Outcomes Of Cesarean Sections Performed By Family Physicians And The Training They Received: A 15-Year Retrospective Study

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Background: **Family physicians are the major or sole providers of Cesarean section services in many communities. Approximately 2800 family physicians provide Cesarean section services in communities of all sizes across the country.**

Methods: **The outcomes of all Cesarean sections performed at two rural hospitals during a 10- to 15-year period were examined and compared with standard quality-outcome criteria published in the medical literature. Outcome criteria included rates of various surgical complications, use of blood transfusion, infant Apgar scores, and length of postoperative hospital stay. Other descriptive data were examined including patient demographics, operating time, anesthesia type, and choice of incision. Statistical analysis consisted of chi-squares, odds ratios, and stepwise multiple regression.**

Results: **Five hundred sixty-three Cesarean sections were performed by 12 residency-trained family physicians, 68 by general practitioners, 70 by general surgeons, and 9 by obstetrician-gynecologists. Family physicians met or surpassed the referenced standards in all measures examined. The number of Cesarean sections each physician performed while in residency training was also examined. The average number of in-training Cesarean sections was 46, ranging from 25 to 100.**

Conclusions: **The results of this study support the ability of family physicians to provide Cesarean section services based on a wide range of training backgrounds and variable numbers of procedures done in training. (J Am Board Fam Pract 1995; 8:81-90.)**

The issue of the place of obstetrics in family medicine is a timely topic.[1,2] The American Academy of Family Physicians Task Force on Obstetrics has called for data about obstetric care provided by family physicians and for help in establishing justification for hospital privileges.[3]

Family physicians are the major or the sole providers of perinatal care, including Cesarean section, in many communities. About 2800 family physicians are providing Cesarean section services in both large and small communities across the country.[4] Our review of the medical literature revealed only one published study that included any data on clinical outcomes of Cesarean sections performed by family physicians.[5] There have been no studies on the amount of training required to develop proficiency in this surgical skill. This study examined the clinical outcomes of 710 Cesarean sections, of which 563 were performed by 12 residency-trained, board-certified family physicians in two small community hospitals. This study also recorded the number of Cesarean sections completed while in residency training. Standard measures of surgical outcome from the medical literature were used in the absence of a comparison group of patients cared for by board-certified obstetricians in the same hospitals.

Methods

A retrospective chart review of all Cesarean sections performed at two small hospitals was completed by medical records staff for 15 years at hospital A and 10 years at hospital B. A data sheet that contained more than 40 medical outcome or risk factors was completed for each Cesarean section using the patient's chart and operating room logbook as the information source. Hospital administrators and medical staff provided necessary permission for pa-

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tient chart audits. A physician practicing at each hospital interviewed physicians about their Cesarean section training and experiences.

Data collection (Table 1) included information on basic patient demographics, prenatal care, surgical data, medical outcomes, and postoperative complications. Many of these items are qualitative in nature and cannot be compared with published standards; however, they provide an important description of family physician surgical practices, including choice of anesthesia and incision, surgical speed, use of antibiotics, and length of postoperative stay. Statistical analysis of published standards consisted of odds ratios with the significance of each unadjusted odds ratio assessed using chi-square test standards. Stepwise logistic regression was used to control potentially confounding variables and to mark factors that significantly impacted outcomes.

Results

A review of 710 consecutive Cesarean sections was completed for the study period. Both hospitals were 35-bed primary care hospitals within 10 miles of one another but 60 miles from the nearest tertiary care center. Neither hospital had neonatal intensive care capabilities, so mothers who were expected to give birth prematurely were transferred before delivery when possible. Because the tertiary care hospital was located 60 miles away, however, high-risk patients were often cared for locally. Perinatology consultation was available by telephone when needed when delivery was anticipated at the local hospital. The medical staff consisted primarily of family physicians, general practitioners, general internists, and general surgeons. An obstetrician-gynecologist began practicing at hospital B during the final year of the study. Three physicians in this study maintained hospital privileges at both sites.

Seventy-nine percent (563) of all Cesarean sections were performed by a family physician as the primary surgeon (Table 2). The first assistant was also a family physician in most cases. Ninety-eight percent of the Cesarean sections at hospital A were performed by family physicians. In hospital B, 66 percent of the Cesarean sections were performed by family physicians, 16 percent were performed by general practitioners, 15.8 percent by general surgeons, and 2.2 percent by an obstetrician-gynecologist.

Table 1. Study Data Collection Items.

Category	Data Collection Item
Maternal and risk data	
Maternal identification	Hospital number
	Age
	Race
	Parity
	Insurance type
	Month in which prenatal care began
	Number of prenatal visits
Medical problems	Diabetes
	Hypertension
	Toxemia
	Obesity
	Anemia
	Preterm labor
	Bleeding
	Sexually transmitted diseases
	Urinary tract infection
	Drug abuse
	Cardiac disease
Cesarean section information	Indication for the procedure (primary or repeat)
	Hours of membrane rupture prior to surgery
	Type of monitoring used
	Length of procedure
	Incision type (skin and uterus)
	Surgeon's name
Basic outcome information	Infant's Apgar scores
	Infant's birth weight
	Mother's preoperative hematocrit
	Mother's postoperative hematocrit
	Use of antibiotics, what type and dose
	Number of postoperative days mother stayed in hospital
Indicators of postoperative complications	Maternal mortality
	Postoperative fever
	Endometritis
	Sepsis
	Urinary tract infection
	Wound infection
	Blood transfusion
	Paralytic ileus
	Pneumonia
	Peritonitis
	Pulmonary embolus
	Thromboembolic complications
	Injury to maternal tissues (bladder, ureter, or bowel)
	Need for additional procedures or transfer

Table 2. Summary Information on Hospital Cesarean Sections.

Hospital	Location	Study Dates	Total Births	Total Cesarean Sections	Cesarean Sections by Family Physicians No. (%)	Total Cesarean Section Rate
A	Washington State	9/78–12/92	1964	293	288 (98)	14.9
B	Oregon	9/82–8/92	2459	417	275 (66)	17.0
Totals			4423	710	563 (79)	16.1

Outcome information on Cesarean sections performed by family physicians was compared with standards found in the current medical literature.[5-8] Table 3 presents the comparisons. Family physicians met or bettered these standards in all cases. Major complications occurred in 5 patients (0.9 percent). These complications included 2 cases of bladder injury, 1 case of disseminated intravascular coagulation, 1 case of reoperation for peritonitis, and 1 case of pelvic vein thrombosis. Two patients were transferred to a tertiary care center postoperatively. No complications involved bowel injury or the need for Cesarean section hysterectomy.

Univariate analysis of the descriptive data comparing family practice patients with other surgeons' patients is shown in Table 4. Findings fell into three major categories of significance: not significant, statistically significant but not clinically significant, and statistically and clinically significant.

Those factors found not to show any statistically significant difference between the two groups were maternal weight gain and parity, percent primiparas, infant birth weight, cause for Cesarean section (excluding breech), operating time, and use of intraoperative antibiotics.

Factors that showed a statistically significant difference but not at clinically significant levels were maternal age (1.4 years difference), maternal weight (8 pounds difference), average operating time (4 minutes difference), and fall in hematocrit (1.2 points difference).

The third category included factors found to show a statistically and clinically significant difference between the two groups. Family physicians saw their patients slightly earlier and more often and had significantly more patients with medical problems. All patients with three medical problems and 97 percent of the patients with two medical problems were cared for by family physicians. Family physicians were significantly more likely to use internal monitoring, Pfanninsetal skin incisions, and anesthesia other than general (i.e., spinal or epidural). The other surgeons were less likely to use internal monitoring and more likely to use general anesthesia and vertical rather than Pfanninsteal skin incisions. Family physicians performed a greater percentage of Cesarean sections for breech presentation and were more likely to use antibiotics both intraoperatively and postoperatively. Medicaid patients comprised a greater proportion of the family physicians' patients than of the other surgeons' patients. The family physicians' patients were less likely to exhibit fever.

Stepwise regression analysis was performed on the outcome variables included in Tables 3 and 4 to determine whether family physicians had a significant impact on outcome variables while controlling for risk factors. The analysis showed that family physicians were not significantly associated with any of the outcome variables except the reporting of anemia, endometritis, and the use of intraoperative and postoperative antibiotics.

The average length of postoperative stay in hospitals A and B ranged from 4.2 days in 1983 to 3.2 days in 1987. Length of stay averaged 3.3 days for each of the last 3 years of the study (1990 to 1992). The overall length of stay was 3.5 days.

Table 5 summarizes the training, years in practice, other abdominal surgical privileges, and number of Cesarean sections by family physicians in this study. The average number of Cesarean sections performed yearly and the number performed while the study was in progress varied widely because of the number of years each individual was in practice throughout the study period. Neither hospital A nor B was a teaching hospital; therefore, residents were not involved in surgery. Family physicians who regularly performed the procedures in this study had completed between 25 and 100 Cesarean sections during residency training. The average number of Cesarean sections completed while in training was 46. Only 1 physician completed a family practice fellowship in obstetrics, performing a total of 60 Cesarean sections while in this training. Another physician, who performed only 5 Cesarean sec-

Table 3. Outcome Information (in percentages) on the Cesarean Sections Performed by Study Family Physicians Compared with Published Standards.

Item	Published Standard		Study Outcome	
	Percent	(Reference No.)	Percent	95% Confidence Interval
Maternal mortality (no.)	0	(7)	0	NA
Baby's 1-min Apgar ≤6	<14	(5)	14.1	11–16
Baby's 5-min Apgar ≤6	<4	(5)	2.9	1–3
Maternal transfusion	<7	(5,7)	3.7	2–5
Maternal urinary infection	<7	(7)	1.8	1–3
Endometritis	6.6	(6)	4.7	3–8
Maternal ileus (hospital stay >5 days)	0.2–1.3	(6,7)	0.0	0.0000–0.0053
Wound infection	1.6	(6)	0.9	0.35–0.9
Reoperation for bleeding	0.3	(6)	0.0	0.0000–0.0053
Reoperation for infection	0.6	(6)	0.2	0.004–0.023
Peritonitis	0.9	(6)	0.2	0.004–0.023
Bladder injury	0.2–0.3	(7,8)	0.3	0.0004–0.013
Ureteral injury	0.09	(8)	0.0	0.0000–0.0053
Bowel injury	"Rare"	(8)	0.0	0.0000–0.0053
Postoperative length of stay (average days)	4	(9)	3.5	3.42–3.58
Cesarean hysterectomy	0.15	(10,11)	0.0	NA

NA=not applicable.

tions during residency, received extensive proctorship in a Public Health Service practice before starting practice in one of the study locations. The number of Cesarean sections performed per year in practice ranged between 5 and 22 for the family physicians who were present for more than 1 year of the study period.

The overall Cesarean section rate for hospital A was 14.9 percent for a 15-year period, whereas hospital B had a Cesarean section rate of 17.4 percent for a 10-year period.

Discussion

To examine clinical outcomes, it is important to define the standards against which those outcomes are to be judged. In the case of Cesarean section by family physicians, a similar patient population who had Cesarean sections performed by obstetricians, who, because of their specialty training, could be used as a standard of comparison, would be ideal. In the sites studied here, no such local comparison group existed. The option of using standard outcomes derived from the medical literature is rational, because it is increasingly recognized that physicians must strive to meet national rather than local standards of care.[9,12] Outcome standards for such items as maternal and infant morbidity, therefore, were derived from the medical literature. Using those standards instead of a local comparison group probably strengthens the analysis of our study data, because it precludes the conclusion that the family physicians' surgical outcomes looked good only because they were compared with a poor local standard. By national standards family physicians performed Cesarean sections that produced infant and maternal outcomes of high quality as measured by infant Apgars, use of blood transfusion, and occurrence of major maternal intraoperative and postoperative complications.

Standards by which clinical outcomes are judged can be difficult to determine. They are affected by the risk status of the study population, how a given clinical event is defined, and the available clinical information. Analysis of the occurrence of fever and infection in this study illustrates this difficulty. We defined simple fever as a temperature of greater than 100.4°F at any time postoperatively. This definition is much more liberal than that which other authors have used, but it is quite easy to determine.[5] Infections reported were those documented by the attending physician. It is interesting to note that whereas 30 percent of the family physicians' patients were noted to have simple fever and 4.7 percent had endometritis, the other surgeons' patients had significantly more simple fever (47 percent) but no reported endometritis. These findings most likely reflect differences in documentation by the attending physician rather than a real difference in the occurrence of endometritis. This same apparent increased tendency on the part of family physicians to document clinical findings and treat infection more vigor-

Table 4. Selected Descriptive Data on 562 Cesarean Sections Performed by Family Physicians Compared with 147 Cesarean Sections Performed by Other Physicians.

Item	Family Physicians	Other Physicians	*P* Value	Notes
Average maternal age (yr)	26.4	25	0.009*	Not clinically significant
Average maternal weight (lb)	150	142	0.024*	Not clinically significant
Average maternal weight gain (lb)	25.6	25.5	0.264	
Prenatal visits (no.)	11.5	10.2	0.008*	
Start of prenatal care (wk)	12.4	14.4	0.033*	
Average infant birth weight (g)	3500	3560	0.957	
Average patient parity (no.)	2.4	2.1	0.103	
Primiparas (%)	45.1	49.6	0.325	
Insurance (%)				
Medicaid	29.0	19.7	0.025*	
None	22.0	29.6	0.040*	
Private	48.0	49.6	0.000*	
	No. (%)	No. (%)		
Medical problems				
0	354 (63.0)	116 (79.0)	0.000*	
1	154 (27.0)	29 (20.0)	0.060	
2	44 (8.0)	2 (1.0)	0.005*	
3	10 (2.0)	0 (0.0)		Family physicians cared for all patients
Reason for Cesarean section				
Failure to progress	217 (39.0	63 (43.0)	0.341	
Distress	78 (14.0)	16 (11.0)	0.344	
Repeat	166 (29.0)	52 (35.0)	0.168	
Breech	80 (14.0)	11 (7.0)	0.030*	
Failed VBAC	38 (7.0)	6 (4.0)	0.232	
Placenta previa	9 (2.0)	4 (3.0)	0.366	
Internal monitoring	149 (26.5)	5 (3.4)	0.000*	
General anesthesia	97 (17.3)	91 (62.0)	0.000*	
Pfannenstiel incision	469 (83.8)	65 (44.0)	0.000*	
Operating time (min)				
<60	333 (59.0)	91 (62.0)	0.544	
<75	474 (84.0)	123 (84.0)	0.878	
<90	542 (96.0)	143 (97.0)	0.555	
Average operating time (min)	63.2	59.1	0.005*	Not clinically significant
Antibiotics				
Intraoperative	65 (11.5)	20 (13.6)	0.494	
Postoperative	107 (19.0)	18 (12.0)	0.050*	
Both	196 (34.8)	12 (8.2)	0.000*	
Neither	195 (34.6)	97 (66.0)	0.000*	
Fall in hematocrit (points)	4.6	3.4	0.007*	Not clinically significant
Simple fever†	171 (30.0)	69 (47.0)	0.000*	

*Statistically significant.
†Temperature of 100.4°F at any time postoperatively.
VBAC=vaginal birth after Cesarean.

Table 5. Study Family Physicians with Family Practice Residency Training in Cesarean Sections and Demographics.

Physician	Years in Practice before Study	Number of Cesarean Sections in Training	Number of Cesarean Sections Performed in Study	Years in Study	Average Number of Cesarean Sections per Year	Other Abdominal Surgical Privileges*
A	0	55	219	11.75	18	TL, D&C, hernia, ectopic
B	3	5†	97	8.33	12	TL, D&C, ectopic
C	0	30	4	1.00	3	TL, D&C
D	0	25	21	2.00	10	TL, D&C
E‡	0	60	44	2.00	22	TL, D&C
F	0	52	39	4.50	8	TL, D&C
G	0	10	2	4.00	<1	TL, D&C
H	0	100	38	6.50	7	TL, D&C, hernia, appendectomy
I	0	35	29	4.50	5	TL, D&C, appendectomy
J	8	32	43	3.00	10	TL, D&C
K	3	50	4	<1.00	8	TL, D&C
L	9	20	3	<1.00	8	TL, D&C

Note: Total for numbers of Cesarean sections performed in study is 543 (not 563) because no training data were available for 3 physicians.
*TL=tubal ligation; D&C=dilation and curettage; hernia=hernia repair; ectopic=ectopic pregnancy.
†This physician performed an additional 140 Cesarean sections under proctorship in the Indian Health Service.
‡This physican completed a family practice fellowship in obstetrics.

ously has been noted in a previous study and probably does not represent a true increased morbidity in the family practice patients.[5]

Other variables that were examined are more descriptive and reflect more upon physician practice style than patient outcome: surgical operating time, length of postoperative hospital stay, and antibiotic use. Comparisons were made with regional statistics or among the physician groups in this study. It is important to note that the study was not designed to report issues of individual surgical technique, such as number of layers of wound closure, use of skin sutures versus stapling devices, or whether a tubal ligation was performed at the time of the Cesarean section. Although these issues certainly affect operating time, they are not expected to affect patient outcome within the ranges of operating time seen in these results. When these more descriptive variables are examined, family practice surgeons emerge as using modern surgical practices, including increased use of the Pfannenstiel skin incision and perioperative antibiotics.[10,11,13,14] The trend to a decreased proportion of repeat Cesarean section could indicate a greater willingness to attempt vaginal birth after previous Cesarean section (VBAC), which is also reflected in some increased trend in Cesarean section for failed VBAC.

The national length-of-stay statistic for 1991 was 4.2 days for lower abdominal Cesarean section; in 1992 that rate decreased to 4.0 days.[9,12] In corresponding years of this study, the postoperative length of stay averaged 3.3 days. We believe that the same method of calculation was used for length-of-stay statistics in this study, indicating a match or improvement upon comparison with national data.

The risk status of the population is represented by a number of data items recorded, including maternal age, race, socioeconomic status (as represented by insurance type), compliance with prenatal care, and medical illnesses such as diabetes and hypertension. The family practice patient population was not entirely a low-risk group, as there were many patients on Medicaid and patients with diagnosed anemia, toxemia, or multiple medical problems. The patients of the family physicians in this study had significantly more medical problems than the patients of the other physicians. The ability of family physicians to care for high-risk patients has been previously documented.[15-17]

The yearly Cesarean section rate of each hospital is displayed in Table 6. It shows a general trend to increasing Cesarean section rates for each hos-

Table 6. Yearly Cesarean Section Rates by Year for Hospitals A and B.

Study Year	Hospital A	Hospital B	Cumulative Average
1978	10.0	NA	10.0
1979	10.6	NA	10.6
1980	12.7	NA	12.7
1981	9.3	NA	9.3
1982	15.7	23.2	19.5
1983	12.1	15.5	13.9
1984	13.5	17.4	15.5
1985	15.4	15.6	15.5
1986	17.5	21.4	19.5
1987	10.6	17.1	13.9
1988	20.8	18.4	19.6
1989	14.6	20.2	17.4
1990	19.7	15.3	17.5
1991	17.0	14.6	15.8
1992	21.7	13.3	17.5
Average	14.9	17.0	16.1

NA=not applicable.

pital similar to the national trend.[18] Even while taking care of a population not exclusively at low risk, these hospitals (where family physicians or general practitioners provided all the prenatal care and labor management) managed to maintain a practice meeting or approaching the national goal for a Cesarean section rate of 15 percent.[19] In addition to the family physician style, which has been noted to produce a lower Cesarean section rate,[20,21] both hospitals maintained a mandatory second opinion policy for the performance of primary Cesarean section for all or part of the study period. Second opinion policies have been shown to contribute to a lower Cesarean section rate.[22-24] In addition, both hospitals permitted VBAC. This study was not designed to determine the Cesarean section rates of the family physicians versus the other specialists.

Perinatal care is an integral part of family medicine.[25] In some settings, particularly community hospitals in rural areas, family physicians are often the major or sole providers of perinatal care.[26] In such settings they must be able to provide Cesarean section services to their patients.[27] The ability to perform Cesarean sections in an efficient and timely manner is critical not only to the practice of modern obstetrics but also to liability risk management, because the need to do a Cesarean section often arises suddenly and does not permit time to transfer the patient or telephone a consultant who practices some distance away.[28] It has also been shown that, on the basis of both outcome and cost, transferring all pregnant patients to urban centers for delivery is inappropriate.[29]

The medical literature contains several studies documenting overall high quality and good outcome for obstetric care provided by family physicians and general practitioners compared with obstetricians.[30-35] Despite this objective data, family physicians who choose to provide perinatal care are facing increasing difficulty in obtaining hospital privileges and pressure to discontinue obstetrics.[36,37] Ironically, this opposition is occurring at a time when many patients are finding it difficult to obtain perinatal care at all,[38] and as a result, family physicians are often the physicians who end up providing care for patients who have increasing levels of medical risk in both urban and rural areas.[15-17] Consequently, the need for family physicians with Cesarean section skills (and the hospital privileges needed to implement those skills) could be expected to increase rather than decrease.

Issues surrounding Cesarean section actually performed by family physicians include training, clinical outcome or quality of results, ongoing volume required to maintain surgical skills, and hospital privileges. Although statistical data exist about Cesarean section privileges for family physicians,[4,39-42] during a literature review we found no articles dealing specifically with training, clinical results, or the process of obtaining privileges. We found one report of a retrospective study comparing morbidity of Cesarean section in urban sites (742 operations and 3 hospitals) versus rural sites (435 operations and 11 hospitals).[5] That study did break down the same data on maternal morbidity, not only by urban versus rural but also by obstetrician versus family physician and found "little difference" between the groups compared. One problem with that study was that 7 percent of the procedures were done by general surgeons, and it was not stated whether their results were placed in the obstetrician or family physician category. Also, an additional 52 cases were excluded because family practice residents were involved, and it was not clear who did the operation. Nonetheless, that study provided one demonstration that nonobstetricians can perform

Cesarean sections and obtain results equivalent to those of obstetricians, even though that question was not the basis for that study.

This study was not designed to answer whether all family physicians can perform Cesarean sections and produce good maternal and neonatal outcomes. The family physicians in this study might have been unique, or the patient population and hospitals might have been unique. Nevertheless, the family physicians were trained in eight different family practice residency programs during a period of 14 years and therefore represent considerable diversity. Although the actual number of physicians included is small, it represents a very large collective experience for a long time. The practice setting is also typical of many rural areas, where patients have a relatively low socioeconomic status and are located far from tertiary care, and a very small number of physicians work in any one site.

The results do suggest that family physicians who have Cesarean section training similar to that of the family physicians in this study can maintain their skills with relatively few ongoing cases. For example, new graduates, who made up 8 of the 12 family physicians in this series for whom training data were available, had similar training and successful outcomes. Perhaps they maintained their general surgical skills by performing other procedures, such as tubal ligation and dilation and curettage, and by routinely assisting general surgeons on their own patients' cases.

No Cesarean section hysterectomies were performed in this series. Statistics from other studies have indicated the incidence of Cesarean section hysterectomy to be about 0.15 percent of births.[10,11] On that basis, this study did not have the statistical power to draw any conclusions about Cesarean section hysterectomy. Two of the participating physicians did have 1 patient each with known placenta previa and 2 previous Cesarean sections whom they referred to the tertiary care center for elective delivery; those 2 patients did need Cesarean section hysterectomy as a result of hemorrhagic complications. Those patients did not appear in this data set because they had no intrapartum care at the hospitals studied. Because these conditions are known risk factors for Cesarean section hysterectomy,[10,43] perhaps these family physicians were skilled in recognizing and referring those patients at particularly high risk for Cesarean section hysterectomy to a tertiary care center. The need to perform a Cesarean section hysterectomy is sometimes used as an argument against family physicians doing Cesarean section, as they would not be expected to have much experience in this rare procedure. No physician, however, regardless of specialty, can be expected never to require consultation for rare conditions. Obstetricians might obtain intraoperative consultation from urologists or general surgeons for difficult cases or when bladder, ureteral, or bowel injury occurs; general, vascular, and thoracic surgeons might similarly need to consult each other. Our experience is that having an established system for obtaining such consultation and knowing the surgical techniques to deal with most complications[44-46] or to perform temporizing measures should Cesarean section hysterectomy become necessary[47,48] ensure patient safety.

This study provides documentation of high-quality Cesarean section care provided by family physicians in at least one rural area. We believe our findings to be typical of many other locations large and small. If family physicians can provide this care in rural areas where they are the most numerous health care providers, there would seem to be no reason why they should not be able to do so in other (usually larger) areas. One recent study compared perinatal outcomes of family physicians with those of obstetricians in a large urban setting where family physicians perform Cesarean section.[49] That study found the family physicians' care to produce outcomes equal to those of the obstetricians and to result in a lower Cesarean section rate. Because more study is needed to document the outcomes of Cesarean section performed by family physicians, we are currently conducting a follow-up study involving multiple sites. As our nation moves toward health care reform, the importance of access to care is increasingly recognized. Family physicians can improve access to perinatal care in urban and suburban areas as they have in rural areas; Cesarean section is part of this care. Data are needed to support the establishment and maintenance of hospital privileges for family physicians so that they can provide the care they have been trained to offer. Further study is also needed to define the specific content of Cesarean section training for family physicians.

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