Family Nurse Practitioner Autonomy and Physician Collaboration in Rural vs Urban Settings

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Abstract

Purpose: Policymakers are increasingly interested in using nurse practitioners (NPs) to provide health care to rural populations, yet little is known about NP autonomy and physician collaboration. The purpose of this study was to examine NP autonomy and collaboration with physicians based on practice setting.

Sample: We obtained data from the 2018 National Sample Survey of Registered Nurses (NSSRN). For our analysis, we included NPs certified as Family Nurse Practitioners (FNPs) who indicated they cared for their own panel of patients.

Methods: We grouped the FNPs by practice setting; Critical Access Hospitals, Rural/Underserved Settings, and Urban Settings. We compared indicators of FNP practice autonomy and physician collaboration based on practice setting.

Findings: FNPs practicing in rural settings were more likely to have a collaborative practice relationship with a physician, less likely to bill under their own National Provider Identification number, and less likely to feel as though they were considered equal colleagues with physicians.

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Conclusion: The rural physician population is aging out and is not being replaced by younger physicians. To meet the need of rural and underserved populations, NPs are in a unique position to step into the care void. Increasing NP autonomy and reducing barriers to practice will be essential aspects of NP practice going forward.

Keywords: Family Nurse Practitioners, Rural Practice, Physician Collaboration

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Healthcare delivery systems in rural areas face substantial challenges in meeting the needs of the communities they serve. Attracting and keeping healthcare providers has historically been a problem for both private health care organizations and state and federal government hospitals and health clinics. Recent projections of worsening physician shortages and their inadequate distribution in rural areas suggest that relying on the physician workforce, alone, will only perpetuate the difficulties rural hospitals, clinics, and other providers face. According to projections made by Skinner and colleagues (2019), the size of the rural physician workforce is estimated to decrease 23% between now and 2030 (from 12.2 physicians per 10,000 population in 2018 to 9.4 per 10,000 population in 2030). In contrast, the number of non-rural physicians is projected to remain stable at just under 30 providers per 10,000 population over this same period (Skinner et al., 2019).

Background

The deficit in the rural physician workforce, combined with the closure of 180 critical access hospitals (CAHs) since 2005 has heightened health policy makers' interest in using Nurse Practitioners (NPs), especially Family Nurse Practitioners (FNPs), to increases access to health care in rural America (The Cecil G. Sheps Center for Health Services Research, n.d.). Family

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Nurse Practitioners are especially well suited for rural health care as they specialize in primary care for individuals across the life span. Family Nurse Practitioners, are more likely than their physician counterparts to work in rural communities and more likely to care for vulnerable populations—those who receive Medicaid, Medicare, are women, American Indian, persons of color, the uninsured, impoverished, and those living in rural areas (Agency for Healthcare Quality and Research [AHRQ], 2018; Buerhaus, 2018; Buerhaus et al., 2015; Desroches et al., 2013; Graves et al., 2016; Newhouse et al., 2011; Spetz et al., 2015; Xue et al., 2019).

One federal program designed to improve access to care in rural areas – the Critical Access Hospital (CAH) Program – particularly relies on FNPs. The CAH program was established in 1997 as a part of the Balanced Budget Act (Rural Health Information Hub [RHIhub], n.d.). It offers support to small hospitals in rural areas to serve residents that would otherwise have to travel great distances to receive healthcare. At least one physician must be on staff (although not required to be onsite) at CAHs (RHIhub, n.d.). Typically, FNPs play an independent role in provision of medical services to patients including emergency services. As of April 2023, there were 1,361 CAHs across the United States (RHIhub, n.d.). Additional federally supported care settings such as Federally Qualified Health Clinics (FQHCs), Indian Health Services (IHS), and Rural Health Clinics (RHCs) also rely on non-physician providers to complement rural health care with outpatient and ambulatory services.

Objective

Despite the reliance of FNPs in these rural care settings, little is known about how FNPs may operate differently in these settings or have different needs, autonomy, and collaborative relationships with physicians. Some states, but not all, may require physician supervision over FNPs. It is important to understand these differences may be due, in part, to state scope of practice

limitations which may place restrictions on FNP autonomy. Scope of practice describes the procedures, actions, and processes a health care practitioner is deemed competent to perform and permitted to undertake in accordance with their professional licensure (American Academy of Nurse Practitioners [AANP], 2022). Individual states define FNP scope of practice. Scope of practice regulations can range from allowing FNPs full practice authority to restricted practice authority. According to the AANP (2022), restricted practice authority may require career-long supervision, delegation, or team management by a physician. A decreasing number of physicians available to provide supervision in rural states with restricted practice may further prevent FNPs from being able to serve communities or may result in increased costs associated with needing to contract with a physician to provide FNP supervision from a distance.

Using data from a large national sample survey of the nursing workforce in the United States, our objective was to identify and compare FNP practice autonomy and working relationship with physicians in rural, rural/underserved, and non-rural care settings.

Methods

Study Design

We obtained public use, deidentified data from the 2018 National Sample Survey of Registered Nurses (NSSRN). This comprehensive survey of registered nurses is developed and administered by the Health Resources and Services Administration (HRSA). The data from the NSSRN helps to assess supply and demand of nursing resources as well examining the characteristics of nurses (United States Department of Health and Human Services, Health Resources and Services Administration National Center of Health Workforce Analysis [U.S.DHHS, HRSA, NCHWA], 2019). While the data we used is publicly available we also obtained Institution Review Board exemption through the primary author's university.

The NSSRN has been administered every four years from 1977 to 2008, and again in 2018. Long considered the gold standard of descriptive data on the nursing workforce in the US, the 2018 NSSRN represents an update after a 10-year gap. The survey was administered from April 2018 to October 2018. A sample of 102,690 registered nurses were randomly selected from over 4.6 million licensure records (U.S.DHHS, HRSA, NCHWA 2019). Respondents were given the option to participate via a web-based instrument or paper questionnaire, and a total of 50,273 eligible respondents completed the survey. Additionally, the 2018 NSSRN heavily oversampled NPs, which makes it an ideal source to examine the certification, employment setting, educational preparation, and participants perception of readiness to be a licensed practitioner.

Participants: Family Nurse Practitioners

Family Nurse Practitioners provide primary care for families and individuals across the life span. They deliver preventive healthcare services for people with acute and chronic conditions and are certified and licensed to treat patients of all ages. Because of their educational preparation and broad patient focus, it is believed that FNPs are particularly well-suited to provide the health needs of rural populations. For this study, we focus on NPs who indicated they were certified by a national certifying organization as an FNP and exclude all other NPs, such as acute care, pediatrics, gerontology, women's health, and psychiatric and psychiatric mental health.

Practice Setting

The 2018 NSSRN queried respondents about certification and the employment setting of the primary nursing position held on December 31, 2017. Respondents were asked to respond to the question "On December 31, 2017, in which areas were you certified by a national certifying organization for NPs?" (HRHS, 2018). Respondents were given options including but not limited to "Acute Care, adult", "Acute Care, pediatric", "Family"," Neonatal", etc. (HRSA, 2018, p. 14).

For our analysis we wanted respondents indicating they were certified by a national certifying organization for NPs as “Family”, we will refer to these individuals as FNPs for the remainder of the article. Family Nurse Practitioners were then further divided based on the question, “Which one of the following best describes the employment setting of the primary nursing position you held on December 31, 2017?” (HRSA, 2018, p. 6). More than 20 settings were grouped into four major settings: Hospital, Other Inpatient Settings, Clinic/Ambulatory, and Other Settings. As previously mentioned, we accessed NSSRN public use and deidentified data. As such, we did not have access to the state or zip code of the practice location of the respondents. For our analysis we defined rural as FNPs working in CAHs. Designation of rural/underserved practitioners for our analysis encompassed RHCs, FQHCs, and IHS facilities. Regarding rural/underserved healthcare settings (RHC, FQHC, and IHS) settings, while some FQHS and IHS facilities may not be in rural areas, most of these facilities serve rural populations. Non-rural settings included urban and metropolitan hospitals, other inpatient facilities, emergency departments, hospital sponsored ambulatory care clinics, nursing homes, correctional facilities, private medical practices, school health services, urgent care facilities, occupational health, university/college health, and home health agencies.

To obtain a greater understanding of FNPs practice we compared characteristics, perceived autonomy, and perceived working relationships with physicians of FNPs by employment setting (CAH, rural/underserved, and non-rural). The non-rural employment settings included urban and metropolitan hospitals, other inpatient facilities, emergency departments, hospital sponsored ambulatory care clinics, nursing homes, correctional facilities, private medical practices, school health services, urgent care facilities, occupational health, university/college health, and home health agencies all of which are located in non-rural areas. We further focused on FNPs who

indicated they had their own panel of patients that they managed, and they were the primary provider. The NSSRN went on to define "a panel is a group of patients that you see across a period of time" (HRSA, 2018, p. 15)

Education and Practice

Only FNPs prepared at the masters or doctorate level were included in our analysis. Survey respondents were asked to indicate their highest education credential from a list that included certificate/award, bachelor's degree, master's degree, post-master's certificate, and different types of doctoral education. Our variables of interest included responses to questions about billing using own National Provider Identification (NPI), prescriptive authority, participant's perception of their ability to practice to the full extent of their state scope of practice, participant's perception of ability to utilization education to the full extent, professional relationship with physicians, and participants perception of being considered an equal colleague to the physician(s) with which they worked.

Analysis

Stata 16.1 was used to analyze the survey data. Weighted results using survey weights provided by the 2018 NSSNR were used for tabulations. The 2018 NSSRN survey can be accessed online at https://bhw.hrsa.gov/sites/default/files/bureau-health-workforce/data-research/nssrn-questionaire.pdf (HRSA, 2018).

Results

Sample Characteristics

We used weighted measures to analyze our variables and have presented our results using the weighted measures. We identified 106,669 respondents indicating they had been certified by a national certifying organization as an FNPs. Of the 106,669 FNPs 54,011 indicated they had their

own patient panel. Of the 54,011 FNPs with their own panel, 1,096 respondents reported working in a CAH, 9,166 respondents reported working in a rural/underserved setting, and 43,749 respondents reported working in a non-rural setting.

Table 1

Family Nurse Practitioner with Own Patient Panel 2018

	Rural Employment Settings				Non-Rural Employment Settings[C]	
	CAH[A] (n=3,786)		Rural/Underserved: RHC, FQHC, and IHS[B] (n=11,957)		(n=90,926)	
Characteristic	n	%	n	%	n	%
Own Patient Panel						
Yes	1,096	28.9	9,166	76.6	43,749	48.1
No	2,690	71.1	2,791	23.3	47,177	51.8

Note A = Critical Access Hospital, B = Rural Health Clinic, Federally Qualified Health Center, and Indian Health Services and C = Urban and metropolitan hospitals, other inpatient facilities, emergency departments, hospital sponsored ambulatory care clinics, nursing homes, correctional facilities, private medical practices, school health services, urgent care facilities, occupational health, university/college health, and home health agencies

Of all FNPs individuals 50.6% indicated they cared for their own patient panel, although these percentages varied by setting (likely related to the care roles in the different settings, see Table 1). FNPs with their own patient panel formed the basis of the following analysis which will be presented here. Please note, tables will present findings using weighted sample numbers.

As with previous analysis of the FNP workforce, the majority of FNPs are white and female (Table 2). Black/African American and Hispanic FNPs are more likely to work in rural/underserved healthcare (RHC, FQHC, and IHS) while male FNPs were more likely to be employed in CAHs. Across all settings, half of FNPs were aged 35-49 and one-third or more were

over age 50, including 33% in CAHs. Only 9% of FNPs working in CAHs were younger than 30. Regardless of employment setting, the vast majority of FNPs had earned a master's degree, with less than one in 10 reporting a post-master's certificate. Very few (less than 6%) of FNPs had a doctoral degree.

Table 2

Own Patient Panel Characteristics by Employment Setting, 2018

	Rural Employment Settings				Non-Rural Employment Settings[C]	
	CAH[A]		Rural/Underserved: RHC, FQHC, and IHS[B]			
Characteristic	n	%	n	%	n	%
Race						
White	811	74	6,137	67	32,539	74
Black	113	10	938	10	3,930	9
Hispanic	45	4	456	5	1,255	3
Asian	20	2	416	5	1,619	4
Other	106	10	1,219	13	4,405	10
Age						
<35	103	9	1,623	18	6,768	15
35-49	633	58	4,623	50	21,569	49
50+	360	33	2,920	32	15,412	35
Gender						
Female	971	89	8,181	89	39,705	91
Male	125	11	985	11	4,044	9
Family Nurse Practitioner (FNP) Education Preparation						
Bachelors	45	1	127	1	514	1
Masters	833	81	7,658	84	36,734	84
Post Masters	123	11	855	9	4,024	9
Doctorate	44	4	527	6	2,478	6

Note A = Critical Access Hospital, B = Rural Health Clinic, Federally Qualified Health Center, and Indian Health Services and C = Urban and metropolitan hospitals, other inpatient facilities, emergency departments, hospital sponsored ambulatory care clinics, nursing homes, correctional facilities, private medical practices, school health services, urgent care facilities, occupational health, university/college health, and home health agencies

FNP Practice

Over two-thirds of FNPs in rural/underserved and non-rural settings indicated they billed using their own National Provider Identification (NPI) number. Just over ½ of the FNPs in CAHs indicated they billed with their own NPI while close to 34% indicated they were not sure if their NPI was used for billing. Across all practice settings, greater than 90% of FNPs indicated they had prescriptive authority. Again, across all practice sites, FNPs strongly agreed or agreed they were able to practice to the full extent of their state's scope of practice and their NP education was fully utilized (Table 3).

Table 3

Family Nurse Practitioner Practice Characteristics by Employment Setting

	Rural Employment Settings				Non-Rural Employment Settings[C]	
	CAH[A] (n=1,096)		Rural/Underserved: RHC, FQHC, and IHS[B] (n=9,166)		(n=43,749)	
Characteristic	n	%	n	%	n	%
Bill Using Own NPI						
Yes	594	55.5	6,365	69.5	30,461	70
No	115	10.8	638	7	3,965	9.1
I don't know	361	33.8	2,161	23.6	9,098	20.9
Prescriptive Authority						
Yes	996	90.9	9,120	99.5	43,318	99
Practice full extent of State Scope of practice						
Strongly Agree/Agree	1,001	91.4	9,166	93.5	40,644	92.9
Education Fully Utilized						
Strongly Agree/Agree	1,041	95.1	8,438	92.1	40,649	92.9

Note A = Critical Access Hospital, B = Rural Health Clinic, Federally Qualified Health Center, and Indian Health Services and C = Urban and metropolitan hospitals, other inpatient facilities, emergency departments, hospital sponsored ambulatory care clinics, nursing homes, correctional facilities, private

medical practices, school health services, urgent care facilities, occupational health, university/college health, and home health agencies

FNP and Physician Relationships

Family Nurse Practitioners in CAHs (80%) were more likely than their counterparts in rural/underserved and non-rural employment settings to report they collaborated with a physician on site. Overall, the percentage of FNPs reporting they were supervised by a physician who required them to accept their clinical decision was relatively small (6-12%) regardless of practice site. Few FNPs reported collaborating with a physician who was not on site 13-28.6%). Regardless of employment setting, more than half of FNPs reported their perception was they were not considered an equal colleague to physicians they worked with. (Table 4)

Table 4

Family Nurse Practitioner and Physician Relationships

	Rural Employment Settings				Non-Rural Employment Settings[C]	
	CAH[A] (n=1,096)		Rural/Underserved: RHC, FQHC, and IHS[B] (n=9,166)		(n=43,749)	
Characteristic	n	%	n	%	n	%
Collaborated with a physician on site						
Yes	873	79.7	4,980	54.3	27,525	62.9
No	223	20.3	4,186	45.7	16,224	37.1
Supervised by a physician and have to accept their clinical decision						
Yes	131	12	554	6	3,509	8
No	965	88	8,612	94	40,240	92
Collaborate with a physician at another site						
Yes	142	13	2,618	28.6	8,856	20.2
No	954	87	6,548	71.4	34,893	79.8
Considered an equal colleague with physician						
Yes	499	45.5	4,451	48.6	18,455	42.2
No	597	54.5	4,715	51.4	25,294	57.8

Note A = Critical Access Hospital, B = Rural Health Clinic, Federally Qualified Health Center, and Indian Health Services and C = Urban and metropolitan hospitals, other inpatient facilities, emergency

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departments, hospital sponsored ambulatory care clinics, nursing homes, correctional facilities, private medical practices, school health services, urgent care facilities, occupational health, university/college health, and home health agencies

Discussion and Implications

Practice in a rural setting is unique and differs vastly from practice in non-rural settings. Rural patients face health disparities related to delays in seeking care which can be further exacerbated by limited access to care. Using data from the 2018 NSSRN, we identified factors associated with autonomy in practice as well as professional relationship to physicians and compared these factors based on whether the FNPs were employed in rural or non-rural care delivery settings. We also examined FNPs perceptions of their ability to practice to their full scope and use their educational preparation for practice to its full extent.

As previously mentioned, we identified a specific population of interest focusing on FNPs who indicated they had their own panel of patients. We were surprised to find in CAHs the majority of FNPs indicated they did not have their own panel of patients. It is unclear why there are so few FNPs providing care for their own panel of patients in CAHs; although, we did note close to 80% of CAH FNPs reported collaborating with a physician on site. Scope of practice in some states has limited how FNPs are able to provide care. There is a significant concentration of CAHs in the Midwest and Southern US, at the time of the NSSRN (2018), these states were largely restricted or reduced practice areas for FNPs. The overlap of reduced/restricted FNP scope of practice in states where there exists a larger concentration of CAHs may be a reason for our findings. In rural/underserved settings, a multidisciplinary approach to care is encouraged and/or required. As a result, FNPs practicing in these settings may have more autonomy and responsibility, thus managing their own panel of patients is necessary and expected. A comparison of findings from

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the 2018 NSSRN to future iterations will hopefully show an increase in the number of CAH FNPs providing care for their own patient panel.

We were encouraged to find the majority of FNPs believed they were practicing to their full scope and educational preparation. It is important to note, the NSSRN did not include definitions of scope of practice thus these findings represent the participant's perception of their ability to practice to their full scope and educational preparation. Somewhat discouraging was the numbers of CAH FNPs who did not or did not know if they billed using their own NPI number. The NPI is a unique identification number for covered health care providers required by the Centers for Medicare and Medicaid Services and many commercial insurance companies to receive payment for services rendered. Currently, FNPs are reimbursed at 85% of the physician reimbursement rate. Family Nurse Practitioners can perform a service as incident to a physician's service in which case the physician's NPI is used and full reimbursement is received (The Medicare Payment Advisory Commission, 2021). The value of FNP care especially in CAHs cannot be fully appreciated if there is not a clear picture of the services billed for under the NPI. A true picture of the revenue generated by a CAH FNPs may also be difficult to determine; thus, an undervaluation of the FNPs contribution is likely.

The majority of FNPs reported a collaborative relationship with a physician on site, regardless of employment setting. A concerning finding from the analysis was less than half of all FNPs reported they were considered an equal colleague with physicians. The survey queried respondents to think of the type of professional relationship they had with the physician(s) they worked with, the response was worded "I was considered an equal colleague to the physician(s) I worked with". The American Medical Association has long advocated for restrictions to the practice of FNPs and Physician Associates, calling for a halt to scope creep. Donelan et al (2013)

noted while a majority (70%) of physicians in their study supported NPs being able to practice to the full extent of their education and training. However, the same physicians did not support NPs in leading medical homes and receiving equal pay for providing the same services, nor did the physicians believe NPs provided the same quality of care they provided. Recognition of the unique knowledge and skill sets brought forth by all medical professionals is essential to providing care that places the focus on the patient.

Limitations

The main limitation of our study involved the inability to precisely identify FNPs working in rural areas. Because only the 2018 NSSRN public use data file was available during the time the study was conducted, we were unable to observe FNPs who self-reported working in rural areas. As a result, we determined rural practice location by selecting CAHs and other settings (RHC, FQHC, and IHS) which are most frequently, but not always located in rural areas. This strategy likely resulted in the inclusion of some FNPs in our categorization of rural settings when they were actually working in non-rural settings. The number of FNPs misclassified is probably not large and we believe the extent of any bias is probably not impactful. Revising rural classification codes in future NSSRNs would help overcome this limitation.

Conclusion

As the numbers of rural physicians continues to decrease, there will be an increasing need for FNPs to provide care. Finding ways to create work environments that foster interprofessional collaboration, practice autonomy, and patient centered care are essential components of providing care to rural and underserved populations. Removal of limitations on practice for FNPs will increase their ability to meet the needs of rural and underserved populations now and in the future.

Conflicts of Interest

These authors declare no conflicts of interest.

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