community need' as a recruitment technique and although this was not a commonly identified theme, this showed support in poll data: just over half of the participants selected this as a valuable recruitment tactic when choosing their current practice location. There was conflicting evidence in the literature as Daniels et al. (2007) stated provider recruitment was notably impacted by a desire to serve a community of need but Jutzi et al. (2009) found perceived community need was less important on overall career choice.

One area identified in the poll that was largely missing from the literature review was the ability to practice to full scope of practice. The top recruitment and retention tactic that was of value to the poll participants when choosing their current rural practice location was the ability to practice to their full scope within their credentials. MacQueen et al. (2018) found six studies that addressed scope of practice and while some of these studies identified a broad scope of practice as a contributing factor for choosing rural practice, others indicated it was only important for a small number of providers. The authors rated the evidence as very low for there being a connection between the ability to engage in a full scope of practice and rural practice.

The second most important retention tactic in the poll was having a supportive work environment, which was also consistent with the literature that showed support in the workplace such as personal leave options, work-life balance, and employment opportunities for providers' spouses played an important role in provider retention (Asghari et al., 2017). Additional literature suggested supportive supervision such as mentorship provided an environment that aided in rural retention efforts (Mbemba et al., 2013; Rohatinsky et al., 2020). However, this tactic was not supported by poll data as mentorship was not particularly valued as either a recruitment or retention tactic by the participants.

Most evidence gathered during the literature review on recruitment and retention focused on the benefits of financial incentives/loan forgiveness (Bourque et al., 2020; Daniels et al., 2007; Danish et al., 2020; Halaas et al., 2008; Hempel et al., 2015; Johnson, 2017; Jutzi et al., 2009; Lee & Nichols, 2014; MacQueen et al., 2018; Mbemba et al., 2013; Renner et al., 2010; Rohatinsky et al., 2020; Rourke, 2010). However, the poll completed for this project provided conflicting evidence. When participants were asked about what recruitment and retention tactics were of most importance to them, loan forgiveness/reimbursement were not selected as one of

the top four choices and bonuses/financial incentives were found to be the sixth or seventh option selected for two separate questions. This might imply less attention should be focused on loan reimbursement/forgiveness and financial incentives, although this tactic should not be completely disregarded as it did show some support in the literature in larger studies.

Satisfaction of Rural Healthcare Providers

During the literature review, two articles were identified that had conflicting evidence regarding satisfaction and burnout of rural healthcare providers. Germack et al. (2020) found rural NPs were more likely to experience burnout than urban NPs. Conversely, Hogue and Huntington (2019) found burnout was statistically more prevalent in metropolitan area providers.

The poll results found the overall level of job satisfaction to be exceptionally high among this small sample of rural primary care providers. This was similar to the study by Germack et al. (2020) who suggested 91% of rural NPs were satisfied with their current position. In the poll, the two top reasons participants reported they were dissatisfied with their current role were burnout/compassion fatigue and low wages. Germack et al. also found burnout was high in rural NPs, although low wages were not identified in any of the literature as a contributing factor. Another contributing factor selected by poll participants and supported by the literature was high patient panel load/patient-provider ratio. Germack et al. indicated a possible rationale for higher burnout levels attributed to rural NPs could be due to a larger, independently managed patient panel. Over three-quarters of participants in the project poll stated they were very confident or confident they would continue to practice for the next five years in a rural setting. This was reflected in the literature as well with roughly the same percentage of rural NPs being unlikely to leave their job in the coming year in the study by Germack et al.

Objective 3: Synthesize the Poll Findings with the Current Literature to Create a Provider-Informed and Evidence-Based Improved Policy

An evidence-based policy for improved recruitment and retention of advanced practice primary care providers in rural communities was developed utilizing results from the comprehensive literature review and a poll of primary care advanced practice rural health providers. Analyses of evidenced gathered from the literature review and poll and the development of the policy were conducted using the Bardach and Patashnik (2016) framework that consisted of the following steps:

- Defining the problem: This was addressed in Chapter I of this DNP project under the Statement of the Problem section.
- Assemble evidence: Evidence of the literature review was demonstrated in Chapter II and the table of evidence (see Appendix A). The poll data results were presented in the above sections of this chapter. Once synthesized, the evidence for each recommended solution for the policy was presented in table format.
- Construct alternatives: Evidence was gathered from the literature review and poll, and results were compared and contrasted. Policy options were then developed that would potentially be effective in the recruitment and retention of rural providers. All policy options were considered and a rationale for what should be done as opposed to what is currently being done to mitigate the problem were identified. An initial policy draft was completed by the primary investigator and submitted to the project Chair for review.
- Select the criteria: The major potential positive outcome of the policy, increased recruitment/retention of rural primary care providers, was evaluated by the primary

investigator and project Chair. Together, they engaged in a back-and-forth process to identify the most salient components of the policy until a final draft was completed. The DNP project was projected to have minimal risk involved with implementation, although it is important to consider trade-offs and limitations of the policy. Specific tactics included in the policy were prioritized depending on the evidentiary support and feasibility gathered throughout the project.

- Project outcomes: Evolving drafts of the policy provided an opportunity to reflect on scenarios in which the project could fail and potential undesirable effects. Attention was paid to remaining realistic about outcomes. When utilizing recruitment/retention tactics, there is always an opportunity for lack of success due to unforeseen circumstances so it was important for the primary investigator to envision multiple scenarios within the workplace and during the hiring/recruitment process in which undesirable effects could take hold and to subsequently propose solutions.
- Confront trade-offs: During this stage of the Bardach and Patashnik (2016) framework, the primary investigator analyzed results from the literature review and the poll results to determine which methods would have the most significant impact on primary care advance practice provider recruitment and retention in rural communities. Support from the literature review and poll were considered as well as any potential trade-offs associated with specific tactics. Some trade-offs were associated with financial burden while others involved stakeholder or ethical concerns. A brief overview of this process is demonstrated in Table 2 and trade-offs

associated with each recommended solution are discussed in detail further in the policy (see Appendix E).

- Decide: The primary investigatory determined the best options to solve the issues with healthcare workforce disparities in rural communities were through creations of an innovative recruitment and retention policy for primary care advanced practice providers in rural communities (see Appendix E). The primary investigator took into consideration what was most likely to be adopted/accepted by rural primary care facilities in the future and this was carried forward into the existing policy. Later, during dissemination and implementation of policy, it would be important to engage with not only human resources and recruiting but also clinic managers and leadership to help develop trust as many could be resistant to change and feel their pre-established policies or lack thereof were superior.
- Tell your story: The final policy was presented to the DNP project committee. Dissemination of the policy and evidence developed in the project was accomplished through publishing the project in the UNCO theses and doctoral dissertation repository and performing outreach to rural communities and their primary care practices after completion of the project.

Table 2

Policy Criteria Analysis

Criteria	Evidence Synthesis	Analysis
Prior Rural Exposure	Poll: • Strong support for current practice location Literature: • Strong evidence for rural residency/training programs and rural upbringing being a predictor for choosing a rural community for practice location	• Strong support from both literature and project poll; include in policy • High prioritization • Trade-offs: Opportunity for unethical behavior by recruiting providers away from other rural areas
Supportive Work Environment	Poll: • Strong support for current practice location choice and as a retention tactic • Lack of a supportive work environment contributed to dissatisfaction and intention to leave current position Literature: • Moderate support for personal leave, work-life balance, mentorship, and employment opportunities for providers spouses • Moderate support for insufficient financial compensation, higher workload, more on call duties, burn-out, larger patient panels, and lack of continuous development opportunities/continuous medical education contributing to dissatisfaction	• Strong support from both literature and project poll; include in policy • High prioritization • Trade-off: Higher pay and other supportive measures may result in a loss in revenue
Display an Attractive Community	Poll: • Moderate support for current practice location choice and as a retention tactic Literature: • Strong evidence but discrepancies as to what constitutes an attractive community	• Strong-moderate support from both literature and poll; include in policy • High prioritization • Trade-off: Community could be misrepresented during recruitment or not meet the standards of an individual (potentially subjective criteria)

Table 2 Continued

Criteria	Evidence Synthesis	Analysis
Scope of Practice	Poll: • Strong support as the top recruitment and retention tactic for participants Literature: • Limited or conflicting; may be more important to NPs than MDs; unknown for PAs	• Strong support in poll but limited/conflicting in literature; include in policy • Moderate prioritization • Trade-off: Potential backlash from medical community in states where NP/PAs do not have full practice authority; disruption of relationships between institutions and stakeholders who do not support AANP or AAPA
Financial Incentives/Loan Reimbursement	Poll: • Weak support as either a recruitment or retention tactic Literature: • Strong evidence as a recruitment tactic; weak evidence for retention	• Weak support in poll, strong for recruitment but weak for retention in literature; include in policy with caution • Lower prioritization • Trade-offs: May not be cost-effective if retention wanes; may be site/location specific

Answer to Project Question

This DNP project aimed to answer the following question:

Q1 How will identification of the motives among advanced practice primary care providers currently practicing in rural communities influence the development of an innovative recruitment and retention policy?

The question was answered using a thorough literature review and creation and analysis of a poll administered to currently practicing rural primary care providers. The poll and literature review data were synthesized and an evidence-based policy brief was developed to support team members involved in the hiring or recruiting of advance practice providers for rural primary care as well as managers/administrators who might be involved in retention efforts.

CHAPTER V

DISCUSSION

This chapter includes a summary of the scholarly project including conclusions, limitations, and recommendations for future practice. This project has met its predetermined purpose/objectives and adequately represented the American Association of Colleges of Nursing's (AACN, 2006) *The Essentials of Doctoral Education in Advanced Nursing Practice* through use of the *EC as PIE Framework: Five Criteria for Executing a Successful DNP Final Project* (Waldrop et al., 2014). A brief discussion is conducted regarding how each of the five criteria were met in relation to the project.

Project Summary

The purpose of this DNP scholarly project was to explore the reasons why advanced practice providers with a primary care specialty chose rural communities and identified what strategies were known to be effective in recruitment and retention of these providers. This information was then used in the development of an innovative recruitment and retention policy designed to be implemented in a rural healthcare system.

An extensive literature review was performed focusing on known recruitment and retention tactics used to obtain advanced practice providers such as nurse practitioners, medical doctors/doctors of osteopathy, and physician assistants specializing in primary care for rural healthcare settings. Additional search strategies focused on why providers chose rural locations for practice as well as rural provider burnout and turnover rates. Based on the literature, a brief poll was created by the primary investigator and participants were invited to participate via a

recruitment email. Recruitment of participants was achieved using the snowball method via professional networks of the primary investigator, committee members, and School of Nursing in which the project was supervised. A total of 19 polls were returned in the two-week data collection time frame; two of these polls were excluded from analysis due to incomplete responses. Thus, 17 polls were included in the final data analysis. An evidence-based policy for improved recruitment and retention of advanced practice primary care providers in rural communities was then developed utilizing results from both the comprehensive literature review and the poll of primary care rural health providers. Analyses of evidence gathered from both sources and the development of the policy were conducted using the Bardach and Patashnik (2016) policy analysis framework. Havelock's theory of planned change (White et al., 2019) further guided the planning and overall organization of the scholarly project.

Conclusions

It was concluded that exposure to rural communities prior to one's professional career continued to be a substantial influence on the choice to practice in a rural location. This was supported by a substantial amount of evidence in the literature as well as poll data analysis that demonstrated all but one participant had some type of exposure to a rural community prior to their professional career in a rural area. The poll data demonstrated most poll participants experienced exposure to a rural community through a previous professional career, which was not detected in the existing body of research and might demonstrate a potential avenue for future investigation. There was also support in both the literature and poll results to suggest displaying an attractive community played a substantial role in recruitment of providers to rural areas. Lifestyle incentives and close relationships within the community were found to be beneficial although further research into what constitutes an attractive community (which might be

somewhat subjective and provider-specific) would be crucial to implementing this tactic appropriately.

Creating a supportive work environment was also a significant area identified by the literature review and poll results in this scholarly project. Previously published literature demonstrated that appropriate work-life balance, mentorship, and providing personal leave options were all known to be effective recruitment and retention strategies. Results of the poll demonstrated this was of high importance when participants were choosing their practice location and when selecting the most important retention tactic they experienced. The poll data further identified potential areas of dissatisfaction for rural primary care providers such as burn out/compassion fatigue, low wages, and large patient panels. Identifying areas of dissatisfaction for rural care providers might be beneficial in designing retention efforts so leadership might prevent high rates of turn over, which in turn limits revenue loss.

Further research needs to be conducted regarding the benefits of financial incentives (such as sign-on bonuses) and loan reimbursements as relating to recruitment and retention. Numerous state and federal loan reimbursement and scholarship opportunities have been offered to applicants in exchange for a commitment to practice in a rural location for a predetermined period. For example, the State of Colorado offers the Colorado Health Service Corps (CHSC) Scholarship to a few selected applicants each year to work in rural areas in Colorado (Holloway & Marquez, 2011). Selected applicants are offered various monetary amounts depending upon credentialling (NP/PA versus MD/DO) in exchange for working full time for a minimum of three years in a rural practice. The CHSC proactively recruits providers while they are still in their training programs and conducts routine surveying to determine if participants are still practicing in rural areas after their scholarship obligation has been fulfilled (Holloway & Marquez, 2011). It

is still unclear if monetary incentives demonstrate long term retention as the CHSC states 77% of their alumni continued to practice at a CHSC eligible site but only 47% intended to work in an underserved area for more than seven years (Holloway & Marquez, 2011).

Finally, it was identified through poll data analysis that being able to practice to the full scope of each provider's credentialing was the number one recruitment and retention technique to participants. This was likely related to most of the poll respondents being NPs, a discipline that continues to face numerous legal and political barriers to achieving independent practice authority depending upon the state unlike MDs/DOs. Interestingly, this aspect was seldom addressed in the literature (especially for PAs) despite the increasing numbers of NPs who selected a primary care specialty and had the potential as a discipline to alleviate critical provider shortages in rural areas.

Limitations

This DNP project demonstrated several potential limitations. The sample size goal for participation in the poll was 20 participants from rural primary care practices; unfortunately, due to time constraints of the project and several incomplete poll responses, the total number of participants was 17. It should also be noted that this project was conducted during the ongoing COVID-19 pandemic and considering the intended participants were all practicing healthcare providers, it is unknown if or how any additional stresses and time constraints limited their participation in the poll. As a result, the sample size was small and statistically insignificant, although the overarching goal of the poll was to enhance the literature review findings. However, this should be taken into consideration as a limitation of the project.

Another limitation was related to poll participant demographics as the majority of the participants were located in Colorado while only a few respondents were located in other states

such as Wyoming, Arizona, or Nebraska. This limited our understanding of regional, geographic, and socioeconomical/cultural variations experienced by advanced practice providers in other regions, making the policy less applicable to areas such as the east coast, southern states, or west coast regions. Another limitation demonstrated by the demographic characteristics of participants was most poll participants were NPs. This project aimed to identify ways to attract *all* advanced practice providers to rural communities; thus, the poll findings lacked deeper insight into other professional groups such as PAs, DOs, or MDs.

Regarding the integrated review of the literature, a major limitation was the dearth of published recruitment/retention policies for rural primary care advanced practice providers. One policy from the World Health Organization (Rourke, 2010) related to healthcare workers in rural areas was located but it had a global focus, only addressed retention, and was not advanced practice provider specific. No other recruitment/retention policies were identified to help guide the development of the policy for this DNP project. This demonstrated a lack of publicly available recruitment/retention policies for rural healthcare providers in the United States. In some cases, the primary investigator found access to existing policies was restricted due to the competitive nature and unwillingness of institutions to share their tactics with others.

Further limitations demonstrated by this project were the potential for bias by the primary investigator, limitations related to COVID-19 restrictions, and a lack of opportunity to pilot test the policy. The primary investigator is a primary care NP in a rural community, which could have allowed some bias in the creation of the policy based on her own professional experiences. In addition, mandated COVID-19 restrictions limited in-person meetings between the primary researchers and the project Chair/committee or with potential stakeholders. Due to time constraints of this project and the general chaotic nature of health care due to the ongoing COVI-

19 pandemic, there was no application of the developed policy in practice, which limited the ability to fully evaluate the policy and gather longitudinal data.

Recommendations for Future Practice

The primary recommendation for future practice would be dissemination of the completed evidence-based policy for implementation in a rural healthcare system to aid in primary care provider recruitment and retention efforts. This reflected the fifth step of Havelock's theory of planned change—extend, which focused on gathering support from individuals and institutions through effective communication (White et al., 2019). The policy was presented to the DNP project committee during a final defense of the scholarly project and then findings from this project were disseminated through the University of Northern Colorado's theses and dissertation repository. The intention was this policy would then be implemented into a healthcare system in a rural setting such as the one where the primary investigator currently works. During this phase, it would be important to make sure the new change gains acceptance by staff members who might be resistant to change. This would then be followed by an evaluation of the implemented policy during Havelock's 'renew' action step to determine effectiveness or to identify areas for improvement (White et al., 2019). This would be an important process as the proposed policy is tentative and has not as yet been field tested.

The potential impacts of new recruitment and retention policies for rural communities are significant. Effective recruitment and retention programs could aid in decreasing healthcare workforce disparities, which in turn could lead to better health outcomes for patients and lower healthcare costs. When a rural community is adequately staffed with primary care providers, patients experience a reduced travel burden and are more likely to seek timely care. An increase in advanced practice providers might also reduce burn out, required overtime, on call hours per

provider, the need for outside referrals, and wait time for patients. With less stress and burden on existing staff, opportunities are created for professional development, mentorship, and improved job satisfaction, all of which aid in retention.

Cost effectiveness could also be considered as a potential positive impact of improved provider recruitment and retention. Avoiding vacancies in staff positions reduces fiscal expenses such as payment for overtime and training/onboarding new providers (Rural Health Information Hub, 2020). In a rural setting, a single advanced practice provider could create opportunity for 26 additional support staff members and close to $1.4 million in revenue for a primary care clinic (Colorado Rural Health Center, 2018).

Successful recruitment of a new provider creates a new patient panel and expands appointment availability to add new patients to the practice. A fully staffed practice would ideally have enough providers to accommodate the entire community and avoid issues related to a lack of primary care such as delayed diagnoses and treatment, poor adherence, lack of preventative screenings, and increased complications from comorbidities. The Centers for Disease Control and Prevention (Warshaw, 2017) reported that rural communities had higher rates for the five leading causes of death in the United States compared to more urban communities. Residents in rural communities were also more likely to have a lack of colorectal and cervical cancer screening that is typically managed by a patient's PCP (Warshaw, 2017). Adequate staffing of primary care advanced practice providers would allow for adequate screening practices, early detection and treatment of disease process, ensure proper adherence to plans of care, and provide continuity of care with one established provider ideally throughout the lifespan of the patient and their family members, which ultimately improves quality of life.

Reflections on Executing a Successful Doctor of Nursing Practice Project

The Essentials of Doctoral Education in Advanced Nursing Practice (AACN, 2006) describe the foundational competencies that must be present in Doctor of Nurse Practice degree programs. This DNP project especially demonstrated ties to DNP Essential V: Health Care Policy for Advocacy in Health: "The DNP graduate is able to design, implement and advocate for health care policy that addresses issues of social justice and equity in health care" (AACN, 2006, p. 14). The five criteria represented by the acronym EC as PIE (E = Enhances; C = Culmination; P =Partnerships; I = Implements; E = Evaluates) agreed upon by the AACN and National Organization of Nurse Practitioner Faculties came together to form one complete "pie," representing evidence-based practice that was robust and innovative (Waldrop et al., 2014). The following section describes how the five criteria of EC as PIE were met by this DNP scholarly project.

- Enhance: Enhance health outcomes, practice outcomes, or health care policy. This DNP project involved creating a policy to aid in advanced primacy care provider recruitment and retention in rural areas. A lack of available recruitment or retention policies to entice rural primary care providers was noted by the primary investigator. Information generated in this project was used in the development of an innovative recruitment and retention policy designed to be implemented in a rural healthcare system. Implementing evidence-based policies to aid in recruitment and retention of providers to rural areas has the potential to decrease workforce disparities and in turn improve rural population health outcomes.
- Culmination: Reflect a culmination of practice inquiry. As a DNP student and practicing NP, the primary investigator became an expert on the topic of

recruitment and retention of rural health primary care providers. This was achieved through an extensive literature analysis as well as development, implementation, and analysis of a poll designed for currently practicing providers in rural areas. The theoretical framework of Havelock's theory of planned change (White et al., 2019) informed the overall organization of the scholarly project and Bardach and Patashnik's (2016) policy analysis framework guided policy development.

- Partnerships: Engagement in partnerships. As a DNP student, the primary investigator was able to collaborate with professionals and form informal partnerships with individuals who were in leadership positions in rural areas during the initial planning and design of the project. During these conversations, an interest in and need for this project became apparent. The primary investigator, committee members, and School of Nursing were also able to recruit candidates for poll participation using their interprofessional networks.
- Implements: Implement/apply/translate evidence into practice. Evidence was gathered through the literature and poll analysis process and synthesized into an evidence-based recruitment and retention policy. The policy was then distributed to the DNP committee for feedback and approval during the project defense. The primary recommendation for future practice was testing of the completed evidence-based policy in a rural healthcare system to aid in primary care provider recruitment and retention efforts. A translation plan was developed.
- Evaluates: Require evaluation of policy outcomes. The DNP project projected possible outcomes of the policy once implemented into practice related to rural workforce disparities such as decreased costs and increased access to care. This was

demonstrated utilizing the Bardach and Patashnik (2016) policy analysis framework when considering trade-offs for each section of the policy.

In addition to the EC as PIE criteria, there was particular alignment with other DNP essentials such as Essential VII: Clinical Prevention and Population Health for Improving the Nation's Health, specifically with regard to analyzing scientific data related to population health. This project focused on the health of the rural population in the United States and looked to advance the healthcare of individuals residing in these communities by identifying ways to promote increased recruitment and retention of providers to these areas. This project also demonstrated alignment with DNP Essential III: Clinical Scholarship and Analytical Methods for Evidence-Based Practice through completion of an extensive literature review and critical appraisal of emerging evidence to determine the most salient recruitment and retention strategies used to entice providers to rural communities.

Final Summary

Disparities in the rural healthcare workforce continue to be a challenge faced by many American communities. This DNP project attempted to explore the reasons why advanced practice providers with a primary care specialty chose rural communities and identified known and potential strategies for the effective recruitment and retention of these providers in rural communities. Through an extensive review of the literature, collection of poll data from rural primary care providers, and synthesis of both sources of data, an innovative evidence-based recruitment and retention policy was developed. Recommendations for future practice included dissemination of the completed evidence-based policy to aid in rural primary care provider recruitment and retention efforts followed by an evaluation of effectiveness.

REFERENCES

All Answers Ltd. (2018). *Havelock's theory of change*. https://nursinganswers.net/essays/implementation-of-empowerment-with-havelocks-change-theory-nursing-essay.php?vref=1

American Association of Colleges of Nursing. (2006). *The essentials of doctoral education for advanced nursing practice*. https://www.aacnnursing.org/Portals/42/ Publications/DNPEssentials.pdf.

Asghari, S., Aubrey-Bassler, K., Godwin, M., Rourke, J., Mathews, M., Barnes, P., Smallwood, E., Lesperance, S., Porter, N., O'Reilly, S., Hurley, O., Pike, A., Hurd, J., Oandasan, I., Bosco, C., Nasmith, G., Garcha, I., & Walczak, A. (2017). Factors influencing choice to practice in rural and remote communities throughout a physician's career cycle. *Canadian Journal of Rural Medicine*, *22*(3), 92–99.

Bardach, E., & Patashnik, E. M. (2016). *A practical guide for policy analysis: The eightfold path to more effective problem solving*. CQ Press.

Bourque, H., Gunn, K., & MacLeod, M. (2020). A pathway for implementing the nurse practitioner workforce in a rural and remote health region. *Nursing Leadership*, *33*(2), 44–53. https://doi-org.unco.idm.oclc.org/10.12927/cjnl.2020.26238

City of Sterling. (2017). *Welcome to Sterling*. https://www.sterlingcolo.com/index.php

Colorado Rural Health Center. (2016). *The state of health in rural Colorado*. https://leg.colorado.gov/sites/default/files/images/committees/2016/11_-_colorado_rural_health_center_-_2016_snapshot.pdf

Colorado Rural Health Center. (2018). *Snapshot of rural health in Colorado 2018*. https://coruralhealth.org/wp-content/uploads/2013/10/2018-Snapshot-FINAL-VALIDATED.pdf

Cox, K. (2020). *Expanding healthcare access in struggling rural areas: How nurses can play a key role*. https://www.medpagetoday.com/nursing/nursing/85146

Daniels, Z. M., VanLeit, B. J., Skipper, B. J., Sanders, M. L., & Rhyne, R. L. (2007). Factors in recruiting and retaining health professionals for rural practice. *Journal of Rural Health*, *23*(1), 62–71. https://doi-org.unco.idm.oclc.org/10.1111/j.1748-0361.2006.00069.x

Danish, A., Champagne, F., & Blais, R. (2020). Theoretical analysis of policies to improve the recruitment and retention of rural physicians. *Australian Journal of Rural Health*, *28*(5), 427–433. https://doi-org.unco.idm.oclc.org/10.1111/ajr.12666

Germack, H. D., Harrison, J., Poghosyan, L., & Martsolf, G. R. (2020). Practice patterns, work environments, and job outcomes of rural and urban primary care nurse practitioners. *Medical Care Research and Review.* Advance online publication. https://doi.org/10.1177/1077558720974537

Halaas, G. W., Zink, T., Finstad, D., Bolin, K., & Center, B. (2008). Recruitment and retention of rural physicians: outcomes from the rural physician associate program of Minnesota. *Journal of Rural Health*, *24*(4), 345–352. https://doi-org.unco.idm.oclc.org/10.1111/j.1748-0361.2008.00180.x

Hancock, C., Steinbach, A., Nesbitt, T. S., Adler, S. R., & Auerswald, C. L. (2009). Why doctors choose small towns: A developmental model of rural physician recruitment and retention. *Social Science & Medicine*, *69*(9), 1368–1376. https://doi-org.unco.idm.oclc.org/10.1016/j.socscimed.2009.08.002

Heath, S. (2018). *NPs, PAs could reduce primary care physician shortage nearly 70%.* https://patientengagementhit.com/news/nps-pas-could-reduce-primary-care-physician-shortage-nearly-70

Hempel, S., Shekelle, P., Gibbons, M., Ulloa, J., & Macqueen, A. (2015). *Rural healthcare workforce: A systematic review*. Department of Veterans Affairs. https://www.ncbi.nlm.nih.gov/books/NBK409502/?report=classic

Hogue, A., & Huntington, M. K. (2019). Family physician burnout rates in rural versus metropolitan areas: A pilot study. *South Dakota Medicine : The Journal of the South Dakota State Medical Association*, *72*(7), 306–308.

Holloway, S., & Marquez, R. M. (2011). *Health service corps loan repayment program advisory council legislative report*. https://leg.colorado.gov/sites/default/files/images/lcs/cdphe_colorado_health_service_corps_legislative_report_0.pdf

Johnson, I. M. (2017). A rural "grow your own" strategy: Building providers from the local workforce. *Nursing Administration Quarterly*, *41*(4), 346–352. https://doi-org.unco.idm.oclc.org/10.1097/NAQ.0000000000000259

Jutzi, L., Vogt, K., Drever, E., & Nisker, J. (2009). Recruiting medical students to rural practice: Perspectives of medical students and rural recruiters. *Canadian Family Physician*, *55*(1), 72–73.

Lee, D. M., & Nichols, T. (2014). Physician recruitment and retention in rural and underserved areas. *International Journal of Health Care Quality Assurance, 27*(7), 642-652. doi:http://dx.doi.org.unco.idm.oclc.org/10.1108/IJHCQA-04-2014-0042

MacDowell, M., Glasser, M., Fitts, M., Nielsen, K., & Hunsaker, M. (2010). A national view of rural health workforce issues in the USA. *Rural & Remote Health*, *10*(3), 1–12.

MacQueen, I. T., Maggard-Gibbons, M., Capra, G., Raaen, L., Ulloa, J. G., Shekelle, P. G., Miake-Lye, I., Beroes, J. M., & Hempel, S. (2018). Recruiting rural healthcare providers today: A systematic review of training program success and determinants of geographic choices. *Journal of General Internal Medicine*, *33*(2), 191–199. https://doi.org/10.1007/s11606-017-4210-z

Mbemba, G., Gagnon, M.-P., Paré, G., & Côté, J. (2013). Interventions for supporting nurse retention in rural and remote areas: An umbrella review. *Human Resources for Health*, *11*(1), 44. https://doi-org.unco.idm.oclc.org/10.1186/1478-4491-11-44

McGrail, M. R., Wingrove, P. M., Petterson, S. M., Humphreys, J. S., Russell, D. J., & Bazemore, A. W. (2017). Measuring the attractiveness of rural communities in accounting for differences of rural primary care workforce supply. *Rural & Remote Health*, *17*(2), 1–12.

Moran, K., Burson, R., & Conrad, D. (2020). *The doctor of nursing practice scholarly project: A framework for success* (3rd ed.). Jones & Bartlett.

National Rural Health Association. (2019*). Preparing nurse practitioners for rural practice*. https://www.ruralhealthweb.org/blogs/ruralhealthvoices/september-2019/preparing-nurse-practitioners-for-rural-practice

Nielsen, M., D'Agostino, D., & Gregory, P. (2017). Addressing rural health challenges head on. *Missouri Medicine*, *114*(5), 363–366.

Ortiz, J., Hofler, R., Bushy, A., Lin, Y. L., Khanijahani, A., & Bitney, A. (2018). Impact of nurse practitioner practice regulations on rural population health outcomes. *Healthcare*, *6*(2), 65. https://doi.org/10.3390/healthcare6020065

Renner, D. M., Westfall, J. M., Wilroy, L. A., & Ginde, A. A. (2010). The influence of loan repayment on rural healthcare provider recruitment and retention in Colorado. *Rural & Remote Health*, *10*(4), 1–14.

Rohatinsky, N., Cave, J., & Krauter, C. (2020). Establishing a mentorship program in rural workpalces: Connection, communication, and support required. *Rural & Remote Health*, *20*(1), 107–115. https://doi-org.unco.idm.oclc.org/10.22605/RRH5640

Rourke, J. (2010). WHO recommendations to improve retention of rural and remote health workers -- Important for all countries. *Rural & Remote Health*, *10*(4), 1–4.

Rural Health Information Hub. (2020). *Rural healthcare workforce*. https://www.ruralhealthinfo.org/topics/health-care-workforce

Rutgers University. (2021). *Assessing poll validity.* https://bcsr.rutgers.edu/assessing-poll-validity/

Streeter, R. A., Zangaro, G. A., & Chattopadhyay, A. (2017). Perspectives: Using results from HRSA's health workforce simulation model to examine the geography of primary care. *Health Services Research*, *52*, 481–507. https://doi-org.unco.idm.oclc.org/10.1111/1475-6773.12663

U.S. Department of Agriculture. (2020). *2010 rural-urban commuting area (RUCA) codes.* https://www.ers.usda.gov/data-products/rural-urban-commuting-area-codes/documentation.aspx

Waldrop, J., Caruso, D., Fuchs, M. A., & Hypes, K. (2014). EC as PIE: Five criteria for executing a successful DNP final project. *Journal of Professional Nursing, 30*(4), 300-306. https://doi.org/10.1016/j.profnurs.2014.01.003

Warshaw, R. (2017). *Health disparities affect millions in rural U.S. communities*. Association of Medical Colleges. https://www.aamc.org/news-insights/health-disparities-affect-millions-rural-us-communities

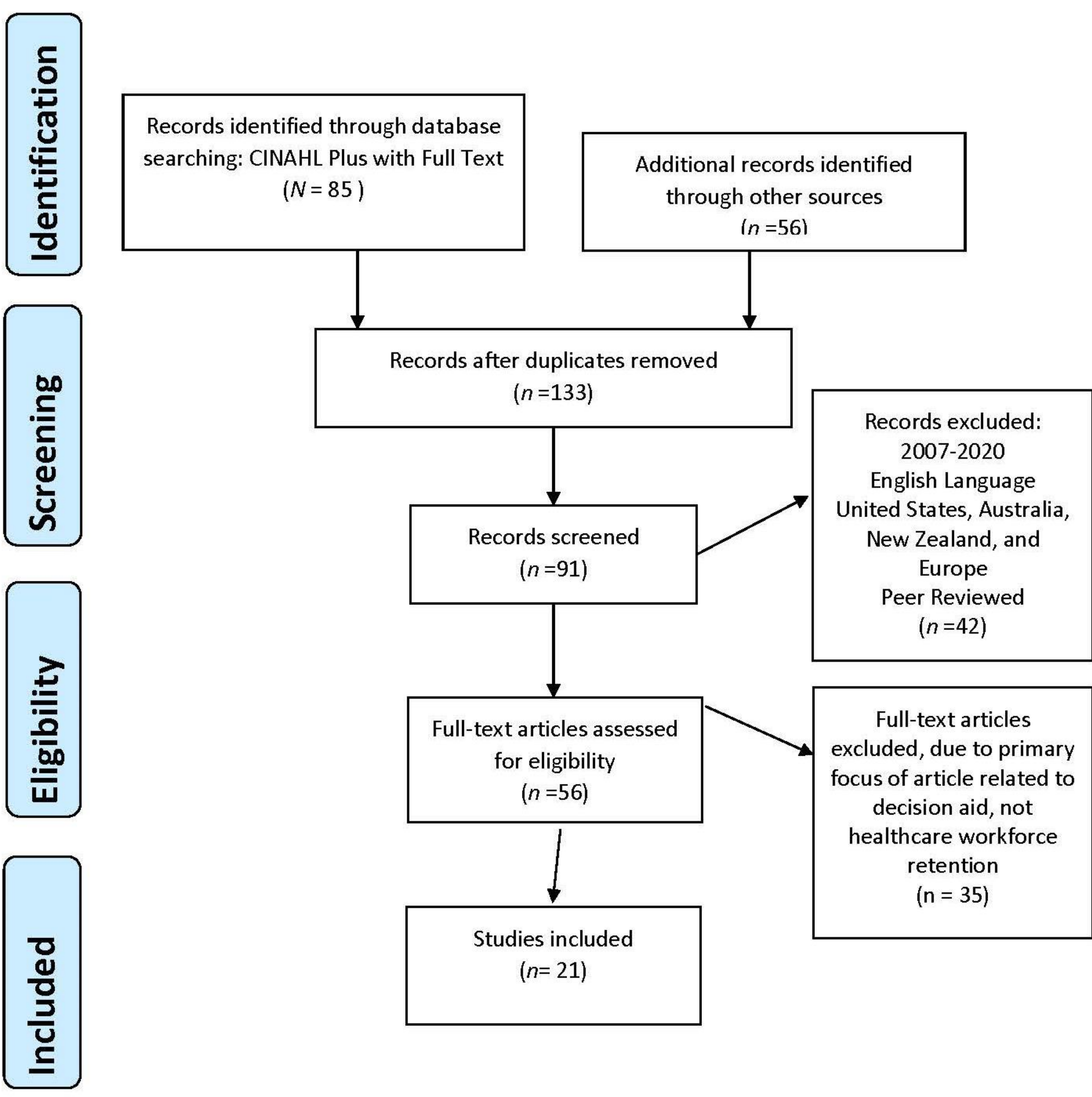
Weinhold, I., & Gurtner, S. (2014). Understanding shortages of sufficient health care in rural areas. *Health Policy*, *118*(2), 201–214. https://doi-org.unco.idm.oclc.org/10.1016/j.healthpol.2014.07.018

What is GRADE. (2021). BMJ Publishing Group Limited.

White, K. M., Dudley-Brown, S., & Terhaar, M. F. (2019). *Translation of evidence into nursing and health care* (3rd ed.). Springer.

APPENDIX A

PREFERRED REPORTING ITEMS FOR SYSTEMATIC REVIEWS AND META-ANALYSES DIAGRAM



Identification
Screening
Eligibility
Included
Records identified through database searching: CINAHL Plus with Full Text
(N = 85)
Additional records identified through other sources
(n =56)
Records after duplicates removed
(n =133)
Records screened
(n =91)
Records excluded:
2007-2020
English Language
United States, Australia, New Zealand, and Europe
Peer Reviewed
(n =42)
Full-text articles assessed for eligibility
(n =56)
Full-text articles excluded, due to primary focus of article related to decision aid, not healthcare workforce retention
(n = 35)
Studies included
(n= 21)

APPENDIX B

TABLE OF EVIDENCE

Table B1

Evidence Table

Author, Year	Purpose	Theory or Framework	Design	Setting/Sample	Survey/Instruments	Findings	Implications for Practice or Limitations	GRADE Level of Evidence
Asghari et al., 2017	Explore factors that influence Canadian family physicians' decisions to work in rural and remote communities through qualitative analysis.	None	Qualitative	Family physician practicing in a rural area. Rural defined as population less than 10 000 or an area where there is no road access or where road access to a hospital is more than 6 hours by road.	Telephone interviews with open ended questions about factors that influence providers to leave rural practices, what influences providers to practice rurally, and strategies for improving recruitment and retention programs.	Factors that influence recruitment and retention: Exposure to training in a rural setting Family and spousal support Enjoyment of a rural lifestyle Supportive working environment Frequent continuing education opportunities	More research needs to be conducted to evaluate if these are effective strategies for recruitment and retention. Limitations: Very small sample size (17 interviews) from Canada. Cannot generalize from this small amount	Low
Bourque et al., 2020	Description of pathways through which nurse practitioners have been recruited, supported and retained in their practice.	None	Article	Nurse Practitioners in rural Canada (northern health)	N/A	By developing a lead NP role, the Norther Health alliance was able to integrate NPs into the primary healthcare provider leadership opportunities. This gave NP's a chance to strengthen their identities, make their presence known, and improve recruitment and retention.	This article showed that by giving NP's a lead role and a voice in the provider community it can improve professional development, support, management, and retention/recruitment in rural /remote settings.	Low

Table B1 Continued

Author, Year	Purpose	Theory or Framework	Design	Setting/Sample	Survey/Instruments	Findings	Implications for Practice or Limitations	GRADE Level of Evidence
Daniels et al., 2007	To identify factors associated with rural recruitment and retention of graduates from a variety of health professional programs in the southwestern United States.	none	Longitudinal survey study	Graduates from 12 health professional programs in New Mexico Graduated from 1991 and 2002. All graduates of RHIP (n = 475) Comparison group non-RHIP students (n = 1,135). Rural defined as "outside an urbanized area with less than 50,000 inhabitants	7-page survey gender, marital status, date of birth, and ethnicity. Asked the city and state in which they lived longest from age 5 to 18 and the estimated population = greater than 50,000 or less than 50,000 Employment sites: city, state, rural/urban Two survey items asked respondents to rate on a 5-point scale the importance of each of 17 factors in their decision to practice dichotomous variable: extremely or somewhat important versus neutral, somewhat or extremely unimportant. Last item asked if they had participated in a rural practicum during their health professional education.	1,396 surveys response rate=59% Size of childhood town, rural practicum completion, discipline, and age at graduation were associated with rural practice choice ($p < .05$). view the following factors as important to their practice decision: community need, financial aid, community size, return to hometown, and rural training program participation ($p < .05$).	Rural background identified as important Loan forgiveness and rural training support recruitment Financial incentives, professional opportunity, and desirability of rural locations support retention. Limitations: Most of the survey participants had received rural health training during their education, which may have created bias. Did not represent APP's and RNs well, and there was a small sample size.	Moderate

Table B1 Continued

Author, Year	Purpose	Theory or Framework	Design	Setting/Sample	Survey/Instruments	Findings	Implications for Practice or Limitations	GRADE Level of Evidence
Danish et al., 2020	This research examines the theoretical plausibility of policies to improve the recruitment and retention of rural physicians, first, by modelling the policies; and then, by describing how they might achieve their intended outcome based on a theoretical analysis.	Herzberg's two-factor theory	Theoretical Analysis	Policies to improve the recruitment and retention of rural physicians in OECD countries	Literature search= 1075 968 excluded 107 publications were read in their entirety 48 were excluded because they did not contain information on specific policies or intervention theories. Total 60 publications were included in the review 10 strategies implemented improve the recruitment and retention The strategies= four categories: regulatory, financial, educational, and 'tailored' personal or professional support policies.	Financial motivators were not depicted as a resourceful recruitment tactic. Support systems and familiarity with rural lifestyle proved important with retention.	Implementation of support systems, telehealth, and providing opportunities to learn about rural care in school can help aid in retention. Limitations: Herzberg's two-factor theory can oversimplify motivation/dissatisfaction. Could have benefited from alternative theory. Reasoning for choice of rural community was not addressed	Moderate

Table B1 Continued

Author, Year	Purpose	Theory or Framework	Design	Setting/Sample	Survey/Instruments	Findings	Implications for Practice or Limitations	GRADE Level of Evidence
Germack et al., 2020	Compare urban and rural NPs in terms of demographics, practice patterns, level of job satisfaction, turn over, work environments, structural capabilities and levels of burnout.	None	Survey Study	Primary care nurse practitioners in Arizona, California, New Jersey, Pennsylvania, Texas, and Washington	Survey research institute of Cornell University between Nov 2018-2019 Sent to 4831 eligible participants. Surveys provided on paper or online. Online link was provided NP were given identifier number 3 surveys in total Surveys collected information on demographics, education, licensure, certification, practice setting, size of practice, satisfaction with job, and practice patterns. Survey contained Nurse Practitioner- Primary Care Organizational Climate Questionnaire (NP-PCOCQ) 29 item validated measure 1,244 NP completed survey (21.9% response rate)	15%(n=185) practiced in rural communities Similar educational backgrounds, age, and gender in urban versus rural Rural NP less racially diverse p<.001, rural worked more hours per week 40.1 hrs verses 38.2; p<.001. Rural NP's more likely to have family certifications 88.1% vs. 70.8% p <.001 Rural NP's main provider for panel of patients 56% vs. 43% p <.001 Slightly higher percentage of burn out with rural NP's 32% versus 27%, p =.079	This is a strong recent study with valid results. It shows differences between practice environments in rural and urban locations and identifies that burnout is higher in rural setting, and that independent panel of patients is seen in a rural setting as well. Rural health is also identified as having smaller practice size, more hours worked, less performance feedback, and limited use of care managers. Limitations: Low response rate (21.9%) for surveys Nonresponse bias Only six states included in study- all with differing scopes of practice	Moderate

Table B1 Continued

Author, Year	Purpose	Theory or Framework	Design	Setting/Sample	Survey/Instruments	Findings	Implications for Practice or Limitations	GRADE Level of Evidence
Halaas et al., 2008	To examine Rural Physicians Associate Program outcomes in recruiting and retaining rural primary care physicians.	none	Evaluation Study/Longitudinal study Of RPAP graduates: Demographics Community of origin Community where raised Specialty choice Practice sites	Primary care physicians in rural Minnesota Rural Physician Associate Program (RPAP) 1,175 medical students 901=physicians currently in practice. 274=graduates are in medical school (77) or in residency or fellowship (153) Administrative, public health, international health, or academic roles (29) Career other than medicine (3) Deceased (12)	RPAP database: demographics community where the individual was born Community where the individual was raised Training Specialty Current practice locations Post graduate surveys	82% of RPAP graduates= primary care 68%=family medicine. Currently in practice 44% =practiced in a rural setting all of the time 42% in a metropolitan setting 14% have chosen both RPAP graduates (n = 707) practice in a rural community (56.0% rural vs 44.0% metro, p= .000). Primary care graduates practicing rurally versus urban (61.0% vs 26.5%, respectively, $p < .001$). RPAP graduates in specialties in metro communities (73.1%) Rural origin= small association with choosing rural practice.	Implications: Previous study in rural area is associated with practicing in a rural community. Limitations: Very limited sample (only graduates from one program). This program focuses on rural practice so there may be bias. Also some surveys were not resulted.	Moderate

Table B1 Continued

Author, Year	Purpose	Theory or Framework	Design	Setting/Sample	Survey/Instruments	Findings	Implications for Practice or Limitations	GRADE Level of Evidence
Hancock et al., 2009	Investigates practice location choice over the life course, describing a progression of events and experiences important to rural practice choice and retention in both groups.	none	Qualitative Study- descriptive, exploratory	Primary care physicians (n=22) 22% response rate. Rural northeastern California Rural northwestern Nevada Low population Density areas	A semi-structured interview guide and demographic questionnaire interviews were digitally recorded and transcribed. demographic questionnaires Interview length averaged=50 minutes Initial interview domains: place and upbringing place and training recruitment Community integration current community and patient profile activities/retention/ satisfaction self-image and community role Future plans and projections.	Rural upbringing/exposure is important motivating factor. Rural community exposure is not limited to rural upbringing. Can be related to other exposures and experiences. Motivation for community involvement also found to be important factor.	Implications: Exposure to rural communities and healthcare systems can help motivate providers to desire to work in rural communities. Limitations: Small sample size, relies on reports through surveys which can be very subjective	Moderate

Table B1 Continued

Author, Year	Purpose	Theory or Framework	Design	Setting/Sample	Survey/Instruments	Findings	Implications for Practice or Limitations	GRADE Level of Evidence
Hempel et al., 2015	Examine literature about current and projected rural healthcare workforce needs use evidence of successful interventions for recruitment/retention	none	Systematic Review Data bases searched: PubMed, CIN/AHL, Web of Science, SCOPUS, PsycINFO, ERIC, WorldCat, and Grey Literature English-language Published in the last 10 years (2005-February 2015).	US rural (not urban) healthcare practice, and training sites	Two reviewers screened abstracts against eligibility criteria established for questions K1-K5. If abstract was relevant a full text copy was obtained. Any disagreements of the two reviews on articles were reviewed by the entire investigative team. Identified 5,756 citations. 446 full text. 59 publications met inclusion criteria. Looking to answer PICOT Q's (K1-K5).	Rural Healthcare shortages. Shortages in following specialties: Primary/family care, mental health, and general surgery. Motivating factor for providers to work in rural area- growing up in a small town/ community/ rural resident track. Placed providers for loan forgiveness that remain= 80% Rural med/resident program success rate= 53%	Limitations: Left out studies assessing supply Left out studies assessing provider satisfaction Definition of "rural" was different across included studies. Did not include newer studies which addressed ACO. Very vast set of PICOT questions included large amount of studies. Will be helpful for thorough background on my topic.	High

Table B1 Continued

Author, Year	Purpose	Theory or Framework	Design	Setting/Sample	Survey/Instruments	Findings	Implications for Practice or Limitations	GRADE Level of Evidence
Hogue & Huntington, 2019	To evaluate burnout rates for family physicians in rural versus metropolitan areas.	none	Pilot Study	Sioux Falls family medicine residency program graduates Practices settings of Rural defined as- Less than 10,000 Medium sized town- 10,000-50,000 Metropolitan defined as- 50,000 and greater	Survey sent between Nov-Dec 2017 302 surveys sent by email 54 email addressed invalid 104 started survey 99 completed survey Response rate of 39.9% Chi Square test used to assess statistical significance	Burn out was found to be statistically more significant in metropolitan communities P=.0183.	This study showed another side to an evaluation of burnout of physicians. This study is relevant in that it is current data, although little detail is spent on explaining the survey and the sample is very limiting. Limitations: Sample is small and only graduates from one residency program, geographical location is not addressed, and survey is not discussed in detail.	Low/ moderate

Table B1 Continued

Author, Year	Purpose	Theory or Framework	Design	Setting/Sample	Survey/Instruments	Findings	Implications for Practice or Limitations	GRADE Level of Evidence
Johnson, 2017	To test a rural focused "grow your own" advanced practice nurse (APRN) model.	None	Demonstration and study project 3 phases: (this article addresses phase 1) Phase 1: measure recruitment of RN's inside rural communities to return to school to become APP in primary care and return to practice in these communities.	N= 34 Registered Nurses Living or working in rural or underserved community in Colorado Average age- 25-53 Years of practice- 11	Survey- identify motivating factors for nurses to return to school to become APP to return to rural communities 34 surveys administered 20 were completed with incomplete data Final number of fully submitted surveys =14 Response rate = 39% SPSS24 was used for data analysis One sample Kolmogorov-Smirnov (K-S) test used to analyze sample distribution	Economic issues were a strong challenge of returning to school P=.06 Advantages of going back to school were identified as patient safety/quality of care, family friendly environment, and autonomy and respect.	This evidence resulted was supported by the initial literature search in the article. Demonstrated that nurses will return to school to become APP to return to rural communities if they are supported (possibly financial) and are in a positive working environment. Limitations: survey was conducted online, which gave respondents and opportunity to bypass the open-ended questions. Respondents were all accepted into the Rural and Underserved APRN project so there may be bias present, or a desire already present to obtain a APP degree.	Moderate

Table B1 Continued

Author, Year	Purpose	Theory or Framework	Design	Setting/Sample	Survey/Instruments	Findings	Implications for Practice or Limitations	GRADE Level of Evidence
Jutzi et al., 2009	To Explore Strategies used by rural recruitment programs and their perceived influence on medical students	None	Questionnaire/ survey study	Ontario, Canada 525 Medical Students at University of Western Ontario and 71 physician recruiters in rural communities	Medical student questionnaires sent to 525 students 221 completed, response rate of 42.1%. Invite sent by email with link. Likert scale and open-ended questions Recruiter questionnaires send by email to 71 recruiters' rural communities of 100,000 or less people. 33 completed 42.9% response rate. Likert scale and open-ended questions. Survey monkey utilized for autonomy SAS version 9.1- Likert NUD*IST N6- qualitative	Med Students: Importance influences on overall career choice: More males rated long term earning potential as important 46.1% vs 23 % in females (p<.005) More females rated perceived community need (25.8% vs 12.8% p <.02) and shortage of physician (12.5% vs. 3.4%, p <.02) Themes: "money motivates people" "financial incentives" "may the best deal win" "because there are disadvantages in rural practices…we should be compensated with incentives"	This is great point of view from past medical students and recruiters who use certain tactics and identify certain things as advantageous to recruiting these providers. Identifies financial benefits as an effective recruitment tool, but there needs to be more expansion into what happens when there is no longer and financial obligation to stay (retention). Limitations: This study is of study, they may not actually decide to practice in rural care.	Moderate

Table B1 Continued

Author, Year	Purpose	Theory or Framework	Design	Setting/Sample	Survey/Instruments	Findings	Implications for Practice or Limitations	GRADE Level of Evidence
Lee & Nichols, 2014	Identify the challenges when recruiting and retaining rural physicians and to ascertain methods to make rural physician recruitment and retention successful		Literature Review Databases: Academic Search Complete, PubMed, and Cochrane Collaboration. English Language published from 1997 USA and Canada Full text	Primary Care Physicians Rural Care Hospital/Healthcare	NA	Physician recruitment and retention in rural areas of the US needs further investigatory efforts. Some areas have been identified as important such as exposure to rural practice environments repeatedly in training, rural upbringing, spousal opinion, financial incentives and child friendly communities. There still needs to be further effect to identify retention techniques	This is a good overview of the evidence in place, brings light to the fact that there are little well-designed studies that demonstrate any effective recruiting technique. This may be outdated information now.	Moderate

Table B1 Continued

Author, Year	Purpose	Theory or Framework	Design	Setting/Sample	Survey/Instruments	Findings	Implications for Practice or Limitations	GRADE Level of Evidence
MacDowell et al., 2010	Whether and to what extent US rural hospital chief executive officers (CEOs) experience similar regional health professions shortages identify if they report similar or different regional issues in the recruitment and retention processes for rural communities.	none	Nationwide US survey	Rural Health care settings 2003 Rural Urban Commuting Area (RUCA) codes Must have RUCA code of 4 or higher. Sample size: 1031 rural hospitals 335 respondents (34.4%) of rural hospital CEOs in US.	Three-page survey for CEO's Questions on physician shortages in the CEO's community. Likert-scaled questions: recruitment and retention of rural health providers Open-ended questions: community needs, and training programs at hospitals. CEOs asked to assess needs of health professionals in their town or within a 30-mile radius.	Physician shortages= 75% of CEO's reported No difference between shortages in family med and pediatrics 53.1% reported shortage of IM physicians. 70.3% had shortage of two or more specialties. specially care shortages: psychiatry (46.6%) general surgery (39.9%) neurology (36.4%), cardiology (35.0%) obstetrics-gynecology (34.4%). need for RNs 74% nationally 35% need for nurse practitioners Friendly community= decreased amount of provider shortages (r =−.118). Higher overall health of community= lower physician needs (r = −.187).	This looks at shortage numbers in multiple locations, as well as, recruitment/retention opportunities from CEO's. Limited by which CEO's responded. Did not address turnover rates. Healthcare workforce shortage was defined by each CEO independently, so there was no "standard" definition. This article is helpful in understanding what needs are apparent in 2010 in rural US. Helpful that definition of what depicts rural is specific and measurable.	Moderate

Table B1 Continued

Author, Year	Purpose	Theory or Framework	Design	Setting/Sample	Survey/Instruments	Findings	Implications for Practice or Limitations	GRADE Level of Evidence
MacQueen et al., 2018	"Assess reasons for current providers' geographic choices and the success of training programs aimed at increasing rural provider recruitment" (MacQueen et al., 2018).	none	Systematic review: 7 databases searched for literature published articles from 2005 to March 2017 Two reviewers independently screened citations for inclusion one reviewer assessed risk of bias senior systematic reviewer checking the data quality of evidence was assessed using the GRADE	Rural healthcare settings in the United States. Study samples= 8-322 healthcare providers. Rurality was determined by based on Rural–Urban Continuum Codes (RUCC).	GRADE scale of evidence: Used to appraise evidence subjectively. Can be determined as very low, low, medium, and high. The higher the grade= higher level of evidence. Lower score if: risk of bias, imprecision, inconsistency, indirectness, and publication bias. Higher score if: Large magnitude of success, dose-response gradient.	31 studies exploring reasons for geographic choices 24 studies documenting included. Placing providers-in-training in rural practice= success rate of 44% (range 20-84%; $N = 31$ programs). High (GRADE): Rural hometown predictor in the following graduate students: West Virginia medical ($N = 1517$; OR 4.02; CI 2.17–7.74) Oklahoma State University ($N = 190$, $p < 0.05$) University of Minnesota ($N = 3365$; OR 2.82; CI 2.1–3.79) Michigan State University College of Human Medicine ($N = 2382$; OR 2.80; CI 2.09–3.74) Association rural high school with West Virginia physician assistants ($N = 168$; $p < 0.01$)	Will be a good article for topic because it looks what motivational factors are most likely to increase retention with rural providers. Helps to identify needs and wants of providers. This will help in recruitment and retention efforts. Limits: Did not address provider satisfaction with rural training programs. Did not address possible bias in interviews (universities, or institutions wanting to make their programs look successful or superior). definition of rural is different among each of the studies Does not take into account motivating factors for nurses or ancillary staff for their geographic choices.	High

Being raised in a rural area= physicians practicing in rural area. associated with ($N = 683$; $p < 0.05$)

Graduated rural high school= more likely to practice rurally.

Population of hometown= similar to practice population.

70% of rural providers had a rural background

60% of rural providers had lived in a rural community

Birthplace in rural county increased odds

Rural upbringing in combination with plans to practice family med= higher likelihood of practicing rurally.

Table B1 Continued

Author, Year	Purpose	Theory or Framework	Design	Setting/Sample	Survey/Instruments	Findings	Implications for Practice or Limitations	GRADE Level of Evidence
Mbemba et al., 2013	Synthesize the current evidence on the effectiveness of interventions to promote nurse retention in rural or remote areas, and to promote taxonomy of potential strategies to improve nurse retention in those regions.		Systematic review Databases: Medline, CINAHL, EMBASE, and Google Scholar. 22-year period 1990-2012 English Spanish or French text PRISMA criteria 517 screened publications 5 reviews Two- financial review programs	Nurse Rural/remote area Retention	NA	Systematic review found that financial incentives, supportive relationships (mentors, supervisors, preceptors), ICT support and career pathways to be of the best potential strategies with sufficient evidence for nurse retention.	Implications for nurses, which is nice to see most literature focuses on physicians. There are limitations with research on effects of supportive relationships In regard to retention efforts	High
McGrail et al., 2017	To investigate to what extent variations in community amenity indicators are associated with spatial variations in the supply of rural primary care doctors.	None	Correlation study	Rural communities in the US and Australia	Community amenity dimensions: Isolation/Proximity Economic/sociodemographic Environment	Increased population size, hospital, higher house prices, affluence area, higher education and older population = increased workforce supply in US and Australia.		

Table B1 Continued

Author, Year	Purpose	Theory or Framework	Design	Setting/Sample	Survey/Instruments	Findings	Implications for Practice or Limitations	GRADE Level of Evidence
Renner et al., 2010	Investigate the effects of loan repayment on recruitment and retention of healthcare providers in rural versus urban communities in Colorado.	None	Retrospective Cohort Study	Healthcare providers in any of the three Colorado Loan Repayment Programs: 1. CHPLRP 2. CROP 3. DLRP	Survey administered from July-October 2007 Mailed Returned via mail or fax 5-point likert scales (1 not important-5 very important) Surveys with 50% of question left blank were excluded Survey Participants: 46 CROP 42 CHPLRP 52 DLRP Of the 122 surveys sent 97 were returned 80% After exclusion remaining were 93 (57 rural, 36 urban)	74% of the rural participants were already working rurally when they heard about the opportunity for the loan repayment program. 42% reported loan repayments was an important influence on their decision to practice rurally. Most important for recruitment Rural: 38% loan repayment. Location of community, scope of practice, family fit with community. Urban: Location of community, salary, and scope of practice. 37% of rural providers attended rural high school Rural providers left their communities due to desire for higher income 22%	Most people who were influenced by recruitment technique of loan repayment. Although it is not the only factor in establishing a workforce in the rural area it can increase numbers. LRP is also showing a boost in retention not just recruitment. Limitation: This study is limited by its geographical location of only Colorado, and that it only included participants of the LRP programs.	Moderate

Table B1 Continued

Author, Year	Purpose	Theory or Framework	Design	Setting/Sample	Survey/Instruments	Findings	Implications for Practice or Limitations	GRADE Level of Evidence
Rohatinsky et al., 2019	Evaluate rural mentorship program to assess programs influence on recruitment and retention.		Pilot Study	Western Canada Providence Total population of 1 million RN NP and physicians that worked with a population of 10,000 or less invited to participate. Mentees: less than 18 months employed Mentors: 18 months or month employed 15 mentees 43 mentors	Following a 4-month mentorship program f/u telephone interview conducted. Five Mentor and 3 mentees completed the survey.	Healthcare professional can benefit from mentorship programs which improve communication and support.	Mentorship is important for rural practice due to the lack of resources in these communities. The additional support is important for novice providers. Limits: This sample size is small and further research should be conducted.	Low/ moderate
Rourke, 2010	To recommend ways to improve retention of rural and remote health workers.	None	Editorial-recommendation from World Health Organization	Rural Areas Health Care Workers	NA	NA	Follow specific educational, regulatory, financial, and personal/professional/support recommendations set forth by the WHO to improve attraction, recruitment, and retention of health workers in remote and rural areas.	Low

Table B1 Continued

Author, Year	Purpose	Theory or Framework	Design	Setting/Sample	Survey/Instruments	Findings	Implications for Practice or Limitations	GRADE Level of Evidence
Streeter et al., 2017	Inform health planning and policy discussions by describing Health Resources and Services Administration's (HRSA's) Health Workforce Simulation Model (HWSM) and examining the HWSM's 2025 supply and demand projections for primary care physicians, nurse practitioners (NPs), and physician assistants (Pas).	none	Projections for primary care providers needs in the future in 2025. Projections resulting from a microsimulation model used to determine what the supply and demand for rural healthcare workers is in the United States.	Primary care in the United States Physicians Nurse Practitioner Physician Assistant	The HSRA's HWSM uses microsimulation to estimate provider supply and demand. Demographic and socioeconomic characteristic taken from ACS, and US Census Bureau. This information is linked to health status and risk factor data from the Behavioral Risk Factors Surveillance System from the CDC. As well as to the health care utilization and insurance information. Estimations are then calculated for healthcare utilization, as well as demographic and socioeconomic characteristics, health and insurance status, and health risk factors. Estimates depict delivery setting and provider type/specialty. Staffing ratios specific to each delivery setting, provider type, and utilization measure are calculated. This is	29 states= shortages of primary care physicians, 18 of those states= shortages of 10 percent or more. Shortages higher in the South, Maryland and the District of Columbia have physician surpluses. South Region shortages range from 1% (Delaware) to 27 (Mississippi) Mountain Division of the West Region shortages in five of eight states. Shortages range from 10% to 23% Demand for primary care services is expected to increase. Demand growth due to: increased aging, and patients with multiple chronic condition passing of the ACA. scope of practice restrictions is removed	Identifies area of need for primary care physicians. No needs identified in Colorado (which would be the location I am doing research in. This article does not discuss factors associated with retention, or reasons there are shortages. Does discuss NP care, many other articles do not do this. Beneficial to have study that shows NP care that is equal or superior to other providers.	Moderate

calculated with the assumption that supply meets demand.	for NPs= increase access to primary care and increased quality outcomes. NPs can manage chronic conditions with good outcomes NPs= higher patient satisfaction scores, compared to other providers. NP's= Higher rates of patient compliance with health care recommendations.

Table B1 Continued

Author, Year	Purpose	Theory or Framework	Design	Setting/Sample	Survey/Instruments	Findings	Implications for Practice or Limitations	GRADE Level of Evidence
Weinhold e& Gurtner, 2014	Characterize healthcare shortages in the rural areas of developed countries and to comprehensively explore the underlying reasons for these shortages.	None	Systematic review Database: PubMed, Medline, ScienceDirect, EBSCO Academic Search Complete, EBSCO Business Source Complete and CINAHL 1998-2012 4679 results English, German Languages UN nations 176 studies included in analysis Quantitative-100 Qualitative-29 Mixed method- 15 Conceptual approaches-39	Rural health care	NA	6 main categories for shortages: Physical/infrastructure Professional Educational Sociocultural Economical Political	Rural healthcare shortages is a multifactorial problem. There are many factors that are identified as issues that one single change cannot fix; policy makers must take this into consideration. Limitations: Broad research topic, specific specialties are not discussed.	High

APPENDIX C

POLL

Title of Research Study: RECRUITMENT AND RETENTION OF ADVANCED PRACTICE PRIMARY CARE PROVIDERS IN RURAL COMMUNITIES

Researcher: Nicole Suppes, FNP-C, Doctor of Nursing Practice Student, University of Northern Colorado (UNC) School of Nursing
Email: supp4803@bears.unco.edu
Research Advisor: Dr. Natalie Pool, PhD, RN, Assistant Professor, School of Nursing
Phone Number: 480-370-4477 Email: natalie.pool@unco.edu

Procedures: You are being invited to complete a brief poll as part of a research study about the reasons advanced practice family care providers choose to work in rural areas. The poll will take approximately 5 minutes to complete. The information gathered from this poll will be aggregated and compared with the existing literature to inform the development of a recruitment and retention policy for rural primary care providers. This poll is completely anonymous; no identifying information (i.e. name, specific location, employer, etc.) will be collected and your responses will not be linked to your email address or IP location by the researcher. The de-identified data collected from this poll will be stored according to UNC's data security procedures. This research project has received approval from the UNC Institutional Review Board in the Office of Research and Sponsored Programs.

> ***Note:*** This poll will be conducted using Qualtrics Survey Software. Before you begin, please note that the data you provide may be collected and used by Amazon as per its privacy agreement. Additionally, this research is for residents of the United States over the age of 18; if you are not a resident of the United States and/or under the age of 18, please do not complete this survey. Qualtrics may have specific privacy policies. You should be aware that these web services may be able to link your responses to your ID in ways that are not bound by this consent form and the data confidentiality procedures used in this study. If you have concerns you should consult these services directly.

Questions: If you have questions about this research project, please contact the student researcher, Nicole Suppes, FNP-C, at supp4803@bears.unco.edu. If you have any concerns about your selection or treatment as a research participant, please contact Nicole Morse, Research Compliance Manager, University of Northern Colorado at nicole.morse@unco.edu or 970-351-1910.

Voluntary Participation: Please understand that your participation in this poll is voluntary. You may decide not to participate in this poll and if you begin participation you may still decide to stop and withdraw at any time. Your decision will be respected and will not result in loss of benefits to which you are otherwise entitled.

Please take all the time you need to read through this information and decide whether you would like to participate in this research study. If you decide to participate, your completion of the poll indicates your consent.

Please answer the following demographic questions

I. Please indicate your gender
   a. Female
   b. Male
   c. Non-binary/prefer not to answer

II. Please indicate your age group
   a. 20-29
   b. 30-39
   c. 40-49
   d. 50-59
   e. 60-69
   f. 70+

III. Please indicate your advanced practice credentialing
   a. Nurse Practitioner (NP)
   b. Doctor of Medicine (MD or DO)
   c. Physician Assistant (PA)

IV. Please indicate the state in which you are currently practicing as a primary care provider in a rural area. A rural area is defined by the United States Department of Agriculture as a non-metro county with a Rural Urban Commuting Area Code (RUCA) of 4 and greater. This includes open countryside rural communities' of 2500 people or less and urban areas of 2500-49999 people that are not included in a metropolitan area.
[drop down menu of all 50 states]

V. Please indicate your total number of years in practice with your current credentials.
   a. 0-5
   b. 5-10
   c. 10-15
   d. 15-20
   e. 20+

VI. Please indicate your total number of years in practice in rural area(s).
   a. 5-10
   b. 10-15
   c. 15-20
   d. 20+

Please answer the following poll questions

1. Indicate which of the following exposures to rural communities you experienced prior to initiating your current professional career in a rural area. Select all that apply.
   a. Previous professional experience in a rural area
   b. Completion of an Accredited Rural Residency Program defined as more than 50% of residency/training in rural areas
   c. Completion of an optional or required clinical rotation in a rural area during school/training
   d. Rural upbringing/rural hometown
   e. None
   f. Other: [fill in the blank, character limit to 120 characters]
2. Identify the motivating factors for choosing your current rural practice location. Select all that apply.
   a. Geographic location
   b. Rural upbringing/rural hometown
   c. Supportive work environment

   d. Attractive community/quality of life
   e. Interest in/passion for rural health
   f. Spousal or family approval
   g. Other [fill in the blank, character limit to 120 characters]

3. Identify prior recruitment tactics that were of value to you when choosing your current rural practice location. Select all that apply.
   a. Sign-on bonus
   b. Loan reimbursement/forgiveness
   c. Attractive community/quality of life
   d. Opportunities for professional growth
   e. Low patient panel load or patient/provider ratio
   f. Perceived community need (e.g. rural health disparities, provider shortages, etc.)
   g. Mentorship
   h. Support with spousal career or family relocation
   i. Ability to practice to full scope
   j. Other [fill in the blank, character limit to 120 characters]
4. Identify the current retention tactics that have been of value to you at your current rural practice location. Select all that apply.
   a. Quarterly, semi-annual, or annual bonuses
   b. Loan reimbursement/forgiveness
   c. Supportive work environment
   d. Continuing education opportunities
   e. Low patient panel load or patient/provider ratio
   f. Ability to practice to full scope
   g. Mentorship
   h. Opportunities for professional growth
   i. Other [fill in the blank, character limit to 120 characters]
5. Please select your level of satisfaction with your current rural practice position.
   a. Very Satisfied
   b. Satisfied
   c. Somewhat satisfied
   d. Dissatisfied
      i. [If somewhat satisfied or dissatisfied] Please identify the contributing factors to your dissatisfaction with your current rural practice position. Select all that apply.
         1. Low wages
         2. Staffing shortages
         3. High patient panel load or patient/provider ratio
         4. Expectations to perform procedures or care outside of your scope
         5. Lack of mentorship
         6. Lack of continuing education opportunities
         7. Geographic location (e.g. isolation, climate, etc.)
         8. Social or cultural context (i.e. sense of community, diversity, political ideology, etc.)
         9. Limited opportunity for professional growth
         10. Spouse or family disproval
         11. Burnout or compassion fatigue
         12. Other (fill in the blank, character limit to 120 characters)

6. How confident are you that you will continue to practice in a rural setting for the next 5 years?
    a. Very confident
    b. Confident
    c. Somewhat confident
    d. Not confident
        i. [If somewhat confident or not confident] Please identify the contributing factors to your lack of confidence about continuing to practice in a rural setting over the next 5 years. Select all that apply.
            1. Low wages
            2. Staffing shortages
            3. High patient panel load or patient/provider ratio
            4. Expectations to perform procedures or care outside of your scope
            5. Lack of mentorship
            6. Lack of continuing education opportunities
            7. Geographic location (e.g. isolation, climate, etc.)
            8. Social or cultural context (i.e. sense of community, diversity, political ideology, etc.)
            9. Limited opportunity for professional growth
            10. Spouse or family disproval
            11. Burnout or compassion fatigue
            12. Other (fill in the blank, character limit to 120 characters)

Thank you for your completion of this poll. Your responses have been recorded.

If you would like the opportunity to be entered into a drawing for a $100 Visa e-gift card for completion of this poll, please provide your email address below. Your email address will only be used to notify you should you win the drawing after random selection. The email address will not be tied to any poll responses.

____

APPENDIX D

INSTITUTIONAL REVIEW BOARD APPROVAL

UNIVERSITY OF
NORTHERN COLORADO

Institutional Review Board

Date: 07/07/2021

Principal Investigator: Nicole Suppes

Committee Action: **IRB EXEMPT DETERMINATION – New Protocol**

Action Date: 07/07/2021

Protocol Number: 2106027419

Protocol Title: Recruitment and Retention of Advanced Practice Primary Care Providers in Rural Communities.

Expiration Date:

2106027419

The University of Northern Colorado Institutional Review Board has reviewed your protocol and determined your project to be exempt under 45 CFR 46.104(d)(702) for research involving

Category 2 (2018): EDUCATIONAL TESTS, SURVEYS, INTERVIEWS, OR OBSERVATIONS OF PUBLIC BEHAVIOR. Research that only includes interactions involving educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures, or observation of public behavior (including visual or auditory recording) if at least one of the following criteria is met: (i) The information obtained is recorded by the investigator in such a manner that the identity of the human subjects cannot readily be ascertained, directly or through identifiers linked to the subjects; (ii) Any disclosure of the human subjects' responses outside the research would not reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, educational advancement, or reputation; or (iii) The information obtained is recorded by the investigator in such a manner that the identity of the human subjects can readily be ascertained, directly or through identifiers linked to the subjects, and an IRB conducts a limited IRB review to make the determination required by 45 CFR 46.111(a)(7).

You may begin conducting your research as outlined in your protocol. Your study does not require further review from the IRB, unless changes need to be made to your approved protocol.

As the Principal Investigator (PI), you are still responsible for contacting the UNC IRB office if and when:

UNIVERSITY OF
NORTHERN COLORADO

Institutional Review Board

- You wish to deviate from the described protocol and would like to formally submit a modification request. Prior IRB approval must be obtained before any changes can be implemented (except to eliminate an immediate hazard to research participants).
- You make changes to the research personnel working on this study (add or drop research staff on this protocol).
- At the end of the study or before you leave The University of Northern Colorado and are no longer a student or employee, to request your protocol be closed. *You cannot continue to reference UNC on any documents (including the informed consent form) or conduct the study under the auspices of UNC if you are no longer a student/employee of this university.
- You have received or have been made aware of any complaints, problems, or adverse events that are related or possibly related to participation in the research.

If you have any questions, please contact the Research Compliance Manager, Nicole Morse, at 970-351-1910 or via e-mail at nicole.morse@unco.edu. Additional information concerning the requirements for the protection of human subjects may be found at the Office of Human Research Protection website - http://hhs.gov/ohrp/ and https://www.unco.edu/research/research-integrity-and-compliance/institutional-review-board/.

Sincerely,

Nicole Morse
Research Compliance Manager

University of Northern Colorado: FWA00000784

210602719

APPENDIX E

POLICY BRIEF FOR IMPROVED RECRUITMENT AND RETENTION OF ADVANCED PRACTICE PRIMARY CARE PROVIDERS IN RURAL COMMUNITIES

POLICY BRIEF FOR IMPROVED RECRUITMENT AND RETENTION OF ADVANCED PRACTICE PRIMARY CARE PROVIDERS IN RURAL COMMUNITIES

Aim/Purpose: The purpose of this policy brief is to propose evidence-based options for increasing the number of advanced practice providers with a primary care specialty in rural settings in the United States (U.S.). Implementation of some or all of these strategies could lead to improved cost-effectiveness, continuity/quality of patient of care, and provider satisfaction and retention. This policy brief is designed for team members involved in the hiring or recruiting of advance practice providers for rural primary care as well as managers/administrators with a vested interest in retention of providers.

Introduction/Background: Rural healthcare workforce shortages continue to be a challenge faced by many communities in the U.S. The lack of advance practice providers accompanied by a population of older and sicker residents in rural areas forces some patients to seek healthcare at significant distances, which is both time-consuming and expensive (Hempel et al., 2015). Provider shortages in rural communities are predicted to increase over the next decade as primary care continues to have declining interest as a specialty area for physicians and other advanced practice providers such as nurse practitioners (NP) and physician assistants (PA) contend with widely varying scopes of practice across states (Streeter et al., 2017). For example, restrictions on the NP scope of practice are present in more than 50% of states which creates additional barriers in rural areas where an adequate number of physicians may not be present to supervise care (Heath, 2018). Patients in rural communities are increasingly vulnerable due to poor retention of primary healthcare providers. An inadequate number of primary care providers contributes to an inability to maintain hospital facilities or clinics, increased pressure on existing staff, providers working longer hours, expectations of providers to provide an excessive range of services and procedures, extensive travel for patients to access care, and increased healthcare costs.

Previously Employed Strategies: Prior recruitment and retention efforts for rural primary care providers have primarily been directed towards financial incentives such as loan forgiveness or sign-on bonuses. These financial incentives are typically offered to applicants in exchange for a pre-determined number of years committed to working in a designated rural area. However, this approach can be costly and after term obligations are completed by providers, long term retention may wane (Renner et al., 2010). In addition, there is compelling evidence that individuals who grew up in rural areas or who were exposed to rural communities during training are more likely to practice and stay in a rural community. Although recruitment of potential candidates with prior exposure to rural communities may be promising, this approach can be logistically challenging.

Policy Recommendations with Action Items:

- **"Grow Your Own" and other Recruitment Strategies:** Recruit candidates with one or more of the following exposures to rural communities: previous professional career in a rural community; rural hometown/upbringing; or engagement in training programs (e.g., clinical rotations, fellowships, or residency programs) with a rural health focus.
    - **Priority Action Items:**
        - Seek out and attend job fairs/conferences aimed at providers in rural healthcare practice or with an interest in rural health.

        - Review CVs/resumes to obtain information on candidates' training program or professional history in rural areas.
        - Identify candidates already working at rural facilities who are interested in furthering their education and specializing in primary care (e.g., a registered nurse training to become an advanced practice registered nurse) and offer a scholarship in return for a 2-year contract upon graduation.
        - Market the facility to graduates of advance practice provider programs. Suggestion:
            - Identify advanced practice provider programs both with and without a rural emphasis and network with these schools. Offer to speak with students before graduation about employment opportunities, benefit packages, and the advantages of rural practice.
        - Identify medical, NP, or PA students who are training (preceptorships, fellowships, residency, etc.) in your facility as potential candidates for permanent employment.
        - Identify potential candidates who have a rural upbringing or hometown by reviewing CVs/resumes or transcripts to determine the candidate's high school location as well as any prior education obtained in rural areas.
        - Create a rural referral program within the healthcare network that provides an incentive or bonus to current employees who refer a potential advanced practice provider candidate for hire into a primary care position.
    - **Lower Priority Action Item:**
        - Offer opportunities to apply for student loan reimbursement/forgiveness and/or a sign-on bonus in exchange for a commitment to practice for a minimum number of years.
    - **Pros:** The evidence suggests that financial recruitment techniques are effective in the initial recruitment of advanced practice providers. The correlation between rural hometown or exposure during training with rural practice location choice and retention is high.
    - **Cons:** Financial incentives may not be appealing to all candidates and the retention may wane after a term obligation has been completed. This is also a costly initiative that often requires state or federal funding. In addition, when identifying candidates with rural backgrounds or who are currently practicing in a rural area there is an opportunity for unethical behavior such as recruiting providers away from one high-need rural area to another.

- **Provide a Supportive Work Environment:** Provide a safe and supportive working environment with an appropriate work life balance where open communication and collaboration are encouraged.
    - **Priority Action Items:**
        - Provide appropriate equipment, supplies, support staff, and formal mentorship.
        - Create collaborative activities to facilitate cooperation between advanced practice providers from rural areas and those in urban areas; provide adequate support for telehealth and other forms of communication technology.

- Allow opportunities for professional development through continued educational opportunities to hone skillsets without having to leave the rural area to complete training. Suggestions:
  - Supervised/assisted procedures under the guidance of an experienced on-site provider until full competency is achieved.
  - Full use of simulation or online training whenever possible.
- Prevent isolation by engaging providers in professional networks and creating opportunities to connect socially with colleagues and the community.
- Support work/life balance. Suggestions:
  - Distribute on-call/weekend hours equitably among all providers in the practice.
  - Respect provider time off by providing cross cover (i.e., another provider covering your patient panel while you are unavailable).
- Avoid known areas of dissatisfaction. Suggestions:
  - Mitigate burnout/compassion fatigue by connecting providers with educational resources on the topic. Normalize and provide opportunities for providers to seek emotional/mental support such as through counseling, support groups, debriefing sessions, or other forums. Provide advanced practice providers with access to state level support programs such as Colorado Physician Health Program (CPHP) or Wyoming Professional Assistance Program (WPAP).
  - Train supervisors/managers in skills such as conflict resolution and motivational interviewing to identify opportunities for improvement in the work setting. For example, if a provider feels a lack of control in their practice due to inappropriate scheduling, identify as a team how to create a solution to the conflict.
  - Avoid ancillary staffing shortages (e.g., registered nurses, medical assistants, etc.) to reduce provider stress and workload. Anticipate coverage for time off requests and maintain a roster of 'as needed' staff to adequately support advanced practice providers.
  - Allow new providers in their first year of practice to build patient panels without productivity/relative value units (RVU) via open communication and negotiation between the clinic manager and each provider about what is personally manageable. For example, the average patient will have 3 visits per year so if an advanced practice provider is seeing 20 patients per day for 12 months, they will average a patient load of 1400 patients. For some providers this is acceptable, others may want a larger panel, and others may want a smaller panel. Consult with each provider during the hiring process and then annually about their workload and professional goals/timeline for gradually increasing their panel to meet the expectations and needs of the facility.
- Offer competitive salaries within the surrounding rural and urban markets. Work closely with the financial team to budget appropriately and equitably.

- **Lower Priority Action Item:**

        - Implement public recognition measures both internally in the facility/clinic and externally to the community through marketing and communications efforts. Suggestions:
            - National Rural Health Day
            - Awards and titles (e.g., MVP's, Daisy Awards, etc.)
            - Honor and celebrate discipline and specialty recognition days (e.g., National Primary Care Week, Nurses Week, Physicians Day, Physician Assistant Day)
    - **Pros:** Open communication between staff and managers creates opportunities to be solution-oriented and proactive. Promoting work life balance, allowing for opportunities for professional development, recognition measures, and appropriate/safe equipment and staffing are shown to retain providers which sequentially reduces burn-out, turnover, and financial losses.
    - **Cons:** Allowing new graduate advanced practice providers to slowly build patient panels and have longer appointments could lead to a temporary loss in revenue; a negotiated plan for scaling up the patient panel in a timely manner will be required. Other drawbacks are also primarily fiscal: functional equipment and supplies, competitive salaries, adequate ancillary staff, investing in continuing education, and optimizing informational technology for telehealth requires a financial investment.

- **Display an Attractive Rural Community:** Build strong community support and attachments by creating welcoming and appreciative community responses and relationships.
    - **Priority Action Items:**
        - Provide tours of not only the rural facility (clinic) but also of the affiliated hospital and any other partner institutions/facilities. This provides an opportunity for the potential candidate to acclimate to the staff and community members and to feel welcomed.
        - Highlight recreational opportunities or lifestyle incentives by providing opportunities for potential candidates to tour the wider community. Suggestion:
            - Identify someone who is familiar with the community and has a friendly and inviting personality, such as a community leader or human resources professional, to provide a tour and highlight important areas such as well-maintained parks, recreation centers, schools, downtown or gathering areas, etc. Explore employment opportunities for the candidates' spouse/partner, if applicable.
            - Establish a relationship with a well-regarded local real estate agent to highlight housing options within the community and surrounding area.
    - **Pros:** Displaying an appealing and inviting community is enticing to potential candidates and is shown in the evidence to influence both initial recruitment and long-term retention.
    - **Cons:** Negative aspects of the community or an unwelcoming staff/community member during the tour will likely make the location less appealing to the candidate or their partner/family but may be unavoidable. Attractiveness of a rural community is somewhat subjective and difficult to predict or control.

- **Address Scope of Practice Issues:** Advocate for policy change that allows for full scope of practice of all advanced practice providers (specifically NP/PA providers).
    - **Priority Action Items:**
        - Provide legislative support to the American Association of Nurse Practitioners (AANP) and the American Academy of Physician Assistants (AAPA) for full practice authority of NPs and PAs.
        - Contact stakeholders to influence legislation in states with limited scope of practice as it relates to your facility's location and patient population.
        - Collaborate with supportive Doctor of Medicine (MD) and Doctor of Osteopathic Medicine (DO) colleagues to ensure that NP/PA providers feel autonomy, collegiality, and respect.
        - Provide NPs/PAs with as much autonomy and technical support as is legal in the state of practice, such as enabling them to autonomously sign prescriptions and orders electronically.
        - Provide education and outreach to the community on the various advanced practice providers disciplines and roles to engender trust and utilization of all providers.
    - **Pros:** Rural NPs/PAs who can practice to their full scope and feel respected by their institution, community, and colleagues are more likely to stay in rural practice and report higher levels of job satisfaction. Politically, full practice authority in all 50 states would allow NPs/PAs to alleviate the critical shortage of primary care providers in rural areas.
    - **Cons:** MDs/DOs may experience backlash from the medical community for supporting full practice authority of non-physician providers. Some non-profit institutions have financial or political ties to specific stakeholders and showing full practice authority support for NP/PA providers may disrupt these relationships. In addition, some patients may be hesitant to seek care provided by a NP or PA due to lack of knowledge about their training, role, and scope of practice.

Conclusions and Final Recommendations:

This policy brief outlines potential recruitment and retention strategies for rural primary care providers. These suggestions are informed by a comprehensive literature review and a completed poll of advanced practice primary care providers currently practicing in rural locations. Each of the strategies holds the potential to benefit rural communities although some should be prioritized more than others based on the evidence and the specific context of each setting and facility. Priority should be given to targeting candidates with previous rural exposure, creating a supportive work environment, and displaying an attractive community. The tactic that should be given the highest priority is identifying candidates with a rural upbringing as the literature has identified this as the most influential predictor for rural practice choice location (Hancock et al., 2009; MacQueen et al., 2017). Creating a supportive work environment should also be given prioritization as the literature shows strong support for this strategy. Multiple sources suggest that providing personal leave time, work-life balance, mentorship, and employment opportunities for providers' spouses contribute to rural retention effects (Asghari et al., 2017; Mbemba et al., 2013; Rohatinsky et al., 2020). It is equally important to limit factors that contribute to providers dissatisfaction or burnout such as insufficient financial compensation, excessive workload (including heavy patient panels or extensive on call hours), and lack of continuous development opportunities or mentorship (Germack et al., 2020; Weinhold & Gurtner, 2014).

Displaying an attractive community and lifestyle incentives is a valuable recruitment tactic and should be prioritized although there are discrepancies about what is considered appealing to each candidate. For example, some identify an attractive community as one in which they can develop close relationships with patients or staff, while others prefer recreational opportunities or high-quality schools for children (Asghari et al.,2017; Daniels et al., 2007).

Providing financial incentives such as loan reimbursement has previously been identified in the literature as being effective for recruitment but other components of the policy should be prioritized first due to conflicting evidence about retention. Due to the high risk of financial investment without a gain in long-term retention, this tactic should be utilized with caution although it may be effective in some settings when adequate financial support has been obtained (Asghari et al., 2017; Renner et al. 2010).

Lastly, supporting full scope of practice for all advanced practice providers has been identified as an important recruitment factor for some providers although there is a gap in the research regarding this topic (MacQueen et al., 2018; Renner et al., 2010). However, the potential impact for NPs and PAs to fill critical primary care provider shortages in rural areas warrants inclusion in this policy brief. Enabling full practice authority is predicted to benefit population health in rural areas but the lack of evidentiary support suggests this strategy should have moderate prioritization.