

**Providing Maternity Care to the Underserved:
A Comparative Case Study
of Three Maternity Care Models Serving Women in Washington,
D.C.**

Louise Palmer and Allison Cook

The Urban Institute

Brigette Courtot

The National Women's Law Center

January 2009

Study was supported by a grant from the Commonwealth Fund, New York.

The Urban Institute is a nonprofit, nonpartisan policy research and educational organization that examines the social, economic, and governance problems facing the nation. The views expressed are those of the authors and should not be attributed to the Urban Institute, its trustees, or its funders.

Acknowledgements

The authors would like to thank the research sites for agreeing to participate in the study and for their staff's assistance with focus group and patient observation recruitment. We would also like to thank Embry Howell for her guidance throughout the project, and research assistants Ariel Klein, Aimee Williams, and Asya Magazinnik for their help with logistics and background research.

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Introduction

The District of Columbia is home to some of the worst pregnancy outcomes in the country, including very high rates of infant mortality, preterm birth, low birth weight, and high cesarean section rates (Martin et al, 2006; Mathews et al, 2007). African American women and their babies in particular exhibit worse birth outcomes than white or Latina women in the District (Martin et al, 2006; Mathews et al, 2007). Residents in wards 5, 6 and 7 in the District (situated in the North and East of the city) are predominately African American and low-income. This comparative case study aims to understand how obstetric care provided under three models varies and how it might be improved to better serve this population.

The first of the three models is a city birth center that provides prenatal care, birth services, postpartum follow-up, and infant and child health care. Certified nurse-midwives (CNMs) are the primary maternity care providers. Women meeting established criteria (see Appendix A) can choose to either give birth at the birth center or at a nearby teaching hospital, attended by a birth center CNM regardless of birth location. Women in Wards 5, 6, and 7 might also receive maternity care through one of D.C.'s ten Federally Qualified Health Care Centers (FQHCs). This study focuses on one of these safety net clinics, which provides a variety of primary health care services, as well as prenatal care services. The care model at the safety net clinic uses CNMs and obstetricians to provide prenatal and postnatal care. The safety net clinic collaborates with the teaching hospital to provide easy access to the hospital's obstetric and gynecological services. Under this arrangement, hospital obstetricians provide prenatal care at the FQHC a few days a week. Most women receiving their prenatal care at the safety net clinic give birth at the teaching hospital. The not-for-profit teaching and research hospital represents a third and different option for women in the city. The hospital provides prenatal and postnatal

care through an on-site obstetric clinic where women receive care from either residents or a nurse practitioner. The hospital has a maternity wing for births where residents are the main care providers supervised by attending physicians, and supported by nurses.

This report presents a descriptive overview of each model of maternity care in a case study format, including how maternity services are delivered to women in Wards 5, 6, and 7 under each model, what composes the content of the care, and how the care is perceived by women and providers. A forth-coming paper will provide a comparative analysis of each model which will also discuss the implication of models of maternity care on cost-effectiveness and service delivery efficiency (also see Appendix B for a matrix comparing the key characteristics of care across the three study sites). We hope the results will inform a future impact study of the effects of different models of birth care on birth outcomes, and cost-effectiveness.

Background

Birth Outcomes/ Quality of Care

Over the past few decades, health service researchers have conducted studies to identify whether particular models, or characteristics, of maternity care, are associated with improved maternal and infant health outcomes. Evidence on the correlation between models of care and birth outcomes is mixed. Studies have shown improved birth outcomes of birth center or midwife run practices compared to hospital and obstetric practices, including lower incidence of low birth weight (Gottvall et al. 2005, Grady and Bloom 2004), lower incidence of preterm deliveries (Gottvall et al. 2005, Grady and Bloom 2004), lower risks of neonatal mortality (MacDorman and Singh 1998), higher Apgar scores (Lenaway et al. 1998, Rising 1998), lower perinatal mortality (Tracy et al. 2007) and lower rates of admissions to neonatal intensive care (Tracy et al. 2007). In addition, studies have found that midwife or birth center-based models are

associated with higher breastfeeding initiation and continuation rates (Hodnett et al. 2005), fewer perineal tears (Walsh and Downe 2004, David et al. 2004), lower incidence of postpartum depression (MacArthur et al. 2003), fewer intrapartum complications (Tracy et al. 2007), and higher patient satisfaction (MacArthur et al. 2003, Garland et al. 2005, Hodnett et al. 2005, Ickovics 2007).

Conversely, several studies have found no significant differences in birth outcomes between different models of maternity care (Janssen et al. 2007) including preterm delivery rates, low birth weight rates (Gottvall et al. 2005, Ickovics et al. 2007), intensive care unit admissions and complication rates (Jackson et al. 2003). Additionally, no significant difference was found for maternal psychological well-being (Waldenstrom et al. 2000), preterm delivery rates (Gottvall et al. 2005), breastfeeding rates (Jackson et al. 2003), and perineal tears (David et al. 1999). Two studies found worse outcomes at birth centers: Hodnett et al. (2005) found increased perineal tears and higher rates of perinatal mortality, while David et al. (1999) found lower overall Apgar scores.

Studies also suggest that the model of care may influence the rate of medical intervention. Compared to other settings (mostly hospitals), birth centers tend to have lower rates of medical intervention such as epidural anesthesia (Jackson 2003), narcotic analgesia (Janssen et al. 2007) instrumental vaginal delivery (Gottvall et al. 2005, David et al. 2004, Jackson et al. 2003), amniotomy (Janssen et al. 2007), and episiotomy (Janssen et al. 2007, Hodnett et al. 2005, Walsh and Downe 2004, David et al. 2004). However, Waldenstrom et al. (2000) found no significant differences in medical intervention rates between birth centers and other settings. Lenaway et al. (1998) also found a higher use of induction during labor at a CNM maternity

program than in the comparison setting. Hodnett et al. (2005) also found an increased likelihood of analgesia/anesthesia in home-like institutional settings.

Finally, some studies have shown improved birth outcomes associated with characteristics of care delivery. For instance, group prenatal care is associated with significantly lower rates of preterm birth and low birth weights (Ickovics et al. 2003; Grady and Bloom 2004). Additionally, several studies show that models of prenatal care that offer a high degree of provider continuity result in fewer adverse maternal and neonatal outcomes (Biro, Waldenstrom, and Pannifex 2000; Boss and Timbrook 2001).

Cost-effectiveness

Alternatives to hospital-based care may be more efficient and result in the same or better quality healthcare at a lower cost. Cost-effectiveness studies show cost per delivery at a birth center is lower than at a hospital (Reinharz et al. 2000, Petrou et al. 2004). Cost savings at birth centers may result from lower resource utilization and lower rates of medical interventions, particularly cesarean sections and epidurals. For example, Tracy and Tracy (2003) in Australia derived a cost ratio of 1:2.5 for spontaneous vaginal birth to cesarean section after labor, without taking into account length of stay. In the U.S., the average cost of a birth center vaginal birth in 2003 was \$1,624 compared to \$6,239 for an uncomplicated vaginal birth in hospital. With complications, the hospital vaginal birth cost rose to \$8,177. An uncomplicated cesarean section delivery in the same year was \$11,524 and \$15,549 for one with complications (U.S. Agency for Healthcare Research and Quality 2008; National Association of Childbearing Centers 2004).

It is important to note that not all these studies employ equally robust research methodology¹, and only three studies are randomized controlled trials (Ickovics et al. 2007,

¹ When comparing across maternity settings (such as birth centers and hospitals), study design must take into account selection bias, namely the possibility that better outcomes at birth centers are explained by more low-risk

Baldwin 2006, and MacArthur et al. 2003). Most of the studies use either a prospective cohort or retrospective population-based design, comparing outcomes between study and comparison groups which are matched on demographics and medical histories, usually drawn from the general population using public records (such as, the Census, vital statistics, and hospital outpatient data). Additionally, several studies (Henderson et al. 2001, Tracy and Tracy 2003, Petrou et al. 2004, Janssen et al. 2007, MacArthur et al. 2003, Hodnett et al, 2005, Waldenstrom et al. 2000, Gottvall et al. 2005, Walsh and Downe 2004, Tracy et al. 2007, Gottvall and Waldenstrom 2002, Fahy and Colyvas 2005, David et al. 1999, and David et al. 2004) analyze maternity services outside of the U.S. and the variable factors this introduces (for example, differing public health systems) must be considered when comparing to the U.S. context.

While this study is not designed to provide impact findings of different models of maternity care, it provides a context for understanding why birth outcomes, quality of care, cost-effectiveness, and efficiency may differ by maternity model.

Methodology

This study uses a comparative case study design with each birth model representing a separate case. The case study design allows the use of identical research methods to distinguish the defining characteristics of one or multiple cases and allows for conceptual reflections about contrasting findings (Robson 2002). Box 1 displays our guiding research questions.

Case study methodology can use a mixture of qualitative and quantitative methods, or rely solely on different qualitative methods. Because of the explorative and descriptive purpose of the study we relied mostly on a variety of qualitative methods, complemented by quantitative secondary data where available. Using multiple qualitative methods allows for the triangulation

women choosing this setting rather than by better quality of care. Randomized controlled trials are most reliable at isolating the effect of selection bias.

of data, which enhances the rigor of the research and helps to improve the validity of the data (Yin 2003).

Box 1. Guiding Research Questions

- What is the full complement of services available at each site?
- What population of childbearing women do the sites serve (demographic and medical characteristics)?
 - What is the health status of women at each site?
 - What types of pregnancy and childbirth-related problems do sites' clients have?
- What are the differences in the care provided at each setting?
 - Content of care
 - Information provided and how
 - Treatment/care given and how
 - Structure of care
 - Key characteristics of visits to provider
 - Provider environment
 - Length and frequency of visits
 - Caregiving providers
 - Who provides care?
 - What, if any, are their guiding philosophies of birth and birth care?
- How is each model funded/ what are the costs of care?
 - What are service charges?
 - What are reimbursement rates?
 - What additional funding does each model receive?
- Given the demographic profile of women in Wards 5, 6, and 7 how responsive is each model to their needs?
- Why and how did women choose their provider?
 - Prenatal care provider
 - Place of birth and related provider
 - Postnatal care provider
- What are perceptions of each model of care?
 - Perspective of women receiving prenatal care at each site
 - Perspective of key stakeholders

Table 1 details the research methods used at each study site and the number of participants involved. While use of identical research methods at each site is preferable, the hospital obstetric clinic only permitted key informant interviews and we received limited quantitative data from both the hospital obstetric and safety net clinics.

Table 1: Summary of research methods at each case study site

	Hospital Obstetric Clinic	Safety Net Clinic	Birth Center
Interviews	9	9	7
Focus groups	None permitted	1 group with 7 women	1 group with 8 women
Observations	None permitted	9 observations of 2 different providers	6 observations of 3 different providers
Service statistics, birth outcomes, and financial data	Yes (but limited)	Yes (but limited)	Yes

Semi-structured key stakeholder interviews

Paired researchers conducted multiple semi-structured key stakeholder interviews with maternity care staff and administrators. Interviews, lasting between 45 minutes and 1.5 hours, explored the interviewee's roles, population served, content and organization of pregnancy and birth care, and challenges and lessons learned in providing care.

Structured observation

To better understand the content and organization of care, researchers conducted structured observations of prenatal care visits. Only one researcher was present per visit. Researchers only observed routine prenatal visits; no physical examinations were observed. If sensitive issues arose during prenatal care, for example domestic abuse, researchers left the room.

Focus groups

Focus groups with women receiving prenatal services provided feedback about services at case study sites. Staff at each site assisted with recruitment, and participants received a \$50 cash incentive, as well as lunch refreshments. Focus groups lasted approximately 1.5 hours. Researchers used a semi-structured protocol, recorded the sessions using an MP3 recorder, and

transcribed the recording to create a verbatim transcript.

Supplementary secondary data

To complement the qualitative data, researchers asked each site to provide service statistics (for example, how many women received prenatal care in 2007), birth outcome data (for example, how many women had a cesarean section in 2007), and data on financing (for example, service charges to insurers and reimbursement rates). The data is limited to each site's own data collection methods and systems of analysis.

Confidentiality and institutional review board approval

No identifying information about research subjects (patients or providers) was collected. Before interviews, observations, or focus groups, researchers assured participants of confidentiality, and obtained their informed, voluntary consent. Prior to conducting research, institutional review board approval was received from both The Urban Institute and Medstar, which oversees research activities at the hospital.

Analysis

Interviews

In the weeks following completion of all interviews at a case study site, one researcher took the lead in writing up interview notes according to common themes (for example, staffing, funding, prenatal care, labor and delivery, postnatal care, challenges in providing care). Most of these themes are similar to the guiding research questions; however new themes also emerged. The second researcher reviewed the notes, adding to or correcting them. If, on any one topic, both sets of research notes were contradictory, we followed up with the research participant for clarification.

Focus groups

Researchers developed a matrix of questions corresponding to the moderator's protocol and possible answers (for example, why did women choose their provider [convenience, recommendation by friend], what topics do providers discuss at prenatal care visits [breastfeeding, fetal movement, diet], satisfaction with care received [very satisfied, somewhat satisfied, not satisfied]). The matrix allows for emergent themes and unexpected answers to be recorded, as well as illustrative quotations. Each researcher read through the focus group transcript several times and filled in the matrix indicating with a tally count how many women responded to each answer category. Researchers then compared their results and discussed any discrepancies in interpretation.

Observations

The small number of prenatal visits observed provide only a brief snapshot of the content and structure of prenatal visits at each study site. As such, we used the observations to provide a descriptive review of what might take place at routine prenatal care visits and to begin to identify similarities and differences between sites and providers. To accomplish this, one researcher summarized the key characteristics of the visits by site and provider type using the themes of the protocol. A second researcher reviewed the summary for accuracy and any discrepancies in interpretation were discussed.

Limitations

The study has several limitations. First, our quantitative data collection was limited to the available secondary data at each site and was of varying quality. In particular, we were unable to access comparable data on birth outcome measures and only limited service delivery statistics were available. Second, the rigor of comparative case studies is enhanced when identical

research methods are conducted at each site but we were unable to conduct three of the four proposed data collection methods at the teaching hospital site. Third, we were unable to interview labor and delivery nurses at this site; therefore, our information about labor and delivery services is limited to our interviews with other staff. Finally, the descriptive nature of the study does not permit the authors to make conclusions regarding the impact of each model on birth outcomes, quality of care, and cost-effectiveness.

CASE STUDY 1:
Hospital Obstetric Clinic

Introduction and Overview of Services

The Obstetrics and Gynecology Clinic (referred to hereafter as “the Clinic”) is located in a hospital in Ward 5, Northwest Washington, D.C. The hospital is a not-for-profit teaching and research hospital with over 900 beds and close to 4,500 births per year. The hospital can be reached by car or public buses which travel to and from the nearest metro station one mile away.

The Clinic runs five days a week and provides full scope gynecological services, family planning, and prenatal and postnatal care to women of all medical risk levels. Special prenatal clinics are held for adolescents, diabetics, and general high-risk women (including those who are HIV positive). Pregnant women receiving prenatal services at the Clinic give birth in the hospital’s labor and delivery suites. The hospital’s close proximity to a children’s hospital provides access to a level 3 neonatal intensive care unit.

While any woman can choose to receive their prenatal care through the Clinic, the patient population consists primarily of women with Medicaid or other public health insurance coverage. Women with private insurance typically receive their prenatal care with their private physicians in an adjacent building containing physician offices. Therefore, the Clinic predominantly serves low-income women from Ward 5 and surrounding Wards.

Staffing

The Clinic staff is composed of four licensed practical nurses (LPNs), one patient care technician, one nurse educator, one clinical manager, one nurse manager, 20 residents, one nurse practitioner, and two certified nurse-midwives (CNMs). The CNMs help run the high-risk clinics and are typically not involved with the care of medically low-risk women. One attending physician is on staff at all times and a minimum of two to three residents are in the Clinic at any point. Residents provide Clinic prenatal and postnatal care and oversee the large majority of

births in labor and delivery, as well as completing rotations in other departments. The nurse practitioner also sees prenatal and postnatal patients 4 days per week and is not involved in labor and delivery. Counseling by social workers is available to all Clinic patients and social workers are part of the team coordinating care for adolescents and high-risk patients.

The Clinic does not experience any recruitment challenges and informants state that clinicians are keen to work in the outpatient setting. While many staff join the Clinic specifically to work with an urban, low-income patient population, it was suggested that this was not the case with residents. Based on one estimate, only about 10 percent of residents rotating through the Clinic had a particular interest in working with an inner city population.

Capacity

The Clinic is almost always busy and key informants estimate that their case loads continue to increase placing pressure on provider capacity and space. Approximately 50 patients attend the clinic each day for obstetric, gynecological, and family planning services (with the majority being obstetric visits). Residents will see between 10 and 15 patients each per day and the nurse practitioner between 20 and 25. One key informant stated, “The Clinic is overloaded, we need another nurse practitioner.”

Approximately 4,500 women give birth at the teaching hospital every year. Roughly 700 of those women receive their prenatal care through the Clinic and 1500 receive care at one of ten FQHCs in D.C. The remaining women giving birth at the teaching hospital receive their prenatal care at a Kaiser Permanente health center, in private physician offices, or at the birth center. Key informants estimate there are between 5 and 10 women in labor and delivery at any point.

While the Clinic has been able to reduce wait times, it is not uncommon for women to be at the clinic between one and two hours (with 10 to 30 minutes of that time spent with a

provider). Wait times tend to be longer for residents' patients than the nurse practitioner's patients because of the structure of residency training which requires each resident to consult with the attending physician regarding diagnoses and plan of care. Once the attending has approved the resident's plan of care, the resident must see the patient again for discharge. If the resident has to see the attending about one case multiple times, this can push back appointment times for other women. Key informants suggested that hiring more providers, particularly "mid-level" providers such as nurse practitioners, and expanding the nursing staff could help reduce wait times and increase the Clinic's capacity. However, they also pointed out that there is no room in the current clinic facility to house more staff. Plans for a new ambulatory care center which would also house the Clinic may help alleviate this problem.

Funding and costs of care

The majority (approximately 60 percent) of women receiving care at the Clinic have Medicaid Managed Care health plans (including Americaid, Charter Health, and Health Right). Close to twenty percent have Medicaid fee-for-service (DC Medicaid), roughly 8 percent have private health insurance, a further 8 percent have other managed care plans, and a small proportion are self-pay or receive charity care from the Clinic. For uninsured women, the Clinic provides care on a sliding fee scale. While key informants estimate that the Clinic does not recoup all the costs related to uninsured deliveries, there are rarely situations where the Clinic receives no payment at all.

Maternity care charges are divided into physician charges and facility fee charges (the latter covers overhead fees and nurses' salaries). We were only able to collect data related to physician charges, which are as follows:

- Routine prenatal and postnatal care \$5,254

- Vaginal delivery \$2,578
- C-section \$3,040
- C-section with postnatal care \$3,451

Of these charges, we were told the hospital is reimbursed an average of 17.5 percent for physician charges across all payors but that private insurers reimburse at a higher rate than public coverage programs. In general, key informants do not think the Clinic is recovering all the costs of providing care. However, they expressed that any loss is offset by the benefits gained through the training provided to residents and the service provided to the community by the Clinic.

All hospital staff are covered with medical malpractice insurance through Medstar's own captive insurance company that covers seven Medstar hospitals in total. The cost of insuring all hospital staff is \$25 million per year. Within the Clinic, the annual insurance premium is \$84,000 per obstetrician or CNM. The Department of Obstetrics and Gynecology at the hospital is responsible for paying the Clinic's malpractice fees to Medstar Captive. Because of rising malpractice costs in recent years, many obstetricians have given up private practice and asked to be employed by the hospital to take advantage of Medstar's insurance coverage. Key informants suggest that the medical malpractice insurance problem recently became worse on a local level after the withdrawal of a large insurer from the D.C. insurance market.

Demographic and health status characteristics of Clinic clients

We were unable to access demographic data for the Clinic patients. However, key informants estimated that the patient population is approximately 90 percent black (overwhelmingly African American with a small percentage of Caribbean or African patients) and 10 percent Hispanic. The majority of patients are enrolled in public health insurance, indicating that they are a low-income population.

In terms of the health status of women receiving prenatal care at the clinic, most key informants thought the Clinic serves a population with greater incidences of chronic conditions than other area hospitals, most notably obesity and diabetes, and that women often present with more than one medical condition. There is a high incidence of sexually transmitted infections among Clinic patients and the Clinic provides care to a number of pregnant women who are HIV positive. There is no definitive standard for determining high-risk status. Several key informants suggested it is decided on a case-by-case basis using “clinical judgment”. However, a patient may be determined to have a high-risk pregnancy if she presents with any of the following: HIV/AIDS, diabetes, hypertension, congenital cardiac disease, renal disease and in some cases multiple gestations. One key informant estimated that over a third of obstetric cases in the Clinic are estimated to be high-risk.

According to key informants, many Clinic patients present with social and behavioral risk factors which compound any medical risk factors, including a low level of education, income close to the poverty level, poor access to health care, high unemployment rates, and an unstable or limited support network. Many women suffer from sexual and physical abuse, poor nutrition, and mental health conditions such as depression. Some women have transient or unstable housing arrangements with no steady address or phone number where providers can contact them. There are also a growing number of adolescent pregnancies among very young teens. As one key informant told us, the patients are “all high-risk to something.”

These environmental risk factors faced by Clinic patients were important themes running through all discussions with key informants. Informants expressed views that the care provided was less clinical in its content and more focused on helping patients deal with the social problems affecting their access to and use of health care, which in turn have the potential to

affect health status. Informants felt that a deep understanding of the broad-spectrum of social and behavioral issues experienced by patients was needed to provide effective and appropriate care.

The content of Clinic maternity services

Prenatal care

In response to the population they serve and the problems they experience, the Clinic has created a coordinated system of care including several high-risk prenatal care clinics to provide multi-disciplinary care and support. To this end, the team of practitioners involved in managing the care of high-risk women includes maternal fetal medicine specialists, nurse practitioners, CNMs, social workers, and nutritionists. High-risk patients are managed through these special clinics and their prenatal care is characterized by greater frequency of visits (typically once a week). Once a month all the providers involved in the care of high-risk women meet for a conference to review every woman's chart and plan of care. This case study focuses mostly on the care provided to women with low-risk pregnancies

Women who are not medically high-risk will receive their prenatal care in the Clinic from either a resident or nurse practitioner with assistance from LPNs. The Clinic strives for continuity of prenatal care with each woman assigned one care provider for the duration of her prenatal period, unless she is deemed high-risk and requires transfer to the care of a resident and high-risk physician specialist. Patients are scheduled in 15 minute time slots and at their very first visit, the "new OB visit", are typically assigned to a provider on an *ad hoc* basis and remain with that provider throughout the prenatal period. Patients who return for subsequent pregnancies can, and sometimes do, request the provider they previously had.

Most pregnant women have their first prenatal visit late in the first trimester or at the beginning of their second trimester. Adolescents typically have their first prenatal visit later than

most other patients. Reasons for not accessing care sooner include not realizing they are pregnant, denial, and waiting to decide whether or not to have an abortion.

At the new OB visit, women are initially triaged by LPNs who conduct patient intake, which includes checking temperature, blood pressure, weight, and collecting a urine sample (for diabetes, dehydration, and infection). LPNs are responsible for providing patient education (on breastfeeding, for example) before the woman sees the resident or nurse practitioner. Key informants described this educational role of LPNs as trying “to get the patient involved in their visit.” Typically, new OB visits for low-risk patients last 30 minutes, during which time patients may spend up to 15 minutes with LPNs and between 15 and 20 minutes with their main prenatal care provider.

At the new OB visit, clinic providers conduct a complete physical, breast exam and PAP test and take a complete patient history to determine if there are any medical or social/behavioral risk factors at the new OB visit. In addition, blood is taken to test for syphilis, Hepatitis B and C, sickle cell anemia, HIV, anemia, rubella, as well as blood group and type, and cultures are taken to test for gonorrhea and Chlamydia. All new obstetric patients have a sonogram at their first visit for dating (and a second at 20 weeks to assess anatomy). While the clinical content of prenatal care is similar across providers, a key difference in the overall care provided is the emphasis placed on health education and exploring social factors that may be influencing a mother’s health, such as a difficult housing situation. The nurse practitioner usually discusses topics, such as exercise, nutrition, smoking cessation, and any underlying problems at home while key informants explained that residents often do not have the time to do so.

At discharge, LPNs provide women with more information about WIC, prenatal care classes, or any other subjects the resident or nurse practitioner has instructed them to discuss,

such as vitamins, and arrange for the woman's next appointment. Thus, LPNs play an important health education role, particularly for patients of residents, who may not receive as much health education directly from their provider due to residents' time constraints. New obstetric patients also have the opportunity to tour the labor and delivery suites with the nurse educator.

At subsequent visits, LPNs again first triage the patient and provide education on various different topics, for example, the importance of staying hydrated and later in pregnancy, keeping track of the baby's movement by charting fetal kick counts. LPNs also hand out information on birthing and breastfeeding. As with the first visit, the care provided at subsequent prenatal care visits varies by provider with residents' time constraints typically preventing them from discussing educational topics such as breastfeeding and family planning. Instead, residents focus on the clinical evaluation of the patient, for example, asking if the woman has contractions or bleeding, and discussing any test results. In contrast, the nurse practitioner, in addition to clinical evaluation, discusses subjects such as the patient's birth plan, labor pain plan, infant feeding, car seats, and nutrition. Typically, providers use a check list at each visit to ensure they cover all American College of Obstetrics and Gynecology (ACOG) recommended prenatal topics. Repeat visits are approximately 20 minutes with the nurse practitioner and 10 minutes with the resident.

Key informants estimate there is between a 30 and 40 percent no show rate for prenatal visits because their patients have multiple competing priorities for their time. Additionally, key informants felt that multiparous women are less likely to attend visits because they have been through the process before and do not perceive the benefits of prenatal care.

Groups and classes.

A key component of the prenatal care offered at the Clinic is the classes and groups organized by the nurse educator to help provide patients with information on a variety of topics.

The patient education provided through these forums is an important supplement to the information patients receive directly from providers and LPNs, though not all patients benefit from this service as many do not enroll in the groups and classes offered. Free childbirth education classes are held by the nurse educator three times a week. They are four weeks in length and typically attended by between two and seven people. Classes prepare parents for birth (topics include anatomy, stages of labor, Cesarean sections, and medications used in labor) and infant care (topics include sudden infant death syndrome, health disparities affecting African American babies, bathing, and cleaning the umbilical cord). The class sometimes focuses on parenting skills and the educator tailors the classes to the urban population she works with, for example, single mothers. The class aims to help women communicate with their providers and to talk about their birth plan. Class formats include watching videos of births and breastfeeding (the educator noted it was difficult to find racially relevant videos), and at the end of the class patients are given a tour of the labor and delivery, and postpartum suites. There are also hospital-wide childbirth classes that Clinic patients can attend for a fee.

The educator also conducts Wait-a-Minute (WAM) sessions in the Clinic waiting room. This takes advantage of the long wait some women have and provides information on different topics, for example, breast health, breastfeeding, family planning, STDs, and smoking. The WAM sessions have become popular and a different topic is covered every month.

Key informants estimated that about 30 percent of Clinic patients attend childbirth and parenting classes, with the low attendance rate attributed in part to cultural barriers. As one informant explained “it’s culturally difficult to get African American moms together in a group...confidentiality is a barrier and fear of judgment.”

Patient Education and Support Services for Adolescents

The Clinic categorizes adolescents as a high-risk population and while this case study focuses mostly on low-risk women, it is important to highlight that because of the growing number of teen mothers seeking care at the Clinic, care of adolescents, including groups and classes, is a core component of services. To this end, the Clinic offers tailored patient education and support programs for adolescents.

The Clinic recently implemented a program of group prenatal care, based on the CenteringPregnancy model of group prenatal care. The CenteringPregnancy Group Prenatal Care approach is a method for delivering prenatal care that allows women to learn more by sharing their experiences throughout pregnancy. Group prenatal care may be associated with significantly lower rates of preterm birth and low birth weights (Ickovics et al. 2003; Grady and Bloom 2004). The program has been piloted with a group of teens, with preliminary plans to expand the initiative to more teens and possibly other Clinic groups. The group meets each week for two hours and has around 6 participants. Teens who are part of the group have approximately the same gestational age and receive all their prenatal care within the group. The aim of the sessions is to empower teens and provide a friendly learning environment to help them talk about their concerns. To facilitate this aim, at the first session teens make up “ground rules” for the group. A CNM, with assistance from obstetricians as needed, provides care in the group setting with no one-on-one sessions. During the sessions, teens learn how to measure their own blood pressure and weight and how to record the measurements. The group also learns about a different topic each week, for example, a WIC nutritionist may talk to the group about WIC benefits. Social workers are also involved in providing care as needed. In addition to the group care, the nurse educator takes advantage of Clinic waiting times by gathering together teens in the waiting room and conducting an educational session in the patient education room.

Teen moms also can be part of the Teen Alliance for Prepared Parenting (TAPP) an initiative funded by the Department of Health and Human Services, which focuses on providing support and family planning services to pregnant teens and teen moms. Adolescents enrolled in TAPP meet with TAPP social workers in addition to receiving patient care services available to other women in the clinic. TAPP is run by a CNM.

Labor and birth

On arrival at the labor and delivery ward women are triaged, during the day by one of three CNMs and by residents during the night, to assess their stage of labor. One nurse will then be assigned to the patient and provides continuous care (including checking intravenous fluids and electronic fetal monitoring) labor and birth. Nurses are assigned to patients on a 1:2 or 1:1 ratio. While continuity of provider is attempted for prenatal and postnatal care, women typically will not see their prenatal provider during labor and delivery. Residents are primarily charged with overseeing labors and deliveries, and check on patients every two hours to assess progress. CNMs will step in to deliver a baby if residents are busy with other births. An attending is always on call for consultation in case of complications.

Anesthesiologists are available at all times to provide pain relief, most commonly in the form of epidurals. Key informants gave different estimates for the epidural rate—some stating 50 percent, others 75 percent or higher. We were told that epidurals are promoted by most staff. Informants explained that both epidurals and 100 percent use of IVs are preferred in case of an emergency to enable quick intervention without having to pause to anesthetize the patient or administer an IV lead. All laboring women are also connected to electronic fetal monitors.

When the mother starts to push, nurses provide most of the coaching. Key informants noted that many of the labor and delivery nurses were midwives in other countries. Typically, the resident will arrive in the late stages of pushing and will “deliver” the baby.

Progress in labor is measured using the Friedman Curve, which assesses cervical dilation against time benchmarks and may be used to determine the need for any interventions, such as pitocin to assist contractions. The teaching hospital relies mostly on vacuum extraction if assisted vaginal delivery is needed. Standard maternal and fetal indicators are used to determine the need for a cesarean section (such as repeat cesarean, lack of progress measured in terms of relative time to dilation, non-reassuring fetal status, and severe complications such as eclampsia). The cesarean section rate varies between practitioners based on the high-risk nature of their patients. However, the average hospital rate is about 30 percent. A hospital panel regularly assesses this rate, why cesarean sections were performed, and examines practitioners with high rates.

Postnatal care

After delivery, women are moved to a postpartum ward where they stay for one to two days if they had a vaginal birth², and 3 days for a cesarean. During their hospital stay, the nurse educator provides every woman with an appointment for postpartum check up. The educator also conducts optional postpartum family centered care classes three times a week. These classes reiterate discharge information, focus on any concerns, and discuss general postpartum topics. The classes are typically not well attended.

After discharge, routine postpartum care includes one visit at 6 weeks for all women, and an incision check at 2 weeks for women who had a cesarean section. The Clinic staff regard postpartum care as crucial, both to ensuring birth spacing by promoting family planning methods

² Technically a woman can leave within 4 hours but the baby must stay for 24 hours for observation.

and detecting postpartum depression. However, one key informant explained how waiting until six weeks may be too late to prevent further unwanted pregnancies as s/he had seen women return for their postnatal visit already pregnant. Indeed, practitioners are considering how to improve initiation of family planning immediately after birth and the Clinic is currently recruiting women to take part in a study to assess the effectiveness of implanting intrauterine devices (IUDs) immediately after delivery. Depo Prevera, a hormonal injection administered every three months, is the main type of birth control encouraged at the Clinic. Most women attend their postpartum visits, but are “routinely late”, primarily because of difficulties navigating public transportation with a newborn.

Postpartum breastfeeding assistance is also available. Lactation consultants are available on the postpartum wards to women immediately after birth. Once at home, if a mother needs help with breastfeeding, she can call the Clinic and talk to a lactation consultant or make an appointment to see one. While breastfeeding is something discussed with women both pre and postnatally, we were told that promoting breastfeeding is frustrating for staff because women are not receptive to the idea.

Challenges in providing Clinic maternity care

Many of the challenges that informants mentioned relate specifically to the characteristics of the patient population and the problems these women experience in their daily lives. Key informants attributed the high no show rate in large part to the stressful context of their patients’ lives and the fact that “they have so much going on” (key informant), for example, not being able to leave work for appointments, transportation difficulties, and trying to plan where the next meal will come from. While many key informants mentioned noncompliance with care as a challenge, when probed why they thought women did not comply, informants felt these

underlying problems acted as barriers to compliance. For example, many key informants felt the low educational level of their patients including literacy problems prevented women from following medical advice because they did not fully understand the benefits.

The challenges of working with a vulnerable population create a strain on staff. One key informant told us that s/he is “part confessor, part social worker and part medical worker...medicine is the least of my work...my job is 95 percent social work”. We were told that the Clinic “needs special staff to understand [patients’] social situations [so they] feel accepted.” Another told us, “obstetrics is just a stressful environment, very emotional.” Long-serving staff told us they try to informally train residents in effective techniques, for example, explaining care at the patient’s educational level, remembering patient names and writing down the fathers’ and babies’ names on medical charts. In general, the Clinic has attempted to create a welcoming environment with simple gestures such as maintaining eye contact and smiling at patients. Another challenge key informants encounter is patients not disclosing all their concerns and problems. Stakeholders attributed this to patient’s lack of trust in the medical system, or not wishing to open up to young or male residents.

While the resident model provides the Clinic with important staff resources, concerns were raised that the pressure on residents to see patients quickly, and fulfill their other rotation duties, may impact the quality of care they are able to provide. However, the transient nature of residencies may be offset by the dedicated permanent staff in the Clinic, who focus solely on Clinic patients and describe their role as providing holistic care.

A final challenge mentioned by most key informants relates to the lack of space and increasing patient caseloads. The Clinic has been growing increasingly popular and space is at a premium, making it impossible to hire more staff to meet the growing demand. Financing of the

clinic may contribute to the lack of time providers have to spend with patients. One key informant suggested there was increased pressure on Clinic staff to see a certain number of patients a day to keep the Clinic financially sustainable; the informant stated, “we still have to do everything but much faster.”

Why do women choose the Clinic?

While we were unable to speak with patients directly, informants mentioned several reasons why women might choose to receive maternity care at the Clinic, including:

- Close proximity (although we were told that women also come from all over the city);
- Dissatisfaction with other area maternity services;
- Preferring to be a part of the hospital and “feeling more confident in the hospital setting”;
- A recommendation from a friend or family member or seeing an advertisement on television;
- Knowing the physician that will deliver them (although this is not guaranteed).

Informants also felt that the atmosphere of the Clinic attracted women because staff are friendly and nonjudgmental, as one explained: “Patients feel they can be transparent, they don’t have to cover up or hide.”

System delivery changes

Key informants recommended several changes in the delivery of maternity care services within the Clinic. Several felt the Clinic would benefit from additional mid-level staff, such as CNMs, nurse practitioners, or a registered nurse. One informant felt that shifting entirely to mid-level care and reallocating resources would “free up obstetricians to do what they are trained for (management of high-risk cases and surgical intervention) [but] it would be a big paradigm shift.” In addition, it was expressed that obstetricians are acting more as primary care physicians

(PCPs) than obstetric specialists because of the patient population who lack regular access to a PCP and thus require basic primary care alongside their obstetric needs. On the other hand, other informants wanted more residents to help alleviate the pressure on Clinic wait times. Informants also suggested hiring more ancillary staff because “residents have to do a lot of the running around”, and also more reception staff.

Other recommendations included:

- Increasing Clinic space (as previously mentioned to enable the hiring of more staff and to accommodate the growing demand for services). While this cannot be achieved in the Clinic’s current location, a free-standing ambulatory care center may be built, which would also house the Clinic.
- Finding ways to make resident turnover seamless to prevent disruption to patients and Clinic staff.
- Opening a Saturday clinic and having more flexible hours to “be more family-centered.”
- Turn traditional care into group care using the CenteringPregnancy model to provide care more efficiently and deliver the benefits of the group model.

Conclusion

The Clinic provides pregnant women with access to clinical care and patient education throughout the pregnancy continuum in a hospital setting. The Clinic especially stands out for its managed care of high-risk cases, and its multi-disciplinary team of staff. The staffing structure for low-risk women includes an option for pregnant women to see either a resident or a nurse practitioner for their pre and postnatal care. Other important contributions to the Clinic staff are the nurse educator who runs free pre and postnatal classes, and the LPNs who provide additional

health education to women (especially those seeing residents). Most women receiving services at the Clinic are low-income African Americans.

Other key characteristics of the model of maternity care at the Clinic include:

- Pre and postnatal provider continuity of care;
- The Clinic provides a valuable learning experience for residents, especially those wishing to work with safety net populations;
- Free childbirth and parenting education classes;
- Dedicated high-risk clinics with a multi-disciplinary team of experts to manage care;
- Access to wider hospital services and specialists;
- Receipt of all pregnancy and childbirth care in one site;
- Care during labor and delivery follows a medical, obstetric model with 100 percent electronic fetal monitoring and IV use, and a high rate of epidurals. As explained by key informants, this model of care is intended to enable obstetricians to intervene quickly in case of an emergency;
- Assigned labor ward nurses provide continuous coaching and support to women through labor;
- The cesarean section rate approximates the national average;
- Access to family planning methods immediately after the birth.

There are some barriers to receiving optimum care in the Clinic model including transportation problems because the hospital is not directly on D.C.'s public transit train system (Metro); long wait times at appointments; inadequate time for residents to cover educational topics; and importantly, lack of time for residents to investigate and understand the social and environmental problems affecting their patient's health. Possibly the biggest challenge facing the

Clinic is how to work with the patient population to overcome the multiple problems women face in their daily lives and which impact their access to and use of health services, and ultimately health status. Because the nurse practitioner is not constrained within the resident teaching model, she is better able to identify women's problems and provide tools and resources to overcome them.

Recommendations to hire more mid-level staff to ease the burden on residents could provide residents with more time to explore the non-clinical aspects of prenatal care and help reduce wait times. In addition, implementation of additional programs of group care may facilitate more efficient provision of care, while offering women the benefits of the group care model. Finally, while there is low turnover of Clinic staff, the turnover of residents may create some discontinuity of services while new residents are trained and get up to speed with the Clinic and its population.

CASE STUDY 2

The Safety Net Clinic

Introduction and overview of services

The safety net clinic has been located in Ward 7, on the boarder between Northeast and Southeast D.C. for many years (seven at its current location) and is one of 10 city federally qualified health centers (FQHCs) all run by the same healthcare nonprofit.

After the closure of D.C. General (a major city hospital serving wards 5, 6, 7, and 8) in 2001, the healthcare nonprofit took over six D.C. General ambulatory care centers. Soon after, obstetricians at the FQHCs became employees and faculty members of the large teaching hospital in Northwest D.C. Under the new arrangement, the FQHCs act as obstetric outstations of the hospital to provide seamless prenatal, labor and delivery, and postnatal services by a team of hospital obstetricians and FQHC certified nurse-midwives (CNMs). The benefit to patients includes continuity of maternity services throughout pregnancy and birth and access to the hospital's specialty obstetrics, gynecology, and infant services. Additionally, obstetricians benefit from having a dedicated hospital for deliveries and referrals for specialty care³.

The safety net clinic provides patients access to primary care, obstetric and gynecologic, pediatric, and dentistry services. Specialty services such as podiatry and cardiology are also on site a couple of days a week. Safety net clinic patients also have access to a social worker and onsite WIC services.

Staffing

Hospital obstetricians typically work at the FQHCs three days a week, with two days in a 'primary' clinic and one day in a 'secondary' clinic. Most of the remainder of the week is spent in surgery or on call. Over the last several years, the FQHCs have hired increasing numbers of CNMs. CNMs work two days per week in a primary clinic, one and a half days in a second clinic

³ Typically, obstetricians who work in community health centers have to find a hospital which will allow them labor and delivery privileges

(or clinics). One day per week is spent on the hospital's labor and delivery ward, mainly managing the triage assessment area.

The safety net clinic has 32 full-time and 15 part-time staff, including six medical assistants, a center manager, medical director, nurse-manager, dentist, lab technician, WIC nutritionist and staff, social worker, family medical doctors, an obstetrician, and a CNM. Both the social worker and registration staff are trained and available to assist patients in signing up for health insurance.

Prenatal services are provided by one of three health professionals—a CNM provides prenatal care twice a week, a hospital obstetrician provides obstetric and gynecological services once a week, and a full-time family medicine specialist also sees one to two obstetric patients per week. A medical assistant also works with the obstetrician and CNM.

Key informants do not view retention of staff at the safety net clinic as a problem and most staff have been at the clinic for more than three years. Patients and providers alike described the safety net clinic as having a sense of community and several staff we spoke to chose to work at the clinic to serve the local population and “to give back to the community” (key informant).

Capacity

Key informants estimate the safety net clinic sees between 40 and 50 total patients per day and of these, between 16 and 22 may be obstetric patients. In 2007, a total of 68 safety net clinic prenatal patients gave birth at the teaching hospital, a much smaller number than most other FQHCs and representative of its smaller size in comparison to the other clinics.

In order for the safety net clinic to remain financially sustainable, all providers must see twelve or more patients per day. The clinic usually meets these targets and is more or less at

capacity. Key informants believe having a larger building would assist in increasing capacity.

Funding

There are three main sources of revenue for the safety net clinic—federal funding, grants, and insurance reimbursement. As an FQHC, the clinic relies on federal monies for funding but also significantly on grants, for example, for special HIV/AIDS programs and family planning.

In terms of health insurance reimbursement, the safety net clinic receives the revenue for prenatal visits, regardless of whether the provider is a hospital employee, whereas the hospital receives reimbursement for labor and delivery services provided to safety net clinic patients at the hospital. Most safety net clinic prenatal patients are enrolled in Medicaid. Many of those who do not qualify for Medicaid are enrolled in the D.C. Alliance. The Alliance program provides access to care to District residents with incomes below 200 percent of the federal poverty level regardless of immigration status.

Safety net clinic employees are covered with medical malpractice insurance through the Federal Medical Liability Insurance Reimbursement Program, which covers employees of FQHCs; whereas hospital employees working at the clinic are covered by their hospital's captive insurance company.

Demographics and health status

While demographic data describing the safety net clinic's patient population were largely unavailable, key informants told us over 90 percent are African American, with a small percentage of African or Hispanic origin, and a few Caucasian patients (who are mostly homeless). The vast majority of obstetric patients live in the area surrounding the clinic and are either within walking distance or a short bus ride away. Most patients are at or below the poverty level, with the majority unemployed.

In terms of maternal health statistics, the average maternal age, based on women who delivered at the teaching hospital in 2007, was 24, with ages ranging from 14 to 37. At 38 weeks, the average gestational age was full-term and the average birth weight (approximately 3000 grams) was considered to be within the healthy birth weight range. The average prenatal patient at the safety net clinic had two previous pregnancies.⁴

Key informants held different perceptions on the health status of pregnant women. While some informants told us they thought their patients were “pretty healthy” others stated they had “poor health status and don’t take care of themselves [prior to becoming pregnant].” Obesity was cited as a widespread problem, but other chronic conditions such as diabetes were not reported to be prevalent—perhaps, key informants suggested, because of the young patient population. Sexually transmitted diseases are common among all age groups, and calcium deficiency and anemia were also mentioned as health problems.

Key informants described social and behavioral risk factors as a major area of concern affecting pregnant women’s health. As one informant told us, “this is where the risk comes in.” Informants mentioned multiple such risk factors affecting their pregnant patients including: smoking; single parenthood with difficult financial circumstances; transient housing situations (living with different relatives or in shelters); violence and crime in the neighborhoods (preventing women from leaving their homes); sexual and domestic abuse; adolescent pregnancies; poor access to health care; low educational level; low literacy and health literacy levels; sexually risky behavior such as unprotected sex; late entry into prenatal care; transportation problems; childcare problems; depression; poor diet; and lack of exercise.

While informants thought that the safety net clinic probably sees more chronic conditions among their pregnant patients than in the higher income population of D.C., they believed the

⁴ Data provided by the safety net clinic, July 2008

social and behavioral risk factors were a more prevalent problem. Many informants attributed the presence of these risk factors to the context and environment of women's lives. As one informant explained, "If they could live in a better environment, they could take better care of themselves."

The content of safety net clinic maternity services

Prenatal care

The safety net clinic schedules appointments on a basis of 'Advanced/ Open Access', which only allows patients to schedule a visit one to two days in advance (to ensure there are not long wait times for appointments). However, the clinic prioritizes pregnant women and if a pregnant patient walks in, they must be seen regardless of how busy the clinic is. As one informant explained, "We don't always get them in (the clinic), so we catch them when we can." Additionally, for pregnant women only there is a policy to schedule prenatal visits a week or one month in advance and to give women a reminder call prior to the visit. Focus group participants largely reinforced that the clinic's efforts to provide easy access were working. For instance, one focus group participant stated "I was surprised that I got an appointment so fast, I thought it was going to be like two weeks, but I got one in a couple of days."

Key informants did not think there were long wait times on the day of the appointment, although wait time estimates ranged from 30 to 90 minutes. One informant said wait times can be "trying". However, in general, the clinic goal is to "get them in and out in 90 minutes" (key informant). Focus group participants did not report a problem with wait times at the clinic, as one explained, "if you're on time you don't wait long."

Most safety net clinic patients enter prenatal care by the beginning of their second trimester, but there is great variation. Reasons for late entry into care include denial of pregnancy, no knowledge of pregnancy, difficulty finding time to attend visits due to lack of or

insufficient childcare, not recognizing the importance of prenatal care, and, among multigravidas, the perception that prenatal care is not necessary after the first pregnancy.

The very first prenatal appointment at the safety net clinic is for confirmation of pregnancy and can be with either the obstetrician, CNM, or family medicine doctor, although typically, the clinic schedules most women for their first visit with the CNM. Once her pregnancy is confirmed, the woman will be given a “new OB” appointment one to two weeks later. The new OB visit lasts approximately 30 minutes and providers take the patient’s history including: patient’s medical, social, and obstetric history (including past pregnancies); family medical history; sexual partner history; and patient demographics. Providers will also conduct a physical and pelvic exam, take urine and blood samples, do a PAP test to check for STDs and cervical cancer screening, and provide education on topics including nutrition, exercise, breastfeeding, family planning, pregnancy discomforts, and warning signs of pre-term labor, and other complications of pregnancy. Providers also explore social and behavioral topics including family situation, social support network, and incidence of domestic abuse. As part of their new OB visit, providers refer most of their patients to the WIC nutritionist and social worker.

Based on the exam and patient history, the provider determines if the woman has any medical risk factors, for example, pre-pregnancy co-morbidities such as hypertension or cardiac disease. There is no standard check-list or protocol for determining risk status and providers use their professional judgment. Typically, the obstetrician will manage medically high-risk cases, although sometimes the CNM or family medicine doctor will co-manage a high-risk patient with the obstetrician. High-risk women with gestational diabetes, hypertension, HIV, and twins will remain at the safety net clinic for their prenatal care. However, if the provider feels that the services at the clinic are not adequate to manage a patient’s risk factors, they will transfer her to

the teaching hospital's high-risk clinic or co-manage with the hospital's maternal-fetal medicine specialists. Only a very small number of patients are transferred per year and informants estimated between 10 and 25 percent of safety net clinic pregnant women would be considered medically high-risk.

After their new OB visit, women will follow the regular schedule of care involving one visit every four weeks until 28 weeks, every two weeks until 36 weeks, and every week thereafter until the birth. While patients can choose to see the CNM, obstetrician, or family medicine doctor for subsequent prenatal care visits, most remain with the provider they were assigned for their new OB visit.

Prior to seeing the provider at each visit, patients have their blood pressure taken and are weighed by the medical assistant. In addition, they are asked to provide a urine sample. The content of subsequent prenatal visits with the main prenatal care provider differs depending on the stage of pregnancy. At each visit, providers use an American College of Obstetrics and Gynecology (ACOG) modified physical and history form to guide the discussion of prenatal topics (See Box 1). Depending on what issues are raised, providers develop a problem list for each individual patient and monitor these issues throughout pregnancy. Some questions are standard at every visit, for example asking if the woman has any contractions, discharge, fetal movement, pain with urination, or swelling, and discussing diet, exercise, and appropriate weight gain.

Typically, early in the pregnancy, providers will discuss nutrition, pregnancy discomforts, and dangers of miscarriage and in the second and third trimesters will discuss breastfeeding, birth control, contractions, pre-term labor symptoms, and fetal kick counts. Women usually have one sonogram between 17 and 20 weeks for dating and to assess anatomy;

this takes place at the teaching hospital. Additionally, the safety net clinic has implemented a new system where pregnant women meet with their pediatrician before the birth to establish a relationship.

Box 1. Prenatal care topics listed on the ACOG modified physical and history form

1st Trimester Topics: Prenatal vitamins; WIC referral; social services; nutrition counseling; prenatal classes.

2nd Trimester Topics: Signs/ symptoms of preterm labor; breastfeeding; family planning.

3rd Trimester Topics: Labor signs; support person in labor; transportation to the hospital; preparation at home for the newborn; pain management in labor.

36 Weeks+: Postpartum support; labor signs; newborn education; newborn's physician.

Source: Safety Net Clinic prenatal chart, 2008

There are no childbirth classes available to women at the safety net clinic but women are told about classes available at other FQHCs and the teaching hospital. Informants estimate most women do not attend any childbirth or parenting classes; focus group participants confirmed informants' perceptions. No participants had attended any childbirth classes and many did not understand the purpose of such classes. One participant told us, "She [the CNM] gave me a number but I didn't call it", while another expressed that "It's too late now."

Subsequent prenatal visits last approximately 15 minutes and key informants stated that between a third and half of women bring a friend or family member. The safety net clinic experiences some no show problems, particularly adolescents and multigravidas, but informants estimated that the majority of their patients attend visits. The clinic tries to follow up with patients who miss appointments with phone calls and letters.

The CNM and obstetrician appear very similar in how they provide prenatal care and the

topics they discuss, and we did not notice any striking differences when observing their visits (see Box 2 for results of observed prenatal care visits). However, from our interviews, some differences arose. In particular, the CNM reported spending time discussing childbirth preparation including what to expect during labor and books to read about childbirth, as well as explaining different forms of pain relief. The CNM also discusses the importance of having a friend or family member for support during labor. In contrast, the obstetrician reported discussing any questions or concerns a woman may have about labor but not routinely covering labor and delivery in prenatal sessions, except for reviewing signs of labor with patients, because “most women have a sense of what childbirth is like.”

One difference that did arise from the observations relates to how the obstetrician and CNM communicated aspects of pregnancy to their patients. The obstetrician explained in detail possible complications of pregnancy and consequences using specific medical terminology. However, the CNM tended to review possible symptoms of complications without using medical or technical terms, while still explaining the importance of seeking immediate medical attention. For example, in the case of pre-term labor, the CNM reviewed the symptoms of pre-term labor without using the term “pre-term labor” or explaining to what condition the symptoms were related. In contrast, the obstetrician discussed pre-term labor symptoms in greater length and detail using the term pre-term labor and other medical terms to describe symptoms. The important information regarding pre-term labor was relayed in both cases. However, the manner in which it was explained differed markedly. While the obstetrician could be interpreted as educating the patient with correct terminology and physiological understanding of the symptoms, the patient may have been confused by the lengthy and technical description.

Box 2: Key characteristics of CNM and obstetrician prenatal care visits

CNM	Obstetrician
<p><u>Descriptive details of visits</u></p> <ul style="list-style-type: none"> ➤ Provider sits on a stool; patient sits on exam table ➤ Normal speaking rate ➤ Good to excellent eye contact ➤ Ave. number of times CNM asks a medical question: 4.7 ➤ Ave. number of times CNM asks a non-medical questions: 3.3 ➤ Provider mostly explained what she was doing e.g. listening to the heartbeat ➤ Ave. number of times CNM asks if woman has any questions: 2 ➤ Ave. number of times woman asks CNM a question: 0.7 ➤ Ave. length of visit: 16 minutes ➤ At all visits listens to fetal heartbeat <p><u>Key characteristics:</u></p> <ul style="list-style-type: none"> - Usually starts every visit asking how the woman is - Mostly a relaxed atmosphere and laid back approach - Sometimes lists symptoms to look out for without giving a physiological/technical explanation e.g. “if you have any bleeding, cramping go to the hospital immediately” without linking symptoms to pre-term labor <p><u>Topics discussed at majority of visits:</u></p> <p>Fetal movement; contractions; strep B culture test; family planning; ultrasound; pre-term labor; vaginal discharge; pain when urinating; prenatal vitamins; diet; transportation to the hospital; pain medication in labor; readiness at home for newborn; breastfeeding; due date; STDs and UTIs.</p>	<p><u>Descriptive details of visits</u></p> <ul style="list-style-type: none"> ➤ Provider stands or leans against table, patient sits on exam table ➤ Slow to normal speaking rate ➤ Excellent eye contact with patient ➤ Ave. number of times MD asks a medical question: 3.3 ➤ Ave. number of times MD asks a non-medical questions: 4.7 ➤ MD mostly explained what he was doing ➤ Ave. number of times MD asks if woman has any questions: 1.3 ➤ Ave. number of times woman asks MD a question: 1.3 ➤ Ave. length of visit: 18 minutes (MD admitted it was a slow day and he had more time to spend with patients) ➤ At all visits listens to fetal heartbeat <p><u>Key characteristics:</u></p> <ul style="list-style-type: none"> - Asks women about their knowledge of procedures and why they were done, e.g. “what did the ultrasound information tell you” - Explains aspects of pregnancy in detail e.g. how to work out their due date - Explains symptoms and what they indicate in obstetric terms e.g. what pre-term labor is, symptoms, and what to do <p><u>Topics discussed at majority of visits:</u></p> <p>Ultrasound scan; due date; fetal movement; bleeding; diet; weight gain; prenatal vitamins; WIC; pre-term labor; sugar test and gestational diabetes; family planning options</p>

Source: Twelve prenatal care visits observed by researchers in July 2008

Notes: It is important to note that any differences are based only on a few observations and more time with each provider would be needed to confirm any differences in the provision of care.

Conversely, although the CNM's description may have been more easily understood by a patient not familiar with medical or technical terms, not using the term "pre-term labor" might have put the woman at a disadvantage for understanding the implications of her symptoms.

All the focus group participants were seeing the CNM and some had prior experiences with an obstetrician for previous births. However, when asked if they noticed any difference in the care between the two types of providers, they said no. When asked what they liked about their prenatal care, most participants referred to the bedside manner of the CNM stating that she was personable and friendly:

"She's nice, patient"

"She's sweet"

"She's like a mother figure"

"Yeah, like a sister figure" (focus group participants).

Labor and birth

While we did not interview labor and delivery nurses for this case study, we spoke with other types of providers who work on the labor ward at the teaching hospital about the labor and delivery care available to patients of the safety net clinic. The few women who see the family medicine specialist will deliver at Providence (see Box 3). Here we concentrate on the description of births at the teaching hospital.

Most women receiving their prenatal care at the safety net clinic will give birth at the teaching hospital with a resident as the main provider during labor and delivery. An attending will also be present to confer about complications and oversee the resident's deliveries. All women are assigned a registered nurse who stays with the woman throughout labor and delivery.

The labor and delivery role of the safety net clinic CNM at the hospital is primarily to

triage patients throughout the day and assess whether the woman is in labor and how far she is dilated (residents take over this role at night.) While residents at the hospital are primary providers in labor and delivery, the safety net clinic CNM may also help at any point if needed. CNMs are considered attendings and can be the main provider during birth. In this respect, they are considered independent practitioners from the attending; however, they will consult with the attending if complications arise. In terms of staffing hierarchy on the labor and delivery ward, nurses report to residents or CNMs and residents report to CNMs or the attending. The safety net clinic CNM is unlikely to be able to attend the birth of their patients due to their role in triaging and their limited time on the labor and delivery.

Box 3: Description of labor and delivery with the Family Medical Doctor

The family medical doctor is on call to attend all the births of his patients at Providence Hospital (the only hospital in D.C. that will allow family medical doctors hospital privileges). The family medical doctor arrives early to evaluate the patient and to determine timing. He will then leave and return when the woman is fully dilated. Nurses and residents care for the woman in the first stage of labor and residents help the woman with pushing and deliver the baby under the family medical doctor's supervision.

Nurses provide most care during the first stage of labor with residents checking in every two hours to see how labor is progressing. Nurses and the residents will start an intravenous (IV) fluids line, draw blood, review the woman's history, conduct a physical, and start an electronic fetal monitor (on all patients). Nurses also explain to the woman what labor and delivery is going to be like as well as provide birth coaching. For this reason, according to one key informant, the nurse has a "bigger role than any other provider" during labor and delivery.

Pain relief can be in the form of narcotics (nubaine, stadol, or morphine) administered through the IV. However the most common form of pain relief is epidurals. Informants estimated that anywhere between 50 and 90 percent of women have an epidural. We were told that providers “might encourage them [epidurals]” instead of suggesting alternative forms of pain relief, for example breathing techniques. As one informant noted, “Epidurals are part of the culture here [at the teaching hospital]...to make them more comfortable...and to stop patients moaning.”

During the second stage of labor, a second nurse will be in the room to assist and the attending or CNM will confirm that the mother is ready to push. If a resident is managing the birth, an attending will be on hand but the resident will provide the birth coaching to the mother. If a CNM is managing the birth, she will help the woman with pushing.

Complications and Cesarean sections

Residents and attendings, but not CNMs, use the Friedman curve and their clinical judgment to limit the amount of time a woman can labor before intervening by assessing cervical dilation against time benchmarks. If complications arise at any point during labor, the nurses, residents and CNMs will consult the attending. Should assisted vaginal delivery be needed, the residents, directed by the attending, will use vacuum extraction.⁵ Neither CNMs nor family medical doctors have privileges to provide instrumentation deliveries.

In 2007, nearly 30 percent of safety net clinic births at the hospital were cesarean sections. Of the cesarean sections performed, seventy percent were repeat cesarean sections⁶. Criteria used to decide whether to perform a cesarean section include failure to progress (by measuring the timing of contractions against dilation progress), failure to descend, fetal

⁵ Forceps are rarely used in performing assisted vaginal delivery at the teaching hospital.

⁶ Data provided by the safety net clinic, July 2008.

intolerance to labor (measured by an electronic fetal monitor and non-reassuring fetal heartbeat), repeat cesarean section, excessive bleeding, and pre-eclampsia that is not under control.

Postnatal care

In the hospital, safety net clinic patients receive the same immediate postpartum care that all new mothers at the hospital receive. This includes assistance from lactation consultants, discharge information and care instructions, advice regarding family planning, and an invitation to attend a postpartum care class. Women will typically remain on the postpartum ward for two days if they had a vaginal delivery, and three days if they had a cesarean section.

Once discharged, women are scheduled for a postnatal visit at the safety net clinic six weeks after birth; women who have cesarean sections are also seen at 2 weeks for an incision check. There are some exceptions to this standard protocol. The family medicine doctor sees most of his patient's babies for pediatric care, usually one week after birth. At this visit, he takes the opportunity to informally review the mother's health and wellbeing. Having both pediatric and postnatal care on site at the safety net clinic allows more care coordination between mother and baby and facilitates receipt of postnatal care.

The CNM schedules postpartum visits for new mother's for two weeks after the birth to make sure everything went smoothly with the birth, to talk about breastfeeding, family planning, infant care, social support, depression, nutrition of mother and baby, and to discuss any questions the woman might have. This visit lasts approximately 15-20 minutes.

The typical content of regular postpartum care visits includes assessing postnatal bleeding and signs of postnatal depression as well as discussing medical and social concerns, for example infant bonding, family relationships, feeding, and external stressors. Providers will also discuss breast and infant feeding, ensure women have seen a pediatrician, and connect women

with needed services.

Key informants felt that the six week postpartum visit is too late for three key aspects of postpartum care: 1) depression (“it usually kicks in at two weeks postpartum, so we probably miss it by six weeks” (key informant)), which informants also felt was a difficult problem to diagnose and treat (“there’s no good way to detect it and it’s hard for this population...they’re alone in caring for their baby, financial worries etc...it’s hard to know how to help because it stems from their whole life situation” (key informant)); 2) breastfeeding education and the discussion of any problems breastfeeding (“it’s too late at six weeks” (key informant)); and 3) family planning.

Informants gave a wide range of estimates for the percentage of women returning for postpartum care—anywhere between 50 and 90 percent. All focus group participants said they would return for postpartum care at the safety net clinic. The family medical doctor estimated that the one week baby visits have a much higher show rate of between 90 and 95 percent. Reasons given for women not returning for postpartum care include being busy with their children, problems securing childcare, and the perception that it is not needed.

Why do women choose the safety net clinic?

Key informants provided multiple reasons for why women choose the safety net clinic.

These include:

- Convenient location;
- A history of coming to the clinic (sometimes generations of the same family);
- The clinic is more personable than other clinics because of it’s small size;
- A family-oriented approach where patients “can get the care families need” (key informant);

- Good quality doctors;
- Women can get wraparound services under one roof; “they get a lot accomplished here” (key informant);
- Word-of-mouth;
- Women want to deliver at the teaching hospital because of bad experiences they have had or friends/family have had at other area hospitals.

Focus group participants confirmed many of the informant’s beliefs. Most of the participants lived very close to the clinic and could walk there, although a couple had to travel 40 minutes by bus. Several women had attended the safety net clinic for previous pregnancies, including one participant who had been receiving health care at the clinic all her life.

Besides convenience, participants provided other reasons for choosing the safety net clinic. These included liking the atmosphere of the clinic. For example, on focus group participant told us, “I’d rather come here [even though it’s far away] because I like the staff here, they’re really friendly and they make me feel comfortable.” And another explained, “I like the clinic ‘cause they make you feel like you’re family. They always say hi to you when you walk in the door, they know you by name.”

Not only did participants think staff were friendly and personable, but thought they helped create a supportive environment. One participant explained: “It’s good because if you don’t have that much support at home when you come here you do have it.”

Other participants chose the safety net clinic because they were unhappy with their experience at other area health facilities, including complaints that they had to wait a long time and that they were unable to receive family planning services. One participant told us about an experience elsewhere: “They schedule like 8 patients at once and then you’re all sitting there

(waiting).”

Many of the women in the focus group specifically wanted to give birth at the teaching hospital and knew that attending prenatal care at the safety net clinic would facilitate this. Participants gave many reasons why they wanted to give birth at the teaching hospital, including: “It’s just convenient”; “I like the staff”; “It’s nice, clean”, “You can have your own room”; “The baby can sleep in the room with you.”

One participant stated she choose the safety net clinic so that the CNM could be at her birth; while this is not necessarily the case, it perhaps highlights a desire for continuity of prenatal and birth care provider.

Family planning was an important issue for all focus group participants. In some cases, the lack of family planning resources at other clinics (such as those with religious ties) had influenced their decision to attend the safety net clinic. Similarly, the ability to have tubal ligation at the teaching hospital immediately after childbirth was cited by two participants as the reason they wanted to give birth at that hospital specifically.

Challenges in providing maternity care

While informants felt that there were many reasons why women liked receiving care at the safety net clinic, they identified several challenges staff face in providing maternity care. Universally they stated that “noncompliance” with care was a big problem and a barrier to patients being able to maintain or improve their health. However, the reasons key informants gave for women not following care instructions were related to the social and behavioral risk factors that the population faces, for example transportation and financial problems, or simply having other competing priorities. As one key informant stated when discussing social risk factors, “Just living can prevent people from taking care of themselves” (key informant). A

related challenge mentioned by key informants is the difficulty clinic staff often face in following up with women who miss appointments because patients do not have stable addresses or have disconnected phone lines. As a result, staff usually try to get four or five phone numbers for women at new OB visits.

Other challenges in providing care included:

- Not enough time with patients;
- Finding financial resources for women without HIV—“we need more services for non-HIV women”;
- Difficulties educating women about nutrition and exercise because they may have little basic knowledge about these topics and may have poor access to healthful foods or opportunities to exercise;
- Empowering adolescent mothers to make decisions for themselves rather than relying on their mothers to make decisions for them;
- Lack of space at the clinic.

A final challenge relates to our efforts to gather service and outcomes data. While only mentioned as a challenge by one key informant, the safety net clinic (and overarching managing nonprofit) has a limited data collection and analysis system. Many of the service statistics and birth outcomes data we asked for are not routinely collected. Implementing a clinic-wide data collection system would assist with regular performance monitoring as well as enable the analysis of birth outcomes.

Service delivery changes

Key informants made many recommendations about how to overcome the challenges they face and improve the provision of services to pregnant women. Many of these

recommendations focused on expanding the services offered at the safety net clinic. For instance, it was recommended the clinic provide on-site sonogram services and prenatal care five days a week. While the clinic has a policy of seeing pregnant women quickly and most focus group participants reported no problems making an appointment, one participant noted she had difficulty making the appointments with the CNM because she was only in the clinic on two days a week—“she’s [the CNM] only here on Tuesdays and Thursdays so you have to schedule only Tuesdays and Thursdays and somehow I’m always busy or there’d be no more appointments.” It was also suggested that patients might benefit from onsite group care, such as the CenteringPregnancy model, as well as childbirth and parenting classes. In addition, key informants expressed that the current length of time for appointments was not adequate and that the clinic needed to expand its space.

Other recommendations for improving the delivery of care include:

- Providing continuity between prenatal care provider and birth attendant;
- Implementing a postpartum visiting program, through collaboration with community services (such as home visiting programs) to increase the percentage of women receiving postpartum care;
- Educating providers about the resources available in the community for pregnant women so they can refer patients for additional services not offered at the safety net clinic, such as childbirth classes;
- Developing community outreach initiatives to improve community knowledge about the importance of prenatal care;
- Providing women with more literature on childbirth and pregnancy;
- Implementing an incentive program to encourage women to attend prenatal care

appointments.

Conclusion

Through the collaboration with the teaching hospital, the safety net clinic has made progress in providing access to comprehensive services in an outlying area of the city, and providing smooth linkages to hospital services. This arrangement has provided a streamlined and easy way to refer patients to the hospital and offers safety net clinic providers access to maternal-fetal medicine experts and other specialists enabling the provision of a coordinated system of care.

The safety net clinic provides accessible, community-based services for pregnant women and their families. It serves as a medical home, providing a broad array of services to families throughout the life cycle under one roof, and in doing so facilitates greater access to care for both mother and baby (e.g. addressing postnatal issues with mother at the baby's one week check up). Pregnant women we spoke to valued the atmosphere of the clinic, describing it as "friendly" and "supportive". Focus group participants unanimously praised staff and rated the clinic very highly.

Key characteristics of the model of maternity care at the safety net clinic include:

- Provision of pre and postnatal care in a community, ambulatory care setting that is financially and physically accessible to the local population;
- Guaranteed appointments for pregnant women;
- Pre and postnatal provider continuity to facilitate a good rapport and trust between patient and provider;
- Comprehensive one-stop-shop for health and wraparound services;
- Onsite obstetrician with whom the CNM and family medical doctor can consult regarding

high-risk cases;

- Small, intimate setting where providers know their patients by name and residents view the clinic as their own.

Despite its successes, the safety net clinic faces some challenges in providing maternity care, many of which relate to the social and economic context of their patients' lives. Recommendations for the future might include expanding the clinic's space to provide room for group prenatal classes and childbirth education, being able to offer some kind of provider continuity during childbirth or making arrangements for women to meet some of the labor and delivery staff at the teaching hospital during pregnancy; and reviewing the timing of postpartum care visits.

CASE STUDY 3
The Birth Center

Introduction and overview of services

Established in the District of Columbia in 2000, the birth center objective is to improve the city's poor birth outcomes using a midwifery model of care in a freestanding birth center (the birth center is D.C.'s only freestanding birth center⁷).

To address D.C.'s poor maternal and infant health outcomes the founder of the birth center sought to “set health care in its social context”, and also improve the overall health status of women, infants and families in the target community. To this end, the full range of services available through the birth center includes:

- Well-woman and preventive services for women of all ages;
- Maternity services across the childbearing continuum, including prenatal, labor, delivery, and postnatal care;
- Family planning;
- Sexually transmitted disease (STD) screening and treatment;
- Pediatric primary care (unusual for a birth center), including well-child exams, immunizations, and treatment of minor childhood illness and injury; and
- Help applying for health insurance.

Additionally, the birth center is housed within a larger umbrella organization to provide a “one stop shop” for new parents and parents-to-be. Alongside the birth center, the umbrella organization houses the DC Healthy Babies Project (HBP) which offers health and support services to pregnant women and families through the federally-funded Healthy Start program and an intensive year-long Teen Parent Empowerment Program (TPEP). Both programs provide clinical and social support services to clients in their homes, throughout pregnancy and for two

⁷ A free-standing birth center is unattached to a hospital.

years after birth. At the time of interview, 30 TPEP clients were also receiving prenatal care at the birth center. Efforts are underway to develop a common intake form, and have established systems of referral between HBP and the birth center.

Also housed under the umbrella organization is The United Planning Organization (UPO), which offers free or subsidized daycare and comprehensive early childhood education and development services to infants and toddlers, with priority enrollment for families receiving care through the HBP or the birth center.

Alongside these core organizations and their services, in 2007, the umbrella organization was awarded funding from the Kellogg Foundation and some of these funds are used to provide supplementary services to the birth center and HBP clients. In particular, the three-year funding supports three breastfeeding peer counselors who help administer the birth center's prenatal program of care, and provide postnatal breastfeeding support⁸. The funding also provides pre-term doula support for up to 50 women a year (peer counselors sometimes also act as doulas). There is also a plan to use the funding to provide supplementary pediatric health services by collaborating with the daycare center, for example, by establishing a community garden and providing cooking lessons to parents of daycare center children. Additionally, HBP and the birth center recently worked together to address clients' unmet need for mental health services by co-locating behavioral health services on-site through a new contract with a Medicaid mental health service provider (Affordable Behavioral Services). Therefore, under the umbrella organization, the birth center clients have access to a broad array of health, social, and wraparound services.

Staffing

Six full-time clinicians practice at the birth center, including four certified nurse-

⁸ Pre-requisites to becoming a peer counselor include living in the local community and having already given birth using birth center services.

midwives (CNMs) and two nurse practitioners. In addition, the center currently contracts with an additional 12 clinicians on a part-time basis. Health care providers are supported by three full-time administrative staff and volunteers. The birth center prenatal services also rely on the three breastfeeding peer counselors to help run the prenatal program of care and provide some postpartum services. HBP and the birth center share a provider (who splits her time as a HBP nurse case manager and as a family nurse practitioner in the birth center pediatric services), and this helps to coordinate the care of clients of both services. Finally, women may opt to use the services of the volunteer doulas, who will accompany women to their prenatal visits and provide support during labor.

CNMs provide prenatal and birth care at the birth center. The nurse-midwifery care model focuses on the empowerment and education of women throughout the childbearing cycle. CNMs are advanced-practice nurses, meaning they have completed specialized training beyond that of a registered nurse. Nurse-midwifery students must pass a certification exam at the national level to practice, and must complete recertification every eight years. Birth center CNMs reported that they worked for “perhaps an average of 50 hours per week”, though hours “are irregular and can’t be predicted.” For eight days of each month, a CNM is on first call, meaning that she will be the primary birth attendant for any clients who deliver during the 24-hour period.

Since the birth center’s inception, there have been challenges with CNM recruitment and high turnover rates. According to key stakeholders, CNMs are “in short supply” and the employment market is very tight for these providers, the majority of whom work in hospital settings. The birth center model offers CNMs the unique opportunity to provide full-scope midwifery care. It is possible the everyday stresses of working with a high-risk population in a

safety-net setting might contribute to job turnover or dissatisfaction. For example, one clinician said “I feel like I spend more time on administrative work than clinical work”, another noted her job was “emotionally draining...because clients have heartbreaking stories. It can be so difficult, sometimes I cry when I go home at the end of the day.” Finally, most of the birth center clinicians participate in the federal National Health Service Corps program, which offers education loan repayment in return for a minimum (typically two-year) commitment to work in a region designated as a Health Professional Shortage Area. Key informants noted that it was common for staff who participated in this program to leave the birth center once their service debt has been paid.

Practice standards and hospital back-up

DC’s birth center was created as an alternative to the traditional physician-managed, hospital-based model of maternity care for women. The birth center adheres to American Association of Birth center’s nine birth center standards: planning; organization; administration; facility, equipment and supplies; quality of services; staffing and personnel; the health record; evaluation of quality care; and, research.⁹ Center officials noted that the birth center model also emphasized a “tenth standard” of client education, since so many of their services incorporate this aspect of care.

Birth center policies dictate whether a client with certain medical risk factors is eligible to receive prenatal care and/or birth care at the birth center. When risk factors cause deviations from a normal pregnancy, the CNM will follow one of four courses of action requiring either: special planning for continued care at the birth center; the birth center hospital-based birth; physician consultation with possible transfer of the case to the teaching hospital; and, complete

⁹ American Association of Birth Centers. AABC Birth Center Standards. Available at: <http://www.birthcenters.org/open-abc/standards.php>. Date Accessed: April 10, 2008.

transfer of the case for medical management at the teaching hospital. (Appendix A includes a complete list of pregnancy risk factors associated with each action).

Licensure as a freestanding birth center requires that the birth center CNMs have “back-up” from obstetricians and gynecologists. The birth center has a Memorandum of Understanding (MOU) with the obstetric team at the teaching hospital. Under the arrangement, the birth center CNMs have privileges to deliver newborns at the hospital under specific protocols. The birth center also refers women exhibiting certain high-risk pregnancy factors to the hospital for complete prenatal care and delivery. The birth center officials emphasized the importance of maintaining a relationship with providers at the teaching hospital. To this end, the birth center CNMs attend weekly rounds at the hospital obstetrical department and spend two days each month providing services to clients at its prenatal clinic. The birth center also has an MOU with a children’s hospital, in the event that a birth center newborn requires specialized neonatal care.

Capacity

In 2007, the birth center served a total of 375 pregnant women and attended a total of 180 births, producing a retention rate from prenatal care through birth of 48 percent. There are many reasons why women do not remain at the birth center including high-risk transfer to the teaching hospital, moving out of the area, miscarriage, and choosing a different provider. Key informants estimated of the total number of new obstetric registrants in 2007, about 15 percent presented with risk factors requiring immediate referral for complete medical management. An additional 15 percent began prenatal care at the birth center but during the course of pregnancy exhibited pregnancy risk factors requiring antenatal transfer to medical management. Key informants believed a 50 percent retention rate was standard across the country.

The birth center was designed with the capacity to attend up to 250 births annually; however, key informants question whether the center could realistically operate at that capacity citing administrative burdens for CNMs. One informant stated, “In our current structure, we are at capacity. But the birth center could serve more clients under a different structure.”

CNMs reported having around 150 “active” cases at any one time and as part of their duties, CNMs complete lengthy paperwork after each client visit, spend significant time conducting referrals, following-up on test results, and calling clients to provide new appointment or referral information. Some of these tasks could be conducted by administrative staff, however they too are in short supply at the birth center because of funding challenges.

Funding and costs of care

Revenue sources

About half of birth center funding comes from health insurance reimbursements. The majority of the center’s clients have Medicaid (Table 1), making this program the largest payor of birth center clinical services.

Table 1: Payor source for all birth center services

Payor Source	Percentage
Medicaid	53.7
Medicare	12.3
Other Public Insurance	17.8
Private Insurance	13.8
Self-pay/ uninsured	2.4
Total	100 (n=911)

Source: The birth center, 2008.

Notes: Includes data for all birth center users (pediatrics, obstetrics, and gynecology)

Foundation grants and similar resources account for the remaining fifty percent of the birth center’s funding. Garnering donor support is labor-intensive, often has extensive reporting requirements, and is usually time-bound or subject to changes in funding agencies’ priorities or

particular budget situations. For example, over the past three years the center has received earmarked funding from the District’s City Council, through the D.C. Department of Mental Health. The grant supports the birth center’s operations in caring for vulnerable pregnant women by conducting routine mental health screening and referral, and well woman care. Though this funding was first allocated with the possibility of renewal through 2010, key informants worried that since the city was forecasting a budget deficit this year, the funding would not be available.

Service charges and reimbursement rates

The birth center’s maternity care charges can be categorized as provider fees or facility fees. Provider fees cover the cost of the clinician’s time and services and the birth center is reimbursed an average of 60 percent of charges across all carriers. However, Medicaid managed care reimburses 100 percent on many things (for example, labor and delivery). Birth center fees for different maternity services are as follows: \$100 for each prenatal visit; \$1,300 for an uncomplicated vaginal birth at the birth center; up to \$1,600 for labor care provided before a Cesarean section; and up to \$100 for postnatal care provided directly after an the birth center or a hospital birth. Birth center officials have repeatedly requested without success increases in reimbursement rates so that rates would better reflect the actual cost of providing services.

The birth center charges a “facility fee” for deliveries managed at the birth center. Facility fees incorporate all costs associated with a birth except for the cost of the maternity care provider (for example, equipment and building overheads such as electricity). Unlike hospital facility fees, birth center facility fees are not considered covered services under federal Medicaid and Medicare program statutes, but state Medicaid programs can opt to pay the facility fees entirely with state funds, as 22 states—including the District of Columbia—have done. However, informants said it had been “over a year” since D.C. Medicaid had paid a facility fee under

Medicaid managed care. Initially the lack of payment was due to birth center billing errors but since the error was corrected, they have yet to receive any facility fees.

Medical malpractice

Perhaps the largest threat to financial sustainability of the birth center are the annual increases in medical malpractice premiums. When the center was established in 2000, the birth center's malpractice premiums were roughly \$25,000 per year but jumped to \$90,000 in 2005, and 170,000 in 2006. For the year 2008, their medical malpractice premiums will cost \$300,000 despite a record of no incidents or claims.

Key informants expect that financial strains caused by skyrocketing medical malpractice premiums will be significantly relieved once the District has established its own captive malpractice plan, in which the birth center will participate. City officials decided to create the plan to insure the city's safety net providers—many of whom were forced to “go bare” without any malpractice coverage when commercial premiums became unaffordable. Unlike other safety net providers, the birth center did not have the option of going without coverage, since birth center licensure laws and their hospital privileges require a minimum level of coverage.

Demographics and health status

As shown in Table 2, the birth center serves a population of predominately low-income, young, African American clients. Over three-quarters of prenatal clients are African American and nearly two-thirds of all the birth center clients live in households with incomes below 201 percent of the Federal Poverty Level. Most the birth center prenatal clients are between the ages of 20 and 44, however a fifth are teenagers.

As Table 1 showed, most the birth center clients are enrolled in some form of public insurance, although 13.8 percent were privately insured in 2007. The birth center does not serve

a large population of uninsured clients, since the District’s public insurance programs extend eligibility to virtually every low-income resident. According to key informants, the majority of the birth center clients live in the community surrounding the birth center, mainly coming from the District’s fifth, sixth, and seventh wards.

Table 2: Birth Center client demographics, 2007

	Percentage
Race (n=398)	
African American	77.1
Hispanic	3.0
White	20.0
Poverty Level (n=911)	
Household Income at or Below 100 percent of the Federal Poverty Level	36.3
Household Income Between 101 and 200 percent of the Federal Poverty Level	26.5
Household Income above 200 percent of the Federal Poverty Level	17.1
Not Reported	20.1
Age (n=301)	
13-14	0.7
15-19	20.3
20-24	35.5
25-44	43.5
Marital Status (n=400)	
Single, not living with partner	52.2
Single, living with partner	17.3
Married	30.5

Source: The birth center, 2008

Notes: (1) Data is provided for all new obstetric registrants, including those who are not retained at the birth center through birth except for poverty level, which represents all the birth center users including pediatrics, obstetrics, and gynecology. (2) The N for new obstetric registrants is slightly more than the 375 reported earlier. The discrepancy in numbers owes to the use of different data collection systems at the birth center. 3) The N for age is lower than the total new obstetric registrants because of the data system used, which collected information on a sample of all new obstetric registrants.

In terms of health status, all women at the birth center are medically low-risk (as defined by the risk criteria in Appendix A) and key informants felt their client’s overall health status was

similar to women throughout D.C. However, informants also noted that obesity is a problem among the women they care for, as well as high rates of dental problems, STDs, and untreated mental health problems.

Despite caring for a medically low-risk population, key informants listed multiple social and behavioral risk factors commonly experienced by their clients. These factors include: inadequate family involvement and support (this is especially true for pregnant teens); lack of transportation (which is a benefit for Medicaid enrollees but only for clinical service appointments); lack of childcare; neighborhood and family violence; sexual abuse; low-literacy; transient or unstable living conditions; low incomes and unemployment; cigarette smoking; and substance abuse problems.

The content of birth center maternity services

Prenatal care

The birth center schedules a pregnant client's first prenatal visit on "new OB" days which occur at the beginning of every week; informants estimate between 8 and 10 clients present as new OB cases per week. This initial visit is akin to an orientation and typically lasts for two hours. During the visit, which key informants described as "interactive", the new client meets with other pregnant women and peer counselors, tours the birth center facility, and learns about the birth center prenatal care structure and her available birth options. If the woman is uninsured, birth center staff assists her with applications for one of D.C.'s public insurance programs. She is also seen by a CNM who takes a complete medical history, conducts routine lab tests, screens for risk factors, and completes a physical examination. At this stage, CNMs determine if the woman has any risk factors requiring transfer of care to the teaching hospital.

Unless a woman exhibits risk factors requiring complete referral for physician-managed

care, she begins the birth center schedule of prenatal care visits. After the initial visit, she returns to the birth center every four weeks for individual prenatal care visits with a CNM, until the 28th week of pregnancy. At that point, clients begin participation in group prenatal care, which is based on the CenteringPregnancy Program model.¹⁰ The CenteringPregnancy Group Prenatal Care approach is a method for delivering prenatal care that allows women to learn more by sharing their experiences throughout pregnancy. Group prenatal care may be associated with significantly lower rates of preterm birth and low birth weights (Ickovics et al. 2003, Grady and Bloom 2004). As one key informant noted, group care encourages “women to build relationships with each other and support each other.”

Prenatal groups consist of between 10 and 20 women—typically due to give birth in the same month—and meet once every two weeks for a two-hour session that blends a traditional prenatal care visit with an educational presentation and discussion on one of seven different themes. Two different groups are held per week. The breastfeeding peer counselors conduct the first hour of the group focusing on a different pregnancy and childbirth topic each week. An important attribute of the peer counselors is that they are from the local community and all gave birth at the birth center so they can directly relate to the experiences of birth center patients. During this first hour, CNMs take each woman out for an individual one-on-one session lasting approximately ten minutes (see Box 1 for content of one-on-one sessions, which includes taking routine vitals such as weight and blood pressure). A CNM then conducts the second hour of the group, on one of seven different pregnancy and birth educational topics as follows:

1. Overview and nutrition;
2. Common discomforts, body mechanics and exercise, substance abuse, relaxation;

¹⁰ Centering Healthcare Institute. Centering Pregnancy Care Components. Available at: <http://www.centeringpregnancy.com/>. Date Accessed: April 11, 2008.

3. Family and parenting issues, baby care, breastfeeding;
4. Sexuality, pre term labor birth control;
5. Signs of labor, labor stages, birth procedures;
6. More on labor, baby care;
7. Sibling issues, baby care, postpartum depression.

Focus group participants stated group care also included a discussion of: birth planning, childbirth, diet, how to measure and interpret vital signs, diet, exercise, contraception, prenatal yoga, infant care and parenting, breastfeeding, and managing household finances. Participants emphasized that the peer counselors and CNMs would talk about “any other concerns” beyond these topics.

According to birth center officials, group care is an essential part of the birth center model of care, and all clients must agree to receive prenatal care in this format. Though there have been “rare exceptions” to this rule, if a woman cannot commit to the group care model, the birth center usually encourages her to find a different maternity care provider. At 36 weeks of pregnancy, prenatal clients begin to meet with CNMs weekly, and this continues until birth.

Routine prenatal screenings are included in the birth center care model (for example, maternal blood tests) but care providers only order advanced genetic screenings if a woman exhibits risk factors that qualify her for this type of health service, such as advanced maternal age. Sonograms are not routinely ordered for birth center prenatal clients, and must be medically-indicated. Both genetic screening and sonograms are performed at the teaching hospital. Still, all of the focus group participants told us they had had a sonogram. Most participants had paid out-of-pocket for three-dimensional sonograms and the primary reason was for fetal sex determination.

There is no certainty about which CNM will attend to a particular birthing client; therefore, the birth center ensures each woman meets with all the CNMs throughout the prenatal care period so she is familiar with the CNM on-call when she goes into labor. For this reason, focus group participants unanimously agreed that it was better to see as many of the CNMs as possible, indicating that it was important to know their birth attendant.

Box 1: Common characteristics of one-on-one birth center prenatal care visits

This case study included a number of observed one-on-one prenatal care visits with birth center CNMs. Researchers noted the following characteristics, which were part of all (or nearly all) observed visits:

- Visits lasted between 10 and 20 minutes.
- Visits took place in one of the center's birthing rooms, a comfortable setting decorated like a bedroom with wooden furniture, sofas, curtains, a rocking chair, and dresser.
- During the visit, the client laid or sat on the beds while the CNM sat or stood near the bed.
- CNM measured the client's belly, palpated the client's abdomen to determine the position of the fetus, and listened to the fetal heartbeat.
- CNM asked medical as well as non-medical questions.
- CNM provided information and health education (such as, the impact of cigarette smoking on maternal and infant health outcomes, appropriate weight gain and nutrition, the size and development of the fetus).
- Most of the time, the CNM asked the client about the birth plan.
- CNMs maintained good or excellent eye contact and normal speaking rate.
- CNM asked the client whether she had any concerns or questions.
- For clients between 35-37 weeks gestation, a Group B streptococcus (GBS) test was conducted, in which women used the bathroom and collected a test specimen. They subsequently were responsible for taking the specimen to the lab for processing.

Source: Six observed prenatal care visits with birth center maternity care providers, March 2008.

Key informants estimated only a 50 percent show rate to prenatal groups, but informants hope that a new incentive program that gives women \$100 if they attend five sessions will improve the attendance rates. The main reason informants gave for the high no show rate was the inconvenience to women of attending classes (for example, to fit classes into work and children's school schedules).

Labor and birth

Birth center CNMs attend births at both the birth center and teaching hospital. The place of birth depends mostly on the woman's preference but also their risk status (although 85 percent of birth center clients are eligible for a birth center birth).¹¹ In 2007, approximately 30 percent of all birth center clients gave birth at the birth center and 70 percent chose the teaching hospital. The vast majority of birth center clients have a vaginal birth (see Table 3).

Table 3: Basic labor and delivery statistics, 2007

	Percentage of birth center clients
Birth Place	
Births at the teaching hospital	69.0
Births at the birth center	29.0
Births at other institutions	2.0
Total N	180
Method of Birth	
Cesarean sections (total)	16.3
(Primary)	(9.9)
(Planned repeat)	(6.4)
Vaginal births	83.7
(Vaginal births excluding planned c/s)	(89.4)
Total N	172

Source: The birth center, 2008.

Notes: 1) The denominator for method of birth excludes the 3 births that took place at other institutions and 5 observations for which data are missing. 2) Two estimates are given for vaginal births. The first includes planned repeat cesarean sections in the denominator and the second excludes these 11 cases. Since planned repeat cesareans

The birth center providers encourage women to remain at home until active labor begins, with instructions to manage any pain with water, heat packs, position changes, or doula support (provided by volunteer doulas). Women give birth in one of two birthing rooms at the birth center, each has a double bed, birthing/rocking chair, birthing balls, and bathroom. There is a shared kitchen with comfortable seating for family and friends. When a woman gives birth at the

¹¹ The birth center does not provide the option of vaginal birth after Cesarean section (VBAC). Women who have had a previous Cesarean section typically deliver via a pre-scheduled Cesarean section at the hospital but receive their prenatal care at the birth center. In 2007, roughly 6 percent of birth center clientele had a cesarean section for this reason.

birth center, two CNMs are present, in accordance with birth center licensure laws. The “first midwife” spends the entire laboring period with the client, delivers the newborn, and provides direct care to mother and baby. The “second midwife” arrives just before the birth and leaves within two hours of delivery. She typically assists the first midwife with tasks like instrument sterilization, but is available to provide direct care in case of an emergency. Sometimes a nurse-midwifery student is present for the birth, as well as a doula to provide continuous labor support. The birth center offers support through its volunteer doula program or women might arrange for their own doula. According to a key informant, “A CNM wants a doula there; it is easier to manage labor with a doula in the room.” Birth center providers also encourage the client’s family and friends to be present at the birth, and the birth center places no limits on the number of people present.

If complications arise during the course of labor at the birth center, the first midwife decides whether the woman’s and baby’s health status necessitates a transfer to the hospital, a 3.8 mile journey by ambulance or car depending on the circumstances. In the unlikely event that a transfer is not possible, the birth center keeps emergency equipment (such as oxygen and emergency medications) on hand to treat both the mother and newborn.

During a CNM-managed hospital birth, the CNM practices alongside labor and delivery nursing staff, medical residents, and an attending obstetrician. The CNM initiates any necessary clinical collaboration or consultation with the attending physician, typically reporting to the doctor when she arrives with an birth center client and keeping him or her regularly updated on labor progression. Residents are typically not involved in the care of birth center clients but may act as “learning practitioners, while midwives are the seasoned practitioners” (key informant). In the hospital setting, the CNM makes care decisions and is in charge of clinical management. Key

informants stated that attending doctors usually “leave us alone”. Since the attending CNM is with the pregnant woman throughout the entire labor and birth, she provides some of the care an obstetric nurse would typically give during this period. On occasion, teaching hospital nurses want to provide more interventions than are necessary and in this situation, a CNM negotiates and compromises with the hospital nursing staff during the course of labor and delivery.

If a woman laboring at the hospital requires an intervention (whether major surgery such as delivery via Cesarean section or more minor procedures involving forceps or vacuum extraction), the managing CNM and the attending obstetrician typically engage in a collaborative process to make care decisions. However, informants emphasized that “in the end, it is the physician who makes the final decision to intervene.” In cases where the level of risk and advisable course of action is very clear, this is a smooth process but in “grey areas” (for example, some cases of failure to progress in labor) the CNM and obstetrician may not agree on the suitable course of action and an attending doctor may insist on performing an intervention.

Most birth center clients who give birth at the teaching hospital have some form of pharmacological pain relief, the most common being an epidural. Key stakeholders estimate more than 60 percent of their clients have an epidural at the teaching hospital.

Which factors affect a clients’ choice of birth location?

Birth center care providers discuss the different birth options at the start of and throughout prenatal care. Unless a woman exhibits pregnancy risk factors which contraindicate a birth center delivery (see Appendix A), she must choose between delivery at the hospital or birth center. Clients formalize their choice in a “birth plan” that describes her preferred birth experience in detail. Focus group participants told us that ultimately the decision about where to birth was left up to the woman, and they did not feel pressure to choose one option over the

other.

The majority of focus group participants told us they were planning a birth center birth, (which contrasts with the overall small percentage of the birth center's clientele who give birth at the birth center). The reasons they gave for choosing the birth center location included: the ability to have a water birth; the ability to have a natural birth (without medication or medical interventions); the fact that the birth center allows women to eat while laboring; and, that the birth center did not limit the number of friends and family members that could be present at the birth (this was the main reason provided by most women).

However, many clients choose to give birth at the hospital even when eligible for a birth center birth. The availability of pain-relieving drugs is a primary reason for choosing CNM-managed hospital birth according to key stakeholders and clients alike. As one focus group participant stated, "I knew I wanted to have it (at the birth center), but of course like any woman I'm scared for the pain; I want to go to the hospital so I can get an epidural." Apprehension about possible complications during the birth was another reason participants gave for choosing a hospital birth. One focus group participant told us, "I just chose the hospital because it's my first and I don't know. From my friends' experience, who have had complications and things, I'd just rather be there."

According to both key informants and focus group participants, having a longer stay following the birth in the hospital compared to at the birth center is desirable to women enabling them to rest (although we were also told that this is not necessarily the case, since nurses wake women up throughout the day and night). A focus group participant explained, "I've always been skeptical about going home so soon after the birth. I think I'd rather have another day or two that they give you at the hospital just to rest."

Postnatal care

After a birth center delivery, a mother and her newborn can remain at the center for up to 23 hours, with the baby remaining with the family in the birthing room at all times. During this period, the first midwife cares for both the woman and the child, and newborn care follows the guidelines established by the American Academy of Pediatrics. Upon reaching a prescribed set of “milestones” (such as walking, eating, bathing, and newborn feeding), the pair is discharged. Birth center officials told us that birth center mothers “can—and do—leave the center in as little as four hours after birth.” New mothers are visited at home by a CNM on the day after discharge, and also receives a phone call two days following the birth. Following a CNM-managed birth at the hospital, women stay in the hospital for two days and a birth center CNM makes one visit to the mother and baby before the pair is discharged from the hospital. By the fourth day after birth, newborns must be seen by a pediatric provider (at the pediatrician’s office of the woman’s choice or at the birth center).

Two postnatal visits are scheduled at the birth center for every client, at two and six weeks postpartum. Participation rates are lower than desired for postnatal visits; about 80 percent of clients attend at least one visit but no more than two-thirds attend both. Staff described several strategies to encourage participation including a new postpartum “Mom and Baby” clinic available to mothers and newborns at the 2 and 6-week postpartum visits. Providers pair maternal and infant health check-ups in the same visit, hoping to increase participation rates and provide a continuum of care. The Mom and Baby clinic will also incorporate group care and individual visits with a maternity care provider.

Supplementing these birth center core services is breastfeeding support provided by the

peer counselors. Within 24-48 hours following a birth, peer counselors initiate contact with a new mother to provide one-on-one breastfeeding support. Counselors also follow a schedule of individual contacts with postpartum clients and provide support and health education as part of the Mom and Baby clinic. In describing the peer counselors' role, one key informant told us "the peer counselors foster ongoing relationships (with clients), reduce client stress, address cultural barriers to breastfeeding, and provide general health navigation."

Five of the eight focus group participants planned to seek well-woman and gynecologic care at the birth center after their birth (the other participants planned to return to their primary care doctor). Stakeholders estimate about 75 percent of women who received birth center birth services return for well women care. Most focus group participants planned to use the birth center's pediatric service for their infants, which is provided by pediatric and family nurse practitioners. To further the programmatic goal of serving women and their families across the childbearing continuum, birth center officials reported efforts to expand the scope of the center's pediatric care program, which incorporates immunizations, well-child care and treatment of minor illness and injury, pre-literacy activities, education on nutrition and healthy habits, and management of common childhood problems like asthma and obesity. Ideally, the birth center would like to provide pediatric care to every baby delivered at the birth center, through infancy and beyond. One key informant noted "we need to promote the upper ages and get older children in for visits, to show that it is not just a place for moms and babies."

Why do women choose the birth center?

With only 44 free-standing birth centers throughout the U.S., they are not a widely available or known option for pregnant women. We asked key informants and focus group participants the reasons why women chose to receive their care at the birth center.

Nearly every key informant thought that “word-of-mouth” recommendations prompted the majority of clients to seek maternity care at the birth center and indeed, most focus group participants said that their decision to get care at the birth center was because a friend or family member recommended the birth center. Some may also seek care at the birth center because it is convenient for them, and there is usually a short waiting time for an initial appointment.

Key informants speculated that a minority of clients might choose the birth center because they are seeking the midwifery or birth center model of care. Indeed, just one of the focus group participants mentioned that she chose the birth center for this reason; most knew little or nothing about midwifery care before coming to the birth center and some were at first concerned about the quality of this care model. One client noted, “Initially I was kind of nervous about the whole thing. But once I came in and started meeting the midwives and seeing how thorough they were, I actually like it. If I ever get pregnant again [I will] probably do the midwife thing again.” Another participant said, “Once they said that they had to get a special degree and a certain amount of training and that they’d already attended [a good] amount of births, that put me at ease.”

Perceptions of birth center maternity care

Focus group participants perceived their care as being very comprehensive, especially the care provided via the group prenatal sessions, since these visits covered topics related to health and a woman’s social environment (one session focused on managing family finances, for example). They also considered the social support services offered by other on-site organizations as part of the comprehensive birth center package of services. Key informants also emphasized the contribution of the umbrella organization to the provision of holistic care to women and babies, noting that the “one-stop shop” arrangement keeps families engaged with and connected

to service providers.

Key stakeholders and focus group participants alike reported that the birth center maternity care providers delivered health services that were high-quality. One birth center official told us that “None of the staff are so pressed for time that they cannot give a client the level of attention that is necessary to provide personalized care that takes all the (medical and social) factors into account.”

Clients feel birth center maternity care providers work hard to include women as partners in their pregnancy care. This follows the principles of women’s empowerment and education that are intrinsic to the midwifery model of care. Women in the focus group told us that the birth center maternity care providers gave them information about their pregnancy and upcoming birth and involved them in making decisions about their care. One client noted:

“I feel like the midwives have more of a—well, they just give you more options, like it’s okay if you don’t want medication, and it’s okay if you don’t even want to have the baby in the hospital, but you do have the option. It just seems like the doctors might steer you one way, but the midwives give you more information and let you choose.”

One interviewee described birth center midwifery care as “sending a message to women that we think you are capable. We think you are interested. We think you are essential.” Maternity care providers and clients both mentioned that involving friends and family members in the care process was an important part of the birth center prenatal and birth experience, since these people are encouraged to attend all visits and be present at birth center births.

Even though the focus group participants did not know much about the birth center model of care before seeking services there, as their relationship with providers developed, they noted that the maternity care provided at the birth center was unique. They unanimously expressed satisfaction with the care they had received and many compared it favorably with experiences (whether their own or that of their friends and family members) of medically-managed care. One

woman said: “I know I can call and say ‘I’m doing something wrong’... At the doctor’s office it just seems like you’re not wanted, like ‘OK, you had your baby, get out.” Another agreed: “Yeah and I had a situation where [the CNM] called and they were like ‘We just want to see how you’re doing.’ I’ve never had a doctor do that.”

Challenges in providing maternity care

The birth center serves a vulnerable target population. Key informants reported there were many challenges working with clients that experience several—often compounding—barriers to accessing care. Birth center clinicians attempt to address as many of the social and behavioral risk factors and access to care problems as possible during the course of prenatal care, and this creates an added hurdle to providing prenatal care. For example, until the new arrangement with Affordable Behavioral Service, mental health problems were difficult for staff to manage as they had to seek individual mental health providers for each woman depending on her health issue and insurance plan. Key informants also mentioned the difficulty in contacting their clients for follow-up care and referrals because of clients’ transient living situations. Further, providing care to this group of women can be emotionally draining for clinicians. Other challenges key informants mentioned included:

- Compliance with care and no show rates. Informants hope providing a new \$100 incentive to women who attend five prenatal group classes may help with attendance rates;
- Clinicians have heavy work schedules, anywhere from 45 to 90 hour weeks. The irregularity of the work schedule also creates challenges in creating a work: life balance;
- High staff turnover possibly related to the high stress environment, long hours, and less competitive pay compared to hospital-based CNMs;

- Birth center clinicians are burdened with a high administrative workload, which is related to two factors: clinicians conduct health system navigation on behalf of clients; and, there are an inadequate number of administrative support staff to assist clinicians with this and other types of non-clinical work. While some key informants recommended hiring more administrative staff, others noted the challenge of ensuring a steady funding stream for core administrative support staff;
- The birth center's financial viability is threatened by a combination of low Medicaid reimbursement rates and soaring medical malpractice premium necessitating a heavy reliance on fundraising to cover funding shortfalls.

While not mentioned by key informants as a challenge, we experienced problems in our efforts to collect supplementary quantitative data. The birth center uses three different data systems to collect and collate service and outcome statistics¹². While the center takes great efforts to collect data on a wide range of indicators, there is some inconsistency between the three different data systems. Additionally, there is no dedicated data manager to handle data requests or to manage the data systems. Such a person would be able to clean up and coordinate the data between the three systems and produce periodic reporting on an important and extensive list of performance and outcome indicators.

Conclusion

Since 2001, the birth center has become a community asset and a valuable resource for vulnerable and underserved families in Washington, D.C. The birth center was established to improve poor birth outcomes among low-income, African American women residing in some of the most impoverished neighborhoods of Washington, D.C. The majority of birth center clients

¹² One data collection system is a national initiative overseen by the American Association of Birth Centers and which will collate birth outcomes from all birth centers in the country.

are indeed low-income African Americans from the birth center's target communities, demonstrating that the center has thus far been effective in reaching its target population. Robust data do not exist to evaluate the impact of the birth center on its goal of improving pregnancy outcomes.

The successful implementation of the midwifery model of care in a socio-economically disadvantaged community is another achievement of the birth center. The fully incorporated midwifery model of care, which stresses a woman's empowerment and education throughout the childbearing spectrum, is a key component of the birth center model and was described as a factor in the center's success. One key informant noted that developing a birth plan and making important decisions about the way a birth will take place "helps [women] who need something to go well in their lives" and another noted that having the type of birth they were hoping for "gives a family a good start."

Aided by their collaboration with HBP and UPO, the birth center is successfully providing comprehensive health and social care to meet the varied needs of a socially high-risk group of women. Stakeholders unanimously agreed that by providing additional social services (such as peer counselors, volunteer doulas, and system navigation) and collaborating with HBP and UPO, the birth center is working to address factors related to poor birth outcomes. These are factors that "clinicians cannot really address in a standard prenatal visit" such as stress, racism, inadequate social/emotional support, low education level, poor nutrition, and poverty.

Women are very satisfied with the care they receive. Pregnant women who participated in the focus group reported a high level of satisfaction with their maternity care, and many said that they had already decided to seek birth center pediatric care for their newborns and birth center maternity care for future pregnancies.

Despite the many promising aspects of the birth center model of maternity care, there are many challenges involved in providing care, some which may ultimately threaten its future. While birth center stakeholders continue to seek solutions to financing struggles, a demographic shift in Ward 5 presents both an opportunity and perhaps a challenge to the birth center's modus operandi. Since the birth center's inception, an increasing number of middle- and high-income families have sought prenatal and birth care at the birth center. This shift is a result of both changing demographics in the birth center catchment areas as well as the closure of a major birth center operation in a higher-income region contiguous to the District. While some informants have concerns about how this demographic shift could impact their mission, culture, and operations, which are designed for the low-income target population, these women are bringing a new source of revenue. A stakeholder worried that much of their grant funding was contingent upon serving a vulnerable population of women and families and not higher income women. However, informants also described how this new client population could spur positive changes in the content of prenatal care provided at the birth center, for example by incorporating more preconception care, since the higher income women are "typically planning their pregnancies, and are specifically seeking the nurse-midwifery or birth center model." Additionally, the change in demographics could lead to positive socio-economic integration.

In summary, the key characteristics of the birth center's maternity care include:

- A nurse-midwifery model of care with a life empowerment approach;
- Team continuity of care throughout the birth continuum;
- Holistic social and clinical focus with the provision of additional supportive services such as peer counselors and doulas;
- Focus on developing provider-patient relationships;

- Tailored services to the needs of a low-income, African American population;
- Collaboration with HBP, UPO, and Affordable Behavioral Services to fill in any service gaps, for example to provide care to teens and women with mental health problems;
- Referral links to the teaching hospital and Children's hospital for high-risk cases;
- Community-based and focused;
- Mandatory group prenatal care;
- On-site pediatric services;
- On-site birth care.

Appendix A

Birth Center Risk Criteria in Pregnancy and Required Action

* From the birth center's "Policies and Practice Guidelines" Section V: Management of Antepartum Care, revised 7/01/07

Risk factors requiring special planning:

- (a) Previous severe emotional problems associated with pregnancy or delivery.
- (b) Primary or secondary infertility of more than two years duration.
- (c) High parity (more than 5 deliveries).
- (d) History of hemorrhage (careful case review, IV access may be placed, hospital birth offered).
- (e) Patient less than 15 or greater than 42 years of age.
- (f) Habitual use of tobacco and drugs of abuse.
- (g) Previous pregnancy less than 1 year ago.
- (h) Positive Group B beta strep culture of genital tract or urine (see Group B beta strep protocol).
- (i) Antepartal fetal death.

Contraindications to birth center birth (CNM managed birth in hospital):

- (a) History of hemorrhage or bleeding problems unrelated to management or in the presence of a repeating medical complication (e.g., coagulopathy).
- (b) Habitual use of alcohol or drugs of abuse.
- (c) Pre-term pregnancy - documented less than 37 weeks.
- (d) Post date pregnancy - documented greater than 42 weeks.
- (e) Presenting part other than vertex.
- (f) Medical indication for induction of labor.
- (g) Uncontrolled gestational diabetes.
- (h) Maternal weight at term more than 300 pounds.
- (i) History of uterine surgery.
- (j) Antepartal fetal death, between 20 and 34 weeks gestation, by CNM/MD discretion

Risk factors requiring physician consultation (may require hospital delivery):

- (a) History of two premature labors or deliveries of low birth weight infants (less than 2500 gms).
- (b) Hematocrit and Hemoglobin less than 30/10.
- (c) Previous infant with known or suspected genetic familial or other congenital disorders; congenital anomalies in current pregnancy.
- (d) Previous stillbirth or neonatal death; IUFD in current pregnancy.
- (e) Previous incompetent cervix.
- (f) Medical indication for termination of previous pregnancy.
- (g) Previously diagnosed abnormalities of the genital tract.
- (h) Previous history of need for special neonatal care.
- (i) Chronic medical disease, e.g. heart disease, neurological, endocrine or metabolic disorders.
- (j) Marked nutritional abnormality.
- (k) Exposure to known teratogens

- (l) Suspected missed abortion.
- (m) Positive serologic test for syphilis.
- (n) Anemia refractory to treatment.
- (o) Suspected trophoblastic disease.
- (p) Third trimester bleeding of unknown etiology, vaginal bleeding in first/second trimester longer than 48 hours of unknown etiology.
- (q) Polyhydramnios or oligohydramnios.
- (r) Multiple pregnancy.
- (s) Persistent abnormal presentation.
- (t) Rupture of membranes with evidence of sepsis, all intrapartum fevers.
- (u) Premature labor—possible CNM delivery >34 weeks gestation after consultation.
- (v) Medical indication for induction of labor.
- (w) History of uterine surgery.
- (x) Nausea and vomiting persisting beyond 24 weeks.
- (y) Mild gestational hypertension.
- (z) Addiction to alcohol or drugs.

Risk factors requiring referral to medical management:

- (a) History of positive HIV status.
- (b) Significant psychiatric disorders.
- (c) Cervico-vaginal cytologic study indicating significant dysplasia.
- (d) Urinary tract infection refractory to treatment.
- (e) Hyperemesis refractory to treatment.
- (f) Maternal diabetes mellitus (insulin dependent).
- (g) Malignancy or molar pregnancy.
- (h) Suspected ectopic pregnancy.
- (i) RH isoimmunization.
- (j) Severe, non-responding infection or anticipated severe neonatal infection.
- (k) Placenta previa at term.
- (l) Pregnancy-induced hypertension—severe.
- (m) Premature labor and/or delivery before 34 weeks gestation.
- (n) Pregnancy documented greater than 43 weeks.
- (o) Thromboembolic disease.
- (p) Documented intrauterine growth restriction.
- (q) Active genital herpes in labor.
- (r) Tumor or other obstruction of birth canal.
- (s) Anticipated need for neonatal surgery or immediate hospitalization.

Appendix B

Comparative Matrix of Key Characteristics across All Three Case Study Sites

	Teaching Hospital	Birth Center	Safety Net Clinic
Staffing structure <i>Prenatal</i>	20 rotating residents (at least 2-3 per day in the clinic); 1 nurse practitioner (4 days per week); 4 licensed nurse practitioners; 1 patient care technician; 2 CNMs (high risk clinics only); 1 clinical manager; 1 nurse manager, 1 social worker; 1 attending; 1 clinical educator.	4 CNMs; part-time contract clinicians as needed; 3 breast-feeding peer counselors; 1 medical assistant; 1 phlebotomist.	1 teaching hospital obstetrician (1 day per week); 1 CNM (2 days per week); 1 family MD (sees 1-2 OB patients per week); 1 medical assistant.
<i>Labor & birth</i>	Residents; 1 labor ward nurse per woman (1: 2 or 1:1 nurse: women ratio); 1 attending; 2-3 CNMs (triage on admittance only); 24/7 anesthetist.	1 primary and 1 secondary CNM at birth center births; optional doula. 1 CNM and 1 teaching hospital nurse at hospital births.	Same as the teaching hospital
<i>Postnatal</i>	Residents; 1 nurse practitioner; clinical educator; lactation consultants.	4 CNMs; part-time contract clinicians as needed; breast-feeding peer counselors. 2 nurse practitioners for pediatric care.	Same as the teaching hospital for immediate postnatal care. On discharge, the same as prenatal care at the safety net clinic
Prenatal services <i>Initial</i>	<ul style="list-style-type: none"> - 15 minutes with LPN; 10-15 minutes with resident or 20 minutes with nurse practitioner - Women assigned either a resident or the nurse practitioner for duration of prenatal care. 	<ul style="list-style-type: none"> - 2-hour orientation. Women meet with: other pregnant women; peer counselors, and a CNM. 	<ul style="list-style-type: none"> - 5 minutes with a medical assistant; 30-minute visit with either CNM, obstetrician, or family medical doctor.
<i>Subsequent</i>	<ul style="list-style-type: none"> - 5+ minutes with LPN; 10 minutes with resident; 20 minutes nurse practitioner (continuity of care provider) - Optional childbirth education classes - Pilot group care (for teens only) - Women with certain pregnancy complications or adolescents are 	<ul style="list-style-type: none"> - 30 min visit with CNM until 28 weeks (the range can be from 20 minutes up to 1.5 hours dependent on need) - After 28 weeks 2-hour group prenatal care. 1 hour run by peer counselor, 1 hour run by CNM with 10 minutes one-on-one with CNM. 	<ul style="list-style-type: none"> - 5 minutes with a medical assistant - 15 minutes with CNM, obstetrician, or family medical doctor - Women typically have continuity of care provider

	referred to special high-risk clinics, which differs from standard prenatal care.	<ul style="list-style-type: none"> - Women rotate through all CNMs - Transfer of high-risk cases to teaching hospital 	<ul style="list-style-type: none"> - Transfer of care to, or coordination of care with the teaching hospital for high-risk cases.
Labor and birth services	<ul style="list-style-type: none"> - Triage by CNM to assess stage of labor - Labor ward nurse provides labor coaching throughout - No continuity of prenatal care provider - Limit of 3 friends/family members - Resident oversees late stages of pushing - Attending on hand for complications - Progress in labor measured by the Friedman Curve - 50-75+% epidural rate - 100% electronic fetal monitoring - 100% IV use - 30% cesarean section rate 	<ul style="list-style-type: none"> - 30% of women give birth at the birth center, 70% at the teaching hospital based on preference <p><u>Birth center births</u></p> <ul style="list-style-type: none"> - 1 main CNM, 1 secondary, optional doula - No limit on family & friends - No medical interventions - Home-like birthing suite - Continuity of prenatal care provider <p><u>Hospital births</u></p> <ul style="list-style-type: none"> - 1 birth center CNM, 1 labor ward nurse - CNM provides labor coaching - CNM oversees pushing - Collaboration with attending if complications - 60%+ epidural rate - Continuity of prenatal care provider - 15% cesarean section rate (not adjusted for low risk status) 	<ul style="list-style-type: none"> - Same as the teaching hospital
Postnatal services	<ul style="list-style-type: none"> - Women stay 2-3 days in postpartum ward for a vaginal birth; 3 days for a cesarean - Clinical educator provides all women with an appointment for postpartum check up - Lactation consultants available - Optional postpartum care classes - All women return at 6 weeks for 1 postnatal care visit. Women with a cesarean also return at 2 weeks for 	<p><u>Birth center birth</u></p> <ul style="list-style-type: none"> - Women stay at the birth center for up to 23 hours (discharge occurs after mother and baby “milestones” are met) - CNM home visit 1 day after discharge - CNM phone call 2 days after discharge - 2 postnatal visits for all mothers at 2 and 6 weeks - Breastfeeding peer counselors contact all women 24-48 hours after birth for one-on-one support. 	<ul style="list-style-type: none"> - During hospital stay, care is the same as at the teaching hospital. - On discharge all women have 1 prenatal visit at 6 weeks and women who had a cesarean have an incision check at 2 weeks - CNM sees all first time mothers at 2 weeks

	incision check	<u>Hospital births</u> <ul style="list-style-type: none"> - Women stay in the hospital for 2-3 days - CNM makes one visit before discharge (in lieu of a home visit) - On discharge care is the same as birth center births. 	
Wraparound services	<ul style="list-style-type: none"> - Social worker - Lactation consultants 	<ul style="list-style-type: none"> - Breastfeeding peer counselors - Doulas - Collaboration with Healthy Start and UPO to provide: teen pregnancy care, social workers, case management, and early childhood education - WIC - On-site pediatrics 	<ul style="list-style-type: none"> - WIC - Social worker - On-site dentistry, pediatrics, family doctors

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