CME

Family medicine obstetrics

Collaborative interdisciplinary program for a declining resource

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ABSTRACT

PROBLEM BEING ADDRESSED A continuing decline in the number of family physicians in Canada providing obstetric, and particularly intrapartum, care.

OBJECTIVE OF PROGRAM The Maternity Centre of Hamilton in Ontario was a pilot project initiated to help family physicians provide full obstetric care through a collaborative interdisciplinary model and shared call.

PROGRAM DESCRIPTION Eleven family physicians provided care in collaboration with a nurse practitioner and other health professionals. Women came from the Maternity Centre's own practices, community physicians, or agencies, or through self-referral. More than a quarter of the women were considered psychosocially high-risk patients. Key features of the program included interdisciplinary collaboration and information technology that supported prenatal and birth documentation.

CONCLUSION The program has helped family physicians, and even recruited some, to practise full obstetric care and has provided high-quality, accessible services to pregnant women. Physicians experienced increased job and personal satisfaction, and patients were highly satisfied with the service.

RÉSUMÉ

PROBLÈME À L'ÉTUDE La baisse constante du nombre médecins de famille qui pratiquent l'obstétrique, notamment pour les soins périnataux.

OBJECTIF DU PROGRAMME Le Maternity Center de Hamilton, Ontario, est un projet pilote qui a été créé pour aider les médecins de famille à fournir des soins obstétricaux complets grâce à un système de collaboration interdisciplinaire et d'horaires partagés.

DESCRIPTION DU PROGRAMME Onze médecins de famille ont fourni les soins en collaboration avec une infirmière praticienne et d'autres professionnels de la santé. Les patientes provenaient de la clientèle du Maternity Center même, de médecins du milieu et d'agences; certaines étaient venues d'elles-mêmes. Plus du quart d'entre elles étaient jugées à haut risque du point de vue psychosocial. Les caractéristiques clés du programme incluaient la collaboration interdisciplinaire et les technologies de l'information comme soutien à la documentation prénatale et natale.

CONCLUSION Ce programme a permis de recruter quelques médecins, mais il a surtout aidé les médecins de famille à donner des soins obstétricaux complets et à fournir aux femmes enceintes des services accessibles et de grande qualité. Il a amélioré chez les médecins l'estime de soi et la satisfaction au travail; les patientes, pour leur part, ont beaucoup apprécié ce service.

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The continuing decline in the number of Canadian family physicians providing maternity care, and in particular, intrapartum care, has recently been highlighted.[1-4] Although most births in Ontario are categorized as low risk, obstetricians do about 85% of deliveries. The proportion of family physicians providing intrapartum care in Ontario has declined from 15% in 1997 to 12% in 2001.[5] From 1989-1990 to 1999-2000, the proportion providing this care in Canada declined from 28% to 13% among established physicians and from 27% to 15% among recent graduates.[6] In 2001, about 50% of family physicians shared obstetric care with obstetricians, and about one third did no obstetric care.[5] At the time of writing, only 22 of about 400 family physicians in Hamilton, Ont, provided intrapartum care, a decrease from 36 physicians 2 years before.

These trends, together with a decreasing number of obstetricians being trained and practising intrapartum care,[7] have contributed to a general crisis in maternity care in Canada. Family physicians' role in obstetrics is particularly important in rural areas that lack specialist care.[8,9] Barriers deterring family physicians from providing obstetric care include lifestyle pressures,[2,10,11] inadequate remuneration,[2] fear of litigation,[12] and perceived lack of competence.[13] To surmount these barriers, models of obstetric care have been devised that include shared-call arrangements only[14] or shared call in addition to clinics staffed by family physicians[14,15] or by family physicians, nurses, and midwives.[16]

Objectives of the program

The overall goal of the Maternity Centre (MC) in Hamilton was to enable family physicians to provide high-quality, accessible primary maternity care using an innovative, interdisciplinary approach. The scheduled clinic half-days and shared-call model for deliveries helped physicians incorporate obstetrics into their personal and professional lives.

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In addition to the practical scheduling and shared-call issues addressed by previous models,[13,14,16] our comprehensive model of care integrated a nurse practitioner, a social worker, and a lactation consultant to support the role of family physicians in full maternity care and to develop outreach and educational activities for mothers and newborns. Educational objectives were to provide family physicians with training or updating and role models, to promote maternity care to students and residents, to facilitate research activities, and to develop and disseminate practice models.

Program development

The MC opened in September 2001. The program was developed following a review of the literature and observation of other Canadian centres with similar programs. We consulted an advisory committee consisting of academic chairs in family medicine, obstetrics, midwifery, and nurse practitioner programs at McMaster University; hospital chiefs in obstetrics and gynecology; and a public health representative. Community input was obtained from 71 family physicians currently providing prenatal or intrapartum care and 38 patients in focus groups. Also, about 180 prenatal and postnatal patients were surveyed on their perceived need for maternity care in the community. **Table 1** lists the main themes and recommendations arising from focus groups and surveys. Presentations were made to community agencies and hospital steering committees for maternal and newborn programs, and feedback was invited.

Staffing and resources

The medical team during the first year comprised 11 family physicians with broad obstetric experience, one of whom acted as medical director. Interdisciplinary partners included a full-time nurse practitioner, a part-time social worker, a lactation consultant, a public health nurse, and a full-time receptionist. A program manager was hired for the first year of the project, and a clinic aide was hired after 1 year.

Table 1. Professional and community input into Maternity Centre model development: *Themes and recommendations originated from focus groups and surveys.*

FAMILY PHYSICIANS' CONCERNS
• Discomfort with referring to other family physicians (potential loss of patients)
• Lack of support for midwifery model
• See only two models: no intrapartum care or continuity model
• Lack of familiarity with nurse practitioner's role
FAMILY PHYSICIANS' RECOMMENDATIONS
• Model should focus on holistic role of family physician
• Current practice of routine referral to obstetricians should change to referral based on patients' needs
• Should provide a role model of sustainable family practice obstetrics
PATIENTS' RECOMMENDATIONS
• Providers should be supportive and nonjudgmental
• The Maternity Centre should be friendly, nonmedical
• Make time for questions during appointments
• Provide home visits for late pregnancy when needed
• Health professionals should provide consistent information
• Facilitate peer support
• Address the needs of fathers
• Provide telephone assessment
PRENATAL AND POSTNATAL WOMEN'S THEMES
• About 83% perceived they could choose their prenatal care providers
• For delivery, 48% preferred obstetricians, 39% family physicians, and 13% midwives

A web-based electronic medical records system (**http://oscarhome.org**) was implemented for prenatal documentation and provision of evidence-based guidelines for prenatal care. All births occurred at St Joseph's Healthcare in Hamilton. Physicians received a stipend for prenatal and postnatal care at the MC clinic and then pooled fee-for-service billings for deliveries and hospital work. This payment was then based on the number of call shifts worked by each physician.

Model of care

Each physician saw patients during a consistent half-day clinic. Patients were generally booked with one physician throughout the antenatal period. Physicians took call duty for 24 hours on a rotating basis and cared for all patients in labour and delivery during that time. Physicians met regularly to discuss clinic functioning, best clinical practice, and cases.

Services spanned prenatal visits, consultations with other members of the interdisciplinary team, on-site prenatal classes, intrapartum care, and postpartum hospital and office visits. Once referrals were received, women were usually seen within 1 week. Referring family physicians could either share care with the MC or request full care from the MC. They also had the option of caring for infants in the hospital and were encouraged to assume care of mothers and babies immediately following discharge. Care could be provided for both mothers and babies for up to 6 weeks at the MC, if desired. All physicians working at the MC guaranteed to return patients to referring doctors.

The nurse practitioner was the initial point of contact and was involved in managing and coordinating patients' care. Her role was important to the success of our model because she provided continuity and initial triage of patients as well as ongoing care for many patients with high psychosocial needs. A social worker and a public health nurse also met with patients during the prenatal period to facilitate access to programs and services that would assist patients in caring for their newborns and to provide counseling and ongoing support.

Four obstetricians agreed to provide coverage on weekdays for urgent consultations or advice. The obstetrician on call for the labour and delivery floor provided emergency consultations.

One physician, a "postpartum doctor of the week," was responsible for hospital rounds on a weekly basis. This continuity of care was enhanced by daily hospital visits from the nurse practitioner. For women presenting without family physicians (19%), the MC developed partnerships with more than 60 community physicians who agreed to accept one or two babies per year into their practices. The public health nurse conducted a postpartum information group for women up to 8 weeks after delivery. The group discussed breastfeeding, car seat safety, postpartum depression, maternal and infant sleeping, infant nutrition, and postpartum fitness.

Documentation and data collection

Demographic information was collected on the women; all women completed the Antenatal Psychosocial Health Assessment (ALPHA) form.[15] The Open Source Clinical Application Resource (OSCAR) system, developed by a physician at the MC, was implemented for documentation of booking, billing, and pregnancy and birth outcomes. Information gathered was congruent with that required for the Ontario Prenatal I and II forms. An innovative feature of the software is the incorporation of evidence-based protocols developed by two MC physicians for the course of prenatal care.

Hospital records were obtained. They included information on type of delivery, procedures used, complications, use of anesthetic, birth weight and size, 1- and 5-minute Apgar scores, and initiation of breastfeeding.

To evaluate patients' satisfaction with care, questionnaires were mailed to women after delivery. Items rated on a 5-point scale (1—strongly agree, 5—strongly disagree) pertained to quality of care before, during, and after delivery; adequate time and explanations during visits; and waiting time for appointments.

At the end of the first year, all physicians completed a questionnaire asking about satisfaction with their working life, relationships, and perceived skills over the first year of operation and also about their satisfaction with the call schedule before and after joining the MC.

Delivery outcomes and patient satisfaction

By the time of writing this article, approximately 383 deliveries had been managed by the MC. During 2003, each quarter saw a rise in the number of referrals from about 60 in the first quarter to more than 120 during the second quarter. In the year before formation of the MC, the 11 doctors did just over 200 deliveries; in 2003, MC doctors did more than 500 deliveries.

Demographic characteristics of the women are shown in **Table 2**; birth outcomes are shown in **Table 3**. Just over a quarter (27%) of the women were considered psychosocially high risk (younger than age 20, high school not completed, partner or baby's father absent, family violence, or alcohol or other substance abuse). Nearly one quarter (22%) were smokers. Rates of cesarean section, episiotomy, and instrument deliveries were 16%, 5%, and 9%, respectively; all rates were higher in primiparous women than in multiparous women (**Table 4**).

Table 2. Demographic characteristics of the 383 women cared for at the Maternity Centre: *Mean age was 29.1 (± 5.8) years.*

CHARACTERISTIC	% (N*)
Parity	
• None	45.4 (163/359)
• One	33.4 (120/359)
• Two or more	21.2 (76/359)
No steady partner	8.6 (19/221)
High school education incomplete	15.4 (18/117)
Current smoker (during pregnancy)	21.7 (48/221)

**Denominators differ because of incomplete information in electronic records.*

Table 3. Birth outcomes of the 383 women who delivered babies at the Maternity Centre: *73.4% (273/372) were breastfeeding at discharge.*

OUTCOME	MEAN (STANDARD DEVIATION)
Gestational age (wk)	40 (±1.7)
Weight (g)	3477 (±517.0)
1-min Apgar score	8 (±1)
5-min Apgar score	9 (±1)

Table 4. Type of delivery by parity of women who delivered babies at the Maternity Centre

TYPE OF DELIVERY	PARITY: NONE % (N*)	PARITY: ONE % (N)	PARITY: TWO OR MORE % (N)
Cesarean section	23.9 (39/163)	14.2 (17/120)	2.6 (2/76)
Episiotomy	4.9 (8/163)	0.8 (1/120)	0
Instrumented	14.2 (23/162)	6.7 (8/120)	2.6 (2/76)
Perineum intact	24.5 (40/163)	39.2 (47/120)	57.9 (44/76)

**Denominators differ because of incomplete information on hospital delivery records.*

Patients' satisfaction. At the time of analysis, 295 of the 383 patients had been sent a questionnaire on their satisfaction with care at the MC. Of the 295 women, 43.1% (127/295) responded. More than half the respondents (63.4%; 78/123)

indicated they thought it was important for the physician who provided their prenatal care to deliver their babies (**Table 5**). Nearly all women (94.3%; 116/123) reported they would return to the MC for subsequent births.

Table 5. Patients' satisfaction with Maternity Centre care

ASPECT OF CARE	% (N)
AGREE OR STRONGLY AGREE	
Had enough time with doctor or nurse practitioner at each visit	94.4 (118/125)
Had opportunity to ask questions	98.4 (122/124)
Doctor or nurse practitioner explained procedures	94.4 (117/124)
Waiting time for appointment was acceptable	87.1 (108/124)
Staff were skilled	96.8 (120/124)
Staff were caring	96.0 (119/124)
Staff listened to me	97.6 (120/123)
Staff discussed fear of childbirth with me	65.3 (81/124)
Staff discussed pain of childbirth with me	66.1 (82/124)
Staff discussed feeding plan for baby with me	79.0 (98/124)
GOOD OR EXCELLENT CARE	
During pregnancy	95.2 (118/124)
During labour and delivery	92.6 (88/95)
After baby was born	86.8 (66/76)

Physicians' satisfaction. Before joining the MC, five of the 11 physicians were dissatisfied, and four were satisfied or neutral (two of these did not have a call system) with their call system for maternity care. After the first year, 63.6% (7/11), were satisfied with their call system.

Three additional questions on satisfaction were asked after the first year. Most physicians (63.6%; 7/11) were satisfied with the MC model, 27.3% (3/11) were neutral, and 9.1% (1/11) were dissatisfied. Most (81.8%; 9/11) reported that their lifestyle had improved, and 54.5% (6/11) reported that their skills had improved. Written comments about satisfaction with the model pertained to being able to plan time off and avoid interference with office practice, increased skills, and interaction with knowledgeable colleagues. Reasons for continuing with the MC included improved lifestyle, respect of colleagues, the collaborative nature of the model, and adequate remuneration.

Discussion

The MC model in Hamilton has been successful in retaining family physicians in obstetric care through use of a shared-call arrangement and a comprehensive clinic with interdisciplinary care. Other centres in Canada have also developed models of family physician obstetric practice using shared-call groups,[14] a family physician–staffed low-risk obstetric clinic with shared call,[13] and a hospital-based clinic with family physicians, a midwife, and nurses.[16] These models have reduced some lifestyle and financial barriers and increased patients' satisfaction.

The success of the Hamilton MC model lies in its interdisciplinary approach, which allows more intensive and timely intervention with patients at higher risk both medically and socially, and the active collaboration among physicians that facilitates sharing knowledge and skills, increases uptake of "best practices," and increases physicians' personal and professional satisfaction. Both these components have helped recruit and retain family physicians to provide full obstetric care. Being on call approximately 1 in 10 days has allowed physicians to focus on obstetrics on those days without having to juggle other responsibilities (clinical, administrative, teaching, social) and has provided assurance that obstetric responsibilities will not conflict with other activities.

Similar to findings in other studies,[14,17] we found that women prefer the same health care provider for prenatal care and delivery. In our setting, however, delivering physicians were often not the physicians patients knew. Despite this, the women who responded to the survey were almost universally pleased with their delivery experience. It has been reported that women are not as concerned about having different providers for delivery, if those people know of them, have ready access to their charts or key information, and have a similar philosophy of care to the philosophy of physicians who provided their prenatal care.[14,18,19]

A limitation of our evaluation was the poor response rate of women to the satisfaction questionnaire that was mailed home after delivery. It is possible that women who were more satisfied

were more likely to respond. Our results pertaining to physician satisfaction cannot be generalized because of the small number and the lack of a validated instrument.

Challenges encountered in development of the MC include the need to work out meticulous communication strategies between all the interdisciplinary partners, particularly between physicians. Our nurse practitioner has been invaluable in this regard. Another source of concern to the staff has been the high number of socially high-risk patients and the danger of burnout. There is a need to broaden referral sources, but it is challenging to convince local physicians to change their referral patterns. They are slowly changing, however, as patients themselves request referral to the MC. To increase patients' comfort with the large group of physicians, we have attempted to arrange a "meet the docs" night once every 3 months. Response to this initiative has been poor, and we need to reevaluate this strategy.

Future directions

The Ontario Ministry of Health and Long Term Care approved 3 additional years of funding beginning in April 2003. The MC now has 12 family physicians. In a half-day retreat, we charted our future and discussed ways to prevent burnout and preserve patients' satisfaction with the model. More than 950 deliveries had taken place by December 2004. A second round of consultations was held with community physicians to solicit feedback and promote low-risk referrals. Four midwives had physically relocated to the MC as of July 2003, and more collaboration with them was eagerly anticipated.

Conclusion

The current crisis in Canadian maternity care and the decline of family medicine obstetrics demands exploration of innovative models of care. The Hamilton MC has a unique interdisciplinary approach that allows flexibility in care for referring physicians and patients. Both physicians and patients are highly satisfied with this approach, and the MC is an ideal setting for caring for psychosocially at-risk women. The electronic database and evidence-based care planner will facilitate continued research and consistently high-quality care. Future research will explore birth outcomes, examine potential uses of electronic medical records in patient education, and continue to evaluate the program to optimize the benefits of this model of care for both patients and health care providers.

EDITOR'S KEY POINTS

- The interdisciplinary staff of this maternity model included 11 family physicians, a full-time nurse practitioner, a part-time social worker, a public health nurse, a lactation consultant, and a project coordinator at start up.
- Physicians took regular turns staffing the antenatal clinic, covering the labour floor for 24 hours and caring for all births, and becoming "postpartum doctor of the week." The team met regularly to discuss patient concerns and professional development. The nurse practitioner had a key role in coordination and continuity.
- Evaluation of the Maternity Centre model indicates excellent obstetric outcomes, satisfied mothers who would return for subsequent care, and a great improvement in physicians' satisfaction with both their lifestyles and their professional development.

POINTS DE REPÈRE DU RÉDACTEUR

- Le personnel de ce modèle de maternité interdisciplinaire comprenait 11 médecins de famille, une infirmière praticienne, un travailleur social à temps partiel, une infirmière de santé publique, un consultant en allaitement et, au départ, un coordinateur de projet.
- À tour de rôle, les médecins surveillaient la clinique anténatale, couvraient la salle de travail pendant 24 heures et y effectuaient tous les accouchements, et jouaient le rôle de «médecin du postpartum» pendant une semaine. L'équipe se réunissait régulièrement pour discuter des inquiétudes des patientes et de développement professionnel. L'infirmière praticienne avait un rôle clé pour assurer la coordination et la continuité.
- À l'évaluation du modèle de Maternity Center, on constate d'excellents résultats obstétricaux, des mères satisfaites qui reviendraient se faire traiter plus tard et une importante amélioration de la satisfaction des médecins, tant à l'égard de leur mode de vie que de leur développement professionnel.

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Competing interests

None declared

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