The Birth of a Collaborative Model

Obstetricians, Midwives, and Family Physicians

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KEYWORDS

• Collaborative model • Midwives • Obstetricians • Family physicians

KEY POINT

- The design and implementation of a collaborative model of intrapartum care that involves obstetricians, midwives, and family physicians are described.

Those organizing maternity care in the United States face major challenges, including the impending shortage of obstetricians and consequent limitations in access to quality perinatal care for some populations.[1–3] Family physicians and certified nurse-midwives provide labor and delivery services in some communities and may offer solutions by addressing provider workforce, access to care, and cost issues in maternity care. These provider groups deliver safe care[4–6] while offering a diverse set of skills and expanded choices for women in childbirth.[7–15] Benefits of collaborative care include a more robust workforce with a better work-life balance, improved access to care and choice of providers, as well as appropriate care providers for individual patient needs.[16]

A unique collaboration among obstetricians, midwives, and family physicians at Boston Medical Center and its affiliated community health center network is described. Included is the evolution from 3 silos of individual professional practices characterized by interdisciplinary mistrust, inconsistent communication, and variable skill sets to a high-functioning, collaborative maternity care team with a clearly defined practice structure, sustainable systems that promote a culture of safety, and interdisciplinary education that integrates the skills and expertise of each profession.

The American College of Nurse-Midwives and the American Academy of Family Physicians each have joint statements with the American College of Obstetrics and

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Gynecology emphasizing the importance of collaboration.[17,18] However, conflict, disruptive behavior, resentment, and lack of respect among intrapartum providers are not uncommon.[19–21] Successful models of collaborative maternity care must promote a work culture that builds trust and emphasizes interdisciplinary communication. Practitioner competence, accountability, risk-taking and assertiveness, willingness and ability to challenge assumptions, and critical self-reflection are necessary for diverse providers to work together collaboratively.[22–24] Robust systems for conflict resolution, opportunities for participation and building cohesion, effective communication, and mutual trust are necessary for a collaborative model. Interdisciplinary education is also an important element of successful working relationships.[25–27]

Effective collaboration and communication through teamwork can improve maternity care by preventing error.[28–35] In an effort to improve patient outcomes, some hospitals have implemented team training programs to improve interdisciplinary professional communication. Commitment to a culture of safety, interdisciplinary participation and flat hierarchy, effective leadership, and robust communication techniques are essential elements in the Agency for Research and Health care Quality's TeamSTEPPS training program.[35] These programs have succeeded in establishing authentic collaboration and cultures of safety.[32] Clarity regarding consultation and referral in collaborative care is also crucial.[36]

Boston Medical Center is a 508-bed tertiary care hospital affiliated with the Boston University School of Medicine that includes in its mission the provision of safety net services to the Boston region. The maternity unit includes 8 labor and delivery rooms, 5 triage beds, 7 high-risk antepartum beds, 2 operating rooms, and 2 postanesthesia recovery beds. In 2010, the maternity unit cared for approximately 2500 women giving birth and provided 2800 outpatient triage visits. Boston Medical Center serves an ethnically diverse population, including a maternal population that is 45% African American, Afro-Caribbean, Haitian, and African; 30% Latina; 15% White; and 10% other, including Asian and Middle Eastern. The majority (81%) of intrapartum patients are covered by government-sponsored health insurance. Boston Medical Center's mission to improve the health of vulnerable populations is reflected in its commitment to providing neighborhood-centered health services through a network of 16 urban community health centers. More than half (54%) of the intrapartum patients receive prenatal care at 1 of these centers. In addition, the hospital provides a robust interpreter services department and a multicultural doula program.

BACKGROUND FOR THE INITIATION OF THE AUTHORS' COLLABORATIVE MODEL

Before the establishment of the collaborative model, we practiced in 3 silos of care. An obstetrician, a midwife, and a family physician each provided attending coverage for his or her own service. Similar to many academic settings, in-house obstetricians supervised deliveries by residents and covered emergencies as needed. Midwives, who are faculty members of the Department of Obstetrics and Gynecology, provided continuous 24-hour labor and delivery care for patients who received midwifery care antenatally. Intrapartum guidelines for consultation or transfer of care of midwifery patients with high-risk conditions or for operative delivery were clearly defined. However, mistrust and lack of respect between midwives and obstetricians created a culture that discouraged communication. Midwives worried that their patients would receive unnecessary interventional or operative care from the obstetricians whereas obstetricians worried that midwives would not consult in a timely manner. Evidence-based discussions about labor management between midwives and obstetricians often were not resolved to the satisfaction of either party. Residents and

students gained minimal appreciation for midwifery care because interactions were limited to situations that required the assistance of a physician.

Family physicians were physically present on the unit only when an antenatal patient of a family physician was in active labor. Admissions to family medicine occurred less than once a day on an average, and their patients comprised only 10% of total deliveries. There was a wide variation of skills among the family physicians, between new residency graduates and fellowship-trained family physicians privileged to perform cesarean deliveries. Delivery volume also varied greatly among family physicians, with some attending fewer than 5 deliveries a year. Guidelines for consultation between family physicians and obstetricians were not clearly defined, and the culture did not encourage early consultation. A lack of presence and consistency in the competence of family physicians led to disrespect, mistrust, and poor communication with obstetricians, midwives, residents, and nurses.

Each professional provided patient care independently with minimal interaction unless there was a need for consultation. There was no awareness or discussion on how specific patient care interventions might affect the workload or flow on the unit. There was no cross coverage, leading to delays in clinical care if one provider was occupied. Review of adverse outcomes consisted of assigning blame to a single provider rather than examining systems of care that contributed to the poor outcome.

Educational activities also were disjointed and at times, reflected disrespect between disciplines. A first-year and a senior obstetrics resident were assigned to labor and delivery, except for 3 months of the year when 2 first-year residents of family medicine replaced the first-year residents of obstetrics. Midwifery students worked with the midwives with little interaction with the resident or attending physicians, unless they were seeking a consultation from an attending obstetrician. Residents were responsible for admission, evaluation, writing orders, labor management, and delivery of all physician patients; however, they were not involved in the care of midwifery patients except those transferred to the on-call obstetrician.

An anticipated increase in prenatal registration of approximately 400 deliveries from 1 of our of affiliated health centers and a concern that this volume change would lead to adverse perinatal outcomes prompted the leadership of obstetrics and gynecology, including its midwives, and the family medicine department, to address changes that could improve perinatal outcomes, patient safety, patient satisfaction, and graduate medical education.

In the fall of 2005, a multidisciplinary working group of obstetricians, family physicians, midwives, nurses, and residents met weekly to define a new model of collaborative care for patients on labor and delivery. The mission was to provide safe, high-quality, patient-centered care at all times. The new Collaborative Model for Excellence on Labor and Delivery elaborates 10 principles to ensure patient safety, provide efficient and excellent patient care, as well as strengthen education of the residents (**Box 1**). In July 2006, the model was formally introduced to all providers and nurses, and a large poster with the guiding principles was displayed on the labor and delivery units. For the first year of the project, the working group met weekly to address challenges and ensure the successful continued implementation of the model.

THE PRACTICE MODEL

Leaders in the Department of Obstetrics and Gynecology, its Section of Midwifery, and the Department of Family Medicine envisioned the creation of a consistent complement of providers on labor and delivery, each contributing distinct expertise

Box 1
Collaborative Model Principles

Principles of a Collaborative Labor & Delivery Team of Excellence and Patient Safety at Boston Medical Center

Mission: *To provide safe, high quality, patient centered care at all times through adherence to the following principles:*

1. Team Focused

Responsibility for care of women in triage, during labor and delivery, and during their postpartum stay rests with a team of professionals rather than a single provider.

2. Clarity of Responsibility

The identity of the supervising provider and the team responsible for each case will be clear to all L&D staff at all times.

3. Citizenship

Interactions between partners will be respectful and constructive. Excellence in patient care will be the focus of communication. All providers will perform patient care, order entry and chart documentation. Frequent physical presence on the L&D area will promote communication and collaboration among providers.

4. Acceptable Case Load

Safe patient care is possible only if there are well rested providers responsible for a reasonable number of women in labor. No provider will be directly responsible for more than 3 women needing active management at any one time. If a provider caseload exceeds this number then the FM and OB attendings and CNM will huddle to reallocate the case loads.

5. Maximizing Continuity

The first option for assignment of the care provider on L&D is the provider group with whom the woman has developed an established relationship during prenatal care. Information will flow smoothly from the prenatal to L&D and postpartum and nursery providers, and to the site and providers of post-hospital mother and infant care.

6. Frequent Communication

Frequent communication is needed for safe provision of care and is promoted by regular interdisciplinary board rounds, ad hoc interdisciplinary updates with changes in plans or transfer among providers due to a change in risk status or patient load, team members cross-covering for one another when needed.

7. Good Documentation

There will be clear and consistent documentation of all care delivered. Co-management or transfer of care from one team to another will be stated in the chart.

8. High Efficiency

Providers should maximize the use of their skill set by caring for women whose needs match their highest level of training. The provider with the highest level of training should be caring for those women who need the highest level of care. Providers with a higher level of training should NOT be caring for women who can be cared for by professionals whose training is especially suited for those patient characteristics and preferences.

9. Evidence-Based Care

Care provided will be based on the current evidence, standardized from one provider to another, and be informed by a rigorous continuous quality improvement process.

10. Excellence in Education

As a teaching hospital, all team members have responsibility for the education of residents, students and other trainees.

in patient care. Family physicians could bring to the team expertise in managing medical conditions; midwives, expertise in managing normal labor and birth; and obstetricians, expertise in high-risk conditions and surgical management. To accomplish this mission, the Department of Family Medicine initiated a 24-hour continuous attending presence on labor and delivery. The midwives and obstetricians continued to provide continuous coverage of labor and delivery.

In 2007, a new algorithm for the distribution of intrapartum patients was introduced. Specifically, some patients who had been cared for by an obstetrician antenatally were assigned to the family physician (**Fig. 1**). This new algorithm increased the volume of vaginal deliveries for the family physicians and allowed the obstetricians to focus on patients at high risk and operative deliveries. Because the midwifery group already carried a substantial antenatal patient panel, their delivery volume remained stable and robust.

In addition, our process for distribution of patients in labor and delivery is patient centered and considers the specific needs of each woman. The diversity in provider staff mirrors our multicultural patients who may benefit by having a provider with relevant cultural or linguistic competence. Women who desire to labor without pain medications or with less intervention may choose to be placed on the midwifery service regardless of their type of prenatal provider.

Our collaborative model emphasizes care of the patient by a team of maternity care providers rather than a single provider. Obstetricians, family physicians, midwives, and residents together review patient history, care plans, and fetal tracings on every patient at formal teaching rounds in the morning and evening and informally throughout the day. This emphasis on frequent communication encourages early collaboration and discussion regarding evidence-based plans of care for each patient. All members of the team are encouraged to express their opinions and concerns; respectful communication is expected. The skill sets of each provider group are also maximized in our model (**Fig. 2**). Midwives attend 44% of vaginal deliveries and provide labor management for 12% of operative deliveries. This translates to a 10% cesarean birth rate for the midwifery service. Obstetricians focus on operative deliveries. The mixture of vaginal and operative deliveries for family physicians reflects the ratio of clinical skills provided this provider group. Family physicians with operative privileges provide labor and delivery coverage 70% of the time, whereas family physicians who attend only vaginal deliveries provide coverage 30% of the time.

Our triage unit also functions collaboratively. During weekday hours, an additional nurse-midwife dedicated to the triage unit evaluates patients and consults with the obstetrician or family physician when needed. During the night and weekends, the

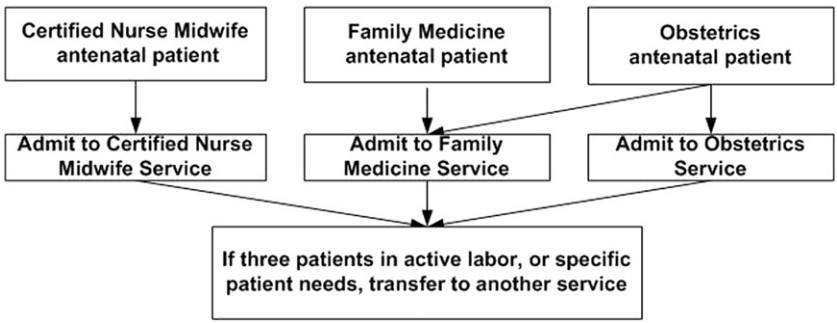

Fig. 1. Distribution of patients in labor and delivery.

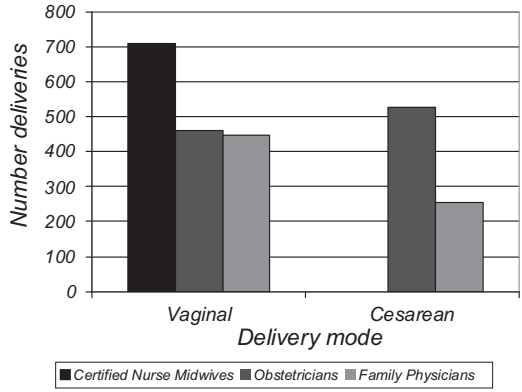

Fig. 2. Number and mode of deliveries by provider type (Jan 2010 to Dec 2010). Grid represents midwives, white dots on black bar represents obstetricians, black dots on white bar represents family physicians.

residents evaluate triage patients and then seek supervision from the midwife, family physician, or obstetrician, as appropriate.

CHALLENGES AND SOLUTIONS

We faced challenges in establishing the principles of our collaborative model (see **Box 1**). Weekly meetings were crucial in stimulating collaborative discussions and proposals for changes to address issues. We describe some of our solutions here with acknowledgment that we continue to meet regularly to identify and respond to issues that arise.

Each provider group was challenged in a unique way during the implementation of our model. Leadership commitment was crucial for the success of our model. Leaders among all groups, including the chair and vice chair of both departments and the midwifery service director, championed this change with increased clinical time on labor and delivery. Each group provided guidance and accountability for their own faculty members.

Obstetricians were required to develop new skills on leadership that fostered participation and trust among all labor and delivery staff by reassessing the role of hierarchy in maternity care. Regular department workshops that focus on leadership development and communication skills have helped obstetrician faculty develop these skills.

The Department of Family Medicine required its physicians to achieve and maintain competence in intrapartum skills. This goal was accomplished by reducing the number of attendings participating in intrapartum care to only those with a strong interest in this area of practice and then engaging this group in an appraisal of skills. For 3 months, the department sponsored a weekly faculty seminar to review clinical topics and hands-on skills to refresh knowledge. Thereafter, monthly meetings of family physicians have addressed both administrative and clinical issues. The family medicine group now attends 30% of total deliveries, which is more than sufficient volume for maintenance of clinical skills.

Both obstetrician and family medicine attendings learned principles of citizenship, which requires all individuals to assist with patient-care tasks regardless of hierarchy. Attendings are expected to be visibly present and accessible, not off the floor or in call rooms, physically removed and disconnected from patient activities. Attendings are

expected to participate in evaluating patients in triage, assisting with order entry, writing admission records or discharge summaries, and consenting patients for care because a delay in any of these tasks might affect the efficiency of care and patient safety. The departmental leadership addressed the behavior of individuals who did not engage in the expected citizenship or contribute to teamwork.

Stepping into a leadership and teaching role on the labor floor was a challenge for the midwives. Midwives had to adopt a more open and assertive communication style to promote evidence-based dialog with physician staff regarding patient care. Midwives were accustomed to interacting with the physicians and residents only when requesting a consultation, rather than participating in collaborative discussions around all intrapartum patients. Communication drills and modeling from the midwifery service director helped midwives build these skills. Regular group case reviews, discussion on new literature, and creation of a reading packet on normal birth for residents also improved the ability of the midwives to articulate the scientific evidence for their decisions.

Initially, both midwives and residents resisted midwifery involvement in resident education. Some midwives relished one-on-one patient care and were reluctant to include residents in all their births. Residents often had a busy load and would become preferentially less involved with midwifery patients. Persistent encouragement from the leadership and resident teaching workshops organized by both the obstetricians and the midwives has changed those dynamics. The midwifery service relished the opportunity to share its expertise in normal birth and nurtured future physician consultants.

FINANCIAL CONSIDERATIONS

Safely staffing labor and delivery with midwives and family physicians is cost effective because of the differentials in professional liability premiums and salary. The addition of another in-house attending-level providers on labor and delivery required considerable planning and thoughtfulness. To emphasize teamwork and remove dysfunctional financial incentives among providers, the department chairs merged the billing for the care of all patients under a single entity, which reimburses each department for attending time on labor and delivery. Hospital leadership agreed to support this model financially. The total compensation (salary, fringe, malpractice, and continuing medical education) to add a continuous family medicine attending presence on labor and delivery is approximately $1.2 million, a considerable savings over adding a second obstetrician. This increased expense has been offset by a reduction in malpractice claims. Boston Medical Center is self-insured, therefore any savings in malpractice is directly beneficial to the institution. Our collaborative practice is one of several changes that have contributed to a steady and significant decrease in adverse perinatal outcomes and malpractice claims (**Fig. 3**).[37]

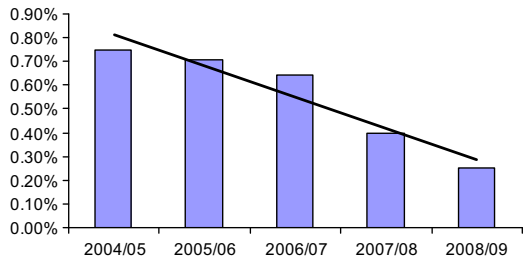

Fig. 3. Rate of reserved claims per policy year deliveries.

BENEFITS OF THE INTERDISCIPLINARY TEAM MODEL

Culture of Safety

One of the primary goals in the development of the collaborative model was to improve clinical outcomes by establishing a culture of safety. Breaking down our individual silos of care led to Team Training initiatives, and uniform competency requirements for providers. A multidisciplinary group of obstetricians, midwives, family physicians, anesthesiologists, and nurses participated in the Team Performance Plus team training course, which includes modules on communication and mutual respect. All physicians, midwives, nurses, and residents who are new at the authors' institution are required to attend this course. The obstetrics and family medicine departments agreed to the same minimum threshold of clinical activity by physicians and midwives for maintaining competence. They also collaboratively developed a standard to directly observe every faculty member joining the labor and delivery unit. In addition, on-line educational modules about fetal monitoring interpretation and emergency drills were established and members of all 3 services are mandated to participate and complete skill evaluations.

Patient-Focused Care

Since the institution of our model, patient satisfaction has increased as measured by Press Ganey's Hospital Consumer Assessment of Health care Providers and Systems, a national public-reporting instrument (**Fig. 4**). In addition, the need to educate patients about our new labor and delivery model of care led to an interdisciplinary project to create a patient booklet that includes education about the prenatal, labor, birth, and postpartum periods. The midwives spearheaded the project with obstetricians, family physicians, nurses, and community doulas, all contributing to the content of this booklet. This booklet is given to all prenatal patients planning delivery at Boston Medical Center, regardless of type of the prenatal care provider.

Interdisciplinary Education

Based on our new model, each laboring woman, including those cared for by midwives, has a first-year resident, or midwife student involved in her care. The addition of midwifery deliveries increased resident deliveries by 25%. Therefore the family medicine department modified its residency schedule to assign 1 family medicine first-year resident each month to labor and delivery year-round in addition to the already existing obstetrics and gynecology first-year resident. The first-year residents of family medicine and obstetrics work as a team to accomplish clinical duties, and both attend educational opportunities sponsored by the Department of Obstetrics and Gynecology.

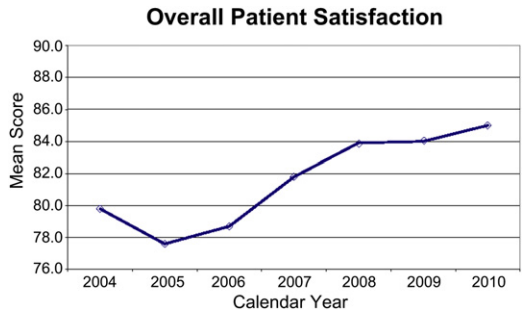

Fig. 4. Press Ganey scores from 2004 to 2010.

The chief resident serves as the consultant for the midwife with obstetrician back-up, providing opportunity to learn consultation skills for future practice.

Midwives are involved in many aspects of the obstetrics and gynecology residency program, including interviewing applicants, orientation, didactic, and clinical teaching. Didactic teaching includes a workshop on labor and delivery skills, a lecture on the evidence-based practices in the management of normal labor and birth and a workshop for chief residents on the role of the consultant in collaborative maternity care. In 2010, midwives initiated teaching midwifery students for the first time since the institution of the collaborative model. Midwifery students benefit from learning to work in an interdisciplinary collaborative environment and develop skills on interprofessional communication, which will be crucial for midwives in the coming decades. Midwifery students will be involved in educational programs of the 3 disciplines represented on labor and delivery and will give presentations on topics related to the management of normal childbirth. The involvement of midwives in medical education[38] is growing throughout the country, and interdisciplinary education has been noted as a potential ingredient in effective collaborative practice.[26]

Residents of family medicine and obstetrics now work daily with family physicians and midwives who provide maternity care. This model may improve the willingness of obstetrics graduates to collaborate with family physicians[39] and midwives in their future practices and address workforce issues in our communities.[38,39] Enhanced role modeling, patient-centered care, and early exposure to labor and delivery may encourage more family medicine residents to include maternity care in their future practices.[40,41]

Interdisciplinary education in the outpatient setting has expanded because of the inpatient collaboration between departments. Obstetrics residents rotate in family medicine clinics and family medicine residents rotate in obstetrics and gynecology clinics. Midwives are the cornerstone of resident education in group prenatal visits. A midwife-family physician team introduced group prenatal care using the Centering Pregnancy model[42] at 2 community health centers where residents of family medicine care for their continuity patients. This team plans to expand group prenatal care at additional health centers.

Obstetrics and family medicine residents respect and appreciate teaching from midwives and family physicians as a result of our collaborative model. Three years ago, the obstetrics residents created separate teaching awards for midwives and family physicians in addition to the teaching award given to their own faculty member. In 2009, the family medicine residents presented a midwife with the annual family medicine teaching award.

SUMMARY

An invitation for more volume and revenue, 3 disciplines with respect for each other at the leadership level, and support from the hospital to address patient safety, enabled us to change the culture of the labor and delivery unit. For years, individuals practiced alongside each other in silos with variable interaction and respect for one another. Now, individuals come together to provide care as a true team. Communication occurs frequently among different provider types, nurses, obstetrics, and family medicine residents. Hierarchy is de-emphasized. Patient workloads are distributed equitably with thoughtful consideration of each patient's medical, social, and cultural needs. Workload distribution resulted in improving and maintaining the skills of family physicians. Through this culture of collaboration the authors' have optimized interdisciplinary education, which has been shown to improve patient outcomes and increase respect among those involved.

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