

Graduate Education

MODEL OF FAMILY MEDICINE AND OBSTETRICS-GYNECOLOGY COLLABORATION IN OBSTETRIC CARE AT THE UNIVERSITY OF MICHIGAN

Deborah R. Berman, MD,
Timothy R. B. Johnson, MD,
Barbara S. Apgar, MD, MS, and
Thomas L. Schwenk, MD

Objective: To assess concordance between family physician obstetric privilege delineation and actual care delivered, and describe associated clinical and educational collaborations between family medicine and obstetrics and gynecology.

Methods: We conducted a descriptive retrospective review of the care and complications of 962 consecutive patients admitted to a family medicine obstetric service in a research-intensive academic medical center, and compared the results with a structured obstetric privilege delineation.

Results: Of 962 women admitted by family medicine faculty members, 741 (77.9%) were managed exclusively by family physicians, 63 (6.6%) were comanaged by family physicians and obstetricians, and 147 (15.5%) were transferred to obstetricians (data missing for 11 patients). Spontaneous vaginal deliveries were performed in 772 patients (81%), cesarean delivery in 116 patients (12.2%), and assisted delivery by forceps or vacuum in 19 (2%) and 44 (4.6%) patients, respectively. Of 926 intrapartum obstetric complications identified in 604 obstetric deliveries, 615 complications (66.4%) in 418 deliveries were managed exclusively by family physicians consistent with privilege delineation, comanagement occurred in 56 patients with 92 complications (9.9%), and care was transferred in 130 patients with 219 complications (23.7%).

Conclusion: A structured method of obstetric privilege delineation for family medicine faculty members and associated guidelines for family physician-obstetrician interactions has led to a successful family medicine obstetric

service at a research-intensive, tertiary-care medical center, with a high concordance between privilege delineation and actual care delivered. This success has resulted in incremental clinical and educational collaborations that have improved the quality of women's health care and education. (Obstet Gynecol 2000;96:308-13. © 2000 by The American College of Obstetricians and Gynecologists.)

Many disciplines and specialties share common areas of medical care expertise, but the relationship between family medicine and obstetrics and gynecology has historically been one of particular intensity and controversy. The care of women, including low-risk obstetric care, is a core component of family practice residency training.¹ A joint task force of the American Academy of Family Physicians and the ACOG has developed recommendations for core educational objectives and cooperative practice to support this training and practice,² but the experience of many practicing family physicians is that, because obstetricians frequently view all obstetric care as potentially high risk, they actively discourage family physicians from practicing even low-risk obstetrics.³ Essentially all of the few studies examining delivery outcomes for family physicians originate in family medicine, are published in family medicine journals, and show that outcomes are comparable,⁴⁻⁶ but the comparability of the study populations is often questioned and the low-risk nature of the study populations makes an assessment of privilege delineation and consultation behavior difficult. One study found comparable outcomes in the care of gestational diabetic patients by family physicians and obstetricians.⁷ The main finding of other studies that have explored differences in obstetric practice between family physicians and obstetricians has been that family physicians appear to use a less interventionistic style of practice.⁸⁻¹⁰ Such comparisons, however, have not explored the collaborative nature of obstetric practice, particularly in research-intensive, tertiary-care medical centers. The lack of such collaboration often leads to considerable controversy, frequent meetings to arbitrate conflicts, mutual suspicion, resentment among family medicine and obstetrics and gynecology faculty and residents, and difficulty in initiating other potentially productive collaborations, particularly educational collaborations that would enhance the obstetric training of family physicians or help obstetrics and gynecology meet new residency requirements in primary care training.^{11,12}

We describe our experience with a structured, explicit approach to collaborative obstetric practice at the University of Michigan Medical Center, with particular attention to a detailed method of privilege delineation and physician credentialing, the success of which has

From the Departments of Obstetrics and Gynecology and Family Medicine, University of Michigan Health System, Ann Arbor, Michigan.

led to several collaborative clinical and educational programs.

Materials and Methods

The University of Michigan Medical Center is a research-intensive, tertiary-care medical center. The Department of Family Medicine was founded in 1978. Its clinical and educational activities were based primarily at smaller area community hospitals, but because the medical center provided the only local obstetric care to which family medicine had access, family medicine obstetric activity has always been based at this tertiary-care institution. For the first 9 years of the department's existence, family medicine obstetric patients were delivered by family medicine faculty and residents without specific obstetric privileging and without assigned beds or a geographic service. Family medicine obstetric care was provided on the basis of general medical staff privileges that included intrapartum care as part of the family medicine privilege document. Obstetric care by family physicians was conducted on the same labor and delivery unit where obstetricians and nurse-midwives practiced. This era was characterized by continuous conflict and controversy between family medicine and obstetrics and gynecology, particularly with regard to the management of various complications, the need for or lack of consultation by obstetricians for intrapartum complications, and even more fundamental discussions about whether family medicine should be providing intrapartum care at all.

These frequent administrative crises led to the creation of an explicit, highly structured privilege and credentialing document that guided the provision of family medicine obstetric care and prospectively eliminated to the greatest possible degree many of the controversies. This document, the *Family Practice Obstetric Consultation and Privilege Guidelines*, was written in 1987 and revised in 1988 and 1994 to reflect minor and mostly technical changes. The goals of the document were deceptively simple: "To provide the best possible obstetric care to University Family Practice patients and to encourage mutual support and a friendly spirit among physicians, staff, and house officers."

Fundamental to this approach was the philosophy that regardless of specialty there should exist only one shared standard of perinatal and obstetric care endorsed by both departments. In addition, the document was intended to foster a positive interdepartmental working relationship. Implementation of this philosophy required a cooperative working environment in which the contributions and role of family medicine in providing obstetric care were described, respected, and supported, and where early consultation was available

that did not automatically result in transfer of care from family physicians to obstetricians. This collaborative approach to obstetric care was explicitly and enthusiastically created for the sake of improved quality of both patient care and resident education.

The privilege and credentialing document has two components. The first component follows appropriate Joint Commission on Accreditation of Healthcare Organizations guidelines for credentialing that are to be based upon each individual physician's documented training and/or experience, demonstrated abilities, and current competence, as confirmed by a structured documentation process. The Department of Family Medicine is responsible for credentialing family medicine faculty according to explicit criteria and documentation of experience and training, including a proctoring process, with notification of the Department of Obstetrics and Gynecology before formal transmittal to the University of Michigan Health System Credentials Committee. Family physicians seeking cesarean delivery privileges have a specified credentialing and proctoring process conducted separately by obstetricians through a recently approved process.

The second component delineates mandatory consultative practices for family physicians and obstetricians, which are summarized in Table 1. Four levels of interaction and consultation are defined, the first of which is defined as informal interaction—the informal exchange of information addressing general issues between colleagues. No formal documentation is required, and such interaction is to be used as a means of general inquiry and educational exchange. The guideline outlines core obstetric privileges to be subject to this general consultative relationship and not requiring further specific consultation.

The second level involves a formal consultation resulting in comanagement. Consultations are generally initiated between residents of the respective services, but any difficulty or conflict is managed by communication between respective faculty members. Department chairs or their immediate service chief designees are responsible for managing conflicts on both an immediate- and a long-term basis, including responding to nursing staff concerns.

Obstetricians are required to respond when a consultation is requested, and continued collegial interaction between faculty members and house officers is expected. Common examples include second-stage arrest of labor greater than 2 hours, preterm premature onset of labor at less than 35 weeks' gestation, and mild preeclampsia. A notable example is that of uncomplicated twin gestation with vertex-vertex presentation, in which the patient will have previously received antepartum consultation and comanagement, and the fe-

Table 1. Family Medicine Obstetric Consultation and Privileges Guidelines

Level one (informal interaction)

- Normal labor and spontaneous vaginal vertex delivery
- Fetal monitoring (internal and external)
- Repair of third- and fourth-degree extensions of episiotomy
- Forceps (outlet)
- Vacuum extraction (below +2 station)
- Manual removal of placenta
- Current gestational diabetes, diet controlled
- Augmentation of labor
- Postpartum endometritis or other causes of postpartum fever
- Mild pregnancy-induced hypertension
- Induction of labor

Level two (formal consultation required; comanagement of patient as negotiated)

- Documented serious fetal malformation
- Second- or third-trimester fetal demise
- Prolonged labor suggesting dystocia
- Second-stage arrest of labor, unresponsive to pitocin (>2 h)
- Patient with sexually transmitted disease
- Preterm onset of labor (<35 wk)
- Preterm premature rupture of membranes (<35 wk)
- Mild preeclampsia or chronic hypertension with preeclampsia
- Forceps (above outlet)
- Vacuum extraction (+2 station and above)
- Maternal abuse of drugs or alcohol
- Twin gestation (uncomplicated, concordant growth, vertex-vertex)

Level three (formal consultation required; consultant assumes primary responsibility through critical period of time, after which care resumes with family medicine)

- Gestational diabetes mellitus requiring insulin
- Complicated forceps extraction
- Complicated multiple gestation (ie, discordant growth, three or more fetuses)
- Malpresentations (face, brow, breech)
- Severe maternal medical comorbidity
- Moderate preeclampsia

Level four (conditions requiring transfer of care)

- Operative delivery (unless family medicine physician is credentialed)
- Isoimmunization
- Severe preeclampsia, eclampsia
- Third-trimester bleeding due to placenta previa or abruptio placentae
- Prepregnancy insulin-requiring diabetes mellitus

tuses have maintained concordant growth to at least 35 weeks' gestation. Delivery by family medicine faculty and residents, in collaboration with obstetricians, is specified, after which the family medicine faculty member reassumes full responsibility unless other complications have occurred.

The third level of consultation requires that the obstetrician consultant assumes primary responsibility for the patient's care through a defined period of time or until resolution of a particular problem. Examples include assistance with a nonoutlet forceps delivery or a breech external version, after which the family medicine faculty member and house officer complete the

delivery and subsequent repair. The fourth level of care requires formal, permanent transfer of care. Family medicine faculty and residents are encouraged to maintain contact with the patient during this time although they no longer have primary responsibility. These guidelines are widely distributed to all family medicine and obstetrics and gynecology faculty members, residents, and nursing personnel.

A shorter companion document that delineates newborn privileges has been developed with the Department of Pediatrics, and its existence is essential to the appropriate care of both obstetric and newborn patients which is common in family medicine. The document specifies newborn care that is of comparable scope and process to that of the obstetric privileges, including full privileges to care for normal newborn, initiate sepsis evaluations, care for uncomplicated infants of a diabetic mother, supervise the administration of prophylactic antibiotics, and observe the newborn with minimal temperature or respiratory instability for up to 24 hours before a decision is made to transfer the infant either into the newborn intensive care unit under the care of neonatologists or back to the mother on the low-risk obstetric unit. Family physicians usually provide the resuscitation and care of newborns delivered operatively from intrapartum patients transferred to obstetricians. The intent of these guidelines is to maintain mother-infant continuity of care to the greatest extent possible, which is a core attribute of family medicine obstetric care.

This study addresses the outcomes of this privilege delineation and consultation process with respect to the characteristics of the family medicine obstetric service, with particular attention to the types of procedures and complications encountered on the service, the types of patients transferred to obstetricians or comanaged, and whether there was concordance between the privileges specified for family physicians and the actual conduct of the family medicine obstetric service. Family medicine residents and faculty members maintain detailed records of intrapartum consultation, transfers, and outcomes for typical morbidity and mortality conferences, which are conducted monthly.

This is a retrospective descriptive study of the characteristics of the family medicine obstetric service at the University of Michigan Medical Center. The obstetric service, including all family medicine, obstetrics and gynecology, and midwife deliveries, totaled approximately 2600 deliveries per year during the period of the study (1994–1998), with a cesarean delivery rate of about 19%. The medical center serves a local, primarily well-educated, middle-class population as well as a statewide high-risk referral population. Maternal and fetal medicine consultants, obstetrics and gynecology

Table 2. Delivery Method According to Physician Responsible for Delivery

Delivery method	Responsible physician			Total* [n (%)]
	FM [n (%)]	FM/OB [n (%)]	OB [n (%)]	
Spontaneous vaginal delivery	707 (91.6) [†]	43 (5.5)	22 (2.9)	772 (81)
Cesarean delivery	1 (0.9)	8 (6.2)	107 (92.9)	116 (12.2)
Forceps	1 (5.3)	8 (42.1)	10 (52.6)	19 (2)
Vacuum-assisted	32 (72.7)	4 (9.1)	8 (18.2)	44 (4.6)
Total	741 (77.9)	63 (6.6)	147 (15.5)	951

FM = family medicine physician; OB = obstetrician; FM/OB = comanagement.

Number of missing observations = 11.

* Percentages by column.

[†] Percentages by row.

residents, and obstetric anesthesiologists and residents are in-house on a 24-hour basis. Family medicine residents are also in-house at all times and family medicine faculty members are physically present for all care provided by 1st-year residents, as well as all important decisions and significant care provided by senior residents. All resident and faculty patients are admitted to the same service and all patients are cared for by either primary or on-call resident-faculty teams. First- and second-year family medicine residents are assigned to the low-risk obstetrics unit under the supervision of obstetricians for 1 month each, which markedly enhances working relationships.

We reviewed the monthly morbidity and mortality conference reports on 962 women admitted for obstetric care by family physician faculty between January 1994 (the time of the most recent document revision) and September 1998. The records for 9 months of morbidity and mortality conferences, scattered randomly throughout the study time, were unavailable for clerical reasons, leaving a total of 48 months of data with an average of 20 deliveries per month. Data were extracted and coded for demographic information, delivery date, gravidity and parity, gestational age, birth weight, newborn Apgar assessment, mode of delivery (normal spontaneous vaginal delivery, assisted vaginal delivery with forceps or vacuum, or cesarean delivery), physician responsible for delivery (family physician, obstetrician, or family physician and obstetrician comanagement), and complications.

Results

General characteristics of the family medicine obstetric service are summarized in Table 2. The mean infant birth weight was 3490 g (range 780–5220 g), and 859 infants (89.3%) had birth weights between 2500 and 4500 g. More than 95% were delivered between 35 and 42 weeks' gestation. Median Apgar scores were 8.0 and 9.0 at 1 and 5 minutes, respectively, with 90% of infants

having Apgar scores greater than 5 at 1 minute, and 97% with scores greater than 5 at 5 minutes.

Nine hundred twenty-six complications were identified in 604 deliveries. Complications were coded in 52 categories, of which 17 categories accounted for 78.8% of all complications, which are summarized in Table 3 according to the delivering physician. Of the remaining complications, which comprise 21.2% of all complications, a few are of particular significance, including three cases of abruptio placentae, four cases of placenta previa, and five sets of twin deliveries, all of which involved comanagement or transfer of care to obstetricians.

We showed a high concordance between how obstetric care is specified in the privilege delineation document and the actual care provided. Of 926 obstetric complications identified in 604 obstetric deliveries, 615 complications in 418 patients (66.4%) were managed exclusively by family physicians consistent with privilege delineation; comanagement occurred in 56 patients with 92 complications (9.9%). Care was transferred in 130 patients with 219 complications (23.7%). One apparent deviation from the consultation guidelines is seen in Table 3, namely, the delivery by family physicians of 18 patients (64.3%) with malpresentations, which are shown in Table 1 as requiring consultation and transfer of care. Further investigation revealed that those patients with malpresentation delivered by family medicine had compound, persistent occiput posterior or other deliverable presentations compared with undeliverable presentations described in the guidelines requiring transfer of care. Three quarters of the patients ($n = 36$) with premature rupture of membranes (PROM) were managed exclusively by family physicians, but these were all at gestational age greater than 35 weeks and consistent with the guidelines. Deliveries complicated by shoulder dystocia were managed almost exclusively by family physicians, which is consistent with the guidelines and appropriate for intrapartum skills required by family physicians. Examples of appropriate

Table 3. Complications of Labor and Delivery According to Responsible Physician

Complication	Responsible physician			Total* [n (%)]
	FM [n (%)]	FM/OB [n (%)]	OB [n (%)]	
Thick meconium	66 (86.8) [†]	5 (6.6)	5 (6.6)	76 (8.2)
Postpartum hemorrhage	60 (88.2)	3 (4.4)	5 (7.4)	68 (7.3)
Shoulder dystocia	61 (91)	5 (7.5)	1 (1.5)	67 (7.2)
Nonreassuring fetal heart tones	34 (52.3)	10 (15.4)	21 (32.3)	65 (7)
Precipitous delivery	38 (60.3)	18 (28.6)	7 (11.1)	63 (6.8)
Arrest descent phase	10 (20.8)	9 (18.8)	29 (60.4)	48 (5.2)
Premature rupture of membranes	36 (75)	5 (10.4)	7 (14.6)	48 (5.2)
Respiratory distress	32 (74.4)	1 (2.3)	2 (7.4)	43 (4.6)
Arrest active phase	11 (28.9)	0	27 (71.1)	38 (4.1)
Third-degree tear	31 (81.6)	3 (7.9)	4 (10.5)	38 (4.1)
Retained placenta	26 (86.7)	3 (10)	1 (3.3)	30 (3.2)
Malpresentation (other than breech)	18 (64.3)	3 (10.7)	7 (25)	28 (3)
Breech presentation	2 (7.1)	5 (17.9)	21 (75)	28 (3)
Induction for preeclampsia	19 (76)	2 (8)	4 (16)	25 (2.7)
Preeclampsia	14 (60.9)	0	9 (39.1)	23 (2.5)
Maternal comorbidities	19 (90.5)	1 (4.8)	1 (4.8)	21 (2.3)
Fetal malformation	15 (75)	0	5 (25)	20 (2.2)
Other complications	123 (62.4)	19 (9.6)	55 (27.9)	197 (21.2)

Abbreviations as in Table 2.

* Percentages by column.

[†] Percentages by row.

collaboration between family medicine and obstetricians include management of patients with arrest of the active phase or descent.

Discussion

A structured, explicit method of obstetric privilege delineation and credentialing for family medicine faculty members and consultation guidelines for family physician–obstetrician interactions have led to a successful family medicine obstetric service at a research-intensive, tertiary-care medical center. The cesarean delivery rate of 12.2% compares favorably with national rates, as do the rates of major perineal laceration (third- and fourth-degree; 4.5%) and fetal malformation (2.2%). The rate of shoulder dystocia (7.2%) reflects the lower threshold of family physicians to define a delay in shoulder delivery as a dystocia.

The distribution of delivering physician for the relatively small but significant number of patients with postpartum hemorrhage, shoulder dystocia, PROM, perineal lacerations, and preeclampsia suggests that appropriate judgment is being used in the assessment of severity of these conditions, although we could not confirm the severity and therefore the absolute appropriateness of care of these patients. Except for these uncertainties, all consultations or transfers of care were conducted as specified in the guideline document. The review of morbidity and mortality data revealed no cases of preventable or iatrogenic adverse events.

The resolution of prior organizational conflicts in intrapartum care resulted in additional collaborative benefits, including an arrangement in which senior family medicine residents are responsible for managing the low-risk birthing center, leading to a high volume of high-quality obstetric experience for family medicine residents and a high proportion (50% over the last 5 years) of residency graduates practicing obstetrics upon graduation, possibly due as well to the effective role-modeling of family physician faculty members active in obstetric care.¹³

Additional collaborative benefits include an active colposcopy program, with a structured approach to credentialing and privileging family physicians to provide colposcopic care to uncomplicated patients. This program includes the monitoring of cytology–colposcopy–histology correlation,¹⁴ family physician contributions to a joint colposcopy service for obstetrics and gynecology residents, and an outpatient gynecologic training program for family medicine residents taught by family physicians which includes gynecologic procedures, reproductive endocrinology, and preventive health care. Outpatient primary care training is provided by family medicine for 1st- and 2nd-year obstetrics and gynecology residents, who are placed in family medicine residency training sites to allow family medicine and obstetrics and gynecology residents to develop in an atmosphere of mutual trust and respect that naturally extends to the senior resident and faculty level. The evaluation of this experience by obstetrics

and gynecology residents is extremely positive. Additional collaborations include the organization of a major monthly teaching conference, several clinical publications, a successful annual continuing medical education course on the primary health care of women, and major research programs.

Some important educational implications arise from these data. Training in the use of vacuum-assisted delivery devices is important for family medicine residents, whereas forceps use may not be. The management of thick meconium, postpartum hemorrhage, shoulder dystocia, abnormal fetal heart tracings, PROM, perineal lacerations, retained placenta, malpresentations, preeclampsia, and fetal malformation constitutes core obstetric curriculum topics for family physicians because of the frequency of these conditions. Intrauterine fetal and neonatal death, abruptio placentae, and placenta previa, though infrequent, are similarly important to include because of their severity.

This study is based in a research-intensive, tertiary-care American medical center, rather than in community hospitals, rural settings, or Canada, as were prior studies.¹⁵⁻¹⁸ Other studies showed a higher rate of consultation for family medicine patients (in as many as 30-50% of all family medicine patients of which half resulted in cesarean delivery), as well as a lower level of concordance between privileging guidelines and actual consultations.^{19,20}

Limitations of this study include the lack of clinical outcome data for the service as a whole, and particularly for various complications according to the delivering physician, although preventable or iatrogenic adverse events were not found. The number and types of patients who were transferred from family physicians to obstetricians or received consultation during the antepartum period cannot be determined because this was a study of intrapartum care, not a true population-based study. The accuracy of the morbidity and mortality summaries from which these data are derived was not confirmed by chart audit.

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Address reprint requests to:

Thomas L. Schwenk, MD
Department of Family Medicine
University of Michigan Medical Center
1500 East Medical Center Drive
L2003 Women's Hospital, Box 0239
Ann Arbor, MI 48109
E-mail: tschwenk@umich.edu

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