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The Effects of Medical Liability on Obstetric Care Supply in Michigan

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Abstract

Objective—To examine Michigan obstetric providers' provision of obstetric care and the impact of malpractice concerns on their practice decisions.

Study Design—Data were obtained from 899 Michigan obstetrician-gynecologists, family physicians, and nurse-midwives via a statewide survey. Statistical tests were conducted to examine differences in obstetric care provision and the influence of various factors across specialties.

Results—Among providers currently practicing obstetrics, 18.3%, 18.7% and 11.9% of obstetrician-gynecologists, family physicians and nurse-midwives, respectively, planned to discontinue delivering babies in the next five years, and 35.5%, 24.5% and 12.6%, respectively, planned to reduce their provision of high-risk obstetric care. "Risk of malpractice litigation" was one of the most cited factors affecting providers' decision to include obstetrics in their practice.

Conclusions—Litigation risk appears to be an important factor influencing Michigan obstetric providers' decisions about provision of care. Its implications for obstetric care supply and patients' access to care warrants further research.

Keywords

medical liability; obstetrician-gynecologist; family physician; nurse-midwives; obstetric care

Introduction

Increasing malpractice litigation risk and medical liability insurance premiums have caused widespread concern regarding their effects on obstetric care.[1] Although prior research has attempted to examine the influence of medical liability issues on obstetric practice, it remains unclear how medical liability concerns compare to other factors in affecting providers' decision

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to provide or discontinue obstetric services. Moreover, few studies have assessed these issues across all three major groups of obstetrical providers: obstetrician-gynecologists (ob-gyns), family physicians and nurse-midwives. Factors affecting their decisions surrounding obstetric practice may well be different.

Michigan is classified by the American Medical Association (AMA) as a state showing signs of looming medical liability crisis.[2] Liability insurance premiums for ob-gyns in Michigan have been reported as among the highest in the country for years.[3] Although the numbers specifically for obstetric care are not available, the overall payments on malpractice claims in Michigan reached nearly 60 million in 2005 for a total of 451 paid malpractice claims.[4, 5] The costly medical liability climate[6] may have considerable impact on obstetrical care supply in Michigan and put patient access to care at risk. Nevertheless, there is a dearth of objective data to help assess this issue.

The purpose of this study is two-fold. First, we evaluate the supply of obstetrical care in Michigan by characterizing providers' current provision of obstetric services and their plans for future practice. Second, we examine the relative importance of a wide range of factors, including concerns about liability litigation risk and availability and affordability of liability insurance, potentially affecting providers' practice decision (whether to include obstetrics in practice and where to practice). Findings from this study will help illuminate the influence of Michigan's current liability environment on its obstetrical care, inform the current discussion surrounding medical liability reform, and help maintain patient access and patient safety associated with obstetric care.

Materials and Methods

Survey

A statewide survey of obstetrical providers, including ob-gyns, family/general medicine physicians (hereinafter referred to as family physicians), and nurse-midwives, was conducted for this study. We used the AMA Physician Masterfile as our sampling frame to draw a random sample of 2,000 physicians (800 ob-gyns and 1,200 family physicians) aged 70 years or younger with mailing addresses in Michigan. To ensure that the sample had an adequate number of physicians with key characteristics (e.g., providing obstetric services, practicing in rural areas), we over-sampled ob-gyns, non-office based physicians (e.g., hospital employed, residents/fellows), and physicians whose addresses were in non-metropolitan counties. In the meantime, we obtained a mailing list of Michigan certified nurse-midwives (CNMs) (n=272) from the American College of Nurse-Midwives (ACNM), along with contact information for senior nurse-midwifery students (n=10) enrolled in the Nurse-Midwifery program at the University of Michigan. All were included in the survey.

A self-administered questionnaire was developed by the investigators, drawing on previous work in this field.[7–14] Several questions were taken or adapted from previously validated survey items.[7, 15] A preliminary version of the survey instrument was pilot tested among a small group of obstetrical providers (including ob-gyns, family physicians, and CNMs) from the investigators' institution, local community hospitals, and private practices. Survey questions were deleted, added or modified in response to comments received during this pilot testing. The final instrument contained items ascertaining information on providers' obstetric practice, medical liability insurance coverage, malpractice litigation experience, career satisfaction, career plan, and factors influencing their decisions regarding practice location and whether to include obstetrics in their practice. The survey instrument and procedure were approved by the University of Michigan Medical School Institutional Review Board.

The questionnaire was distributed to the 2,000 physicians and 282 nurse-midwives in February 2006. Initial contact was made through e-mail for providers with e-mail addresses available and by mail for all other providers. All providers were offered a choice to respond by mail, fax, or on-line. No incentives were provided for completing the survey, but to help inform potential respondents of the study and improve the response rate, the Wayne County Medical Society of Southeast Michigan and the Southeastern Michigan ACNM Chapter posted information about the study on their website and/or monthly newsletter. A reminder and two follow-up contacts were also made to increase the response rate. The entire survey was completed in August 2006.

Of the 2,282 surveys sent out, 107 were undeliverable (incorrect address or provider no longer working at the address) and three were returned because the providers were deceased. The final response rates varied across specialties: 76.9% among nurse-midwives, 48.2% among ob-gyns, and 41.3% among family physicians.

Outcome Measures

Our primary outcome measures were provision of obstetric services and provider perceived importance of factors affecting practice decisions. With regard to obstetric service, this study focused on each provider's current practice and plans for future practice. For providers who were currently in residency, fellowship or midwifery programs, we asked about their anticipated future practice plans upon completing their training program, including the likelihood of remaining in Michigan, the likelihood of including obstetric services in their practice, and the type of obstetric services they would provide.

To identify important issues affecting providers' decision about whether to include obstetrics in their practice, a list of 14 potential factors, synthesized from previous research, was presented. Examples include "compatibility with my lifestyle/family life," "adequacy of remuneration/financial incentive," "risk of malpractice litigation," "my interest in obstetrics," and "adequacy of my training in obstetrics." An "other (please specify)" item was also included to record any provider specified factors. Respondents were asked to rate the importance of each factor from "no impact" to "high impact". In a similar manner, six factors, with an additional "other (please specify)" item, were presented to respondents to assess their influence on providers' choice of practice location. Providers were also instructed to specify the three most important factors (from the list) influencing their decisions regarding obstetric practice and practice location, respectively. A complete list of these factors is reported in Appendix 1.

Statistical Analysis

Because a stratified random sampling method was used when drawing the physician sample, each physician had a different probability of being included in the survey. Weights were calculated to adjust for these sampling effects. We further used the demographic and practice characteristics recorded in the AMA Physician Masterfile, including age, gender, medical degree (MD versus DO), specialty (family/general medicine versus obstetrics/gynecology), office-based practice (versus other practice), and mailing address within metropolitan counties (versus non-metropolitan counties), to assess differences between respondents and non-respondents. Weights were further adjusted to account for non-response bias. Because all nurse-midwives were surveyed, weights were constructed solely to adjust for non-response bias. After applying the weights, distribution of the characteristics of survey respondents were comparable to the corresponding provider population in Michigan.

For the purpose of this study, we focused on providers who were currently engaged in clinical practice in Michigan (regardless of obstetric service) or in a residency/fellowship/nurse-midwifery training program in Michigan. Surveying residents, fellows and senior nurse-

midwifery students allowed us to assess their future plans about obstetric care upon completing their training program, an important consideration in analyzing obstetric care supply. Of the total respondents, 101 were not currently involved in clinical practice (e.g., retirement, full-time administrative position), 29 were not practicing in Michigan, and 17 did not provide sufficient data. This resulted in a final sample of 899 providers for our analysis: 330 ob-gyns, 416 family physicians, and 153 nurse-midwives.

Descriptive statistics were calculated, by specialty, to determine the characteristics of respondents and their provision of obstetric services. The impact of various factors on obstetric care provision and practice location was summarized by the percentage of respondents rating the factor as having high impact, moderate impact, small impact and no impact, respectively. Differences across specialties were examined using Rao-Scott chi-square tests adjusting for complex sample design. In addition, we ranked all the factors reported by respondents as one of the three most important by frequency of citation and reported the top three factors for each specialty. The analyses of the importance of various factors influencing obstetric care provision were conducted both with and without residents, fellows, and nurse-midwifery students. No important differences were observed. Therefore data analyses based on the entire sample are reported. Weights were routinely used in all analyses. P values less than 0.05 were considered statistically significant. All data analyses were conducted using SAS 9.1 (SAS Institute Inc., Cary, NC).

Results

Characteristics of our study population are summarized in Table 1. The majority of the providers self-identified as non-Hispanic white. About half of the physicians had graduated from a medical school in Michigan, while less than a third of nurse-midwives had completed a midwifery program in Michigan. Almost all ob-gyns and nurse-midwives had provided obstetric care at some point in their career and more than 80% were still practicing obstetrics when surveyed. This compared to 59.6% of family physicians who had ever practiced obstetrics and 19.7% who were currently providing obstetric services. Among family physicians currently practicing obstetrics, 5.5% indicated that they performed cesarean section in their current practice and none reported delivering at home. Among nurse-midwives who currently delivered babies, only 2.8% reported delivering at home. The primary offices of the respondents were located in 72 of Michigan's 83 counties.

Among providers currently practicing obstetrics (Table 2), close to 20% of ob-gyns and family physicians reported that they planned to stop delivering babies in the next five years and 11.9% of CNMs planned to do so. Of those who currently saw patients with high-risk pregnancies, 35.5%, 24.5% and 12.6% of ob-gyns, family physicians, and CNMs planned to reduce their high-risk obstetric care in the next five years, respectively. More ob-gyns (20.0%) reported that they definitely would or very likely would stop obstetric practice over the next five years than family physicians or CNMs (14.3% and 11.9%, respectively). Nearly half of ob-gyns (49.7%) who were currently practicing obstetrics expressed an intention to limit the number of Medicaid obstetric patients over the next five years.

There were 223 providers (46 ob-gyns, 160 family physicians, and 17 CNMs; unweighted) in the sample who had previously practiced obstetrics, but no longer included it in their current practice (data not shown). When asked how likely they would be to resume obstetric care in the next five years, the majority reported they definitely would not or were not likely to do so (90.3%, 93.3%, and 88.2% for ob-gyns, family physicians, and CNMs, respectively; weighted). In addition, of the providers who had never practiced obstetrics (n = 123; unweighted), only three (3.1%, weighted) indicated that they were somewhat likely to start obstetrics in the near future.

Compared to residents/fellows in family/general medicine, the proportion reporting they definitely would or very likely would include obstetric care in their practice was more than twice as high among ob-gyn residents/fellows (72.7% versus 32.2%) (Table 3). Among those who reported being at least somewhat likely to practice obstetrics, all ob-gyns said that they would deliver babies and perform cesarean deliveries, compared to 89.1% and 19.6% of family physicians, respectively. Most physicians who were at least somewhat likely to provide obstetric care planned to stay in Michigan for practice upon completing their residency or fellowship programs. To protect the confidentiality of nurse-midwifery students who responded to the survey (n=7), we did not report data on their planned practice upon graduation.

Table 4 reports respondents' perceived importance of the four medical malpractice related factors that might have influenced their decision whether to include obstetrics in their practice. "Risk of malpractice litigation" was reported by 37.5% and 51.2% of ob-gyns and family physicians, respectively, as having a high impact on their decision. Thirty seven percent of family physicians also cited "medical liability insurance premiums/difficulty in obtaining liability insurance" as a factor having a high impact on their decision. In contrast, 29.8% and 15.3% of ob-gyns and nurse-midwives, respectively, reported affordability/availability of liability insurance as a high impact factor. With regard to back-up coverage, 24.8% of family physicians reported it as a high impact factor, compared to 14.5% and 19.2% of ob-gyns and CNMs, respectively. Few providers specified credentialing barriers as a high impact factor. Other factors of particular interest include "adequacy of remuneration/financial incentives" and "concern about disruption of other practice," with 24.4%, 15.0% and 22.5% of ob-gyns, family physicians and CNMs, respectively, reporting the former as having a high impact on their decision, and 8.6%, 28.3% and 2.6% rating the latter as a high impact factor.

When asked to list the three most important factors (among the entire list of 14 potential factors) that could have affected their decision, "compatibility with lifestyle/family life," "interest in obstetrics," and "risk of malpractice litigation" were most frequently cited by ob-gyns (48.8%, 45.7%, and 45.5%, respectively) and nurse-midwives (53.6%, 53.6% and 29.3%, respectively). Among family physicians, the same three factors were most frequently reported except that "risk of malpractice litigation" was the second most cited factor (58.2%, 36.3%, and 47.7%, respectively).

Table 5 presents data on respondents' rating of the two medical malpractice related factors possibly affecting their practice location. Nearly 20% of the providers said that "risk of malpractice litigation" and "affordability/availability of medical liability insurance coverage" had a high impact on their decision. When asked about the three most important factors influencing their choice of practice location, "personal reasons," "professional opportunities," and "risk of malpractice litigation" were cited by 87.4%, 52.0%, and 42.6% of the ob-gyns, respectively, while "personal reasons," "professional opportunities," and "financial remuneration" were most frequently cited by family physicians (91.4%, 61.6% and 39.8%, respectively) and nurse-midwives (90.1%, 68.1% and 51.1%, respectively).

Comments

Discontinuation or reduction of obstetric practice by providers significantly affects patient access to care. It may result in suboptimal prenatal care and delay the diagnosis and care of acute perinatal complications.[16] Although Michigan is one of the states reported to have high malpractice premiums for obstetricians, there is little objective data regarding the impact of malpractice concerns on obstetric care. Via a statewide survey, this study provided an opportunity to evaluate the influence of Michigan's medical liability climate on its obstetric care supply, which bears significant implications for patient access to care and quality of care. The study also makes a unique contribution by assessing this issue across all three major

specialties of obstetrical providers and hence provides a comprehensive view of the circumstances in Michigan.

Although few providers planned to leave Michigan in the next five years, we found that approximately 18% of ob-gyns and family physicians intended to stop delivering babies in the next five years and roughly 30% were considering reducing high-risk obstetric care. In the meantime, approximately 12% of CNMs planned on similar changes in their practice. Although these percentages are somewhat lower than those found in other studies (e.g., a recent survey in Oregon found that 31% of its current delivery providers planned to stop delivering babies in the next 1–5 years[11]), the potential impact on the obstetric care supply in Michigan warrants close attention. Such changes, if they were to happen, could impact access to obstetric care. Given that 254 babies in Michigan are born to mothers without adequate prenatal care during an average week,[17] efforts are needed to assure that patients have adequate access to needed care.

Our data indicate that litigation risk is one of the most cited factors by providers (in all three specialties) to influence their decision on whether to provide obstetrical care. It is also frequently cited by ob-gyns as a motivation in their choice of practice location. These findings are consistent with prior studies conducted elsewhere in the U.S. Smits et al.[11] showed that in Oregon, 43% of obstetrical providers (including ob-gyns, family physicians and CNMs) reported fear of lawsuits as a major reason for considering stopping deliveries. A national survey of ob-gyn residents also reported that 96% of the respondents were “very concerned” or “somewhat concerned” about malpractice litigation and that 35% of the respondents pursued fellowship or solely gynecology because of malpractice concerns.[18] Data from the 2006 American College of Obstetricians and Gynecologists survey on professional liability indicated that nationwide 65% of ob-gyn respondents had made some changes to their practice over the previous three years for fear of professional liability claims or litigation.[19] Among them, 8% stopped practicing obstetrics altogether and 33% decreased the number of high-risk obstetric patients seen.[19] Results for District V, where Michigan is situated, showed that almost 9% of ob-gyns had ceased practicing obstetrics and 34% of ob-gyns had reduced the number of high-risk obstetric patients since 2003 because of risks for medical malpractice claims or litigation.[20]

Our study adds to this literature and underscores the importance of litigation risk as an influence on providers’ decision about obstetric practice. In future research, priority should be given to more direct assessment of the association between provider liability burden and women’s access to obstetric care and the quality of care they receive. Findings from such studies would help elucidate the ultimate impact of liability issues on patient care.

Another disturbing finding of our study is that nearly half of ob-gyns who were currently practicing obstetrics indicated that they plan to limit the number of Medicaid obstetric patients in the next five years. Although the exact reason for such a high proportion was not directly assessable in this study, other research provides some plausible explanations. Anecdotal misperception was found, especially among obstetricians, that Medicaid patients are more likely to sue[21] even though previous research suggested the opposite.[22,23] Another contributing factor could be the lower Medicaid reimbursement rate.[24,25] In conjunction with increasing medical malpractice costs (both the premium rates and payment for litigation), ob-gyns may be less willing to accept Medicaid patients, for whom the reimbursement is low. Regardless of the reason, the high proportion of ob-gyns planning to restrict the number of Medicaid obstetric patients, in addition to the fact that many obstetric providers already limit the number of Medicaid patients they accept,[24,26,27] could endanger obstetric care for these medically underserved patients.

Additionally, results from our study suggest that providers' concerns about provision of obstetric care vary across specialties. For instance, 37% of family physicians perceived the "level of medical liability insurance premium and difficulty in obtaining liability insurance" as having a high impact on their decision of whether to include obstetrics in practice, while a relatively lower proportion of ob-gyns and nurse-midwives reported it as a high impact factor. Such differences underscore the unique challenges faced by providers in different specialties in providing obstetric care, and should be considered in developing tailored approaches to retaining the obstetric care supply.

Several limitations of the study should be acknowledged. First, discontinuation or reduction in obstetrical care reflects only one aspect of obstetrical care supply, although an important one. Future research should also assess provider relocation issues. If the amount of obstetrical care cut back by some providers can be replenished by others entering the area, patient access may not be affected.[28] However, if there is a net exodus of providers in addition to reductions of service within a certain area, patients will face a much greater barrier to accessing obstetrical care.

As with any survey research, the data collected in this study were subject to non-response bias. Our response rate (76.9% among nurse-midwives, 48.2% among ob-gyns, and 41.3% among family physicians) was achieved after making a variety of efforts to encourage response (e.g., repeated follow-up with non-respondents, multiple survey modes and response modalities). Although it compares favorably with many mail surveys of physicians[29–31] and weights were applied to adjust for any observed non-response bias, it is possible that providers with stronger feelings about medical liability issues were more inclined to respond. Another limitation of this study is that our findings are based on data from a single state and may not generalize to other parts of the country. Finally, the sub-analysis conducted among residents and fellows was based on a relatively small sample size. Future investigations focusing on this sub-population with a larger sample size could provide more definitive results.

Despite these limitations, this study contributes important new data to help understand the influence of the current malpractice climate on obstetrical care. The findings indicate that a significant proportion of Michigan's ob-gyns, family physicians and nurse-midwives plan to discontinue delivering babies or reduce high-risk obstetric care in the next five years. Malpractice litigation risk appears to be an important factor influencing Michigan obstetric providers' decisions regarding their practice. The implications of this for the supply of obstetrical care providers and patients' access to care are serious and merit further investigation.

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References

1. Hale RW. Medical professional liability revisited. Obstet Gynecol 2006;107:1224–5. [PubMed: 16738144]

2. American Medical Association. Medical liability crisis map. [Accessed February 6, 2007]. Available at: http://www.ama-assn.org/ama/noindex/category/11871.html
3. Medical Liability Monitor. 2004 medical professional liability rate survey 2004;29(10)
4. Kaiser Family Foundation. Number of Paid Medical Malpractice Claims. 2005 [Accessed September 20, 2006]. Available at: http://statehealthfacts.org/cgi-bin/healthfacts.cgi?action=compare&category=Providers+%26+Service+Use&subcategory=Me
5. Kaiser Family Foundation. Payments on Medical Malpractice Claims. 2005 [Accessed September 20, 2006]. Available at: http://statehealthfacts.org/cgi-bin/healthfacts.cgi?action=compare&category=Providers+%26+Service+Use&subcategory=Me
6. Fowler, P. Medical liability insurance: Another costly crisis. [Accessed March 9, 2007]. Available at: http://web1.msue.msu.edu/msue/iac/transition/papers/MedLiab.pdf
7. Linzer M, Konrad TR, Douglas J, et al. Managed care, time pressure, and physician job satisfaction: results from the physician worklife study. J Gen Intern Med 2000;15:441–50. [PubMed: 10940129]
8. MacLennan AH, Spencer MK. Projections of Australian obstetricians ceasing practice and the reasons. Med J Aust 2002;176:425–8. [PubMed: 12056994]
9. Mello MM, Studdert DM, DesRoches CM, et al. Effects of a malpractice crisis on specialist supply and patient access to care. Ann Surg 2005;242:621–8. [PubMed: 16244532]
10. Smith LF, Reynolds JL. Factors associated with the decision of family physicians to provide intrapartum care. CMAJ 1995;152:1789–97. [PubMed: 7773895]
11. Smits AK, Clark EC, Nichols M, Saultz JW. Factors influencing cessation of pregnancy care in Oregon. Fam Med 2004;36:490–5. [PubMed: 15243830]
12. Symon A. Obstetric litigation: effects on clinical practice. Gynakol Geburtshilfliche Rundsch 2000;40:165–71. [PubMed: 11326163]
13. Wiegers TA. General practitioners and their role in maternity care. Health Policy 2003;66:51–9. [PubMed: 14499165]
14. Center for Studying Health System Change. Community Tracking Study Physician Survey, 2000–2001: [UNITED STATES] [Computer file]. ICPSR version. 2003.
15. Williams ES, Konrad TR, Linzer M, et al. Refining the measurement of physician job satisfaction: results from the Physician Worklife Survey. SGIM Career Satisfaction Study Group. Society of General Internal Medicine Med Care 1999;37:1140–54.
16. Nesbitt TS, Scherger JE, Tanji JL. The impact of obstetrical liability on access to perinatal care in the rural United States. J Rural Health 1989;5:321–35. [PubMed: 10304176]
17. March of Dimes. Perinatal profiles: Statistics for monitoring state maternal and infant health. [Accessed February 13, 2007]. Available at: http://www.marchofdimes.com/peristats/ataglance/26.pdf
18. Becker JL, Milad MP, Klock SC. Burnout, depression, and career satisfaction: cross-sectional study of obstetrics and gynecology residents. Am J Obstet Gynecol 2006;195:1444–9. [PubMed: 17074551]
19. Wilson, N.; Strunk, AL. Overview of the 2006 ACOG survey on professional liability. [Accessed February 17, 2007]. Available at: http://www.acog.org/departments/professionalliability/2006surveyNatl.pdf
20. The American College of Obstetricians and Gynecologists. Overview of the 2006 ACOG survey on professional liability: District V liability lowdown. [Accessed February 17, 2007]. Available at: http://www.acog.org/departments/professionalliability/2006DistVsurvey.pdf
21. Nesbitt TS, Tanji JL, Scherger JE, Kahn NB. Obstetric care, Medicaid, and family physicians. How policy changes affect physicians' attitudes. West J Med 1991;155:653–7. [PubMed: 1812644]
22. Baldwin LM, Greer T, Wu R, Hart G, Lloyd M, Rosenblatt RA. Differences in the obstetric malpractice claims filed by Medicaid and non-Medicaid patients. J Am Board Fam Pract 1992;5:623–7. [PubMed: 1462796]
23. Mussman MG, Zawistowich L, Weisman CS, Malitz FE, Morlock LL. Medical malpractice claims filed by Medicaid and non-Medicaid recipients in Maryland. JAMA 1991;265:2992–4. [PubMed: 2033772]

24. Baldwin LM, Greer T, Hart LG, Wu R, Rosenblatt RA. The effect of a comprehensive Medicaid expansion on physicians' obstetric practices in Washington State. J Am Board Fam Pract 1996;9:418–21. [PubMed: 8923400]
25. Mitchell JB, Schurman R. Access to private obstetrics/gynecology services under Medicaid. Med Care 1984;22(11):1026–37. [PubMed: 6390012]
26. Fossett JW, Perloff JD, Kletke PR, Peterson JA. Medicaid patients' access to office-based obstetricians. J Health Care Poor Underserved 1991;1:405–21. [PubMed: 1932461]
27. Rosenblatt RA, Bovbjerg RR, Whelan A, Baldwin LM, Hart LG, Long C. Tort reform and the obstetric access crisis. The case of the WAMI states. West J Med 1991;154:693–9. [PubMed: 1812852]
28. Yawn B, Wellever A, Hartley D, Casey M, Krein S, Moscovice I. Availability of rural Minnesota obstetric services: is it a problem? J Rural Health 1995;11:192–203. [PubMed: 10151311]
29. Power ML, Holzman GB, Schulkin J. Obstetrician-gynecologists' views on the health risks of obesity. J Reprod Med 2001;46:941–6. [PubMed: 11762148]
30. Chamany S, Schulkin J, Rose CE Jr, Riley LE, Besser RE. Knowledge, attitudes, and reported practices among obstetrician-gynecologists in the USA regarding antibiotic prescribing for upper respiratory tract infections. Infect Dis Obstet Gynecol 2005;13:17–24. [PubMed: 16040323]
31. Asch DA, Jedrziewski MK, Christakis NA. Response rates to mail surveys published in medical journals. J Clin Epidemiol 1997;50:1129–36. [PubMed: 9368521]

Appendix 1. Factors examined in the survey

Factors affecting decisions about whether to include obstetrics in current or future practice
Appropriate role model
Compatibility with lifestyle/family life
Risk of malpractice litigation
Interest in obstetrics
Concerns about disruption of other practice
Preference to focus on gynecology or family/general practice
Adequacy of training in obstetrics
Medical liability insurance premiums/difficulty in obtaining liability insurance
Adequacy of facilities in practice
Clinical caseload in the community served
Adequacy of remuneration/financial incentive
Difficulty in obtaining back-up coverage
Change in professional life (e.g., change of specialty, entry into hospital practice, retirement, etc.)
Credentialing barriers

Factors affecting choice of practice location
Financial remuneration
Risk of malpractice litigation
Personal reason (e.g., proximity to family, lifestyle, etc.)
Patient population (e.g., high-risk pregnancies, etc.)
Affordability/availability of medical liability insurance coverage
Professional opportunities

Table 1

Respondent characteristics

Characteristics	Obstetrician-Gynecologists (n=330)	Family Physicians (n=416)	Nurse-Midwives (n=153)	P value
Age ≥ 50 years (%)	46.7	46.4	-*	0.75†
Female (%)	48.0	37.7	100.0	<0.01†
Non-Hispanic white (%)	79.2	80.8	93.4	<0.01
Graduated from a medical school/midwifery program in Michigan (%)	53.6	54.9	31.1	<0.01
Hours/week spent on direct patient care (%)				<0.01
≤ 20	5.5	8.8	18.7	
21–40	38.3	54.0	50.0	
> 40	56.2	37.1	31.3	
Currently in residency/ fellowship/midwifery training program (%)	13.9	10.5	4.6	<0.01
Currently practicing obstetrics ‡ (%)	82.1	19.7	84.0	<0.01
Ever practiced obstetrics ‡ (%)	97.1	59.6	96.5	<0.01

Respondents with missing data on the variable were not included in the statistics (<3.0% for each one of the variables). Percentages may not add up to exactly 100% due to rounding.

* Age information was not available among nurse-midwifery respondents.

† Chi-squared tests conducted between obstetrician-gynecologists and family physicians.

‡ Among providers who were not currently in residency/fellowship training or nurse-midwifery programs.

Table 2

Planned changes in obstetric care provision among Michigan providers who were currently practicing obstetrics*

Planned Changes in Obstetric Practice in Next 5 Years	Obstetrician-Gynecologists (n=225)	Family Physicians (n=72)	Nurse-Midwives (n=121)	P Value
Plan to reduce the amount of high-risk obstetrical care provided † (%)	35.5	24.5	12.6	<0.01
Plan to stop delivering babies † (%)	18.3	18.7	11.9	0.20
Plan to limit the number of Medicaid obstetric patients † (%)	49.7	16.7	9.7	<0.01
Plan to stop obstetrical practice (%)				<0.01
Definitely will	7.3	2.5	6.8	
Very likely	12.7	11.8	5.1	
Somewhat likely	9.3	6.5	9.4	
Not likely	37.1	54.9	47.9	
Definitely will not	33.6	24.3	30.8	
Plan to move practice outside of Michigan (%)				<0.01
Definitely will/Very likely	6.1	2.4	4.2	
Somewhat likely	10.9	10.1	12.7	
Not likely	45.9	40.9	30.5	
Definitely will not	37.1	46.7	52.5	

Respondents with missing data on the variable were not included in the statistics (<3% for each one of the variables). Percentages may not add up to exactly 100% due to rounding.

* Not including providers currently in residency/fellowship/nurse-midwifery training programs.

† Not including providers who indicated that the question was not applicable (e.g., they were not providing high-risk obstetric care to begin with).

Table 3

Plans for future practice among residents and fellows*

Planned Future Obstetric Practice upon Completing Residency/Fellowship Program	Obstetrician-Gynecologists (n=43)	Family Physicians (n=61)	P Value
Plan to include obstetric care in practice (%)			<0.01
Definitely will	56.0	6.3	
Very likely	16.7	25.9	
Somewhat likely	14.8	17.0	
Not likely	10.6	24.1	
Definitely will not	1.8	26.6	
Types of obstetrical care plan to provide†			
High risk prenatal care (%)	43.5	12.8	<0.01
Deliveries (any) (%)	100.0	89.1	-
Cesarean deliveries (%)	100.0	19.6	-
Plan to stay in Michigan for practice † (%)			<0.01
Definitely will	11.9	35.3	
Very likely	27.0	17.8	
Somewhat likely	23.7	20.9	
Not likely	18.1	8.9	
Definitely will not	19.2	17.1	

Less than 3% of the respondents had missing data for each of the variables. Percentages may not add up to exactly 100% due to rounding.

* To protect the confidentiality of nurse-midwifery students (n=7), data are not reported on their future career plans.

† Among providers who reported “Definitely will”, “Very likely” or “Somewhat likely” to include obstetrics in future practice.

Table 4

Impact of medical malpractice-related factors on providers' decision about whether to include obstetrics in practice

Factors	Obstetrician-Gynecologists (n=330)	Family Physicians (n=416)	Nurse-Midwives (n=153)	P value*
Risk of malpractice litigation (%)				<0.01
High impact	37.5	51.2	21.7	
Moderate impact	25.2	19.1	27.6	
Small impact	25.2	14.0	33.6	
No impact	8.0	6.0	11.8	
Not applicable	4.1	9.7	5.3	
Medical liability insurance premiums/difficulty in obtaining liability insurance (%)				<0.01
High impact	29.8	36.9	15.3	
Moderate impact	16.9	17.8	10.0	
Small impact	21.9	19.1	21.3	
No impact	22.5	14.7	32.7	
Not applicable	8.9	11.4	20.7	
Difficulty in obtaining back-up coverage (%)				<0.01
High impact	14.5	24.8	19.2	
Moderate impact	13.4	16.8	13.2	
Small impact	23.3	19.8	11.9	
No impact	33.5	24.2	30.5	
Not applicable	15.3	14.4	25.2	
Credentialing barriers (%)				<0.01
High impact	3.2	10.4	9.4	
Moderate impact	3.5	12.3	12.1	
Small impact	15.1	25.0	16.8	
No impact	48.8	33.0	37.6	
Not applicable	29.4	19.3	24.2	

Percentages may not add up to exactly 100% due to rounding. Less than 4.5% of the respondents had missing data for each of the variables.

* Chi-square tests for differences across specialties were conducted without the "Not applicable" category.

Table 5

Factors affecting providers' choice of practice location

Factors	Obstetrician-Gynecologists (n=330)	Family Physicians (n=416)	Nurse-Midwives (n=153)	P value*
Risk of malpractice litigation (%)				<0.01
High impact	20.8	16.8	17.2	
Moderate impact	33.4	22.3	20.5	
Small impact	26.1	29.6	34.4	
No impact	16.1	28.8	25.8	
Not applicable	3.6	2.6	2.0	
Affordability/Availability of medical liability insurance coverage (%)				<0.01
High impact	20.5	15.7	17.2	
Moderate impact	29.3	21.0	26.5	
Small impact	27.4	29.9	18.5	
No impact	18.3	27.7	28.5	
Not applicable	4.5	5.7	9.3	

Percentages may not add up to exactly 100% due to rounding. Less than 2.8% of the respondents had missing data for each of the variables.

* Chi-square tests for differences across specialties were conducted without the "Not applicable" category.