

Comparison of Delivery Procedure Rates Among Obstetrician-Gynecologists and Family Physicians Practicing Obstetrics

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Abstract

Background: Delivery rates and maternal postpartum outcomes comparing obstetrician-gynecologists (OB/GYNs) and family physicians practicing obstetrics have been studied for the last four decades. Family physicians who practice obstetrics and perform cesarean sections have lower rates of cesarean section, use of forceps, and labor inductions in low risk pregnancies. Family physicians have higher rates of spontaneous vaginal delivery, vaginal birth after cesarean section (VBAC), and vacuum-assisted delivery. There is very little information in the literature regarding maternal outcomes and mode of delivery of patients under the care of family physicians when high-risk pregnancies are included.

Methods: Data were gathered from medical records of 14,576 deliveries at a regional community medical center regarding total numbers of overall, primary and repeat cesarean sections, VBAC, instrumental delivery, induction of labor, postoperative cesarean section length of stay, transfusion, evacuation of perineal hematomas, and peripartal hysterectomy following cesarean section including high-risk pregnancies. The number of deliveries included all that were performed between January 1, 2003, through December 31, 2011, regardless of provider.

Results: The overall, primary and repeat cesarean section rates of family physicians practicing high-risk obstetrics compared to obstetrician-gynecologists were lower. The VBAC, instrumental delivery, and transfusion rates were higher for family physicians. Postoperative cesarean section length of stay, evacuation of perineal hematomas, and peripartal hysterectomies were similar for both groups.

Conclusions: Family physicians and obstetrician-gynecologists deliver comparable maternity care and both can practice obstetrics including high-risk pregnancies.

Introduction

Postgraduate education in obstetrics and gynecology, family medicine, and family medicine obstetrics includes training in cesarean section, forceps delivery, and vacuum extraction. Delivery procedure rates and resulting maternal outcomes comparing obstetrician-gynecologists and family medicine physicians practicing obstetrics have been studied for the last 4 decades.¹⁻¹⁸ Differences in the management of obstetrical patients between obstetricians and family physicians have been noted in at least 2 studies.^{2,5} Family physicians who practice obstetrics and perform cesarean sections have lower rates of cesarean section, use of forceps, use of epidurals, episiotomies, inductions, pitocin use, diagnosis of cephalopelvic disproportion (labor dystocia),

and low birth weight babies compared to obstetrician-gynecologists.^{1-4,6-8,14,17,18} Family physicians have a higher rate of spontaneous vaginal delivery, vaginal birth after cesarean section (VBAC), and vacuum-assisted delivery.^{6,7} Family physicians have a 34% lower cesarean section rate than obstetrician-gynecologists according to one study.⁴ Family physicians and obstetrician-gynecologists both deliver high-quality maternity care, although they have different styles of care.¹⁴

Family physicians are capable of performing cesarean sections and practicing obstetrics with comparable outcomes.^{6,19} There is no difference in neonatal outcomes between the two specialties.^{14,17} Family physicians use less interventions and more “expectant care” than obstetrician-gynecologists who typically use more invasive interventions; this difference has not been shown to improve obstetrical care.⁶⁻⁸ Applegate and Walhout reported that obstetricians had higher cesarean section rates than family physicians.¹⁴ Some family physicians may attempt vaginal delivery longer because they do not have cesarean section privileges.¹⁴ Both groups had equal rates for forceps deliveries, and neonatal outcomes were similar.^{14,17}

Table 1: High-Risk Obstetric Categories Often Managed by Family Medicine Obstetricians

• Hypertensive Disorders	• Fetal Demise (Stillbirth)
• Gestational Diabetes	• Previous Cesarean Section
• Preterm Labor and Delivery	• Vaginal Birth After Cesarean Section (VBAC)
• Intrauterine Growth Abnormalities	• Multiple Gestation
• Fetal Heart Rate Abnormalities	• Hydatidiform Mole
• Premature Rupture of Membranes	• Fourth-Degree Extension of Episiotomies
• Malpresentations	• Vulvar and Vaginal Hematomas
• Dystocia	• Asthma
• Sterilization	• Rupture of the Uterus
• Abnormalities of Placentation	• Inversion of the Uterus
• Placental Abruption	• Pelvic Hematomas
• Chorioamnionitis	• Low Apgar Scores
• Obstetrical Hemorrhage	• Lacerations of the Cervix
• Endometritis	• Pulmonary Embolus
• Postdates	• Puerperal Sepsis
• Disorders of Amniotic Fluid Volume	• Wound Dehiscence
• Thyroid Disease	• Deep Venous Thrombosis
• Sexually Transmitted Diseases	

There are only a few studies comparing high-risk obstetrics between the two specialties.²⁰ Most studies comparing cesarean section rates in family physicians practicing obstetrics versus obstetrician-gynecologists have examined either low-risk pregnancies or risk-adjusted patient populations.¹ Family physicians may have lower cesarean section rates due to lower-risk patients in some studies; other studies have shown that patient risks are similar.¹ Family physicians are often required to care for high-risk patients and subsequently deliver them by cesarean section especially in rural, underserved areas.²¹⁻²⁴ In our experience, many patients that are high risk either do not want to be transferred to a higher level or do not have the means to travel. In our regional medical center, family medicine physicians are granted obstetric privileges carrying the same responsibilities given to obstetrician-gynecologists by the credentialing committee or professional activity committee. They are expected to care for whatever patients present for care, including unattached call, without backup by an obstetrician-gynecologist. Despite the deficit of obstetrician-gynecologists, less than 50% of OB/GYNs believe that family physicians should practice obstetrics; however, those that do, feel that family physicians can handle most complications of pregnancy.^{20,25} This study sought to compare the delivery-related procedures among family physicians and obstetrician-gynecologists when high-risk patients were included and there was no risk adjustment. High-risk pregnancy categories managed by family physicians are listed in Table 1.

Table 2: Characteristics of Obstetrician-Gynecologists in Study

• Graduates of four-year accredited OB/GYN Residencies
• All certified by the American Board of Obstetrics and Gynecology
• Experience ranged from 1 to 30 years
• Privileges from the Department of Obstetrics and Gynecology

Materials and Methods

The study is approved by the Institutional Review Boards of The University of Alabama and DCH Regional Medical Center. This study is a retrospective investigation of de-identified delivery and birth-related information at DCH Regional Medical Center from January 1, 2003, through December 31, 2011, regardless of provider. The hospital is a 583-bed teaching hospital and tertiary referral center for West Alabama. Family physicians practicing obstetrics are required to have completed a one-year family medicine obstetrics fellowship in order to obtain obstetrics privileges which are the same obstetrics privileges granted to obstetrician-gynecologists. There is no restriction on their privileges nor are they required to have an OB/GYN backup for obstetrical care. The family physician is expected to care for all maternity cases that present for care, regardless of patient acuity, diagnosis, or risk. Physicians were grouped into two groups: obstetrician-gynecologists and family physicians practicing obstetrics. Characteristics of each physician group are found in Tables 2 and 3. High-risk pregnancy categories managed by family physicians are listed in Table 1.

Table 3: Characteristics of Family Medicine Obstetricians in Study

• Graduates of three-year accredited Family Medicine Residencies
• All certified by the American Board of Family Medicine
• Three completed Family Medicine/Obstetrics Fellowships
• Experience ranged from 1 to 22 years
• Privileges from the Department of Family Medicine

The medical records department at DCH Regional Medical Center agreed and was authorized to access their medical records and provide the investigators with de-identified data from delivery of infants by family physicians practicing obstetrics and obstetrician-gynecologists from the period of January 1, 2003, to December 31, 2011. The patients, newborns, delivering physicians, types and dates of delivery are unknown to the investigators. There are sufficient numbers of each type of physician so that no single physician could be identified. The procedure descriptions, totals, rates and statistics are listed in Table 4. Once the de-identified data was supplied by DCH personnel, it was stored on an encrypted desktop computer that is password protected and located in a locked office with limited access. The data were then analyzed using SAS version 9.3 statistical software. All measurements utilized contingency tables with either a Pearson's chi-square statistic or a Fisher's exact test for cells with less than 5 observations.

Results

This study included 14,576 deliveries at DCH Regional Medical Center between January 1, 2003, and December 31, 2011. The

delivery procedure rates are listed in Table 4. Obstetrician-gynecologists (OB/GYNs) delivered 12,033 (82%) of the babies and family medicine obstetricians (FM/OBs) delivered 2,543 (18%). Family physicians had lower overall rates of cesarean section compared to obstetrician-gynecologists (30.80% vs. 39.00%) ($p<0.001$). Family physicians had lower rates of primary cesarean section compared to obstetrician-gynecologists (19.85% vs. 22.50%) ($p=0.003$). Family physicians also had lower rates of repeat cesarean section compared to obstetrician-gynecologists (11.00% vs. 16.60%) ($p<0.001$). Family physicians had significantly higher rates of vaginal birth after cesarean section (VBAC) than obstetrician-gynecologists (18.31% vs. 4.30%) ($p<0.001$). The VBAC rate was determined by the CDC formula of number of VBACs divided by the number of VBACs plus the number of repeat cesarean sections. Family physicians had a higher instrumental delivery rate than obstetrician-gynecologists (15.69% vs. 8.76%) ($p<0.001$). Instrumental deliveries included both forceps deliveries and vacuum-assisted vaginal deliveries. Both rates are higher than the published rate of 12.90%.²⁶

Both physician groups had similar rates of inductions of labor (16.59% vs. 16.27%) ($p=0.697$). Both groups had rates lower than the 18.4% reported by ACOG.²⁷ The average postoperative cesarean section length of stay was the same at 3.17 days for OB/GYNs and 3.24 for FM/OBs. Family physicians had a higher rate of blood transfusion than obstetrician-gynecologists (2.32% vs. 1.38%) ($p<0.001$). Both groups had similar rates of evacuation of perineal hematomas (0.07% vs. 0) ($p=0.337$). Obstetrician-gynecologists and family physicians had similar rates of peripartum hysterectomy (0.11% vs. 0) ($p=0.595$). Glaze reported a rate of 0.08% of re-exploration after cesarean section for peripartum hysterectomy.²⁸

Table 4: Delivery Procedure Descriptions, Totals, Rates, Statistics

PROCEDURE	OB/GYN	%	FM/OB	%	p Value
Total Deliveries	12,033		2,543		
Total Vaginal Deliveries	7,338		1,759		
Total Cesarean Sections	4,695	39.00%	784	30.80%	$p<0.001$
Primary Cesarean Section	2,710	22.50%	505	19.85%	$p=0.003$
Repeat Cesarean Section	2002	16.60%	281	11.00%	$p<0.001$
Vaginal Birth After Cesarean	90	4.30%	63	18.31%	$p<0.001$
Instrumental Delivery	643	8.76%	276	15.69%	$p<0.001$
Induction of Labor	1,997	16.59%	414	16.27%	$p=0.697$
Postop Cesarean LOS	3.17 days		3.24 days		
Transfusion of Blood Products	167	1.38%	59	2.32%	$p<0.001$
Postop Cesarean Peripartum Hysterectomy	5	0.11%	0		$P=0.595$
Evacuation of Perineal Hematoma	5	0.07%	0		$P=0.337$

Discussion

The overall total cesarean section rate, primary cesarean section rate and repeat cesarean section rate of family medicine obstetricians was lower than the rates for obstetrician-gynecologists including high-risk deliveries. The VBAC rate of FM/OBs was considerably higher than OB/GYNs. The higher VBAC rate is probably associated with the lower repeat cesarean section rate. The instrumental delivery rate for FM/OBs was higher than for OB/GYNs. The postoperative cesarean section length of stay was the same for both groups. The transfusion rate for FM/OBs was higher than for OB/GYNs. Rates for evacuation of perineal hematomas were the same for both groups. In this institution, family physicians do not transfer their high-risk patients so the data includes a range of low and high-risk patients. This study has implications for obstetrics fellowship training programs. If the rates are comparable, training programs are fulfilling the requirements to practice obstetrics; if not, fellowship training programs need to re-evaluate and improve their training. Decreases in family physicians practicing obstetrics in rural, underserved communities could increase cesarean section rate.¹⁶

This data suggests that family medicine obstetricians provide adequate, full service obstetrical care including instrumental and cesarean section deliveries.^{1-4,6-8,14,17,18} These physicians can work independently without OB/GYN backup and often provide prenatal care in rural, underserved areas.²¹⁻²⁴ They are able to provide high-risk obstetrical care as listed in the high-risk categories in this paper.²⁰ In response to the paper by Rayburn,²⁵ family medicine obstetricians can help meet the current deficit of obstetric providers in this country with good outcomes. Family medicine physicians practicing obstetrics help the maldistribution of obstetric providers as they often practice in rural, underserved areas of the country, where obstetrician-gynecologists seldom practice.

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