Impact of a Family Physician-Staffed Maternity Center on Obstetric Services in a Rural Region

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In the past few years rural hospitals have found obstetric care increasingly difficult to provide. A trend toward family physicians abandoning the practice of obstetrics has been a major obstacle for these hospitals. Malpractice cost and pressures, professional isolation, and inadequate training have all been cited as reasons that family physicians in rural areas have stopped delivering babies. Faced with a large number of women giving birth without prenatal care, a hospital in eastern Kentucky began a regional primary care obstetric unit to assure that obstetric care would be available to all patients who needed it. The hospital chose to staff the maternity center with family physicians so it could offer a family-centered obstetric program and newborn care. Since the opening of the maternity center in 1985, hospital deliveries have increased over 30%, while the percentage of patients who give birth without prenatal care has fallen from 3.0% to 0.7%. This report describes the factors behind the creation of the maternity center, its effect on the hospital, and its effect on the family physicians who serve on its staff. *J Fam Pract 1991; 32:76-80.*

Traditionally, obstetrics have been a standard feature in a family physician's practice. Family physicians, however, are abandoning obstetrics to such a degree that the family physician who delivers babies is now more an exception than the rule. Increased malpractice premiums and claims, the time demands of obstetrics, perceptions of inadequate training among family practice residency graduates, and the decision to practice in an urban or suburban setting where competition for obstetric services may already be severe have all contributed to the recent reluctance of family physicians to continue to practice obstetrics.[1–9] Family physicians are not the only physicians leaving obstetrics: the American College of Obstetrics and Gynecology in a 1985 survey found that 12% of board-certified obstetricians had stopped delivering babies because of fear of litigation, while others have limited their practice to low-risk patients only.[10] Obviously, obstetric care will become much harder to obtain.

In rural areas family physicians have been the cornerstone of obstetric services,[11] so the abandonment of obstetrics by family physicians has had a great impact on small rural hospitals.[12] While it is encouraging to note that physicians who locate in rural areas are more likely to include obstetrics in their practice,[13] the number of physicians who enter practice in rural areas may not be sufficient to offset the number of rural physicians who are dropping obstetrics from their practices. For many women residing in rural areas, particularly impoverished women for whom transportation to a larger city may be difficult to obtain, the lack of obstetric services at a local facility could threaten their ability to obtain any obstetric care.

In 1985 St. Claire Medical Center, a rural regional referral center in Morehead, Kentucky, encountered several problems related to the delivery of obstetric care. The three obstetricians who practiced in Morehead found themselves caring for an increasing number of women who were either indigent or who were covered by Medicaid. Because of this large burden of indigent patients, the obstetricians had difficulty attracting patients who were able to pay. One obstetrician threatened to leave the area, whereas the other two told the hospital administration that they could not offer service to these poorer patients. As a result, many of these poorer patients could not obtain obstetric care. While some of these patients were able to obtain care through their county health department, others went without prenatal care and simply showed up at the hospital emergency department in labor.

The discontented obstetricians and the increasing number of women arriving at the hospital in labor with

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Table 1. Demographic Features of Patients Delivered at Medical Center, 1984–1987

Year	Total Deliveries	Age* (years)	Teenagers No. (%)	Gravidity*	Parity*
1984	534	24.4 (5.5)	103 (19)	2.15 (1.57)	0.96 (1.29)
1985	602	23.5 (4.9)	126 (21)	2.26 (1.76)	1.00 (1.33)
1986	712	23.5 (5.1)	163 (23)	2.25 (1.50)	1.02 (1.47)
1987	696	23.1 (5.1)	164 (24)	2.17 (1.37)	0.94 (1.20)

**Data expressed are mean (standard deviation).*

no prenatal care were two major, but not the only, problems that the hospital administration faced. Additionally, the administration found that because obtaining antenatal care from the obstetricians in Morehead was difficult for women in surrounding areas, these women were traveling to other hospitals for their deliveries, and the hospital service area was shrinking.

At the time of these difficulties, three board-certified family physicians who included obstetrics in their practices were on the medical staff at the hospital. These physicians worked in two rural health clinics located in counties about 30 miles from Morehead and performed a few deliveries at the hospital. When the hospital administration was pressed to find relief for the obstetricians, it turned to these family physicians for help. The hospital in association with these family physicians launched a maternity clinic primarily to extend obstetric care to the indigent women of the region. By creating the maternity center, the hospital administration also hoped to relieve the overburdened obstetricians so that they could offer care to more women from surrounding communities and thus expand the hospital service area.

Using family physicians as the primary obstetric providers offered two advantages over using obstetricians. First, the family physicians all practiced family-centered obstetrics, which was not offered by any of the local obstetricians at that time. The hospital administration felt that adding this dimension to the obstetric practice might attract patients from surrounding communities who traveled to more distant hospitals for their obstetric care. Second, the family physicians were able to provide newborn care services, which the hospital administration also wished to offer to the maternity center patients.

Each family physician worked at the maternity center one day per week, and during that day the physician conducted the prenatal clinic and performed all deliveries for patients of the maternity center. Surgical and consultative backup was provided by two staff obstetricians who contracted with the hospital. This article reports the resulting changes in the number and distribution of births by physician specialty, the expansion in the hospital's obstetric service area, and the decrease in the rate of patients presenting for delivery without prenatal care that has occurred since the maternity center was established.

Methods

St. Claire Medical Center is a 150-bed regional referral center located in Morehead, Kentucky. Tertiary care facilities for obstetrics and neonatology are located 60 miles east and west of Morehead in Lexington, Kentucky, and Huntington, West Virginia, respectively. Except for a smaller hospital located 30 miles east of Morehead, no other hospital in a 60-mile radius offered obstetric services.

To compile data for hospital deliveries, birth records from 1984 through 1987 were reviewed. Birth records included the name and age of the patient, date of delivery, county in which the patient resided, whether the patient received prenatal care, and the delivering physician and method of delivery. When records indicated that a patient was delivered by cesarean section, maternity center records were cross-checked to determine whether the patient's care had originated with the maternity center group. In this manner, all patients could be categorized as patients of the obstetricians, the maternity center, or the family physicians' rural health clinics.

All continuous data were analyzed with the Student's *t* test, while proportional data were compared with chi-square analysis. Statistical significance was defined as $P < .05$.

Results

Table 1 displays the demographic features of patients who were delivered at St. Claire Medical Center between 1984 and 1987. The mean gravidity and parity of patients who gave birth at St. Claire Medical Center was unchanged by the establishment of the maternity center. The mean age of patients giving birth declined slightly after the maternity center was started, while the percentage of teenagers giving birth gradually increased. When the figures from 1987 are compared with 1984 data,

Table 2. Births by Attending Physicians, 1984–1987

Year	Total Births Attended	Obstetricians No. (%)	Maternity Center* No. (%)
1984	534	445(83)	89(17)
1985	602	456(76)	146(24)
1986	712	364(51)	348(49)
1987	696	253(36)	443(64)

**Maternity center opened in 1985; births attended before this represent patients from rural health clinics.*

neither the decrease in the mean patient age ($P > .10$) or the increase in the percentage of teenage births ($P = .07$) reached statistical significance. Both before and after the creation of the maternity center, the family physicians tended to see younger patients than did the obstetricians. The mean age of patients of the family physicians were 22.8 ± 5.1 years; patients of the obstetricians averaged 25.4 ± 5.5 years ($P < .01$).

The number of births at St. Claire Medical Center from 1984 through 1987 is also shown in Table 1. In 1984, 534 women gave birth at St. Claire Medical Center. Since the maternity center opened in July 1985, the number of births has markedly increased, reaching 725 in 1987, a 35.8% increase from 1984.

Table 2 shows the distribution of births by attending physician. Before the existence of the maternity center, the obstetricians performed a substantial majority of deliveries, but since the establishment of the maternity center, the distribution of deliveries has changed. By 1987, the maternity center family physicians performed 64% of all deliveries at the hospital ($P < .001$ for distribution of births in 1987 as compared with 1984 data). With three family physicians performing obstetrics during this period, after excluding cesarean sections, the average annual number of deliveries performed by each family physician increased from 25 to 128.

In addition to an increase in the total number of deliveries at the medical center since the establishment of the maternity center, the hospital also reported an increase in the number of patients from other areas who now use St. Claire Medical Center for their obstetric care (Table 3). Since the creation of the maternity center, the number of women from the county where St. Claire Medical Center is located has stayed constant, while the number of women traveling to the medical center from adjoining or more distant counties has increased markedly ($P = .004$). While originally it was felt that the hospital's market share from nearby communities would increase as a result of greater obstetrician availability after the maternity center opened, the number of patients from adjoining and distant counties attended by the obstetricians actually fell from 269 in 1984 to 150 in 1987. The large increase in births to women outside the immediate area was due to those who obtained their care at the maternity center, where births in this category increased from 0 in 1984 to 216 in 1987.

Table 3. Geographic Distribution of Patients Receiving Obstetric Care at Medical Center, 1984–1987

Year	Rowan County	Adjoining Counties	Distant Counties
1984	211	289	41
1986-87*	215	432	57
Increase (%)	2	49	39

**Data is mean for years 1986 and 1987.*

Table 4. Mothers Giving Birth Who Had No Prior Prenatal Care, 1984–1987

Year	Total Births	No Prenatal Care	Rate per 1000 Births
1984	534	14	26.2
1985	602	18	29.9
1986	712	13	18.3
1987	696	5	7.2

Another goal of the maternity center was to make obstetric care more available to the medically indigent and thus decrease the number of women who arrived at the hospital in labor having had no prior prenatal care. The number of patients who were delivered without prenatal care has steadily fallen since the maternity center opened, and in 1987 significantly fewer such women presented than in the year before the maternity center opened ($P = .02$) (Table 4).

Discussion

St. Claire Medical Center addressed three problems by establishing the maternity center. The first problem was to offer some relief to the obstetricians on the medical staff who were feeling overwhelmed by the number of deliveries they were performing. By establishing the maternity center, the hospital was able to provide more obstetric care for the region and decrease the number of deliveries for each obstetrician from 148 births per year to 84 births per year. The obstetricians who provided backup for the maternity center also received a yearly retainer for which they performed 45 cesarean sections in 1986 and 58 cesarean sections in 1987.

Providing relief for the obstetricians was made possible only by employing family physicians at the maternity center. Although the obstetricians desired relief from their large obstetric workload, they did not want competition, especially in their gynecology practice. By staffing the maternity center with family physicians, not only was the hospital administration able to offer an econom-

ical means of meeting the needs of the indigent pregnant population while minimizing competition with the obstetricians, it was also able to offer newborn services to patients of the maternity center.

Another purpose of the maternity center was to unburden the obstetricians so that they could draw patients from other areas to the hospital. While the hospital service area did expand after the maternity center opened, the obstetricians were not instrumental in this change. Instead, the family physicians at the maternity center were responsible for the expansion in the hospital service area. It is possible that the hospital service area expansion may have included only indigent patients who were now being referred to St. Claire Medical Center by obstetricians in other areas. After a year of operation, however, 25% of all maternity center patients had commercial insurance that paid for their obstetric care.

Those women who could afford to obtain their obstetric care anywhere may have been drawn to the maternity center by the family physicians, who were the only obstetric providers in the region to emphasize family-centered obstetric care. In fact, the number of patients seeking a family-oriented labor and delivery increased to such an extent that competition for the hospital's single birthing room forced a redesign of the obstetric floor. The four small labor rooms and two operating-room–style delivery rooms were replaced by six spacious birthing rooms and a single delivery room. Changes in the style of obstetric care also prompted a change in hospital policy to allow several visitors during labor and greater participation of family members at the time of birth.

A third goal of the maternity center was to decrease the number of women who entered the hospital in labor without prior prenatal care. Since the maternity center opened, the number of women arriving in labor with no prenatal care has continually fallen, so that by 1987 the number of women without prenatal care was less than one third of that in 1984. Additional data on the extent of prenatal care, such as average number of prenatal visits for patients who give birth, would be helpful to assure that more patients were obtaining care earlier, but these data were unavailable.

The family physicians have experienced other practice changes as a result of their association with the maternity center. Since the number of births attended by family physicians has increased, the family physicians have become more active in the administration of obstetric services at the hospital. In 1986 the family physicians argued for a more vigorous quality-assurance program in obstetrics and neonatalogy; in response, the hospital medical staff formed a perinatal review committee that was chaired by one of the family physicians. The family physicians also began a biweekly high-risk obstetrics rounds in which all high-risk maternity center patients would be discussed. While this working conference was originally for the maternity center staff, the obstetricians now attend as well. At this conference the family physicians obtain consultations from the obstetricians without having to have the patient seen in the obstetricians' offices. As the obstetricians are paid on a retainer basis and thus get no extra income from seeing a maternity center patient in their office, they are eager to perform this service.

The maternity center has also served as a focal point for the academic activities of the family physicians. Nurse midwife students, nurse practitioner students, and physician assistant students from the University of Kentucky School of Allied Health have completed rotations in obstetrics with the maternity center staff. Residents from the family practice residency program at the University of Kentucky also complete obstetrics rotation with the family physicians at the maternity center. This rotation enables residents to learn obstetrics from the unique perspective of family physicians. In addition, the maternity center family physicians serve as role models for those residents who are considering performing rural obstetrics.

The maternity center has solved many of the obstetric problems that St. Claire Medical Center faced several years ago. In general, providing obstetric services has not been an easy task for rural hospitals. While some health care planners recommend that obstetric units of rural hospitals be closed if the number of deliveries is less than 500 per year,[14–16] many studies have shown that these units continue to offer high-quality care for patients.[17–23] Some studies even suggest that receiving prenatal care and delivery at rural sites is safer than traveling to a more populous town for obstetric care.[22,24] Discontinuation of obstetrics at these rural sites would create particular hardship on the medically indigent, who already shoulder the nation's highest perinatal morbidity and mortality. Cooperation between hospitals and family physicians, such as the venture described herein and elsewhere,[25] will be necessary to allow rural hospitals to continue to offer obstetric services.

Scherger[26] has made three suggestions for family physicians who perform obstetrics: (1) pursue innovative solutions, (2) take a leading role in the promotion of family-centered childbirth, and (3) develop an academic expertise in obstetrics. All three of these principles are addressed in the maternity center and to a large extent are reasons for its success. Another key factor in the success of the maternity center was cooperation between the hospital administration and medical staff, between the family physicians and obstetricians, and among the family physicians themselves. Without innovation and coop-

eration, the rural family physician who delivers babies may not only be endangered, but may become extinct.

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