

Family physicians provide maternity care in and around the maternity care shortage areas, particularly rural

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Abstract

Purpose: This study examined demographic, practice, and area-level characteristics associated with family physicians' (FP) provision of maternity care.

Methods: Using the American Board of Family Medicine Certification examination application survey data, we investigated the relationship between FPs' maternity care service provision and (1) demographic (gender, years in practice, race/ethnicity), (2) practice characteristics (size, ownership, rurality), and (3) county-level factors (percentage of reproductive-age women, the number of obstetrician–gynecologists (OBGYNs) and certified nurse midwives (CNMs) per 100,000 reproductive-age women). We performed summary statistics and multivariate logistic regression analyses.

Results: Of the 59,903 FPs in the sample, 7.5% provided maternity care. FPs practicing in rural were 2.5 times more likely to provide maternity care than those practicing in urban areas. FPs in academic (odds ratio [OR] 4.6, 95% confidence interval [CI] 4.1–5.1) and safety-net settings (OR 1.9, 1.7–2.1) had greater odds of providing maternity care. FPs in the bottom quintile with no or fewer OBGYNs and CNMs had a higher likelihood of maternity care provision (OR 2.1, 1.8–2.3) than those in the top quintile, with more OBGYNs and CNMs.

Conclusions: FPs in high-needs areas, such as rural and safety net settings, and areas with fewer CNMs or OBGYNs are more likely to provide maternity care, demonstrating the importance of FPs in meeting the needs of women with limited maternity care access. Our study findings highlight the importance of considering the contributions of FPs to maternity care as the organizations prioritize resource allocation to areas of highest need.

KEYWORDS

family physicians, maternity care deserts, maternity care, rural, vulnerable populations

INTRODUCTION

The United States has the highest rate of maternal mortality in the developed world, with 32.9 deaths per 100,000 live births in 2021.¹ This disparity is even worse in women of color. Black women are 2.6 times more likely to die during childbirth than their white counterparts, at a rate of 69.9 deaths per 100,000 live births.¹ There are many contributors to this disparity, including discrimination, implicit bias, and a nationwide shortage of maternity care providers, especially in

and around maternity care shortage areas. Appropriate and equitable allocation of maternity care providers in the United States is an essential step in increasing access and equity of maternity care in the United States.

Obstetrician–gynecologists (OBGYNs), certified nurse midwives (CNMs), and family physicians (FP) are qualified maternity care providers in the United States. However, there is a projected shortage of all three provider specialties, contributing to the maternal morbidity and mortality crisis and leaving hundreds of thousands of women

without access to maternity care. Projections show that by the year 2025, the United States will have a shortage of 4930 OBGYNs, with an 8% increase in demand,² and there is also a projected shortage of 52,000 primary care providers by 2025,³ many of whom provide vital maternity care services in the United States.

FPs are uniquely suited to fill the gaps in the maternity care workforce, specifically in maternity care target areas (MCTAs). FPs are the only medical specialty trained not only in primary care, comprehensive chronic disease care, acute care, and preventive medicine but also in full-spectrum women's health, including prenatal care and obstetrical deliveries. FPs offer partnership for the continuum of health care needs, providing much needed access to whole-person care in shortage areas. In addition, they are more likely to practice in underserved communities and communities of color and see patients who rate their health as poor. Most recent data indicates that roughly only 6.7% of FPs provide obstetrical deliveries as part of their practice.⁴

Prior research showed that female versus male FPs, younger versus older FPs, White versus non-White FPs, and rural versus urban FPs were more likely to provide obstetric services.⁵ FPs' contribution to maternity care is overlooked in policy decisions despite the increased access and valuable care. Traditionally, the March of Dimes defined maternity care shortage areas as maternity care deserts, "counties in the United States that have no OBGYNs or CNMs, and no hospitals providing maternity care services."⁶ This definition excludes the thousands of FPs who provide maternity care in the United States. However, the March of Dimes plans to include FPs in their maternity care definition in their 2023 report, and the authors applaud this step. Previous research found that FPs provide maternity care in 66% of maternity care deserts in the United States and are the only providers of maternity care in 181 counties in the United States, primarily in rural counties.⁷ Equitable solutions cannot be attained without adequately addressing the full spectrum of obstetric providers.

The Health Resources Services Administration (HRSA) developed MCTAs to allocate OBGYNs and CNMs to maternity care shortage areas. MCTAs are maternity care shortage areas located within existing Primary Care Health Professional Shortage Areas (HPSAs). MCTAs are created based on a composite score of (1) the ratio of reproductive age females to OBGYNs and CNMs, (2) the percentage of women at or below 200% poverty level, (3) distance and travel time to the nearest provider with access to maternity care services, (4) fertility rate, (5) the social vulnerability index, and (6) the Maternal Health Index (four maternal health indicators—pre-pregnancy obesity, pre-pregnancy diabetes, pre-pregnancy hypertension, and prenatal care initiation).⁸ This definition, similarly, overlooks FPs who provide obstetric care. The lack of inclusion in both definitions devalues the contribution of family medicine. It may misallocate resources from areas of highest need with no maternity care providers.

Given the significant contribution of FPs providing maternity care in the United States, we sought to determine (1) physician demographic, (2) practice, and (3) area-level factors associated with the provision of maternity care by FPs to better understand how to engage FPs in maternity care.

METHODS

We examined the demographic, practice, and county-level characteristics associated with FPs' provision of maternity care using (1) the American Board of Family Medicine Family Medicine Certification (ABFM-FMC) practice demographic questionnaire (2013–2021), (2) the 2016–2020 American Community Survey (ACS), and (3) the 2020 Area Health Resource File (AHRF) data. Maternity care was defined as FPs delivering babies. The survey questionnaire asked the following question to ascertain whether FP deliver babies—"Please indicate which of the following you personally provide: Delivering babies (Yes/No)."

Using the zip code of FPs' practice addresses, first, we linked the ABFM-FMC data with the Economic Research Service, United States Department of Agriculture Rural-Urban Commuting Area Codes (2010 RUCA)⁹ to identify the remoteness of FPs who provide obstetric care. We then used the state county Federal Information Processing Standards codes and merged them with the demographic data in the ACS and the 2020 AHRF data on the OBGYNs and CNMs. We calculated the number and percent of women of reproductive age and the number of OBGYNs and CNMs in each county. Using this maternity care workforce data, we calculated the number of OBGYNs and CNMs per 100,000 women of reproductive age for each county.

Our outcome measure was the FPs' provision of maternity care, and explanatory variables included demographic and practice characteristics. Gender and type of medical degree were recoded as dichotomous variables (female or male, DO or MD). We created a five-category measure for race-ethnicity—(1) non-Hispanic White, (2) non-Hispanic Black, (3) non-Hispanic Asian, (4) non-Hispanic Other (combined American Indian/Alaskan Native, Native Hawaiian/Pacific Islander, and "Other"), and (5) Hispanic. Years in practice were grouped into four categories: 0–10, 11–20, 21–30, 31 years, or more. Four categories of practice size were created—solo (0), small (2–6), medium (6–20), and large (>20). The practice ownership categories were collapsed into eight categories—(1) hospital-owned, (2) solo, (3) group practice, (4) managed care, (5) academic, (6) government, (7) safety-net, and (8) other. A binary variable of rurality measure (rural or urban) was created using RUCA codes. We scored "1," indicating rural for codes four and above, and "0," indicating urban for codes four and below.⁹ We created quintiles of the number of OBGYNs and CNMs per 100,000 reproductive-age women.

The Institution Review Board, American Academy of FPs, exempted the study from full review because it was based on secondary data analyses of cross-sectional deidentified ABFM-FMC data.

Statistical analysis

We first performed summary statistics by FPs' provision of maternity care and reported frequencies and percentages for categorical variables and mean and standard deviation for continuous measures. We then conducted chi-squared tests and *t*-tests to assess

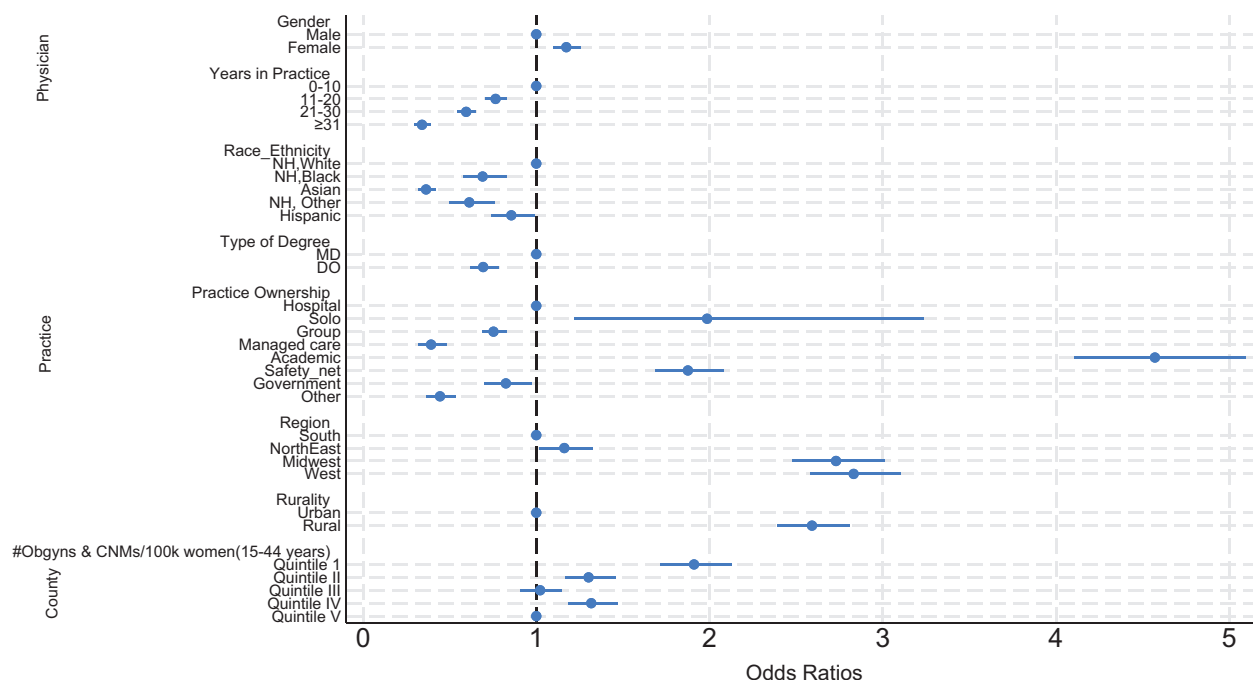


FIGURE 1 Factors associated with family physicians' provision of maternity care services.

significant differences between the FPs who provided maternity care and those who did not. Finally, we constructed logistic regression models to investigate the relationship between the provision of maternity care by FPs and the following factors: (1) demographic (gender, type of medical degrees, years in practice, race/ethnicity); (2) practice characteristics (size, ownership, rurality); and (3) area-level factors (county-level percentage of reproductive-age women and number of OBGYNs and CNMs per 100,000 reproductive-age women) quintiles. All analyses were carried out using Stata 17.0.¹⁰

RESULTS

Of the 59,903 FPs, 7.5% provided maternity care. Bivariate analysis showed FPs providing maternity care were likely to be female, White, in practice for less than 10 years, part of medium and large practices, practicing in the Midwest or West, in rural areas, and in academic and safety-net settings (Table 1). FPs in the lowest quintile areas for OBGYNs and CNMs providing maternity care were more likely to provide maternity care themselves; (11.7% provided maternity care in these geographies [SD 32.2%]).

Logistic regression analyses demonstrated that female FPs had 1.2 times higher odds of providing maternity care than their male peers (odds ratio [OR] 1.2 confidence interval [CI] [1.1-1.3]) (Figure 1, Table 2). FPs in practice for greater than 10 years compared to less than 10 years had lower odds of providing maternity care (11-20 years OR 0.8, 95% [CI] 0.7-0.8), (21-30 OR 0.6, [CI] 0.5-0.6), and (≥31 years OR 0.3, [CI] 0.3-0.4). Whites versus non-White FPs were more likely to provide maternity care (Black FPs (OR 0.7, [CI] 0.6-0.8); Asian (OR

0.4, [CI] 0.3-0.4)); Other (OR 0.6 [CI] 0.5-0.8)); Hispanic (OR 0.9 [CI] 0.7-1.0)).

FPs in solo practices were least likely to provide maternity care. Those practicing in the Midwest and West were more likely to provide maternity care. Relative to FPs employed in hospitals, FPs who owned their practices (OR 2.0, [CI] 1.7-4.3), those in academics (OR 4.6 [CI] 4.1-5.1), and safety-net practices (OR 1.9, [CI] 1.7-2.1) had higher odds of providing maternity care. FPs in rural areas had a 2.5 times higher likelihood of providing maternity care than those in urban areas (OR 2.5, [CI] 2.3-2.8). Compared to FPs in the bottom quintile with a larger number of OBGYNs and CNMs, those in the top quintile with zero or fewer OBGYNs and CNMs had the highest likelihood of maternity care provision (OR 2.1, [CI] 1.8-2.3).

DISCUSSION

In this cross-sectional study examining FPs' provision of maternity care services, we found that the FPs who practiced in areas with fewer OBGYNs or CNMs were twice as likely to provide obstetric care as FPs in areas with a high proportion of OBGYNs and CNMs. FPs in rural areas and those practicing in academic and safety-net settings had a higher likelihood of maternity care provision.

MCTAs lie in HPSAs and often occur in rural counties. Federal agencies should account for FPs who provide obstetric care within the MCTAs when compiling lack of access scoring metrics. More robust and reliable metrics may improve training in remote areas, improve recruitment to accurate MCTAs, and provide more precise locations for funding support and resource allocation. Previously, FPs have not been accounted for in MCTA classification as not all FPs provide maternity

TABLE 1 Distribution of demographic and practice characteristics of family physicians by provision of maternity care (N = 59,903).

Characteristics	Provision of maternity care				p-Value
	Yes (n = 4488 [7.5%])		No (n = 55,415 [82.5%])		
	N	%	N	%	
Gender					
Female	2035	45.3	22,639	40.9	<0.01
Male	2453	54.7	32,776	59.1	
Race-ethnicity					
NH, White	3743	83.4	39,216	70.8	<0.01
NH, Black	145	3.2	2954	5.3	
NH, Asian	262	5.8	8061	14.5	
NH, Other	54	3.4	924	6.1	
Hispanic	237	5.3	3446	6.2	
Years in practice					
0–10 years	1615	36	15,597	28.1	<0.001
11–20 years	1435	32	17,572	31.7	
21–30 years	1134	25.3	15,505	28	
31 or more	304	6.8	6741	12.2	
Type of medical degree					
DO	368	8.2	5464	9.9	<0.01
MD	4120	91.8	49,951	90.1	
Census region of practice location					
Northeast	376	8.4	8055	14.5	<0.01
South	760	16.9	19,829	35.8	
West	1441	32.1	13,878	25	
Midwest	1911	42.6	13,653	24.6	
Rurality of practice location					
Urban	2958	65.9	46,944	84.7	<0.01
Rural	1530	34.1	8471	15.3	
Practice size					
Solo	190	4.2	7355	13.3	<0.01
Small	629	14	11,784	21.3	
Medium	1256	28	10,086	18.2	
Large	745	16.6	5908	10.7	
Practice ownership					
Hospital	1052	23.4	13,092	23.6	<0.01
Solo	171	3.8	6118	11	
Group	1067	23.8	18,148	32.7	
Manage care	111	2.5	2969	5.4	
Academic	947	21.1	2974	5.4	
Government	193	4.3	3337	6	
Safety-net	812	18.1	4147	7.5	
Other	135	3.0	4630	8.4	

(Continues)

TABLE 1 (Continued)

Characteristics	Provision of maternity care				p-Value
	Yes (n = 4488 [7.5%])		No (n = 55,415 [82.5%])		
	N	%	N	%	
% FPs providing maternity care by quintiles of number of OBGYNs and CNMs per 100,000 women of reproductive age in the county					
Quintile I (15 (14))		11.8		88.2	<0.01
Quintile II (47 (6))		6.5		93.5	
Quintile III (64 (4))		5.4		94.6	
Quintile IV (84 (7))		7.5		92.5	
Quintile V (129 (36))		6.3		93.7	
% Women of reproductive age (county level)		22.0 (2.0)		23.0 (3.0)	

Abbreviations: CNMs, certified nurse midwives; FP, family physician; NH, non-Hispanic; OBGYNs, obstetricians and gynecologists.

Source: Analyses of American Board of Family Medicine ABFM Family Medicine Certification practice demographic questionnaire (2013–2021); 2020 American Community Survey; 2020 Area Health Resource File.

care, and it is difficult to ascertain the volume of deliveries for these clinicians.⁸ It is valuable to note that not all OBGYNs provide maternity care.¹¹ Our data indicates MCTAs currently do have FPs providing maternity care. It is essential that agencies use either accurate scope of practice data in determining obstetric providers within geography or a weighted metric that could include FPs and OBGYNs delivering babies.

Our study demonstrated that FPs are important maternity care providers in the United States, especially within and around areas of maternity care shortage. Rural areas benefit from FPs providing maternity care compared to urban areas, which have high proportions of other delivering clinicians. FPs who want to practice maternity care may seek to practice in areas with fewer obstetric care providers due to less competition, more opportunities for continuing to maintain their skill set, and practicing in areas with no scope of practice restrictions or difficulties in credentialing.¹² Alternatively, practicing in a maternity care desert may drive some FPs to continue obstetric care after residency to ensure safe and whole-person care for their communities.

Women of reproductive age in rural counties are often forced to travel long distances to reach maternity care providers, with half living 30 mi from the nearest provider and 10% of women traveling 100 mi or more.¹³ FPs providing care in rural counties have the potential to decrease average travel time and distance to maternity care, given access to delivering locations. Rural hospital closures have reduced access to maternity care for thousands of women, worsening maternity care deserts in the past 10 years. In rural communities without hospital access, FPs can, at minimum, provide prenatal care to help increase access to care. Half of rural counties have no hospital-based obstetrical services. Relative to urban women, rural women are seven times more likely to travel more than 30 min to reach the nearest hospital to seek obstetric care.¹⁴

Academic FPs are more likely to provide maternity care services than non-academic counterparts due to the need for training with Accreditation Council of Graduate Medical Education requirements and the ability to obtain credentials at hospitals with teaching.¹⁵

Institutions should continue to advocate for academic FPs to provide maternity care, offer robust training in maternity care to family medicine residents, and encourage continued provision of maternity care in their future practice.

FPs in safety-net settings play a significant role in caring for vulnerable populations (uninsured, publicly insured, low-income, and people of color). Previous research shows that FPs are more likely to practice in underserved communities and communities of color than their counterparts in other medical specialties.¹⁶ Because of this, removing barriers to the provision of maternity care and continuing to offer family medicine residents robust maternity care training can help reduce disparities and inequities within these communities, decreasing inequities in access to care faced by these communities.

There are a few limitations that should be considered for our study. First, we used data from ABFM certification survey data from 2013 to 2021, which accounts for approximately 80% of ABFM diplomates, which may exclude a proportion of FPs providing maternity care. In addition, more recent research demonstrates a trend of FPs exiting rural areas,¹⁷ which may decrease the number of FPs providing maternity care in rural areas and was not accounted for in our data set. Because we used the AHRF data aggregated counts of OBGYNs and CNMs at the county level, we could not determine what proportion of OBGYNs and CNMs delivered babies.

Future research should address the amount of time and volume of FPs delivering babies. It is also essential to examine the impact of rural hospital closures and state regulation changes on FPs' provision of maternity care.

CONCLUSION

FPs in high-needs areas, such as rural and safety net settings, and areas with fewer CNMs or OBGYNs are more likely to provide maternity care. FPs are valuable in communities to meet the needs of women with

TABLE 2 Factors associated with family physicians provision of maternity care ($N = 59,903$).

Characteristics	Odds ratio	95% confidence interval
Gender		
Male		
Female	1.17**	(1.10–1.26)
Years in practice		
0–10 years		
11–20 years	0.76**	(0.71–0.83)
21–30 years	0.60**	(0.54–0.65)
31 or more	0.34**	(0.30–0.39)
Race-ethnicity		
NH, White		
NH, Black	0.69**	(0.58–0.83)
NH, Asian	0.36**	(0.32–0.42)
NH, Other	0.61**	(0.49–0.76)
Hispanic	0.86*	(0.74–0.99)
Type of medical degree		
MD		
DO	0.69**	(0.62–0.78)
Practice size		
Solo		
Small	2.71**	(1.70–4.31)
Medium	5.78**	(3.63–9.20)
Large	6.64**	(4.16–10.59)
Practice ownership		
Hospital		
Solo	1.99**	(1.22–3.24)
Group	0.75**	(0.68–0.83)
Manage care	0.39**	(0.32–0.48)
Academic	4.58**	(4.11–5.10)
Safety-net	1.87**	(1.69–2.08)
Government	0.82*	(0.70–0.97)
Other	0.44**	(0.37–0.54)
Census region of practice location		
South		
Northeast	1.16*	(1.01–1.32)
West	2.73**	(2.48–3.01)
Midwest	2.83**	(2.58–3.10)
Rurality of practice location		
Urban		
Rural	2.58**	(2.37–2.81)
Number of OBGYNs and CNMs per 100,000 reproductive-age women		

(Continues)

TABLE 2 (Continued)

Characteristics	Odds ratio	95% confidence interval
Quintile I	1.91**	(1.72–2.13)
Quintile II	1.30**	(1.16–1.46)
Quintile III	1.02	(0.91–1.15)
Quintile IV	1.32**	(1.18–1.47)
Quintile V	1.00	1.00–1.00
Percent women of reproductive age	1.00	(0.98–1.01)
Survey year		
2013		
2014	1.07	(0.96–1.20)
2015	1.00	(0.89–1.12)
2016	0.95	(0.84–1.07)
2017	0.85*	(0.75–0.96)
2018	0.80**	(0.70–0.92)
2019	0.76**	(0.66–0.86)
2020	0.68**	(0.55–0.85)
2021	0.68**	(0.57–0.81)
Constant	0.02**	(0.01–0.03)

Abbreviations: CNMs, certified nurse midwives; NH, non-Hispanic; OBGYNs, obstetricians and gynecologists.

* $p < 0.05$.

** $p < 0.01$.

Source: Analyses of American Board of Family Medicine Family Medicine Certification practice demographic questionnaire (2013–2021), 2020 American Community Survey, and 2020 Area Health Resource File.

limited maternity care access. It is critical to identify factors that promote FPs to provide obstetric care and include them as organizations prioritize resource allocation and practice incentives, as well as better advocate for the appropriate allocation of maternity care providers to areas of highest need to ensure accessible and equitable maternity care to all women and work toward reducing the maternal morbidity and mortality crisis in the United States.

ACKNOWLEDGMENTS

We thank Drs. Yalda Jabbarpour and Jeongyoung Park for their valuable input and feedback on the study design and concept.

CONFLICT OF INTEREST STATEMENT

We have no conflicts of interest to disclose.

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How to cite this article: Walter G, Jetty A, Topmiller M, Huffstetler A. Family physicians provide maternity care in and around the maternity care shortage areas, particularly rural. *J Rural Health*. 2024;40:664–670.
<https://doi.org/10.1111/jrh.12848>