Obstetrical Practice Among New Rural Family Physicians

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Background. Fewer family physicians now practice maternity care than a decade ago, a trend that is worsening access to obstetrical care in some rural areas. This study explores the effects of a wide range of factors on the likelihood of newly settled rural family physicians providing maternity care.

Methods. Subjects included 782 family physicians who moved to nonmetropolitan areas nationwide during the years 1987 through 1990. Physicians who located in health professional shortage areas were oversampled. Questionnaires were mailed in 1991, with a 72% response rate. The final sample used in the analyses included 338 eligible respondents.

Results. A total of 151 (45%) of these rural family physicians performed routine deliveries during the previous year. Family physicians more likely to provide maternity care worked in practices they owned and were not solo practitioners ($P \leq .05$). Maternity care by family physicians also was more common in counties that were less populated, had fewer obstetricians, and had more family physicians. State-by-state differences in the cost of medical malpractice insurance and Medicaid reimbursement rates for obstetrical care were not among the factors associated with the provision of maternity care for these rural family physicians.

Conclusions. These data suggest that features of rural family physicians' practices and communities are the best predictors of whether they provide maternity care. Contrary to what family physicians often claim, we found that malpractice premium costs and Medicaid reimbursement rates were not associated with family physicians' likelihood of providing maternity care.

Key words. Family practice; obstetrics; primary care physicians; rural primary care physicians; physician's practice patterns; rural health; physicians, family. (*J Fam Pract 1995; 40:457-464*)

Access to maternity services for women in rural areas is too often hampered by the unavailability of local obstetrical providers. Although there is some evidence to the contrary,[1] most studies suggest that women in rural communities where obstetrical providers are scarce experience more complications during labor, have higher infant mortality rates, and generate higher obstetrical costs.[2,3]

Family physicians are the most numerous and evenly distributed of rural physicians and are well situated to be the source of obstetrical care for rural women, particularly those in more remote settings. According to the Institute of Medicine,[4] family physicians comprise two thirds of all providers of rural private maternity care. Unfortunately, over the past 10 years, fewer family physicians have been providing these services. In 1992, only about 32% of all residency-trained family physicians delivered babies.[5] Although rural family physicians were more likely than their urban counterparts to provide maternity care, only 43% of those in rural areas were providing these services in 1988,[6] a 23% decline since 1980.[7] Current federal and state efforts to improve access to obstetrical care for rural women by improving the spatial distribution of physicians and eliminating financial barriers to care will be only partially effective if local physicians are unwilling to provide these services. This study explores the factors associated with the likelihood of rural family physicians providing maternity care services.

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Preliminary analyses of these data were presented at the annual meeting of the American Public Health Association, which took place in October 1993 in San Francisco.

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Previous Research

Various factors are believed to push family physicians either toward or away from providing maternity care. In numerous studies, family physicians have cited the cost of malpractice liability insurance, the risk of a malpractice suit, and low Medicaid reimbursement rates as important factors in their decisions not to provide obstetrical care.[6,8–18] We are aware of no corroborating studies, however, that have shown that insurance costs, suit risks, and Medicaid rates statistically predict the provision of obstetrical care among family physicians.

On the other hand, there are good data demonstrating that having a rural practice location,[8] a group practice setting,[12,16,19] and a higher personal interest level in obstetrics[8,13] predict the provision of maternity care services by family physicians. Features of family physicians' obstetrical training also are associated with their likelihood of providing maternity care.[8,12,13,20] It is not clear, however, whether this association is causal or due to confounding by learners' preexisting interest in obstetrics.

The presence, or absence, of other nearby obstetrical providers may have several and competing effects on family physicians' willingness to provide maternity care. The proximity of other obstetrically active family physicians provides opportunities for after-hours cross-coverage and collegial interactions, but may increase competition.[9,11,21] The accessibility of local obstetricians willing to serve as consultants may be helpful.[9] Their presence, however, may increase competition, and interspecialty conflicts ("turf wars") may discourage family physicians from practicing maternity care.

This study provides information on these and other factors affecting the provision of maternity care among a cohort of rural family physicians.

Methods

A sampling frame of family physicians who moved to rural practices during the late 1980s was constructed from the American Medical Association's Physician Masterfile, a listing of all US allopathic physicians, including both members and nonmembers of the AMA. The sampling frame of family physicians was constructed as part of a study of the retention of rural physicians,[22] with an emphasis on those in health professional shortage areas (HPSAs). An entry cohort was used as required of a retention study.[23] A total of 3839 physicians were identified, based on the following criteria: (1) a self-identified principal specialty of family practice; (2) practice relocation within nonmetropolitan settings during the years 1987 through 1990; (3) professional status that does not include being in training, being inactive, or being primarily in administrative or research staff positions; and (4) nonparticipation in the National Health Service Corps (NHSC) scholarship or loan repayment programs.

The practice location of each of the 3839 family physicians was classified as either within or outside an area designated as an HPSA at any point during the years 1987 through 1990. With the use of a stratified, random sampling strategy,[22] a sample of 782 physicians was drawn, including 513 of the 993 HPSA-located physicians and 269 of the 2846 physicians not located in an HPSA.

As many as three questionnaires were mailed to subjects during the fall of 1991. Of the 782 physicians surveyed, no current addresses were found for 36. Of the remaining 746, there were 540 respondents and 206 nonrespondents, for a survey response rate of 72%. Response rates did not vary by physician age or sex, region of the country, or HPSA vs non-HPSA location of practice. Regardless of their Masterfile information, respondents were excluded from the analyses if they indicated they had never worked in a small town (n=33); had not moved to a new small-town practice in 1986 or later (n=79); reported on a small-town practice in a metropolitan county (n=28); were serving in the NHSC (n=15) or the military (n=29); worked fewer than 30 hours per week (n=28); or had died (n=3). Categories were not mutually exclusive. Findings on the remaining 338 family physicians are reported here.

Physicians were asked on the questionnaire to report their experiences in the first small-town practice in which they worked from 1986 through 1990, called the *index practice*. For most but not all, this was the first rural or small-town practice in which they had worked.

The outcome variable for these analyses is physicians' responses to a questionnaire item asking whether they had performed routine obstetrical deliveries in the previous 12 months. Those who had left their index practices when surveyed indicated whether they had delivered babies during their final year in that practice.

Five data sources were used for variables that may affect whether family physicians deliver babies. From the questionnaire, we learned whether physicians practiced in group or solo practices; whether they owned their practices; the number of years since they completed their residency training; whether they were fulfilling a service obligation through their work in their index practices; their satisfaction levels with their referral access to consultants (0=very dissatisfied; 2=neutral; 4=very satisfied); and their sex. Because age and years since training were highly correlated, only the latter was included in the multivariate analyses. Based on their reported office locations, physicians' practices were classified as either within

or outside areas designated as HPSAs at any point during the years 1987 through 1990.

A second data source was the Area Resource File,[24] from which we learned the 1990 population in the counties in which the physicians practiced; the 1989 county average per capita income; and the number of family physicians and obstetricians working in the county in patient care positions in 1990. From a third data source, the American Hospital Association's 1989 Annual Survey of Hospitals,[25] we determined whether the hospitals that physicians identified as practice sites had patient care units dedicated to obstetrics. Data on 1991 state Medicaid reimbursement rates to physicians for total obstetrical care packages, covering prenatal care, labor and vaginal delivery management, and postpartum care, were obtained from a study conducted by the American College of Obstetricians and Gynecologists.[26] Finally, malpractice premium costs were obtained for all but five of the continental US states.[27] These costs were based on 1993 mature, claims-made class 1 and class 3 policies with $1 million/$3 million limits of coverage provided through the St Paul Fire and Marine Insurance Co (St Paul, Minn). St Paul is the largest US malpractice insurer, providing coverage to more physicians in more states than any other insurer.

Bivariate associations between explanatory variables and whether family physicians delivered babies were examined using *t* tests and chi-square tests. Subsequent logistic regression models were run with all explanatory variables using the SAS statistical package, version 6.08 (SAS Institute Inc, Cary, NC, 1989). Final regression models were repeated using the SUDAAN statistical package, version 6.34 (Research Triangle Institute, Research Triangle Park, NC, 1993) to adjust for sampling probabilities and stratification group response rates. Three county variables—the number of obstetricians, the number of family physicians, and population size—were used in logarithm form in the regression models to adjust for their kurtosis. No problematic multicollinearity was found among variables in the logistic models.

Results

Of the 338 eligible respondents, 81% were male and 92% were non-Hispanic whites. Their ages ranged from 26 to 64 years, with a mean of 37 years. Ninety-six percent had completed their residencies in family practice, and 94% were board-certified in family medicine. These family physicians had moved to their index rural practices, located in 44 different states, from less than 1 year and up to 5 years (median, 3) before they were surveyed. At the time of the survey, 31% already had left their index practices. Sixteen percent indicated that they had moved to their index practices to fulfill some type of service obligation, typically to their state or community.

Eighty-nine percent reported that they worked in office-based practices, another 7% worked in community and migrant health centers, and the remaining 4% worked in hospital-based settings or "other" types of practices. Sixty-seven percent were in group practices, which had a median group size of two full-time physicians, and 33% were in solo practices.

A total of 151 (45%) responding family physicians indicated they had performed routine deliveries during the preceding 12 months or, for those who had left their practices at the time of the survey, during their final 12 months in that practice. With only one exception, all physicians who reported delivering babies also indicated they provided prenatal care. Another 17% of the 187 physicians who did not deliver babies indicated that they provided prenatal care; these physicians are included in the non–maternity-care group in these analyses.

Table 1 includes characteristics of physicians and their practices, communities, and state practice environments that may affect whether they provide maternity care. It is important to recognize that county mean per capita incomes were low at least in part because of the oversampling of physicians in underserved settings. Nevertheless, physicians who wanted to deliver babies would pay on average $13,713 each year for the necessary class 3 malpractice insurance coverage in their states (range, $5,388 in Arkansas to $35,218 in California). In contrast, class 1 coverage needed by family physicians who did not include maternity care cost $4,479 on average in the states where these physicians practiced. Family physicians outnumbered obstetricians by 4 to 1 in their counties, and family physicians generally were satisfied with their access to obstetrical consultants.

Bivariate associations between the characteristics of physicians, their practices, and their work environments and whether they performed deliveries are shown in Table 2. Without adjusting for possible confounding, it is seen that family physicians were more likely ($P \leq .05$) to provide maternity care if they were more recently trained, fulfilling service obligations, working in group practices, working in less populated counties, and working in counties with fewer obstetricians.

Table 3 presents the results of a logistic regression analysis of the factors in Table 2, which was conducted to control for possible confounding and masking. The variable indicating physicians' satisfaction with their access to consultants was excluded from the logistic model, as it is likely an intervening factor for the variable indicating the number of county obstetricians. The associations found in the bivariate analyses were maintained, with a few excep-

Table 1. Characteristics of Physicians, Practices, and Communities That May Affect Whether New Rural Family Physicians (N=338) Provide Maternity Care

Variable	N (%)	Mean	Standard Deviation
Physician characteristics			
Male	274 (81)	—	—
Years since residency completion	—	4.9	4.4
Respondent fulfilling obligation	53 (16)	—	—
Practice organization characteristics			
Solo practice	105 (33)	—	—
Respondent owner of practice	145 (44)	—	—
Population/community indicators			
County population size, n	—	35,800	34,300
County per capita income, $	—	13,123	2234
HPSA designation	158 (47)	—	—
Physician competition/collegiality indicators			
Family physicians in county, n	—	8.1	9.3
Obstetricians in county, n	—	1.9	3.2
Satisfaction with access to consultants*	—	2.9	.93
Malpractice issues			
State malpractice premium costs, $†	—	13,713	7975
Financial issues			
State Medicaid reimbursement rate, $	—	908	232

**Scale values: 0=very dissatisfied; 2=neutral; and 4=very satisfied.*
†State malpractice premium costs for class 3 coverage based on data from one national insurer, St Paul Fire and Marine Insurance Company.
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tions. Despite the attention malpractice premium costs receive, state-by-state differences in malpractice insurance premium rates were not associated with family physicians' likelihood of performing deliveries. State Medicaid reimbursement rates also were not associated with family physicians' provision of maternity care.

Of the physician characteristics examined, the only item that predicted the provision of maternity care was whether physicians were serving practice obligations: those serving obligations were more likely to deliver babies. Physician sex and the number of years that had passed since they completed their residencies were unrelated to the provision of maternity care.

The most consistent indicators of maternity care participation were features of physicians' practices and communities. Physicians working in group practices and practices they owned were more likely to provide deliveries. Family physicians also were more likely to offer maternity care when they worked in counties with smaller populations, fewer obstetricians, and more family physicians. Maternity care participation was unrelated to communities' HPSA designation but tended to be higher in poorer counties ($P>.05$)

To test whether these findings are applicable to all nonmetropolitan (rural) family physicians, the logistic regression model was repeated after weighting for sampling probabilities and stratification group response rates. Findings were unchanged.

It is possible that the disincentive for maternity care practice due to malpractice insurance costs, as judged by family physicians, is reflected more accurately by the difference between class 1 and class 3 coverage than by the cost of class 3 coverage alone. To test for this possibility, the regression model was repeated after substituting the insurance cost variable with another variable indicating the dollar difference between class 3 and class 1 coverage in each physician's state. The average cost difference was $9,200 for the 163 physicians for whom data were available; St Paul does not provide class 1 coverage in states where 114 of this study's physicians practiced. In the revised regression model, the variable indicating the cost difference between class 3 and class 1 coverage was found not to predict which family physicians provided maternity care.

Forty-five physicians indicated that they did not provide in-hospital care of any kind and, as expected, none of these physicians performed deliveries. It is likely that some of these physicians wanted to provide maternity care but were either unable to obtain hospital privileges, lived an impractical distance from a hospital, or worked in practice organizations that restricted them to outpatient work. To determine whether the inability of some physicians to

Table 2. Bivariate Associations Between Studied Factors and Whether Family Physicians Delivered Babies During the Preceding Year

Factor	Physicians Delivering* (n=151)	Physicians Not Delivering (n=187)	Odds Ratio	*P* Value
Physician characteristics				
Male, %	83	79	0.80	.42
Years since residency completion	3.9	5.0	—	.03
Physician fulfilling obligation, %	23	10	2.63	.002
Practice organization characteristics				
Solo practice, %	24	41	0.44	.001
Respondent is owner of practice, %	47	41	1.24	.33
Population/community indicator				
County population size, n	28,000	42,800	—	<.001
County per capita income, $	12,933	13,825	—	.19
HPSA designation, %	50	45	1.22	.37
Physician competition/collegiality indicators				
Family physicians in county, n	7.0	9.1	—	.06
Obstetricians in county, n	1.1	2.1	—	<.001
Satisfaction with access to consultants†	2.96	2.82	—	.17
Malpractice issues				
State malpractice premium cost, $	13,407	13,868	—	.63
Financial issues				
State Medicaid reimbursement rate, $	888	929	—	.12

**Physicians who had left their index practices at the time of the survey indicated whether they had delivered babies during their final year in those practices.*
†Scale values: 0=very dissatisfied; 2=neutral; 4=very satisfied.
HPSA denotes health professional shortage area.

provide hospital care affected findings of the correlates of maternity care for all physicians, we repeated the original logistic model of maternity care after eliminating physicians without hospital practices. No changes were found in the correlates of maternity care in the subgroup of physicians who provided hospital care.

Some rural hospitals have reported to the American Hospital Association that they do not have a patient care

Table 3. Results of Logistic Regression Analyses

Factor	Beta	Standard Error	Odds Ratio	*P* Value
State malpractice premium cost*	.021	.018	—	.25
State Medicaid reimbursement rate†	−.047	.059	—	.43
Male physician	.314	.354	1.37	.37
Years since residency completion	−.051	.037	—	.17
Physician fulfilling obligation	.795	.381	2.21	.04
Solo practice	−1.345	.349	.26	<.001
Respondent owner of practice	.854	.310	2.35	.006
Number (logarithm) of family physicians in county	.963	.307	—	.002
Number (logarithm) of obstetricians in county	−.759	.297	—	.01
County population size (logarithm)	−.540	.226	—	.02
County per capita income‡	−1.036	.637	—	.10
HPSA designation	−.007	.341	.99	.98

**In units of $1000.*
†In units of $100.
‡In units of $10,000.
NOTE: The dependent variable is whether family physicians delivered babies during the preceding year or, if they had left their index practices, during their final year with those practices.
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unit dedicated to the management of labor and delivery. Many of these hospitals, consequently, would be unable to allow their medical staff to perform deliveries even for routine pregnancies. Therefore, we repeated the full logistic model with the smaller subset of physicians (n=189) who practiced in hospitals that had obstetrical units, and again, no changes were found in the statistical correlates of the provision of maternity care by family physicians.

Discussion

This study of the factors affecting the likelihood of rural family physicians providing maternity care generally confirms findings from earlier studies that also relied on statistical associations between characteristics of physicians, their practices, and their communities and whether they were providing maternity care. On the other hand, these findings provide evidence against several factors family physicians have claimed affect their maternity practice decisions. The finding that is most important to current public policy discussions is that efforts to decrease the costs of malpractice insurance will not influence the number of family physicians who provide maternity care, despite family physicians' frequent statements to the contrary. Previous research based on the statistical correlates of obstetrical practice also suggests that physicians' belief that malpractice issues influence their decisions about maternity care is inaccurate. For example, Kruse et al[13] found no significant differences in concerns about malpractice suits and insurance premium costs between family physicians who never practiced maternity care and those who had practiced maternity care at some time, even though both groups cited these two factors as very important reasons for not providing maternity care. Similarly, Nesbitt et al[28] found that despite California family physicians' indications that lower malpractice premiums would cause them to reconsider their decision not to perform deliveries, none seriously considered resuming the practice following a state legislature–mandated drop in premium rates. It is possible that physicians use malpractice issues as a convenient rationalization for not practicing maternity care when their decisions actually are based on other considerations.[29]

This realization is not new. A recent report from the American Academy of Family Physicians' Task Force on Obstetrics to their board of directors (Kansas City, Mo, 1993, unpublished document) concluded that "the perception in regard to the severity of the liability problem far exceeds the reality." The Institute of Medicine has pointed out that "the importance of professional liability issues [to family physicians' inclination to curtail or eliminate obstetrical care], as distinct from personal considerations, can never be precisely known from survey data based on physicians' own reports."[4] Malpractice reform still may be important for a number of reasons, but not for the purpose of promoting maternity care among rural family physicians.

These data also suggest that family physicians' belief that low Medicaid reimbursement rates dissuade them from providing maternity care is inaccurate. This conclusion, however, is less certain. By 1991, the year for which this study obtained Medicaid reimbursement data, a number of states had raised their previously low payment rates for obstetrical services in attempts to increase the number of maternity care providers willing to care for pregnant Medicaid recipients. It is possible that physicians had too little time to respond to these changes in the fee schedules, and a real association between Medicaid rates and the provision of maternity care was not detected.

Family physicians in this study were less likely to provide maternity services when they practiced in counties with greater numbers of obstetricians, a finding that agrees with earlier studies. Kruse et al[13] noted a similar inverse relationship between family physicians' maternity practice and the state density of obstetricians. Tietze and colleagues[16] found that family physicians practicing maternity care resided farther from obstetricians than those who did not provide these services. Bronstein[21] found that fewer family physicians in Alabama moved to or began practicing maternity care in areas where obstetricians were located. Evidently, any positive effect on family physicians' likelihood of providing maternity care resulting from having obstetricians close at hand, such as the availability of consultations or cross-coverage, must be relatively small compared with other negative influences. To wit, Rosenblatt et al[15] found that only 8% of family physicians cited difficulty arranging backup or sharing call as important reasons for discontinuing maternity care.

It seems unlikely that competition is the primary reason why family physicians who provide maternity care tend to locate away from obstetricians, since another finding of this and a previous study[21] is that family physicians working in areas with *greater* numbers of other family physicians were *more apt* to offer maternity care. Possible explanations for family physicians' apparent avoidance of obstetrician-served communities are interspecialty differences in practice styles and conflicts over clinical standards, hospital privileging, and mandatory consultations and referrals.[13,14,30,31] Practice style differences between family physicians and obstetricians may be particularly important,[30–33] as the current aggressive management of labor[31,34] has been more widely embraced by obstetricians than by family physicians.[35] The routine use of invasive and expensive technologies and interventions is not

compatible with the practice style of many family physicians. Consequently, "obstetrical practice has become less and less rewarding for the family physician, personally, professionally, and financially," and less "joyous."[30] Family physicians in rural settings are particularly disinclined to use advanced technology in their care of patients.[36] Therefore, rural family physicians practicing in hospitals where obstetricians and a more aggressive style of obstetrical practice are the "dominant medical culture"[31] may find obstetrics nongratifying or even uncomfortable, and be more inclined to stop delivering.

Another possible explanation for the greater likelihood of family physicians practicing maternity care in counties with fewer obstetricians may be that there is more external pressure from patients, partners, hospitals, and the community to provide these needed services. Alternatively, family physicians in these counties with a greater need for these services may deliver babies out of a sense of duty even without external pressure.

It is good news for obstetrically needy rural communities that family physicians are more likely to provide maternity care in less populated counties and in those that tend to be poorer, where these services are generally needed most. It is unknown whether family physicians who provide maternity care seek out these needy settings and populations because of a sense of service commitment[9] or because they prefer to steer clear of obstetricians who are more likely to be found working in larger communities and caring for mothers who are more financially secure.[37]

Previous studies have shown there is an attrition from maternity care among family physicians over their years in practice.[19] Other studies have shown that family physicians who completed their training more recently are less likely ever to have begun practicing maternity care than are those who trained in the past.[11,12] It is likely that these two competing trends explain why present (1991) maternity care participation among this study's physicians was not associated with how many years they were out of training.

Two previously unstudied features of physicians and their practices were found to be associated with the provision of maternity care. Physicians who work in rural areas to fulfill service obligations more often provided maternity care services. This may reflect something special about the interests and dedication of individuals who elect to finance their medical education through service commitments. Alternatively, it may be that those serving commitments have less freedom in choosing the services they will provide and that some are required to provide maternity care even if it is not their preference. Family physicians who work in self-owned practices also are more likely to provide these services. Perhaps the financial benefits of maternity care are more compelling for physicians who own their practices and can personally reap this benefit.

This study's cross-sectional design make tenuous any claims of causality for the associations noted. Further, the malpractice premium rate data used were not ideal because they reflect the costs to physicians for only one carrier and only during 1993. The rates study physicians experienced were from 2 years earlier. However, to our knowledge, there are no better national malpractice premium data available.

A number of factors potentially important to family physicians' decisions about providing maternity care were not examined here, including the effects of training and of the disruption maternity care can cause to physicians' offices and in their personal lives.

This study's family physicians were atypical of all rural family physicians in that they had uniformly moved to their rural practices within the 5 years before they were surveyed. It is possible that factors predicting the provision of maternity care differ for family physicians who practice longer than 5 years in a given rural community. Because these findings in rural family physicians are similar to previous behavior-based studies of urban and rural family physicians combined, we believe that this study's findings likely apply to urban physicians as well.

Conclusions

Malpractice and financial issues have received too much attention in discussions of family physicians' decreasing willingness to provide maternity care. When we look beyond malpractice and financial issues, factors affecting family physicians' decision whether to provide maternity care become more subtle and less well understood. Findings from this study suggest that future studies should explore why family physicians are more inclined to provide maternity care in communities that are small, poor, family physician–dominated, and have fewer obstetricians. It may be that small, family physician–dominated communities are less affected by the trend toward "high-tech" maternity care, and thus are the last places where delivering babies is still gratifying for family physicians. If so, the most effective way to promote maternity care among family physicians may be to embrace of a new paradigm of practice[30] that diminishes the role of technology and offers instead a "high-touch" style of care.[32]

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