

Prenatal Patients Not Delivered: Unplanned Events, Uncounted Services, and Risks

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Abstract

This study tabulated pregnancy-related services among prenatal patients, who did not deliver with the medical home. The null hypothesis stated that accounting bias should not significantly undercount services and revenue.

Subjects and Methods

The study tabulated women who, after being accepted for prenatal and delivery care, failed to deliver 2004-2006. Among 360 women undelivered women, uninsured (n=139; 39.4%) and Medicaid (n=208; 57.8%) patients predominated. Diagnostic ultrasound revenues in the office and liability insurance costs were counted to control for variables, which are not equal in all offices.

Results

The largest group of undelivered women failed to return without explanation (n=187; 51.9%). Some miscarried (n=46; 12.8%) and others were referred for development of higher risk (n=56; 15.6%). Some requested referral to another physician (n=71; 19.7%). The undelivered made 1092 office visits and received services for which the office collected \$172,181.

Conclusion

These data suggest that among 100 registered pregnancies in an urban family medicine office, 73 will deliver as planned, 14 will dropout, five will request transfer to another physician, four will develop a need for referral, and four will miscarry. A significant number of women increase their risk by failing to return or by failing to participate in recommended referral. Accounting bias unintentionally obscured substantial services and \$172,181 of revenue available for support of pregnancy-related overhead.

Introduction and Background

The pregnancy care (OB) curriculum in family medicine continues with many opinions, little data, and variable interest by family medicine programs.¹⁻⁴ The negative public health impact of unavailable maternity care⁵ is partly due to misperceptions among medical students, residents, and physicians.^{6,7} These groups continue to overestimate malpractice insurance costs,⁸ lifestyle interruptions,⁹ and lost sleep associated with deliveries.¹⁰ Prenatal care and emergency care are vital to rural health care, and much of this is provided by family physicians.^{11,12} Maintenance of these services has been supported by the Society of Teachers of Family Medicine, the American Academy of Family Physicians (AAFP), and others.¹³⁻¹⁵

Differences in opinion by faculty and administrators persist. Recently, faculty counseled medical students with “business plans” reporting the need to do 31 deliveries a year before a physician could break even (personal communication I. Patel MD and C. Dean MD January 2008). Another faculty in the index state distributed a spreadsheet with a negative forecast for the financial feasibility of including deliveries (written communication from K. Arnold, MD, August 2007). During interviews, a residency director did not encourage qualified faculty to obtain full OB privileges in the residency hospital (personal communication K. Stuckey Schrock, MD, February 2008).

This advice contradicts other data, suggesting that the “limited generalist” model of generic primary care restricts the ability of family physicians to fund overhead for clinical operations.¹⁶ Data from community physicians who deliver maternity care in a private practice may confirm or deny the negative impact of previously unreported biases and restrictions within the accounting systems of academic medical centers, hospital clinics, and federally qualified health centers (FQHC).

The “Prenatal Patients Not Delivered” project was designed to determine which patients were dropped or transferred from prenatal care, how many visits they made while pregnant, which services were rendered to them, how many were referred, how many stopped coming, and to tabulate prenatal services for undelivered patients. A priori the group set significance at revenue more than 20 percent of the “OB margin” for additional annual liability insurance costs. The study continued to track delivered patients¹⁰ and compared undelivered revenue to the totals.

Practice Setting

The index practice was bilingual English/Spanish. Yearly clinical volumes at the index practice 2004-2006 averaged 31 994 visits and 322 deliveries. The ethnic frequencies were 32% African-American, 54% Latino, 11 % Caucasian patients, and 3% other. The financial case mix was TennCare (Medicaid) 63%, uninsured 32%, and other insurance 5%. Five residency-trained family physicians saw patients and delivered babies in a rotating call schedule.

The index office was located in an urban area where prenatal care was available from over 50 other private physicians, three FQHCs, seven public hospital-affiliated clinics, a family medicine residency, an OB-Gyn residency, and the index practice. The community is a large metropolitan area with a population of over one million in the surrounding area. In the 2000 census, the city was described as 61% African-American, 34% Caucasian, and 3% Latino. Public hospital deliveries have been over 40% Latino during the study period. Four other hospitals offered delivery services.

Methods

A family medicine group identified all women who received at least one prenatal visit or pregnancy-related service in addition to a pregnancy test. The study distinguished services from pregnancies who delivered in the medical home versus those who delivered elsewhere. Diagnostic ultrasound revenues in the office and liability insurance costs were tabulated to control for variables, which are not equal in all offices. This study describes women who, after being accepted for prenatal and delivery care, changed providers, required referral, moved away, miscarried, or failed to return for unknown reasons.

The group maintained three databases. A prenatal database included standard demographic data including name, ethnicity, date of birth, medical record number, last menstrual period (LMP), expected due date (EDD), gravida (G), para (P), prenatal laboratory examinations, prenatal visits, and any history of obstetrical/newborn complications. A delivery database included date of delivery, hour of delivery, hours spent by the physician in the hospital, and delivery/newborn information. The third database was an electronic medical record system containing age, gender, ethnicity, payer characteristics, codes for each service billed, and net collections for all patients.

Costs for pregnancy-related liability insurance in the study state were tabulated annually after subtracting the baseline cost for family physicians repairing lacerations in the office.

Results

During the three-year study, there were 965 deliveries, 95,981 office visits, 2531 billed ultrasounds, and 360 women who did

Table 1: Yearly Outcomes Among Pregnancies Entering 2004, 2005, 2006

2004 -- 123 women undelivered and 349 deliveries; total = 472 entering the practice				
Delivered by FP	No Show	SAB	Refer for Risk	Requested transfer
74%	14 %	3.6 %	3.6 %	5.3 %
Among 123 undelivered	64 (52%)	17 (14%)	17 (14%)	25 (20%)
2005 --110 undelivered and 322 delivered; total = 432 entering the practice				
Delivered by FP	No Show	SAB	Refer for Risk	Requested transfer
75 %	12%	1.9%	5.3%	6.7%
Among 110 not delivered	50 (46%)	8 (7%)	23 (21%)	29 (26%)
2006 -- 127 undelivered and 294 delivered; total = 421 entering the practice				
Delivered by FP	No Show	SAB	Refer for Risk	Requested transfer
70%	17%	5%	3%	4%
Among 127 undelivered	73 (58%)	21 (17%)	16 (13%)	17 (13%)

The first row for each year depicts the percentages for all women who made at least one prenatal visit. The second row specifies the prenatal patients who did not deliver. The similarity of year to year frequencies suggests there is internal validity.

Table 2: Summary Outcomes Among 1325 Pregnancies Entering Prenatal Care 2004-2006

2004-2006 Subtotals 1325 Women Accepted for Prenatal Care and Delivery		
965 women delivered by FP	965/1325	73%
Women with lost pregnancy	46/1325	3.5%
Referred for high risk conditions after entry	56/1325	4.2%
Requested transfer to OB specialist	71/1325	5.4%
Dropped out without explanation and lost	187/1325	14.1%

These data suggest that among 100 registered pregnancies in an urban family medicine office, 73 will deliver as planned, 14 will dropout, five will request transfer to another physician, Four will develop a need for referral, and four will miscarry.

Table 3: Ethnic Distribution Among Uninsured and Medicaid Women 2004-2006

Uninsured women were predominantly Latino

Ethnic Correlations	Uninsured	TennCare (Medicaid)	Other	
African-American	4	118	8	= 130
Latino	136	29	14	= 179
Caucasian	2	56	4	= 62
Other	0	5	0	= 5

Latino women were much more likely to be uninsured. Among these undelivered women, ethnic groups included African-Americans 129 (35.8%), Latinos 165 (45.8%), Caucasians 61 (17.0%), and other (1.6%). Uninsured (n=139; 39.4%), and Medicaid (n=208; 57.8%) patients predominated.

not deliver. Among undelivered women, ethnic groups included African-Americans 129 (35.8%), Latinos 165 (45.8%), Caucasians 61 (17.0%), and other (1.6%). Over 97% of patients were either uninsured (n=139; 39.4%) or Medicaid (n=208; 57.8%).

The largest group of undelivered women failed to return without explanation (n=187; 51.9%). Some miscarried (n=46; 12.8%), and others were referred for development of higher risk (n=56; 15.6%). Some requested referral to another physician (n=71; 19.7%). The percentages varied little from year to year (Table 1), providing internal validity for the summary results (Table 2).

The average delivery age was 23.3 years with a range of ages 14-42 years. There was no statistically significant difference between the ages of women who delivered compared to those who did not deliver. The undelivered made 1092 office visits and received 295 ultrasound examinations for which the office collected \$172,181. Of this amount, ultrasound collected \$31,229. The uninsured patients were 96% Latino. Although undelivered women without insurance were common, Medicaid-sponsored women were the largest group among the undelivered (Table 3) (Table 4).

Among the 360 undelivered women, 295 ultrasound services included limited, complete, and transvaginal examinations. By comparison, 965 delivered women received 884 billed ultrasounds. The average ultrasound collection was \$105.86 for a total of \$31,229 among undelivered women. Collections for 965 delivered women were \$1,511,546 for an average collection of \$1566 per delivery. This did not include routine ultrasound or newborns.

Premium rates for \$1M/3M claims made for insurance were documented (Table 5). During the most expensive year 2006, family physicians in their first year of practice paid an addi-

tional \$3669 per year for coverage of vaginal deliveries. In the fifth year of practice the premium "matured" to a differential of \$10,712. Average deliveries needed for payment of additional insurance costs ranged from 2.3 in year one to 6.8 in year five.

Discussion

In addition to traditional delivery services, this paper introduces the idea of non-delivery services, income, and risk. Until 2004, when a patient failed to deliver with a Medicos physician, they were purged from the OB database and excluded from further evaluation. This created a "birth moment" bias which obscured services and risks associated with women who did not deliver with the index medical practice. Consultants have ignored these women while simultaneously reporting that revenues may be insufficient to support the additional overhead needed for pregnancy care.

These data suggest that among 100 registered pregnancies in an urban family medicine office, 73 will deliver as planned, 14 will dropout, five will request transfer to another physician, four will develop a need for referral, and four will miscarry. A significant number of women increase their risk by failing to return or by failing to participate in recommended referral. Accounting bias unintentionally obscured substantial services and \$172,181 of revenue available for support of pregnancy-related overhead. Revenue from undelivered women was sufficient to pay a large percentage of insurance overhead, and this was perceived to be significant.

Services provided to undelivered women added \$178.42 of previously unknown revenue for each woman delivered during three years, when almost 1000 women were delivered. Financially, this is a worst case scenario with over 95% of the women uninsured or Medicaid. In this study these services provided

sufficient income to cover the liability insurance differential for all prenatal and delivery services for each physician for each year in this state. The null hypothesis is rejected.

These data improve the financial benchmarking of prenatal care and deliveries in the medical specialty of Family Medicine.^{17,18} Faculty and other family physicians have stated that maternity care services have a negative financial impact on the ability to sustain an office, when costs for lost office visits was compared to revenue. The only published study indicates that this is not true, even when deducting “opportunity costs” for other visits and time out of the office.¹⁰ This study validates the data of that study, 2000-2003, with a larger number of deliveries. The collected revenue per delivery number of \$1566 is similar to the reported average delivery income of the 2000-2003 study (\$1 575).¹⁰ This provides support for the consistency of the study method, and it challenges common cost-benefit analysis methodology, where physician reimbursement is pegged at global reimbursement through the CPT-4 code, 59400. This reimbursement code is triggered by the birth of the baby following at least seven prenatal visits.^{new 19}

Accounting practices can systematically shortchange family medicine. For example, after a year, corporate accounting reported no income from deliveries despite over 20 documented deliveries. Billers had been told that family medicine did not have privileges for OB, and that all delivery codes should be changed to “prenatal care only” codes. A previously published study from the same city providing service to the same level of patients demonstrated that university-collected income averaged \$1088 per delivery in 1997.¹⁶ Corporate billers remote from the department may not be as effective for primary care, unless there is direct oversight by the department itself.¹¹

Faculty may not receive accurate information on overhead from university accountants. Some faculty lack private maternity

care experience, and these faculty predominate in most teaching hospitals. Recently, a residency director in Tennessee suggested to his residents that revenue is unlikely to support delivery services in the region. His spreadsheet included projections based on Medicaid collections from standard CPT4 code 59400 associated with each delivery. The presentation did not include revenue from undelivered pregnancy-associated services and other ancillary services. Data from this study suggest that this methodology should be revised.

Poor tracking of undelivered women created other liabilities, which were previously unknown. Inaccurate addresses and phone numbers led to failed notification strategies among uninsured prenatal patients, who then would “drop in” to private and public hospitals, claiming to be the responsibility of family physicians in the home practice. Hospital OB staff were angry with “drop-in” patients and felt that the family physicians had abandoned their responsibilities. This created a dysfunctional exchange known to promote liability through dissatisfaction and adversarial relationships. Negative perceptions of family physicians by obstetricians and nurses contributed to negative experiences in training programs and private practice.^{20,21}

Reports describing uninsured patients as a drain on state health care dollars spotlighted these women as problem patients.^{22,23} Traditionally trained obstetricians and emergency medicine physicians expressed frustration over “illegal immigrants,” who did not speak English.^{24,25} Charges of “abandonment” were alleged for pregnancy drop-ins by women who made one visit and then never returned to the office. This caused even more tension between the family medicine group and obstetrical specialists, who were assigned to cover the “OB ER.” Although complete data were not possible, one third trimester fetal death and a uterine rupture was confirmed among the no show group. These previously uncounted events merit further study.

Table 4: No show behavior was substantial among all ethnic groups.

	No show	SAB	High Risk Transfer	Self Transfer
African-American (130)	61 (48.3%)	19 (14.7%)	21 (16.3%)	24 (18.6%)
Latino (179)	108 (61.1%)	23 (13.0%)	21 (11.9%)	25 (14.1%)
Caucasian (62)	27 (40.9%)	7 (0.6%)	16 (24.2%)	16 (24.2%)

Despite the availability of Medicaid among Caucasian and African-Americans, significant numbers did not show. Latino patients were most likely to not show, but not that much more than other ethnic groups. All ethnic groups had similar frequencies of seeking another delivery provider.

Table 5.: Liability Insurance Annual Premium Costs 2006

FP services	Year 1 Annual Cost	Year 5 Annual Cost
No surgeries, no OB, no Ortho, office practice	\$ 4,386	\$9,125
Minor invasive procedures (lacerations, IUD)	\$ 6,476	\$ 14,647
Obstetrics, no major surgeries (e.g., cesarean)	\$ 8,065	\$19,913
Obstetrics with cesareans, major surgery	\$11,780	\$29,289

These premiums represent coverage for \$1 million per incident or 43 million in aggregate per year. These are claims made policies which, in the study state, cost less as the physicians enter practice. The premiums “mature” reaching maximum levels in year 5. The added cost of deliveries is reflected by subtracting the base cost of level two activity from the OB cost of level 3 or 4.

Despite, introduction over 20 years ago, billable ultrasound services by family physicians remain unreachable for some faculty and a blind spot for accountants.^{26,27} Ultrasound services add value in the management of risk while providing additional income.²⁸ Since not all family physicians have initiated this service, the study controlled for ultrasound income in the undelivered group.

Medical liability insurance costs vary with overhead being higher in some states but lower in others. Marginal costs of medical liability insurance can be calculated by subtracting the base cost of insurance from the premium cost of insurance covering normal vaginal deliveries in a claims made policy covering \$1 million per occurrence or \$3 million per year aggregate. This is the required insurance in most communities. In this state, during the most expensive year 2006, starting family physicians paid an additional \$3669 per year for coverage of vaginal deliveries. In the fifth year of practice the premium "matured" to a differential of \$10712.²⁹ Regional variations and changing conditions in the insurance market could affect some of the conclusions described.

For this practice, five family physicians, some of whom were recent residency graduates, as a group paid approximately \$35,467 per year for the right to perform vaginal deliveries when compared to family physicians who performed minor invasive procedures in the office. Using a "worst case" scenario with no income from undelivered patients, the break-even number of yearly deliveries is 2.3 in year one and 6.8 in year five. In this study, ancillary income paid the entire difference before any delivery revenue was considered.

Some question the need to preserve pregnancy services within family medicine. For example, deliveries and prenatal care are not included as essential activities in the core definitions of primary care. Young physicians and faculty who have not experienced deliveries in a community hospital may exaggerate the perils of this practice style before they have actual data. These data may be helpful in designing realistic career expectations and job descriptions in support of community-based FP-OB services.

A weakness of this study is that it is localized to one urban community in one state. Liability overhead may be more prohibitive in other urban areas, and privileging issues may be prohibitive in others. These were beyond the scope of the current study.

Ancillary revenues associated with the provision of prenatal and delivery service should be considered by future investigators. It is another weakness of the study that revenue attributable to children's office visits and newborns have not been tabulated as a part of the revenue equation. However, revenue data in this paper are conservative and underestimate other revenues derived from maternity care. Revenues from other ancillary activities were not tabulated as a part of this paper and deserve further study.

Revenue from clinical services are increasingly essential to the health of the academic effort in Family Medicine.³⁰ By rediscov-

ering this "lost" revenue, communities can more accurately project the financial feasibility of providing prenatal, ultrasound, and delivery services. This study documented that these services, previously obscured by inaccurate accounting systems, provide additional financial support, which is substantial. Administrators should count all related activity, not just that which is triggered by the birth moment in the hospital.

This study is the first to describe the most frequently occurring reasons for failure to deliver with the original medical home, and it adds new dimensions to a dialogue which has persisted for over 20 years.^{31,32} A significant number of uninsured and Medicaid women increase their risk and that of the physicians by failing to return or by failing to participate in recommended referral.

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