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SPECIAL ARTICLE

Midwife Laborist Model in a Collaborative Community Practice

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Abstract

Since the introduction of a hospitalist physician model of care by Wachter and Goldman in 1996, important changes have occurred to address the care of hospitalized patients. This model was followed by the introduction of laborist physicians by Louis Weinstein in 2003, although large health maintenance organization practices have used this model since the 1990s. The American Congress of Obstetricians and Gynecologists supported the laborist model in a 2016 statement that was reaffirmed in 2017, recommending "the continued development and study of the obstetric and gynecologic hospitalist model as one potential approach to improve patient safety and professional satisfaction across delivery settings." Based on a recent American College of Obstetricians and Gynecologists publication, the problem is an anticipated staffing shortage of 6000 to 8800 obstetricians and gynecologists by 2020 and nearly 22,000 by 2050. The current workforce in obstetrics is aging, retiring early, and converting to part-time employment at an increasing rate. At the same time, the number of patients seeking obstetric and gynecologic care is dramatically increasing because of health care reform and population statistics. The solution is the use of alternative labor and delivery staffing models that include all obstetric providers (health care professionals). We present an alternative to the physician laborist model—a midwife laborist model in a collaborative practice with obstetricians practicing in a high-risk community setting.

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Community-based obstetric practices face increasing challenges for providing high-quality, cost-effective, and timely care while they confront obstetrician shortages, declining reimbursements, and increasing levels of physician burnout. A recent report highlighted several areas of national concern, including a serious disparity in maternity workloads among obstetricians, a smaller number of physicians beginning their careers as obstetricians, a high burnout rate, and the impending high numbers of expected retirements of practicing obstetricians.[1] These concerns have many contributing factors.

Obstetricians confront this increasing dilemma with a maintained clinical practice that meets patient demand and safely concerns for the urgent and emergent needs of hospitalized patients. Unpredictable work hours that require time away from personal and family commitments appear to worsen the physician burnout and rank obstetricians in the second highest burnout rate among medical specialties.[2] The recent American College of Obstetricians and Gynecologists (ACOG) committee opinion[3] recommends that "physicians should commit to evaluating the effects that fatigue has on their professional and personal lives and should demonstrate willingness to adjust workloads, work hours, and time commitments to avoid fatigue when caring for patients."

A more sustainable and long-term approach will be important—one that uses obstetric teams through integrated efforts involving physicians, midwives, nurses, and other allied health professionals. Numerous articles and retrospective studies have highlighted the potential benefit of a laborist physician model to address the future of obstetric hospital practice. Furthermore, patients, hospitals, and practicing obstetricians accept laborist physicians at a growing rate. In a 2010 ACOG survey,[4] 25% of the college's members identified themselves as either a laborist or a

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hospitalist. In another survey, nearly 40% of hospitals reported the use of laborist physicians.[5]

Although increasingly popular, the addition of laborist physicians may be cost prohibitive for small to medium-sized community hospitals. A 2008 study conducted by the Advisory Board[6] proposed that a volume of approximately 1000 deliveries per year, a neonatal unit, and active billing procedures are needed to break even financially in the laborist physician model. On the basis of labor costs and reimbursement levels, our institution needs approximately 1400 deliveries per year to be cost neutral if laborist physicians are added.

The approach that we instituted is one of a midwife laborist model. Only a paucity of data is available on the utility of midwife laborists in a community-based, collaborative, high-risk obstetric practice. We describe our approach to this new model, including the improvements in quality, safety, and satisfaction achieved in a collaborative care model.

BACKGROUND

Mayo Clinic Health System—Franciscan Healthcare is a community-based integrated health care delivery system that is part of a large academic medical institution. Prenatal care is provided by obstetricians, family medicine practitioners, and nurse-midwives at numerous clinic locations. Staff members are employed by Mayo Clinic and use the same electronic health record that is integrated with the inpatient obstetric practice. Deliveries are made in a single 125-bed community hospital where family medicine residents are trained during obstetric rotations. The hospital has a level III neonatal intensive care unit staffed by 2 neonatologists and 4 neonatal nurse practitioners. This staffing allows for the care for newborns at any gestation level. Our generalist obstetricians manage high-risk pregnancies, which constitute approximately 30% of all obstetric patient cases. The hospital performs between 850 and 950 deliveries per year.

Before implementation of the collaborative care model, our Department of Obstetrics and Gynecology had been staffed by 6 generalist obstetricians and 5 certified nurse-midwives. Obstetricians and certified nurse-midwives both had clinical practices and participated in obstetric call coverage for their respective patients in an equal manner. As with many other obstetric practices nationwide, our department experienced its share of physician turnover, times of physician shortages, and various levels of physician dissatisfaction with practice demands and burnout. To address these growing concerns, we decided to proceed with a trial of a laborist midwife model in June 2014. Our model proposed adding 2 certified nurse-midwives to the practice, allowing for in-hospital laborist call for the assessment of all triage patients and performing vaginal deliveries and postpartum care. Our practice currently consists of 5 generalist obstetricians and 7 certified nurse-midwives.

COLLABORATIVE CARE MODEL

Patients schedule a visit early in the first trimester to obtain prenatal laboratory tests and a medical history with a nurse maternity counselor. At this visit, they choose their primary obstetric provider (health care professional) and set up their first prenatal visit. During this time, the patient also is educated on the collaborative care model. If the patient continues to be at low to moderate risk based on criteria from the American College of Nurse-Midwives, a midwife will manage her case during antepartum, intrapartum, and postpartum periods. This care model is discussed at the patient's first visit with her provider. Patients are always given the choice of participating in or declining the collaborative care model and choosing their specific obstetric provider instead. If a patient declines collaborative care, their inpatient care will be provided by the respective on-call obstetric provider for the certified nurse-midwives or obstetricians on the basis of patient preference.

Each certified nurse-midwife staffs a 24-hour in-hospital shift, resulting in a call frequency of 1 in 7 days. During their shift, certified nurse-midwives provide care for obstetric patients only and admit labor inductions, active labor patients, and antepartum patients. Postpartum rounds are performed by the on-call certified nurse-midwives regardless of the delivery mode. The certified nurse-midwife also triages patients to determine whether they require admission or further medical

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care and intervention on an urgent and emergent basis or can be safely discharged home and receive follow-up on an outpatient basis. In addition, our generalist obstetricians are on call for 24-hour shifts taken at home on a consultant basis and are responsible for operative deliveries, high-risk obstetric patient care, and gynecologic consultations and admissions.

Our team consists of numerous members at different shift schedules, and patients may receive care from different obstetric staff during their prenatal management. To ensure continuity of care, we introduced strategies to collaborate and develop plans of care for moderate- to high-risk obstetric patients. One of the effective methods of communication and collaboration is our biweekly high-risk multidisciplinary meetings. This meeting is attended by all certified nurse-midwives, obstetricians, family medicine faculty and residents, neonatal practice providers, anesthesia providers, social workers, and endocrinology providers. A plan of care is discussed and the plan immediately updated in the electronic health record of the moderate- to high-risk patients. The low-risk patients receive care routinely by their respective provider.

Another collaborative strategy is twice-daily labor and delivery team rounds involving the obstetric and neonatology care teams. This strategy provides the opportunity to update management plans and communicate pertinent patient information among team members.

RESULTS

The new care model has resulted in several positive outcomes. From January 1 through December 31, 2012, our primary cesarean birth rate was 26% (285 primary cesarean sections among 665 eligible patients); it decreased to 15% (240 primary cesarean sections among 608 eligible patients) by December 31, 2017 (percentages include all patients, as some had previous cesarean sections). Our vaginal operative deliveries declined from 5.9% (57 operative deliveries among 974 live births) from January 1 through December 31, 2012, to 1.3% (11 operative deliveries among 846 live births) by December 31, 2017. Cases of hypoxic ischemic encephalopathy were maintained below the national average before and after the model was adopted. Two cases of hypoxic ischemic encephalopathy were noted among 2624 live births between June 1, 2014, and June 1, 2017.[7] The rate of vaginal birth after cesarean (VBAC) section was 19.4% from January 1 through December 31, 2012 (31 VBAC sections among 160 eligible patients). With this model, successful VBAC deliveries increased to 32.0% (39 VBAC sections among 122 eligible patients) by December 31, 2017. Our neonatal intensive care unit admissions decreased from 14.9% (145 admissions among 974 live births) from January 1 through December 31, 2012, to 10.9% (92 admissions among 846 live births) by December 31, 2017.

Press Ganey scores were used to assess the patients' experiences with the new model as the vendor assessing the patient experience for our institution. As of 2017, communications with providers were reported at 97% top-box score. Patients were asked whether the provider listened carefully to them, and they reported the listening at 98% top-box score. When patients were asked whether providers explained things in a way they understood, their reports achieved a top-box score of 96%. Patients also stated that their preference was taken into account 99% of the time. In addition, patients were asked about the responsiveness of hospital staff to their needs. Their responses achieved a top-box score of 99%. A direct comparison of before and after the collaborative care model for patient satisfaction scores cannot be made because the patient experience assessment vendor was different.

A 1-question email survey of the obstetricians and certified nurse-midwives, asking about their personal satisfaction with the new collaborative care model, revealed positive staff satisfaction. We have achieved 100% survey response because of follow-up efforts through email and department meetings. However, differences were seen between these groups. The certified nurse-midwife group reported 85% high satisfaction with this model, whereas the obstetricians reported 50% high satisfaction, 25% satisfaction, and 25% neutral or poor satisfaction. Midwives cited higher rates of satisfaction mostly because of the increased scope of their

practice and higher levels of autonomy with important obstetrician collaboration during our follow-up discussions. Even though most obstetricians reported satisfaction with this practice model change, the inability to reduce the total number of call shifts was an attributing factor to neutral or poor satisfaction ratings in the survey.

DISCUSSION

Our group of obstetricians and certified nurse-midwives set out to create a well-received collaborative care model of practice in the ever-changing obstetric environment where noticeable increases have occurred in physician dissatisfaction and high rates of burnout. This care model has gained important acceptance by all obstetric patients while our staffing needs were stabilized.

The care model's development and application have resulted in a more team-oriented model that is widely accepted by providers, nurses, and patients. Over the past 4 years, our practice has experienced consistent improvement in multiple categories. We have achieved a 42.3% reduction in primary cesarean sections through enhanced compliance with the ACOG standards before proceeding with a primary cesarean section. This reduction was accomplished through implementation of a checklist based on ACOG recommendations. We have increased our rate of successful VBAC section by 12.6%, mostly because of increased recommendation by obstetric providers for a trial of labor after a prior cesarean section. This approach also resulted in a decreased overall hospital length of stay for our patients. We maintained high levels of neonatal safety with only 2 cases of hypoxic ischemic encephalopathy compared with the national average of 2 to 4 cases per 1000 live births. Patient satisfaction with the new care model has been reported as very high when measured by a nationally accepted survey.

In addition, the number of neonatal intensive care unit admissions has declined annually for the past 4 years since this model began. The care model has provided a level of low intervention while keeping a safe and comfortable environment for the labor of delivery. With a certified nurse-midwife dedicated to and physically present in the labor and delivery unit 24 hours a day, 365 days a year, we have increased the collaboration among care team providers and have a qualified obstetric provider available for emergencies.

We added 2 certified nurse-midwives to complement the other 5 midwives and to allow for equal sharing of the workload. At the same time, this model has proven to be cost effective for our organization; the additional certified nurse-midwife staffing was cost neutral because of efficiency gains in our clinical units. The annual individual productivity of obstetricians as a measure of net reimbursement after salary and benefits has improved by 42% from 2014 to 2016; certified nurse-midwife productivity has increased by 34% during the same time frame. The employment of laborist physicians was not financially feasible on the basis of both industry recommendations and our financial analysis of current deliveries performed in our institution. However, this collaborative care model provided cost-effective staffing, additional safety gains in labor and delivery, and increased patient and staff satisfaction while allowing certified nurse-midwives and obstetricians to work at the top of their educational background and clinical role expectations. Koto et al[8] reported that the midwifery program was both clinically effective and cost effective for low-risk pregnancies during a retrospective cohort study involving routinely collected clinical and administrative data from all low-risk births from January 1, 2013, to December 31, 2017, in Nova Scotia, Canada. Our findings suggest similar effectiveness of collaborative midwifery care for patients at low to moderate risk.

Sandall et al[9] found that women who received midwife-led continuity models of care were less likely to experience intervention and more likely to be satisfied with their care with at least comparable adverse outcomes for women or their infants than women who received other models of care. The conclusions of this systematic review are comparable to our findings during this collaborative care model.[9]

CONCLUSION

Our model can be used by other similar institutions where a hospital-employed laborist model has not been in practice. We encourage

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future studies to evaluate alternative staffing models that meet the ACOG recommendation for safe and effective care.

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Abbreviations and Acronyms: **ACOG** = American College of Obstetricians and Gynecologists; **VBAC** = vaginal birth after cesarean

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