"Transforming Care Through Disruptive Design": Incorporating a Midwifery Model of Care Into Obstetric Practices

Lauren Marsh
*University of South Carolina - Columbia*

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“TRANSFORMING CARE THROUGH DISRUPTIVE DESIGN:” INCORPORATING A MIDWIFERY MODEL OF CARE INTO OBSTETRIC PRACTICES

By

Lauren Noël Marsh

Submitted in Partial Fulfillment of the Requirements for Graduation with Honors from the South Carolina Honors College

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Approved:

Dr. Deborah Billings
Director of Thesis

Kristin Van De Griend
Second Reader

Steve Lynn, Dean
For South Carolina Honors College
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THESIS SUMMARY

In recent years the maternal and child health care system in the United States has been the focus of advocates, agencies, governmental departments, nonprofits, and humanitarian organizations seeking to improve health outcomes and reduce or eliminate disparities. Despite the fact that more money is spent each year in the U.S. health system than that of any other nation, disparities in outcomes and access to quality care remain problematic. There have been and continue to be many efforts to try and improve maternal and child health, including the federal government’s Healthy People 2020 campaign, national campaigns by the March of Dimes to reduce preterm birth and early elective deliveries, and governmental grants (such as the Strong Start initiative) designed to evaluate new programs to see if they deliver better outcomes at a lower cost. One of the programs under evaluation is CenteringPregnancy, a group model of prenatal care that is based in midwifery values and philosophies.

To some, midwives and midwifery may seem the stuff of medieval or pre-modern societies, but in fact midwives today provide some of the best maternity care and produce the best outcomes for low-risk pregnant women. Unfortunately, the United States and Canada remain the only industrialized nations that have not integrated midwives into their maternal health care systems. Part of this stems from a contentious history in which midwives were vilified by the medical establishment and nearly disappeared. Nurse-midwives and direct-entry (non-nurse) midwives have been able to reestablish themselves over the past several decades, but still remain marginalized. Midwives are often perceived by hospitals and medical practices to be competition; direct-entry midwives also emerged in strong reaction to dehumanizing and overmedicalized experiences of
birth in hospitals, which may seem to place them in opposition to physicians and the medical establishment. However, midwives and physicians in other countries are able to collaborate in the care of pregnant women, as their domains of expertise (low, risk normal birth for midwives, and high-risk, medically complicated birth for physicians) complement each other.

CenteringPregnancy has spread across the country over the past two decades into private medical, hospital, and midwifery practices. The slowly-growing evidence base behind it suggests that Centering prenatal care is as good as or superior to individual ("traditional") prenatal care, and that it may also have the potential to eliminate disparities in birth outcomes that have persisted for decades. Centering seems to be part of a greater movement in the medical and public health fields to improve health care outcomes, quality of care, and reduce costs, especially as the country is attempting to stumble its way towards universal health coverage. Studying the way that innovative programs are implemented into practices will help to give insight into how the innovation works, as well as what kinds of factors might influence the carrying out of the innovation. The implementation process is just as important for a program’s success as the characteristics of that program. Studying implementation will hopefully also provide insights for other practices, states, or countries that are looking to replicate successful innovations. This thesis is part of a larger effort to study the implementation of CenteringPregnancy in South Carolina, as requested by the S.C. Department of Health and Human Services. Its results will hopefully help not only South Carolina practices before and while they implement, but also those in other states that wish to see the same positive benefits of Centering in their populations.
First and foremost, my endless thanks and appreciation go to Dr. Deborah Billings, who has served as my mentor and guide throughout this research experience. Your research and advocacy efforts to improve the health and wellness of women and children both locally and globally have been a great source of inspiration and motivation. I am beyond grateful for your encouragement, insight, and perspective in both academia and life. Enormous thanks also go to Kristin Van De Griend, who has been my other mentor through this process. Thank you for all your guidance, support, feedback, and friendship. This experience would not have been nearly as enriching without you.

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Thank you to all of the providers and staff who took the time out of their busy schedules to let me speak with them, especially Sarah Covington-Kolb and Dr. Amy Picklesimer. Your dedication to serving the women and families of South Carolina is both admirable and inspiring, and I am so grateful for having met and worked with you. Thank you also to Emily Heberlein, Sarah Kelley, and other members of the CenteringPregnancy research team whose work and insight have contributed to my own.
Finally, thank you to Kevin Vertefeuille, whose unwavering love and support has kept me going through all the stress and exhaustion I put upon myself. And thank you always to my parents, whose love and care reach me no matter where I am or what I’m doing. I would not be here without you.

§ Adapted from the title of the Centering Healthcare Institute’s 2013 national conference
ABSTRACT

Maternal and child health outcomes in the United States are far poorer than in other industrialized nations. To improve women’s experiences with the maternity care system, nurse-midwife Sharon Schindler-Rising developed the CenteringPregnancy (CP) group model of prenatal care (PNC). Research comparing CP with ‘traditional’ one-on-one PNC has found that implementing CP results in decreased rates of preterm birth and low birth weight, increased rates of breastfeeding, and improved outcomes for women who typically experience health disparities, including African Americans. Documented success of the model in the Greenville Health System convinced the South Carolina Department of Health and Human Services of the importance of supporting CP expansion throughout the state. In 2013, five obstetric practices initiated CP as an option for all eligible women; two additional practices were added in 2014. My research focuses on the first phase of expansion and examines the challenges and opportunities associated with incorporating a midwifery-based model of care into obstetric practices, which are staffed primarily by physicians and nurses. Data were collected by members of the research team through semi-structured interviews, field notes, and participation in various workshop and conference venues. Through qualitative analysis several major themes emerged, including the central components of the Centering model, logistics, support and collaboration, and sustainability; these themes emerged as potential facilitators and/or barriers depending on the practice site. Site leaders who wish to implement CP in the future will need to consider their position in these areas in order to determine their readiness for successful and sustainable implementation.
INTRODUCTION

The field of maternal and child health is in a state of flux. The passing of the Affordable Care Act has opened up possibilities for preventative health care and access and fixed a spotlight on the national health care system. The effectiveness of traditional medical care, especially prenatal care, is under examination even as a number of perinatal organizations push for best MCH practices in breastfeeding, optimal care and support during childbirth, and offering women choices. Awareness of the United States’ poor MCH health outcomes, rising healthcare costs, and the limitations of the biomedical model has opened up a flood of discussion and innovation. The federal and state governments and agencies such as the March of Dimes offer funding for unique and innovative models of care that fulfill the “Triple Aim” of better health, better quality care, and lower costs.

CenteringPregnancy is one such model that has shown promising maternal and infant health outcomes, especially in the Greenville Health System OB-GYN Center in Greenville, South Carolina, the state’s single largest provider of prenatal care. These outcomes have resulted in a state-supported expansion of Centering in South Carolina. As ten practices implement Centering over three years, health researchers and professionals have a unique opportunity to examine the implementation process and discern what facilitating factors and barriers are key to quality care and sustainability. This process and outcomes evaluation will help other practices and other states understand optimal ways to approach incorporating Centering into standard medical practices. Ultimately, the goal of scaling-up this innovative intervention is to improve the physical, mental, emotional, and social health of women and families.
My Background

I first heard of CenteringPregnancy in the spring of 2011 when I took a “Maternal and Child Health” public health class at the University of South Carolina. Prior to this, I had rediscovered a passion for all things pregnancy- and childbirth-related in an anthropology course entitled “Culture, Pregnancy and Birth.” Once upon a time in elementary and middle school I had dreamed of becoming a midwife, but through this course I learned about birth doulas and decided to train as one instead. Though my undergraduate majors were religious studies and psychology, I knew that I wanted to pursue a career in other fields. I was also determined to engage in research as an undergraduate, and was very fortunate to connect with Dr. Deborah Billings. She kindly agreed to be my research mentor and offered me the opportunity to assist with research on Centering, which she was already involved with.

My studies over the last several years have instilled in me a deep appreciation for the anthropological and public health perspectives when it comes to pregnancy and childbirth. I have discovered a passion for maternal and child health, broadly speaking, but more specifically for reaching underserved and forgotten women, children, and families. I want to work towards eliminating health disparities in this country as a form of social justice, and Centering has demonstrated potential for helping to reduce negative birth outcomes for African American and other minority women. I want to work towards a health care system that incorporates multiple perspectives and models so that women (and men) have choices – and Centering offers a choice in prenatal care. It may not be for everyone, but at least the choice now exists in some practices. If midwives and their
values can be incorporated into other nations’ maternal health systems, there is no reason that they cannot be in the United States as well.
LIST OF ABBREVIATIONS

ACNM – American College of Nurse-Midwives
ACOG – American Congress of Obstetricians and Gynecologists
AMCHP – Association of Maternal and Child Health Programs
CM – Certified Midwife
CNM – Certified Nurse-Midwife
CPM – Certified Professional Midwife
DEM – Direct Entry Midwife
DHEC – Department of Health and Environmental Control
DHHS – Department of Health and Human Services
GHS – Greenville Health System
IMR – Infant Mortality Ratio
IPNC – Individual Prenatal Care
MANA – Midwives Alliance of North America
MMR – Maternal Mortality Ratio
NARM – North American Registry of Midwives
NICU – Neonatal Intensive Care Unit
NP – Nurse Practitioner
WHO – World Health Organization
1.1 Maternal and Child Health in the United States

Despite widespread advances in medicine, science, and technology, the United States struggles among industrialized nations to improve the health of its citizens and their access to quality health care. Problems across the health care system include increasing costs, medical errors, a system of care that is fragmented and complex, and before the introduction of the Affordable Care Act in 2010, rising rates of uninsured or underinsured people (Institute of Medicine, 2001; Novick, 2009a). Controversy over the Affordable Care Act has revealed a sociopolitical divide between those who believe healthcare is a basic right and others who believe it a privilege in a market-driven economy (Kereiakes & Willerson, 2004). Measures of maternal and child health (MCH) are seen as key indicators of health within a nation, and despite the fact that the U.S. spends more money on maternity care than any other country in the world (Institute for Healthcare Improvement, n.d.), it lags behind most industrialized nations in several MCH indicators (Amnesty International, 2010; Association of Maternal and Child Health Programs (AMCHP), 2012a; AMCHP 2012b; Gaskin, 2008; Novick, 2009a). In addition, minority populations experience sometimes drastic health disparities in both MCH measures and other measures of health, mortality, and morbidity.

The maternal mortality ratio (MMR) estimates the number of pregnancy-related deaths that occur for every 100,000 live births. Pregnancy-related death is defined as the death of a woman during or within one year of pregnancy that was caused by a pregnancy-related complication, a “chain of events” triggered by pregnancy, or the exacerbation of an unrelated condition from pregnancy-related changes (Creanga et al.,...
While the U.S. MMR fell “significantly” during the 20th century, the available data suggests a steady increase from 1987, when the Centers for Disease Control and Prevention (CDC) implemented a Pregnancy Mortality Surveillance System, to 2009, with a high of 17.8 deaths per 100,000 births (CDC, 2013b). However, the data reporting system is on a voluntary basis only, and it is possible that the MMR can be underestimated by 50% or more (AMCHP, 2012b; Deneux-Tharaux et al., 2005; Gaskin, 2008). The maternal mortality rate for African Americans is more than three times as high as for white women: in 2009 the rate was 11.7 deaths per 100,000 live births for white women, 35.6 deaths per 100,000 live births for black women, and 17.6 for women of other races (CDC, 2013b; Creanga et al., 2014).

The Infant Mortality Rate (IMR) is another key indicator of health and wellbeing that is measured as the number of infant deaths that occur per 1,000 live births. The U.S. currently ranks 30th behind approximately 39 other industrialized nations (AMCHP, 2012a; Save the Children, 2013), with an overall 2011 IMR of 6.05 deaths per 1,000 live births, which did not represent a significant decrease from 6.14 in 2010 (U.S. Department of Health, 2012). However, while white infants died at rate of 5.11 per 1,000 live births, black infant deaths occurred at a rate of 11.42 per 1,000. According to the U.S. Department of Health and Human Services (DHHS) in its National Vital Statistics Report, infant mortality rates for these groups “are likely to be underestimated” due to “inconsistencies in the reporting of race groups on birth and death certificates” (2012, p. 5). The three leading causes of infant mortality in 2011 were birth defects, disorders related to preterm birth and low birth weight, and Sudden Infant Death Syndrome (SIDS) (U.S. DHHS, 2012).
Preterm birth (when an infant is born before 37 weeks gestation) and low birth weight (weighing at or less than 2,500 grams, LBW) are related to infant mortality and morbidity, and thus represent a significant health and public health issue, especially since rates have increased over the last several decades (U.S. DHHS, 2013c). The earlier an infant is born before 39-40 weeks (at which infants are considered “full term”) and the less one weighs under 3,000 grams at birth, the greater the risk of morbidity and mortality (U.S. DHHS, 2013a; U.S. DHHS, 2013c). Preterm birth is one of the leading causes of long-term neurological impairments in children (CDC, 2013a). While increasing numbers of low birth weight and preterm infants are surviving, this is due more to advances in technology for neonatal care than any improvements in prenatal or interconceptional care (Novick, 2009a). From 1981 to 2006, the rate of preterm infants increased by over a third; while it has begun to slowly decline since 2007, preterm birth rates remain higher today than in the 1980’s and ‘90s (U.S. DHHS, 2013a; U.S. DHHS, 2013c). According to the Centers for Disease Control and Prevention website on preterm birth (2013a), today every 1 out of 8 infants is born too early, costing the United States more than $26 billion. While the disparity in preterm birth has decreased marginally since the 1980’s, this is due to an increase in rates for white and Hispanic women, rather than a decrease in rates for black women (U.S. DHHS, 2013a). The overall preterm birth rate in 2012 was 11.55%; for white women, 10.50%; for non-Hispanic black women, 16.53%; and for Hispanic women, 11.58%, which was not significantly different from the 2011 rate (U.S. DHHS, 2013c). Little improvement has also occurred in the realm of low birth weight: in 1989, white women experienced LBW at a rate of 5.62%, blacks at
In 2012 the rates were 6.97% for white women, 13.18% for black women, and 6.96% for Hispanics.

While cesarean sections can be life-saving for both mother and child in the case of medical emergencies, non-medically indicated, or unnecessary, cesareans can be iatrogenic for both mother and child. In 1985 the World Health Organization (WHO) stated that there was no justification for cesarean rates in any country to be higher than 10-15%; in 2009, the WHO updated its recommendation, stating that countries may use a rate of 5-15%, or set their own standards (Davis-Floyd, Pasal-Bonaro, Davies, & Ponce de Leon, 2010). Despite these recommendations, cesarean rates have dramatically risen in the U.S. over the past several decades. In 1996, about 20.7% births were by cesarean. In 2012, the overall rate was 32.8% - more than twice the original WHO recommendation and a rate unchanged since 2010 (U.S. DHHS, 2013c). Following the trend in disparities among races, in 2011 non-Hispanic black women experienced cesarean rates 10% higher (at 35.5%) than non-Hispanic white women (32.4%) and 11% higher than Hispanic women (32.0%) (U.S. DHHS, 2013a).

As indicated in some of the previously cited statistics, African American women tend to have far worse health outcomes in pregnancy and birth than women of other ethnicities. They are nearly four times more likely to die of pregnancy-related complications than white women and are more likely to experience discrimination, lack of access to health services, poorer quality of care, and inappropriate treatment (Amnesty International, 2010). African American and Hispanic women are more likely to enter prenatal care late or not at all. Despite the role socioeconomic status and level of education can play in access to health care and resources, studies have found that African
American women still experience worse maternal health outcomes than white women regardless of their socioeconomic status, educational level, and attendance at one-on-one prenatal care visits (Alio et al., 2010; Colen, Geronimus, Bound, & James, 2006; Giurgescu et al., 2012; Hilmert et al., 2014; Lu & Halfon, 2003). As part of efforts to reduce and eventually eliminate these disparities, researchers and health practitioners have begun to examine possible influences and outcomes from ecological, social determinants, and lifecourse perspectives (Alio et al., 2010; Koh, Piotrowski, Kumanyika, & Fielding, 2011; Lu & Halfon, 2003). While its efficacy has not been conclusively demonstrated, early and regular prenatal care may also help protect against the risk of negative birth outcomes (CDC, 2013a).

**Maternal and Child Health in South Carolina**

Historically South Carolina has had more negative birth and health outcomes than many other states. In a largely poor, rural population, healthcare access remains problematic, and ethnic minorities such as African Americans experience grave health disparities. In 2010 about 24% of adult women of reproductive age were uninsured, and 51% of women lived in medically underserved areas (Amnesty International, 2010; S.C. Department of Health and Environmental Control, 2013c). A large percentage of births are covered through Medicaid, and the program’s total spending accounted for over a quarter of the state budget in 2011 (Ranji, Salganicoff, Stewart, Cox, & Doamekpor, 2009; Rosenberg, 2014). Nationally, Medicaid is also the largest financer of maternity-related services (Ranji et al., 2009).

Following national trends, African American women are more than twice as likely to die from pregnancy-related causes as non-Hispanic white women, at a rate of nearly 39
per 100,000 births for black women compared to 16.8 for white women (S.C. DHEC, 2013b). Between 2007 and 2010, Hispanic and other women experience a rate of maternal mortality at 24.5 per 100,000 births (S.C. DHEC, 2013b). A total of 61 pregnancy-related deaths was reported from 2007-2010; however, South Carolina does not currently have a maternal mortality review board, and it is possible that deaths were underreported (Amnesty International, 2010; S.C. DHEC, 2013b).

From 2005 to 2010, the overall South Carolina infant mortality decreased 22%, from 9.5 deaths per 1,000 live births to 7.4 per 1,000. However, there was a slight increase from 2009-2010, from 7.1 to 7.4 per 1,000 births (S.C. DHEC, 2012). Among white women, the infant mortality rate was 5.5 per 1,000 in 2010, while black infants experienced a rate of 10.9 per 1,000 in 2010; thus, the infant mortality rate among black women in South Carolina is nearly twice that of white women (S.C. DHEC, 2012; S.C. DHEC, 2013c). Similar to national trends, the three leading causes of infant death in 2010 were birth defects, preterm birth and low birth weight, and SIDS; however, the leading cause of death for black infants was preterm birth and low birth weight (S.C. DHEC, 2013c). In 2009, 7.1% of all South Carolina births were preterm, with African American women, teenagers and mothers over 35 experiencing higher rates. Women with preterm babies were also more likely to be covered by Medicaid than any other insurser (S.C. DHEC, 2011). Up to 63.1% of all infant deaths in South Carolina in 2010 were potentially caused by low birth weight (S.C. DHEC, 2012). According to the report by the South Carolina Department of Health and Environmental Control (2012), the probability of infant death was higher among unmarried women and those who did not begin prenatal care in their first trimester of pregnancy.
1.2 Medical Care in Obstetrics

The Biomedical Model

The biomedical model has dominated Western medicine for most of its history. The model was not defined in relation to childbirth until the late twentieth century by anthropologists who, for the first time, discussed childbirth as a biological event that always occurs within a sociocultural context, that is, “produced jointly and reflexively by (universal) biology and (particular) society” (Jordan, 1978, p. 1). The biomedical model is a disease-oriented perspective that understands the etiologies of disease and functioning in the body through a mechanistic lens, seldom taking into account psychological and social factors, though humanistic care is obviously promoted (Lane, 2014; Rothman, 2007). The provider in this model holds an authoritative position of “manager” or “supervisor” in relationship to the client, whose status as a patient means they must seek out and rely upon the provider’s knowledge (Davis-Floyd et al., 2010; Kollath, 2012).

Perceiving birth as a medical event has several consequences, first of which is that its social-interactional and socio-ecological aspects are often disregarded, and that pregnant women are turned into medical patients who must totally rely on others for a successful birth (Davis-Floyd et al., 2010; Jordan, 1978). Birth is only “normal” in retrospect. Obstetrics is considered a subspecialty of medicine, through which obstetricians tend to view childbirth as “a medical or surgical event that can readily become pathological” (Novick, 2009a, p. 34). This has been demonstrated through increasingly routine use of interventions such as labor induction, augmentation, fetal
monitoring and operative deliveries (Novick, 2009a). The American Congress of Obstetricians and Gynecologists’ (ACOG, formerly the American College) 2008 statement on homebirth advised against it, stating that “unless a woman is in a hospital, an accredited freestanding birth center, or birth center within a hospital complex, with physicians ready to intervene quickly if necessary, she puts herself and her baby’s health and life at unnecessary risk” (cited in Kollath, 2012); this reflects a biomedical view of birth as risky and potentially dangerous. In 2011 ACOG revised its position on home birth by reaffirming its belief that hospitals are the safest settings in which to give birth, but also respecting the right of women to make medically informed decisions about her delivery; this statement was reaffirmed in 2013 (American College of Obstetricians & Gynecologists, 2011).

**Standard Prenatal Care in the United States**

Prenatal care is the most commonly-utilized preventative health service in the United States (Alexander & Kotelchuck, 2001; Lathrop, 2013). It was originally developed to help prevent preeclampsia, fetal abnormalities, toxemia, and to reduce maternal and infant deaths, though the focus has since shifted to include low birth weight and preterm birth prevention (Alexander & Kotelchuck, 2001; Novick, 2009a). Today, the basic components of standard prenatal care include early and continuous risk assessment, health education and promotion, and medical and psychosocial interventions if necessary (Fiscella, 1995; Novick, 2009a). Prenatal care consists of approximately 7-12 visits with the care provider (typically an obstetrician, family medicine physician, nurse practitioner, or nurse-midwife), each visit lasting about 10-15 minutes, not including wait time (Lathrop, 2013; Novick, 2009a; Rising, 1998). The first visit
typically begins with a physical examination, an in-depth medical history, and laboratory testing; return visits are conducted in a medical exam room every four weeks until 28 weeks gestation, every other week from 28-36 weeks gestation, and every week from 36 until birth. The content of these visits usually involves measures of blood pressure, weight, urine, fetal position and growth, and heart tones, as well as some education and counseling. Ultrasounds and sometimes additional referrals for testing are also standard (Novick, 2009a). While prenatal care is considered necessary for ensuring healthy outcomes for mother and child, as seen in the expansion of Medicaid to low-income pregnant women, measures of “adequate” prenatal care are difficult to establish, as the number of visits and content of care varies widely among providers (Alexander & Kotelchuck, 2001; Fiscella, 1995).

Although prenatal care has remained essentially the same since it was developed in the early twentieth century, mounting research in the past few decades have questioned its efficacy due to mixed results on the health benefits of prenatal care (Alexander & Kotelchuck, 2001; Fiscella, 1995; King, 2009; Novick, 2009a). Increased utilization of prenatal care has not necessarily resulted in decreased rates of preterm birth and low birth weight or other improved outcomes, and not all populations may benefit from prenatal care in the same way (Alexander & Kotelchuck, 2001; Kogan et al., 1994). African American women who begin prenatal care in their first trimester, for example, still exhibit higher rates of infant mortality than white or Hispanic women with late or no prenatal care utilization at all (Lu & Halfon, 2003). In recent years, social determinants have come to the forefront of health research as health professionals have come to realize that the biomedical model does not take into account the influences of psychological and
social factors, and that adverse birth outcomes result from multiple, interwoven influences (Koh et al., 2011; Lane, 2014; Novick, 2009a). Social determinants are considered the environmental and social factors that can influence health, including socioeconomic status and poverty, stressors such as racism and discrimination, disparities in access to healthcare and other services, and one’s physical environment (Koh et al., 2011; U.S. DHHS, 2013b). Although the objectives of prenatal care include health education and promotion, the short time frame of typical prenatal care does not allow for extensive education or counseling: visits with providers focus primarily on medical risk assessment, and women are often referred to childbirth education classes and ancillary services for psychological or nutritional counseling (Heberlein, 2014; Novick, 2009a; Rising, 1998). Unfortunately, this means that women with financial, transportation, cultural or linguistic barriers (or a mix thereof) may not be able to obtain these services (Novick, 2009a).

This does not mean that prenatal care does not offer any benefits at all. Prenatal care may be the only interaction some women have with health care providers of any kind. Monitoring and assessing risk factors in the woman and fetus allow for early interventions if necessary, reducing rates of maternal and infant mortality and morbidity (Alexander & Kotelchuck, 2001). Many women find emotional reassurance at prenatal visits when the provider reaffirms that they and their baby are healthy (Heberlein, 2014).

Women’s experiences of prenatal care also vary widely. When women have positive experiences with prenatal care, it is often because of continuous, individualized care, respectful and trusting relationships with care providers, limited wait time, and their emotional and psychological needs were addressed (Novick, 2009a; 2009b). Other
women experienced long wait times, short, rushed visits with providers, unfriendly staff and/or providers, non-continuous care, and pregnancies treated like illnesses (Novick, 2009b). Some of these issues were particularly significant for ethnic minority women who may also experience cultural and linguistic barriers to considerate, competent care (Novick, 2009b).

**History of obstetrical care and authoritative knowledge in the United States**

The care of pregnant and laboring women in the United States was largely the domain of midwives well into the early twentieth century. At that time, however, several major factors contributed to the gradual discrediting and near-disappearance of midwives. In the previous century, the male physician had gained authority in the new “profession” of medicine with the financial support of the upper elite classes; medicine had become a field open to white, educated men and shut to women, African Americans, and the poor and working classes (Ehrenreich & English, 1973). In the early 1900s, a propaganda campaign from physicians, nurses, and other public health professionals systematically destroyed midwives’ reputations by painting them as dirty, uneducated, ignorant and irresponsible, in contrast to clean, educated, and responsible physicians and hospitals (Davis-Floyd, 2006, p. 33; Ehrenreich & English, 1973). Physicians used the biomedical perspective of birth to justify the need for hospitalization and physician attendance: if the realm of medicine is abnormal or medically-complicated birth, and all births are defined as inherently or potentially abnormal and complicated, then only those with the medical expertise to address such complications are needed (Kollath, 2012; Rothman, 2007). In northern cities of the United States, many midwives were immigrant women whose linguistic and cultural differences made them easy targets for the propagated stereotypes;
this also made professional organization difficult. While formal midwifery training programs had been seen in Europe since as early as the seventeenth century, there were no defined standards of educational requirements of midwifery in the United States (Davis-Floyd, 2006; Högberg, 2004). In addition, hospitalized birth with male midwives and then obstetricians was becoming the “fashionable” option for upper and middle-class women, especially in a time when other “male” modern technologies in communication and transportation were leading the way up the “social ladder of progress” (Davis-Floyd, 2006 p. 34). Unfortunately, this led to less competent or no obstetrical care at all for poor and working-class women, and even increased mortality in some areas (Ehrenreich & English, 1973).

American nurse-midwifery was developed in the 1950s by Mary Breckenridge, who found a niche in caring for the rural, impoverished, and ethnic minority underserved populations that were neglected by physicians. Nurse-midwives, though small in number, rejected the predominant stereotypes, saw very good outcomes, and benefitted from collaboration with the minority of physicians willing to work with and support them (Davis-Floyd, 2006). Meanwhile counter-cultural and feminist movements in the 1960s and 70s, as well as strong reactions to the overmedicalization of hospital birth, gave rise to “lay midwives” (later known as direct-entry midwives) (Davis-Floyd, 2006). These midwives challenged the authority of medical discourse and offered an alternative model of care in direct reaction to the biomedical model (Kollath, 2012). Social scientists have recognized that obstetrical knowledge, like all medical and scientific knowledge, has a historical, social, and political context; science and therefore medicine do not exist independently of culture or ideology (Kollath, 2012; Rothman, 2007). Medical discourse
around pregnancy and birth maintains authority in the United States because society assumes that it is grounded in objective facts, but culture and ideology continue to inform its production and reproduction (Davis-Floyd, 2006; Kollath, 2012).

### 1.3 Midwives and the Midwifery Model of Care

**Global Perspectives**

The status of midwifery in the United States is unusual compared to other industrialized nations. Today, the United States and Canada remain the only industrialized nations where professional midwives do not attend the majority of births and by implication, provide the majority of prenatal care (Davis-Floyd & Johnson, 2006). Midwives are integrated into health systems in industrialized countries, providing care to low-risk women throughout pregnancy, childbirth and the postpartum period, while also referring women to obstetricians and other specialists as needed (Jordan, 1978; *The State of the World’s Midwifery*, 2011). While advances in medicine since the 1930s are believed to be responsible for drastically decreased rates of maternal and infant mortality over the course of the twentieth century, not all countries experienced such a pattern. In the early 1900s the Netherlands, Norway, and Sweden all reported significantly lower maternal mortality rates than the United States and other European countries, which was believed to be the result of collaboration between physicians and competent, local midwives (Högberg, 2004). Midwives are incorporated into maternity care and work together with physicians to provide care instead of competing with them, via the recognition that their spheres of expertise complement each other: midwives, through training and experience, are more qualified to handle normal, physiologic birth, while
physicians develop the expertise to deal with complicated or high-risk cases that require medical attention (Högberg, 2004; Jordan, 1978; State of the World’s Midwifery, 2011).

In the Netherlands, birth is considered to be a normal, physiologic event, and so home births attended by midwives are perceived as common, normal and socially acceptable. While the rate of home births has decreased (in 1978 approximately 50% of women in the Netherlands gave birth at home (Jordan, 1978), while in 2012 the rate of home births was 24%), the majority of women are cared for by midwives throughout their pregnancies (van Haaren-ten Haken et al., 2012). Furthermore, all Dutch midwives are educated via direct-entry programs (van Haaren-ten Haken et al., 2012.).

Organizations such as the World Health Organization (WHO) recognize that midwifery services are “key” to ensuring safe and healthy outcomes, especially in developing countries that lack widespread health care access and/or do not have a public health infrastructure. Therefore the WHO “encourages countries to better recognize midwifery as a profession and support midwives as an essential pillar of the maternal and newborn healthcare workforce” (World Health Organization, 2013, para. 9). Many developing countries are currently experiencing a lack of qualified health providers, but the examples given by all industrialized nations except the United States and Canada demonstrate that it is, in fact, possible for midwives and physicians to coexist and collaborate in the care of women and infants.

**Midwifery in the United States**

In the United States, birth is primarily defined as a medical event. Ninety-nine percent of women give birth in hospitals, with obstetricians attending approximately 92% of these births and certified nurse-midwives (CNMs) attending 8.6% (Davis-Floyd &
Johnson, 2006; Kollath, 2012). A little over one percent of births within the United States take place outside the hospital, usually at the woman’s home or at a freestanding birth center and typically accompanied by a direct-entry midwife (DEM) (Kollath, 2012; U.S. Department of Health, 2014). While the numbers of women engaging in home births with midwives has increased in the last several years, the percentage of these women still remains incredibly small (0.89% in 2012) (U.S. Department of Health, 2014). Several factors led to the near-elimination of the midwifery profession in the United States during the twentieth century, and the “renaissance” of midwifery in the last several decades has been far from a unified movement (Davis-Floyd & Johnson, 2006).

Generally, midwifery discourses resist the authority of technology and biomedicine as the only source of authoritative knowledge, and midwifery advocates pursue the legalization and licensure of non-nurse-midwives (Davis-Floyd & Johnson, 2006; Kollath, 2012). Despite advances in legalization (for non-nurse-midwives), midwives as a whole are still fairly marginalized to mainstream society and maternity care and seen as a source of competition by some hospitals and medical providers (Davis-Floyd & Johnson, 2006; Goodman, 2007).

The catch-all term “midwife” does not denote the differences that have emerged between various kinds of midwives in the United States. Certified nurse-midwives (CNMs) are trained as nurses first and require a bachelor’s degree to enter a graduate-level program in midwifery; these midwives generally practice in medical institutions (such as hospitals or clinics) either independently or under the supervision of (or in cooperation with) physicians, and can legally practice in all fifty states (American College of Nurse-Midwives, 2010b; Davis-Floyd & Johnson, 2006; Kollath, 2012).
Certified midwives (CMs) receive both midwifery and the “equivalent” of nursing training, though they do not need to have a bachelor’s degree in nursing (Davis-Floyd & Johnson, 2006, p. 5). Currently CMs are only licensed to practice in five states (ACNM, 2010b). Certified professional midwives (CPMs) are professional, independent practitioners that have met the certification standards set by the North American Registry of Midwives (NARM) and have been trained in out-of-hospital birth settings (Midwives Alliance of North America, 2011). Registered Midwives (RMs) and Licensed Midwives (LMs) are examples of DEMs that have been trained in the Midwifery Model of Care and completed midwifery education “through self-study, apprenticeship, a midwifery school, a college, or university-based program distinct from the discipline of nursing” (MANA, 2011, para. 12). LMs and RMs may be certified to provide care primarily in out-of-hospital settings within their own state, but are not necessarily certified nationally (Davis-Floyd & Johnson, 2006,). There are also practitioners who self-identify as midwives (called traditional or community-based midwives) that have opted to remain outside of certifying and regulating systems (MANA, 2011). Nurse-midwives tend to be the only kind of midwife that practice in hospitals or medical practices; CPMs, RMs and LMs tend to provide care in out-of-hospital settings such as the woman’s home or a freestanding birth center (though CNMs may also be involved with birth centers) (Kollath, 2012).

Two major organizations representing midwives currently exist in the United States: the American College of Nurse-Midwives (ACNM) and the Midwives Alliance of North America (MANA). The ACNM represents CNMs and CMs, while MANA accepts as members all midwives who will support its Midwifery Model of Care™ and approach
to maternity services (Davis-Floyd & Johnson, 2006; MANA, n.d.b). While members of ACNM and MANA have worked together and supported various initiatives, publications (including documents like “Normal, Healthy Childbirth for Women and Families;” see ACNM, 2014), and legislation, divisions between the two organizations remain palpable. The website of the American College of Nurse-Midwives presents information about “midwives,” without specifying that other kinds of midwives besides CNMs and CMs exist and practice (ACNM, 2010b; 2013). Leaders and members of the organizations differ in opinions over the nature and definition of midwifery, as well as the educational requirements that midwives should be trained according to (ACNM, 2014b; Davis-Floyd & Johnson, 2006). Direct-entry midwives deeply value apprenticeship as the essential component of midwifery training for its “connective and embodied experiential learning” (Jordan, 1989, cited in Davis-Floyd & Johnson, 2006), while nurse-midwives consider university education the hallmark of competent training. While ACNM does recognize the value of apprenticeship, some MANA members associate university education with the medical and “technocratic co-option of the midwifery emphasis on the normalcy of pregnancy and birth,” (p. 6) believing that such co-option leads practitioners to consider childbirth as inherently risky, instead of trusting in the birth process and the birthing woman (Davis-Floyd & Johnson, 2006).

As previously stated, CNMs may legally practice anywhere in the United States and are guaranteed third-party reimbursement at least through Medicaid and Medicare. Certified midwives are currently legally recognized in five states: New York, New Jersey, Delaware, Missouri, and Rhode Island (ACNM, 2011). Certified professional midwives are legally recognized and can practice in 28 states (MANA, n.d.a); direct-
entry midwives (which include CPMs) are explicitly illegal in ten states and a legal (midwifery is not explicitly addressed, but midwifery practices are considered medical or nursing territory) in twelve others (Davis-Floyd & Johnson, 2006; Kollath, 2012).

Organizations like MANA, Citizens for Midwifery, and The Big Push for Midwives have engaged in campaigns to legalize and establish licensure for DEMs in various states (MANA, n.d.a; The Big Push for Midwives, 2014; “What is Citizens for Midwifery,” n.d.). In South Carolina, CNMs practice primarily with physicians in private practices, or in hospital systems (ACNM, 2008), while DEMs practice in home settings or birth centers. Direct-entry midwives include LMs and CPMs that must pass both the state licensure exam as well as the national exam administered by NARM; medical protocols dictate what kinds of “low risk” pregnancies these midwives may attend (Kollath, 2012; S.C. DHEC, 2013a).

Nurse, certified, and direct-entry midwives distinguish themselves from other medical professionals (physicians) by differentiating a midwifery model of care from the traditional biomedical model practiced in all other realms of medicine. While the philosophies, models and scopes of care presented by the ACNM and MANA websites differ slightly, most of their core points overlap. In “Our Philosophy of Care” (2010a), members of ACNM assert “the power and strength of women” and recognize the basic human rights of all people (para. 1). Their philosophy affirms that all people have the right to equitable, ethical and accessible health care, the right to complete and accurate information, and self-determination and active participation in decision-making; the “best model” of care in turn encourages a “continuous and compassionate partnership,” and acknowledges women’s knowledge and life experiences (para. 3). Finally, the normalcy
of pregnancy and childbirth among women’s life-cycle events is recognized, and a “watchful waiting” and non-interventionist approach in normal processes is sustained (para. 4). At the same time, ACNM asserts that CNMs are capable of performing “medical procedures” (interventions) should the need arise, and emphasize the expertise and professionalism borne from higher education and the use of scientific evidence (ACNM, n.d., para. 4).

The Midwives Alliance of North America also uses scientific evidence and encourages midwives to learn skills appropriate for situations in which complications arise; however, MANA positions midwifery in direct opposition and reaction to a technocratic (biomedical) model of childbirth, stating that “each model is different in terms of scientific, humanistic, economic, and outcome efficiencies and deficiencies,” and that “each model relies on different skills, tools, language, underlying beliefs, interventions, and power relationships between patients and providers” (MANA, n.d.b). The Midwives Model of Care™ espoused by MANA emphasizes the normalcy of pregnancy and birth, the “uniquely nurturing” and supportive care provided by midwives, the trusting relationships they develop with clients, and shared decision-making that informs and empowers women and their families (MANA, n.d.b). While the MANA model is the only one to explicitly address power relations between medical professionals and lay patients, empowerment of women is also a component of the ACNM philosophy.

Of course, all midwives and medical practitioners will enact these philosophies in their practices somewhat differently; however, the overarching values of both ACNM and MANA parallel each other almost exactly: both models value and seek to support pregnancy and birth as normal processes, nurture women and their families, share
decision-making and facilitate women’s active participation in care, and move beyond purely “medicalized” interactions (focused on the biological elements of pregnancy and childbirth) to address women’s social, emotional, psychological and physical needs (Novick, 2009a). Any references to midwives and midwifery philosophies, standards of care, and models in this paper will be limited to those of certified nurse-midwives, since they are the only practitioners that are involved with private and hospital-based clinics providing high-volume, routine prenatal care. A discussion of further nuances and variations between CNMs and DEMs is beyond the scope of this paper (see Davis-Floyd & Johnson, 2006 and Kollath, 2012).

1.4 The CenteringPregnancy™ Model

The CenteringPregnancy model is owned and distributed by the Centering Healthcare Institute, a 501c3 non-profit originally called the CenteringPregnancy and Parenting Association (Rising, Kennedy, & Klima, 2004). The model was originally developed by nurse-midwife Sharon Schindler Rising in the early 1990s out of her experiences with the Childbearing and Childrearing Center at the University of Minnesota, which she had been active in developing. At the Childbearing and Childrearing Center, couples received care in a group from mid-pregnancy through four months postpartum from a diverse team of nurse-midwives, nurse practitioners, and support personnel (Rising, 1998). This experience caused Rising to realize that pregnant couples needed more prenatal education that individual care could provide, as well as comprehensive, culturally-appropriate care. By placing care in groups and combining risk assessment, education, and shared support, Schindler-Rising intended the
“interdisciplinary” model of Centering to provide an enhanced, comprehensive approach to prenatal care that not only encouraged women to take responsibility for their care, but also empowered them to do so (Rising, 1998). While the model was originally intended for use by nurse-midwives, certified midwives, or nurse practitioners, it has since been utilized by providers including nurse-midwives, nurse practitioners, obstetricians, family medicine physicians, and maternal fetal medicine physicians (Billings, 2013; McNeil, Vekved, Dolan, Horn, & Tough, 2013; Rising et al., 2004; S. Schaffer, personal communication, October 28, 2013). However, no statistics on the percentages of practitioners in Centering are currently available (Novick, 2009a).

The Centering model, via its 13 Essential Elements, was designed to conform to the 10 Rules for Health Care Redesign set out by the Institute of Medicine in its landmark 2001 paper, “Crossing the Quality Chasm: A New Health System for the 21st Century” (see Table 1).

13 Essential Elements of Centering:

1. Health assessment occurs within the group space.
2. Participants are involved in self-care activities.
3. A facilitative leadership style is used.
4. The group is conducted in a circle.
5. Each session has an overall plan.
6. Attention is given to the core content, although emphasis may vary.
7. There is stability of group leadership.
8. Group conduct honors the contribution of each member.
9. The composition of the group is stable, not rigid.
10. Group size is optimal to promote the process.
11. Involvement of support people is optional.
12. Opportunity for socializing with the group is provided.
13. There is ongoing evaluation of outcomes.

<table>
<thead>
<tr>
<th>IOM’s Rules for Health Care Design</th>
<th>Essential Elements of Centering Model</th>
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<tbody>
<tr>
<td>Care is based on continuous healing</td>
<td>Continuity and stability of group</td>
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In addition to being a group model of care, the Centering model aligns with the midwifery philosophies of care (Novick, 2009a; Rising et al., 2004). In her original article describing Centering, Sharon Schindler Rising (1998) described the alternative model as one of “empowerment,” and a way to “abolish” routine prenatal care (p. 46). As such, Centering is intended to provide more comprehensive, holistic care and education, collaborative and facilitated learning, supportive relationships, and active

<table>
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<tr>
<th>Relationships</th>
<th>leadership; group composition is stable, but not rigid; facilitative leadership</th>
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<tr>
<td>Care is customized according to patient needs and values.</td>
<td>Each session has an overall plan, emphasis varies with group needs; facilitative leadership; opportunity for socialization is provided</td>
</tr>
<tr>
<td>The patient is the source of control</td>
<td>Women are involved in self-care activities; facilitative leadership</td>
</tr>
<tr>
<td>Knowledge is shared and information flows freely.</td>
<td>Each session has an overall plan, emphasis varies with group needs; facilitative leadership; group is conducted in a circle</td>
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<tr>
<td>Decision-making is evidence-based.</td>
<td>There is on-going evaluation of outcomes</td>
</tr>
<tr>
<td>Safety is a system property.</td>
<td>Women are involved in self-care activities; group is conducted in a circle; continuity and stability of group leadership; involvement of family support people is optional</td>
</tr>
<tr>
<td>Transparency is necessary.</td>
<td>Women are involved in self-care activities; there is on-going evaluation of outcomes; group is conducted in a circle</td>
</tr>
<tr>
<td>Needs are anticipated.</td>
<td>Facilitative leadership; each session has an overall plan; emphasis varies with group needs</td>
</tr>
<tr>
<td>Waste is continuously decreased.</td>
<td>Health assessment occurs within the group space; continuity and stability of group leadership</td>
</tr>
<tr>
<td>Cooperation among clinicians is a priority.</td>
<td>Non-hierarchical cooperation occurs between different service providers</td>
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Table 1. Comparing IOM Rules for Redesign with Centering Essential Elements. Adapted from Rising et al., 2004.
participation in self-care by pregnant women (Novick, 2009a; Rising, 1998; Rising et al., 2004).

Within the model, a group of 8-12 women meet with a credentialed provider, usually with a co-facilitator, for two hours each session over the course of ten sessions. A portion of that time is devoted to individual “belly checks” (measuring fundal height and checking fetal heart tones) in a corner of the group space, allowing for private interaction with the provider. Meanwhile the remaining women measure their own weight, urine, and blood-pressure with the assistance of the co-facilitator, socialize, and eat healthy snacks. The remaining time, usually 90 minutes, is spent in a circle of discussion that is facilitated, but not led by, the health care professional (Lathrop, 2013; Rising et al., 2004). The use of facilitated discussion creates an informal atmosphere and allows women the opportunity to lead the direction of the education, the time to ask questions and reflect upon the information they have received, and the chance to learn from one another (Novick, 2009a). Although multiple women are “receiving care” simultaneously, the amount of contact time with the provider is dramatically increased from traditional prenatal care (Lathrop, 2013; Novick, 2009a). The model is also adaptable for use with different age groups, such as teenagers, and for non-English speaking women; co-facilitators may be professionals in areas such as social work, nutrition, physical therapy, or pediatrics, thus contributing perspectives from their area of expertise (Novick, 2009a). The Centering Healthcare Institute has developed notebooks for Centering participants with educational information and references, as well as places to record and compare their measurements. CHI also provides facilitators with materials
outlining suggested content and activities, as well as a facilitator’s guide (Novick, 2009a).

The current mission of the Centering Healthcare Institute (CHI) is “to improve maternal child health by transforming care through Centering groups,” which involves meeting the Institute of Healthcare Improvement’s “Triple Aim” (better care, better health and lower costs) and maximizing benefits to providers, patients, and practices (Centering Healthcare Institute, 2014, para. 1; Institute for Healthcare Improvement, n.d.). While the Centering model did not set out to address specific MCH indicators such as preterm birth, research has found that it can have an impact on such outcomes. The last several years have given rise to numerous studies comparing CenteringPregnancy group prenatal care to traditional PNC. Many of these studies have found that Centering provides as good or better care and health outcomes for women and infants in a variety of indicators including preterm birth, low birth weight, breastfeeding, patient education and satisfaction with care (Baldwin, 2006; Grady & Bloom, 2004; Ickovics et al., 2003; Ickovics et al., 2007; Klima, Norr, Vonderheid, & Handler, 2009; Picklesimer et al., 2012; Trudnak, 2011).

1.5 Review of the Literature

CenteringPregnancy

CenteringPregnancy is an innovative model of group prenatal care that is based on the midwifery model of care, feminism, social support and self-efficacy theories (Rising et al., 2004). The research on Centering thus far is promising, with most studies indicating health outcomes, behaviors and patient satisfaction better than or as good as
traditional prenatal care (Lathrop, 2013). Studies have shown that Centering may have the potential to reduce preterm birth rates and increase birth weight (Grady & Bloom, 2004; Ickovics et al., 2003; Ickovics et al., 2007; Picklesimer et al., 2012), improve breastfeeding rates (Grady & Bloom, 2004; Ickovics et al., 2007; Klima et al., 2009), and have higher rates of vaginal birth over cesarean (Trudnak, 2011). Some studies have also shown improved patient satisfaction with care, readiness for childbirth and parenting, psychosocial outcomes, and utilization of postpartum family planning services (Baldwin, 2006; Hale, Picklesimer, Billings, & Covington-Kolb, 2013; Ickovics et al., 2007; Ickovics et al., 2011; Trudnak, 2011).

**Implementation Science**

Implementation science is the study of methods used to promote and integrate evidence-based research into evidence-based policies and services (“Aims & Scope,” 2014; National Institutes of Health, n.d.). It is a relatively new field, but quickly expanding as public service and healthcare agencies seek models of better quality and lower-cost to scale up and implement more widely (Aarons, Hurlburt, & Horwitz, 2011). Implementation science seeks to understand the variables that influence, facilitate, and/or limit effective implementation and sustainment of innovative programs, as well as explore ways to improve programs and determine causal relationships between interventions and their impact (National Institutes of Health, n.d.). When implementing an innovation, it is important to assess not only the endpoint (health) outcomes, but also the effectiveness of the innovation in the new context, as researchers recognize that the implementation process itself – how it is carried out – can affect the success of the innovation (Aarons, Hurlburt, & Horwitz, 2011; Damschroder et al., 2013).
While the underlying assumption is that organizations will work with researchers to promote evidence based practices, the implementation of these practices and innovations is extremely complex (Aarons, Hurlburt, & Horwitz, 2011). Organizations and individuals exist within intricate, multi-layered social contexts, and barriers may arise at many levels of delivery, including the client or patient level, that of the provider team or group, that of the organization, or at the market and policy level (Aarons, Hurlburt, & Horwitz, 2011; Damschroder et al., 2009). It is widely recognized that the implementation of a new program is a process (or set of processes), that occur over a transitional period (Damschroder et al. 2009; Proctor et al., 2011). Though evidence may support the impact of the innovation in question, successful implementation is not guaranteed: many contextual factors must be taken into account (Proctor et al., 2011). Contextual factors may include the sociopolitical environment in an area, leadership, funding, inter-organizational networks, characteristics of an individual practice, the relationships and values of the people within practices and organizations, and system structure.

Several theories of implementation have been described in the literature, but terms and constructs are not always consistent, in part because Implementation Science does not belong to a single discipline and implementation occurs in many different industries and contexts (Damschroder et al., 2009; Proctor et al., 2011). In order to promote more consistent terminology and constructs across the discipline some researchers have conducted syntheses of the literature to describe and clarify what already exists. In Damschroder et al.’s (2009) review, the authors described a Consolidated Framework for Implementation Research (CFIR) with five domains: intervention characteristics, outer
setting, inner setting, characteristics of the individuals involved, and the process of implementation. Berwick (2003) found that in health innovation implementation especially, three basic “clusters” of influence affected the rate at which innovations spread: perceptions of the innovation, characteristics of those who adopt the innovation, or who do not, and contextual factors that include communication, incentives, leadership, and management. Proctor et al. (2011) synthesized multiple studies to clarify and define implementation outcomes, which are separate from but necessary to produce service and client outcomes. These implementation outcomes included acceptability, adoption, appropriateness, costs, feasibility, fidelity, penetration, and sustainability. Aarons, Hurlburt, & Horwitz (2011) also defined the outer and inner contexts of implementation in their conceptual model, which as a whole includes the processes of exploration, adoption decision/preparation, active implementation, and sustainment. The concept of sustainment (also called sustainability in other models of implementation) was defined as the continued, routine use of an innovation in a practice (Aarons, Hurlburt, & Horwitz, 2011; Proctor et al., 2009). Elements of the outer context include the sociopolitical context, funding, client advocacy, the intervention developers, and interorganizational networks; the inner context consists of the individual organization’s characteristics (including its readiness for change), leadership, innovation-values fit, and characteristics of the individual adopters (for example, the actual facilitators of Centering in a practice).
2.1 The Expansion of CenteringPregnancy in South Carolina

In 2009, only two practices in South Carolina had CenteringPregnancy sites: a hospital-based OB-GYN center providing care to low-income, underserved women in Greenville, and a hospital-affiliated private practice in Easley. The Greenville OB-GYN center has a high volume of patients that tend to be low-income, low in health literacy and with a variety of psychosocial risk factors. In 2012 the United States Department of Health and Human Services (DHHS) launched the Strong Start initiative, aiming to decrease preterm birth rates and improve birth outcomes for women and infants nationwide (“Strong Start for Mothers,” n.d.). One of the Initiative’s approaches was to evaluate promising models of care, such as Centering. The federal Centers for Medicaid and Medicare Services released an RFA (Request for Funding Application) for practices to apply to the Strong Start Initiative, which the medical director and coordinator at the Greenville OB-GYN center hoped to pursue. Approaching the State Medicaid Agency put them in contact with the South Carolina DHHS Director, who upon seeing outcomes data from Greenville Health System (see Picklesimer et al., 2012), determined to set up funding to expand Centering throughout South Carolina. At the same time, DHHS supported a process and outcome evaluation of the expansion. The funding from DHHS supports the startup process for five new sites in 2013, two new sites in 2014, and enhanced reimbursement for Centering encounters through Medicaid. Sites interested in bringing Centering to their practices participated in a model implementation workshop and submitted an application for the startup funding to DHHS. Practices were selected based on their readiness to implement Centering, as defined by a “readiness score”
outlined by CHI as well as their geographic diversity and caseload, since 8-12 “low risk”
women of similar gestational ages make for an ideal group size (Rising, 1998). While
internal practice definitions may vary, low risk generally means a woman does not have
preexisting medical conditions, is under the age of 35, and does not have twins,
gestational diabetes, or preeclampsia or eclampsia (National Institutes of Health, 2013).

The Birth Outcomes Initiative (BOI) was developed in 2011 to improve birth outcomes across South Carolina. It is comprised of partnerships among the South Carolina Department of Health and Human Services, South Carolina Hospital Association, March of Dimes, Blue Cross Blue Shield of South Carolina and over 100 other stakeholders. The core goals of the BOI are listed on the DHHS website (“South Carolina Birth Outcomes Initiative,” n.d.) as follows:

- Elimination of elective inductions for non-medically indicated deliveries prior to 39 weeks gestation
- Reducing the number of admissions and the average length of stay in neonatal intensive care units
- Reducing health disparities
- Making 17P, a compound that helps prevent pre-term births, available to all at-risk pregnant women with no “hassle factor”
- Implementing a universal screening and referral tool (SBIRT) in the physician’s office to screen pregnant women and 12 months post-delivery for tobacco use, substance abuse, alcohol, depression and domestic violence
- Promoting Baby Friendly Certified Hospitals and Breast Feeding

The BOI has always been supportive of the CenteringPregnancy expansion, with main stakeholders giving occasional updates and presentations given at its monthly meetings. Work groups meet to discuss and share ideas, and then work group leaders report to the entire assembly at each meeting, which facilitates discussion and sharing ideas for change. Work groups develop initiatives based on a group analysis of what is timely, feasible, and politically necessary to move forward on work that will improve birth
outcomes. The Vision Team makes final decisions about new initiatives and the general direction of the BOI. In a recent op-ed in the New York Times, the SC BOI was held up as an example of how states can enact change in care quickly, since generally changes in medical practices do not occur quickly. The BOI worked with Medicaid and the commercial insurance provider Blue Cross Blue Shield to effectively cut funding for early elective (medically unnecessary) deliveries, which have been warned as detrimental to infant health by the American Congress of Obstetricians and Gynecologists (ACOG) since 1979 (Rosenberg, 2014).

2.2 Practice Demographics

Greenville Health System’s (GHS) OB-GYN Center began offering CenteringPregnancy groups near the end of 2008. The center is a high-volume clinic that cares for underserved populations, regardless of their ability to pay. As such, their patient population is primarily insured through Medicaid with some self-pay patients, from both urban and rural locales, and composed of a mix of Caucasian, African American, and Hispanic women. African American women tend to be at higher risk for negative health outcomes and Hispanic women tend to have decreased access to health services. The clinic offers both high and low-risk obstetrical care, the latter of which is primarily provided by nurse practitioners and nurse-midwives. An obstetrician serves as the clinic’s Medical Director and main administrator.

Of the five practices implementing Centering in 2013, one is a family medicine residency program (Practice A), one is a major medical university hospital (Practice B), another is the faculty practice for the OB-GYN department at another medical university
(Practice C), and two are private practices (Practices D and E). At the family medicine practice (A) 13 physicians, a nurse practitioner and up to 30 resident physicians provide a wide array of services, including but not limited to obstetric care. A portion of the physicians are involved with Centering, and the practice hopes to incorporate first-year residents as Centering becomes institutionalized. A large percentage of their patient population is Medicaid eligible as well.

At the major medical university hospital (B) obstetric care is divided among two clinics: one staffed primarily by residents and the other by attending faculty physicians. CenteringPregnancy occurs primarily in the resident clinic, which tends to serve more low-income, ethnically diverse women eligible for Medicaid. Three nurse-midwives facilitate the Centering groups, though originally two obstetricians facilitated as well. At the faculty practice for the second medical university (C), several obstetricians (out of the 21 in the practice) and a nurse practitioner were trained to facilitate groups. This practice has two office locations, and eventually hopes to expand Centering to the other (non-main) location as well. A large percentage of their patient population (under 50%) is also covered by Medicaid.

One of the private practices (D) provides obstetrical and gynecologic care at two different office locations and hospitals, via five obstetricians, two nurse-midwives, and a nurse practitioner. The nurse-midwives and nurse practitioner facilitate Centering groups. The patient population in one location tends to be low-income, ethnically diverse, and transient. The other private practice (E) is associated with a larger hospital system; seven obstetricians and a nurse-midwife provide high and low risk obstetrical and gynecologic care. Due to its location, this practice has a higher population of military
families than others, though the majority of its patients are also covered by Medicaid. The population is also ethnically diverse (half African American, half Caucasian).

Nearly all of the practices have designated a practice manager or nurse as the primary Centering coordinator, while all the Centering directors (main administrators overseeing Centering) tend to be physicians. The steering committees are made up of physician administrators and facilitators, nurse-midwives and/or nurse practitioners, nurse and/or practice managers, front desk staff, scheduling and/or billing personnel, nursing or medical assistants, and co-facilitators. One practice has a patient on their committee, something that other practices have considered and that the Centering Healthcare Institute recommends.

2.3 Research Question

While the process evaluation will examine the practices implementing CenteringPregnancy in 2013 and 2014, I wanted to include in my analysis the perspective of the large hospital-based clinic that had begun Centering in 2008 and became pivotal to the entire expansion process. The current literature on Centering examines and compares it to traditional prenatal care through the lens of group versus individual care. The group modality seems to be the most salient feature of Centering since traditional medical care and individual care are perceived as synonymous. The small fraction of women receiving individual prenatal care from direct-entry midwives and some nurse-midwives at home and in birth centers (less than 1% of the U.S. population) is largely ignored, as is consideration for how the philosophy and expression of that care might differ from
individual medical care\textsuperscript{1}. Despite some differences, the philosophies and model of care espoused by nurse-midwives and direct-entry midwives are largely the same; thus I sought to examine the expansion of Centering in South Carolina in the context of a midwifery model of care entering obstetric medical practices that re-create, to varying degrees, a biomedical model of care. The intent was not to measure where each practice stood on the continuum of biomedical and midwifery philosophies, nor was such a measurement possible. As part of the overarching process evaluation, I sought to understand what the facilitating factors and barriers for implementing Centering were in the practices, in the context of how the models of care differ logistically and perhaps philosophically. The themes that arose from the data did not lend themselves to stark categorization as “barriers” or “facilitating factors” because each practice had its own variable context, influences and structure. At the same time, some generalizations about potential challenges and opportunities may be derived.

2.4 Methodology and Conceptual Model

This research was part of a larger process and outcomes evaluation conducted by a research team on CenteringPregnancy in South Carolina. The evaluation team is comprised of Dr. Deborah Billings, an Assistant Professor in the University of South Carolina’s Arnold School of Public Health, doctoral candidate Kristin Van De Griend, also in the Arnold School of Public Health, Master’s of Public Health student Sarah Kelley, GHS Centering Coordinator Sarah Covington-Kolb, and myself. The evaluation

\textsuperscript{1} In her study on midwives in South Carolina, Kollath (2012) recorded several midwives (who were providing services for women at their homes or in a freestanding birth center) that discussed their extended prenatal care appointments with the women – an hour or longer, in a relaxed, informal environment – and how it compared to experiences of PNC in medical practices.
is not part of an experimental intervention, but studies the implementation of Centering as it occurs in ten new medical practices. I am drawing upon baseline (pre-implementation) group interviews with the five 2013 sites, follow-up interviews conducted 9-12 months later, and interviews with providers, staff and the medical director of the OB/GYN Center at Greenville Health System. All interviews were recorded and transcribed. Document data was also included in analysis, comprising of interview field notes, notes from meetings, CHI facilitation trainings, the CHI national conference, the BOI symposium, BOI monthly meetings, and Centering consortium emails and meetings.

Data collection for the entire process evaluation will last from February of 2013 through the fall of 2014, though data collection for this paper occurred primarily from June-December 2013. Data were analyzed qualitatively by developing coding categories and applying them to the data, searching for patterns using NVivo10 software. Emergent themes were explored in memos, as codes were revised and expanded throughout the process. Codes were then grouped and condensed into major themes and subthemes.

2.5 Results

Through analysis, four major themes emerged from the data that inform my conceptual model of implementation, which was adapted from Aarons, Hurlburt, & Horwitz’s (2011) model (see Figure 1). The first theme, that the Centering model is different from traditional care, indicates that the model’s characteristics and essential values (as a midwifery and group model) do not automatically “fit” with the maternal health system and individual medical practices as they may currently exist. Thus in the conceptual model, the outer context of the healthcare system must fit to some degree with
the aims and methods of the model developers (in this case, the Centering Healthcare Institute) for successful implementation. Likewise, the inner context of each medical practice must eventually “fit” with the Centering model’s design and characteristics to foster successful implementation. This theme provides the underlying context of implementation that informs the other three major themes of support and collaboration, logistics, and sustainability. However, it is also important to note that each of the practices was chosen to begin implementation based on their “readiness for change,” among other factors, and so their degrees of fit may be greater than those of other practices who were not chosen to implement at this time. In order to determine their “readiness for change, practices filled out an online questionnaire that was scored by CHI. A “readiness” score was calculated based on questions related to site size, the number and percentage of providers wanting to participate, the number of women seen, and whether dedicated space and start-up funding are available (see Appendices).

The outer context of implementation includes the sociopolitical atmosphere, leadership, the innovation developers, and funding. Sociopolitical forces that influence the spread of innovation and change include South Carolina DHHS, the Birth Outcomes Initiative, and the various medical directors who support the expansion of Centering as part of efforts to reduce costs and improve maternal and child health outcomes across the state. Realistically, the medical and health care fields are political, and so the leaders of practices and hospital systems contribute to that political environment. DHHS and the BOI are also part of the external leadership, however, because of their specific legislative and financial support for Centering; as sociopolitical stakeholders their interests in changes and best practices extend beyond the Centering model. As the invested
developers of the model, CHI provides training and assistance to the implementing practices and works to spread awareness of the model in broader circles (for example, at symposiums and conferences). The start-up grants provided by DHHS are also part of the external context because they do not come from within the implementing practices.

The interorganizational network that is the Centering consortium is part of both the inner and outer contexts, depending on how one views the consortium. The consortium as a network is external to all of the practices, but also internal as they are all members and participants of that communication. The inner context of implementation contains the organizational structure of the practice, its values as they align with the innovation, individual characteristics such as adaptability, staff attitudes and demographics, and leadership (which can, but does not necessarily, refer to those holding positions of authority).

The arrows showing the relationships between the contexts and support and collaboration and logistics are placed strategically to denote specific dynamics (see Figure 1). As explored in the theme of support and collaboration, support from all four outer context components, from the interorganizational network of the Centering consortium, and from the inner context components all play important roles in implementation. The arrows from these areas also implicitly include the innovation-organization fit and innovation-system fit, as depicted by the shaded circles. Certain elements of outer context, including the CHI and funding, and the inner context dynamics also influence logistical concerns and facilitating factors throughout implementation. Logistical issues and elements of support and collaboration can ultimately help facilitate sustainability of the program.
Figure 1. Conceptual model of the factors associated with the implementation of CenteringPregnancy in South Carolina. Adapted from Aarons, Hurlburt, & Horwitz (2011).

Centering Differs from the Traditional (Medical) Model of Care

A major theme arising from the perspectives staff and providers involved with Centering was that the Centering model of care can greatly differ from traditional medical care. As one medical director commented, “Every single thing about how patients move through the practice is different” in Centering. Another provider mentioned that Centering seems like “a completely different way of thinking about how to deliver prenatal care from the traditional way it’s been delivered in the past,” especially when a “very traditional medical model of care” seems “impersonal, rushed,
and leaves little time for adequate patient education.” Several subthemes regarded the realities of the medical and healthcare fields and aspects of the CenteringPregnancy model, including normalizing pregnancy, relationships, the group setting, and creating a “more level playing field.”

Medical realities may facilitate or limit innovation-system and innovation-practice fit

While many health professionals enter the field of health care with humanitarian intentions, the current structure of the health care system in the United States makes it so that physicians and administrators of medical practices have to be concerned with their “bottom line” and the economic and business sides of medicine. As one of the medical directors noted, Centering only costs the hospital and/or practice money by way of the additional costs (snacks, educational materials and notebooks, training, etc.) and improved health outcomes that require fewer expensive interventions (such as NICU stays). There are no financial incentives to institute Centering with the current reimbursement structure, and so negotiations are currently underway with major third party insurers to provide “enhanced reimbursement” for women in Centering (Medicaid has already agreed to provide enhanced reimbursement). The marketing departments of some hospitals may only be interested in attracting paying patients with commercial insurance – not the Medicaid or self-pay women who tend to have more biopsychosocial risk factors, and thus might see more dramatic benefits from Centering than women who have some form of private health insurance coverage. From a practice standpoint, routine prenatal care is not an expensive, highly-billing service, which means that Centering is most affordably provided by midlevel providers like CNMs and NPs; meanwhile,
physicians have the qualifications to perform more expensive services like ultrasounds and inpatient procedures.

It also seems to be a well-recognized notion in society, and not just in the data, that change can be very difficult for medical professionals, and changes in practice can lag long behind evidence in the literature (Aarons, Hurlburt, & Horwitz, 2011; Berwick, 2003; Rosenberg, 2014; Thornburgh, 2006). In some practices, staff noted that there might be resistance from physicians who were afraid of “losing” their patients to Centering, or who were already set in their ways and comfortable with their system of care. A practice that is incorporating residents into Centering observed that learning to provide care in the Centering way means “untraining” how most providers practice obstetrical care. As one practitioner commented:

I think that the sky's the limit, it's just that the most difficult part is to think out of the box, and that for a lot of us that have been in the medical field for a long time, it's hard for us to do that, because it's easier to do what we feel secure and safe with, and what we know than to kind of tear down walls and do things differently.

(Nurse Practitioner, GHS)

The hierarchy both implicit and explicit in medicine also can affect the dynamics of Centering implementation and continuation. In Western culture, physicians are afforded the most respect and authority among medical professionals, which meant for one medical director that she is uniquely able to advocate for the expansion of Centering because as a physician, other providers and administrators listen to her. As director of her clinic, she is able to “get things done” through this hierarchical leadership. As some practices found, physician involvement and support (even if they are not directly
involved with facilitation) makes the initiative appear more trustworthy to other providers and administrators. At its 2013 national conference in Washington, DC even the Centering Healthcare Institute expressed great excitement over the physicians and medical groups that had extended their support for Centering. And while administrators may try to be egalitarian in their introduction of new initiatives, ultimately the continuation of the practice is still perceived to be their decision: one midlevel provider stated, “We had a choice, but we sort of didn’t have a choice.” Furthermore, there sometimes exists an unequal power dynamic between medical providers and patients in individual care, though its manifestation may differ among providers and patients depending on the nature and length of their relationship (see sub theme “creating a more level playing field” below). One practitioner recognized this tendency to be “authoritarian” in her interactions with patients, saying,

Instead of just going in there and being authoritarian, and this is the reason why, and you have to accept that because I said so, which - if you knew me, that's really not my personality anyway, but that's kind of what we do. This is why it's happening, x, y, z. (NP, GHS)

Finally, it seemed that reactions of distrust of and/or disbelief in Centering from physicians were not unexpected. Given that the model was developed by a nurse-midwife for other nurse-midwives, it is unsurprising that most physicians, whether supportive or not of Centering, are uninvolved in the actual facilitation of groups. However, a trend of actual or perceived attitudes of outright dismissal arose most often from physicians (or medical residents), expressed through the description of them “rolling their eyes.” When one physician first heard about Centering from a nurse-
midwife, the she later described thinking of it as some “weird midwife voodoo” and disbelieved the evidence already available in the research literature, including those of a randomized-controlled trial (the gold standard of research studies). Some physicians (and other staff) perceived the CHI notebooks and facilitation training as overly simplistic, and one midlevel provider spoke of Centering as being a “hard sell” for some doctors. One physician described how, to skeptics, Centering must appear to be some “crazy,” “avant-garde” thing; the implementation of Centering at GHS started as “some crazy thing we were doing” and became “some crazy thing that worked” (italics added). In one practice where physicians were trained and are facilitating some sessions, the other involved staff noted with frustration that some of the physicians do not have faith in the model and seem unwilling to invest the extra time and effort required.

*Normalizing pregnancy*

Throughout the newly implementing practices, providers, staff and administrators noted the opportunity to change perceptions of pregnancy for both women and healthcare providers. Presented as a health-oriented (vs. disease-oriented) model, Centering is for “learning about women, hearing their stories, [and] understanding where they come from;” it is a chance to change the perception of pregnancy as pathological or an illness. One administrator saw it as an opportunity to “shake the resident-educational boat,” for if a residency in obstetrics occurs in the same fashion as one for internal medicine, why wouldn’t residents come to think of pregnancy as an illness? Nearly all of the practices stated they wanted to show women that pregnancy is normal, implying that the current model of care does not facilitate that belief. Practices perceived Centering as a way to help women embrace and enjoy their pregnancies, and to feel empowered by exploring
their feelings, helping them to realize they are not alone, and helping them to realize their own agency. Involving women in their own care during the prenatal session further helps to normalize pregnancy by indicating that women bear some responsibility for their health; the medical provider is only a piece of the puzzle.

**Relationships**

Providers of Centering found building relationships with women in Centering to be a positive, enjoyable experience, though other aspects of the new experience might be stressful. The literature on prenatal care reports women having both positive and negative experiences in individual and group prenatal care; women receiving continuous care in either model can develop trusting and comfortable relationships with providers (Heberlein, 2014; Novick, 2009a). However, some providers of Centering feel that their relationships with women are different – that they are closer, more global (multifaceted), comfortable, more equal, trusting and respectful. Providers expressed the perception that women really feel like providers care about them and are invested in their pregnancies; women feel that they can ask open, honest questions. Some facilitators try to promote a comfortable, equal dynamic, one commenting that she tries to “show that she’s a person,” and to make women in the group feel like they are “one of the girls.” One administrator described a facilitator’s experience:

A lot of our patients work in food service. Like cashiers at Wendy's, and waitresses and that kind of thing, and [a CNM facilitator] told me one night - so she was at a bar... And the waitress that came to serve her was pregnant and actually one of her Centering patients. And you know, she recognized her immediately, and they struck up a conversation, and it was like seeing a friend out
at work, and she said after that, she wondered how many other patients had been - she'd been served by at places, that she hadn't recognized because...[in traditional care it’s so rushed]. (Physician, GHS)

Another perspective described by some facilitators is that Centering just *enhances* what some women already receive in individual prenatal care (IPNC), affirming that IPNC relationships can also be comfortable, trusting and respectful if women feel that the provider listens to them, respects them, and addresses their concerns:

I think the relationship is more global in Centering, they know you in relationship with other people. They do consider you their provider, they get very - they want to see just that one person. So I think it's just when we do the continuity of care, it's a very comfortable relationship, there's a lot of trust. I think in Centering it's just accentuated, I think it's just raised a couple of degrees. (NP, GHS)

Several of the newly implementing practices recognized the importance of facilitators having a good “personality,” communication, and positive relationship skills. Providing Centering can be very challenging if facilitators are not invested in the model or demonstrate those traits. In other practices some providers exert extra effort to communicate with or visit their Centering patients once they have given birth.

*Group Setting*

Among the relational aspects of Centering, the nature and effects of the group setting became palpable for practices. Providers indicated that groups influence women’s beliefs and knowledge about pregnancy and self-care more efficiently than the individual providers, via peer pressure to quit smoking, for example. Providers also expressed that women are more likely to believe what’s happening to them is normal if they can see and
hear everyone else in the group experiencing the same thing; some perceived that women do not necessarily believe the provider when receiving information. As one nurse practitioner stated, “Oh, [it makes a] big difference, I think. Cause they are there [in traditional care] by themselves, how do they really know what I’m saying is true? But if I have ten other women to back me up…” Another commented:

If I'm in regular clinic and a patient's complaining of let's say, low back pain, well that's a very common complaint in pregnancy. And if I say to her, I've got my white coat on, ‘Oh that's normal in pregnancy.’ She's going to be like, ‘Yeah right, do you really know what you're talking about?’ Or whatever. But if you're in Centering, and if somebody is complaining of that, and you say, ‘How many of you are experiencing low back pain,’ and everybody in the room raises their hand, well then they're going to think, ‘Oh, well this IS a normal part of pregnancy, I'm not the only one experiencing this.’ (NP, GHS)

Another powerful dynamic of the group setting seems to be its ability to create a support network and a sense of community within groups, especially for recent immigrant Hispanic women. Staff in the implementing practices speculated that such support would be particularly powerful for women without a network at home, and that forming relationships would hold women accountable to each other and not just the provider. In at least two of the practices, Centering brings women of different characteristics (age, race, socioeconomic status) together who may not have interacted otherwise.

Having different backgrounds, a mother of five with a mother for the first time, having them share stories is fabulous. Race, age, ethnicity, and number of
children, are all diverse in groups. Every single person in groups is different.

That first group, with the people communicating the way they did, just hooked [one facilitator]. It was great. It was amazing. (Facilitator, Practice E)

Providers enjoy that women learn from one another and help each other out.

And there's other cases where women, we have certain sessions where we're sort of talking about feelings and things, and one woman was kind of describing how she felt lonely and alone because her husband was working out of town - or he might have been even deported, I can't remember which it was, but - and she didn't know how she was even going to get to the hospital, and things like that, cause if she was in labor she didn't know if she should drive, things like that. And one of the other couples spoke up and - it was a couple, they were there together, so they said, well let me have your phone number, and you have our phone number, and if you need us, you call, and they actually - I think she was kind of intimidated like, oh yeah, I don't want to bother these people, I hardly - and they kept calling her and saying, you doing okay? You need anything? To me that's just amazing, it's just... and it's all because of the group. (NP, GHS)

Creating a “more level playing field”

While the number and severity of challenges varied among the practices, several facilitators declared that the hardest part of facilitating groups is sitting back and listening, and letting the women lead. For providers who are used to lecturing and telling patients what they should be doing, letting go of their “white coat” authority can be difficult. At the same time, all the practices were aware from research and experience that facilitation (an egalitarian approach) is essential for the model’s success – even more
important than the content and topics covered during sessions (Novick et al., 2013). One physician commented that facilitating her first group was “nerve-wracking” because of the group setting and the way it created a “more level playing field” among facilitators and patients. Facilitation means meeting women where they are and exploring their feelings; women who may be intimidated in an individual setting can still benefit from group discussion and questions. One provider described how facilitation helps empower women to understand how much knowledge they already have, and that they have agency – they “find their inner voice and strength.” Another provider commented that patients show facilitators “new ways of teaching us how to teach them.” And in one practice, the leveling out of the playing field occurred between practice staff; an administrator claimed that staff morale “blossomed” because of Centering, despite previously contentious relationships between providers and the co-facilitators (certified nursing assistants):

There was always a lot of contention between them, because clinics run slow. It just happens, you get behind, and one thing leads to another. And the nurse practitioners were blaming the nursing assistants when that happened. And they were not without fault, they would be slow in getting patients back, and then the whole day was starting bad. . . And when they started in the groups... You don't use a lot of your own personal creativity when you take a patient from blood pressure to exam room. I mean... In Centering, when you're co-facilitating and leading games, or making small talk with patients, or whatever, a lot more of your personality is sort of engaged, and your creativity can be – I mean, we had people make food for patients, it was amazing, and we didn't know they cooked like this, or they made a gift for all the patients, like all this stuff sort of started to happen.
And it wasn't just your nursing assistant was no longer somebody who did everything wrong all the time, that's why your day was bad, it was like - it became more of a team effort. . . . They're wonderful, amazing people, and we didn't know it! I mean, really, it sounds dumb, but it's true, and so they all just bloomed in these roles. All of the morale improved. So it wasn't just the patient relationships, but it was also between the staff. (Administrator, GHS)

**Support and collaboration**

Another major theme that emerged was the role that stakeholder *support and collaboration*, in both the inner and outer contexts of the individual practices, played in the implementation process. Major stakeholders (parties with invested interest in a process or outcomes and that hold clout in decision-making processes) include those integral to implementation success, or those (individuals or organizations) invested in improving maternal and child health outcomes. Organizations such as the BOI, March of Dimes, Centering Healthcare Institute and others helped support the new practices in the start-up phase, and conversations between and across the implementing practices have facilitated discussion over best practices and ways to resolve challenges. Within the practices themselves, support from key stakeholders is essential to the program’s success. Building support is necessary when practices first begin considering implementation, and helpful throughout the process when addressing hesitant, uncertain or skeptical parties. Addressing key stakeholders and building support coalesces in the creation of steering committees at each practice, which generates a space to address issues, changes, concerns, and the future direction of the program. Due to the additional logistical and administrative demands of Centering, assigning one or multiple persons the role of
Coordinator is necessary. Staff cooperation in a “team effort” also helps make the adjustments and changes of implementation smoother and more manageable.

*External parties’ role in supporting Centering Pregnancy*

While the roles of the South Carolina Department of Health and Human Services and the BOI have been mentioned in an earlier section, the role of these and other organizations bear further consideration. Local chapters of the March of Dimes have been supporting Centering in various states since the early 2000s, and the large hospital-based clinic that began Centering in 2008 only did so because of the financial grant support available from the March of Dimes. The grant made it feasible to hire a coordinator, who was essential to institutionalizing the program (see subtheme of coordinator’s role) and fund consortium meetings across the state to raise awareness and interest. Once it became apparent that participants in Centering experienced better birth outcomes (especially in rates of preterm birth) than women in individual care, the medical director of the clinic became a key proponent of raising awareness and support for Centering by being involved with the BOI, hosting meetings and implementation seminars, and through personal relationships with other administrators throughout the state. The Birth Outcomes Initiative and DHHS director Anthony Keck have made it financially possible for interested practices to implement Centering by providing startup grants and enhanced reimbursement for participants on Medicaid. In order to implement Centering, practices must contract with the Centering Healthcare Institute to receive training and assistance from CHI faculty; within two years of beginning Centering, practices must apply for Site Approval. CHI support comes in the form of consultation via System Redesign Day, Facilitation Training, and phone and email access. Another
venue for through which external parties support Centering (and advertise their services in turn) is through guest speaking at group sessions. Pediatricians, lactation consultants, labor and delivery (L&D) nurses and massage therapists are some of the specialists who may visit Centering groups to speak to the women there, and based on their experience with Centering these professionals may help spread word about Centering in the community.

*Communication among Centering practices in South Carolina*

All of the practices, broadly speaking, are stakeholders in the Centering expansion, and all have demonstrated at least some interest in communicating with each other. Some of this communication has been facilitated by the Centering coordinator at GHS and researchers from the University of South Carolina tasked with conducting a process evaluation, who visited each site before implementation to check practice readiness, answer questions, clarify information, and anticipate individual challenges. One practice noted an opportunity for data-sharing between sites, so as to better track outcomes (one practice transfers high-risk patients to another of the Centering sites). Information (such as enhanced reimbursement procedures and billing codes) and ideas are also shared between sites at regular Centering consortium meetings and over email. South Carolina practices showed a strong presence at the national CHI conference in Washington, DC, which provided another opportunity for collaboration and sharing. Additionally, GHS created an online portal that all Centering consortium practices would be able to use, again with the intent of sharing practices that have worked, challenges, and brainstorming.

*Key stakeholder support is essential*
A particularly strong subtheme across all the sites was the need for support from key stakeholders who, depending on the practice, were administration, clinic staff, providers, or all three. Top-down support from a key administrator was considered essential. An example of how this worked against Centering occurred in a practice (not part of the current expansion) whose medical director did not understand the use of Centering and was unsupportive, causing the program to fold. Top-down support may also include practice managers and/or nurse supervisors who are in charge of the clinic’s daily functioning, as they are able to intervene if a staff member is unsupportive and causes issues. An administrator in one practice noted that despite varying levels of support for Centering among the clinic staff, the bosses were supportive, and thus the program continued. Other obvious stakeholders include the providers, co-facilitators, and staff who are directly involved with running the Centering program.

Facilitators must be willing to adapt to the facilitative style of group management and education, and staff must be willing to adapt to a different patient flow through the clinic. While facilitators tend to be mid-level providers (e.g., nurse practitioners and nurse-midwives) and co-facilitators low-level providers (e.g., registered nurses and certified nursing or medical assistants), physicians’ authority makes them key stakeholders regardless of their direct involvement in the program. Physician support can lend credence to the program in a practice where administrators may be hesitant or skeptical; meanwhile, physician facilitators unwilling to invest in the program could be a potential source of conflict (the latter seems to be a rare case among the practices examined here). Indeed, it seems that physician support in all of the practices made the changes for Centering possible; sometimes physician support generated administrative
support (or physicians were administrators), or physician support occurred in conjunction with certain staff and/or administrators within the practice. At the same time, staff in certain practices expressed some concern that physician dissatisfaction with Centering could become a source of conflict.

**Building Support**

While many stakeholders supported Centering at the outset, efforts to build support among hesitant, uncertain, or skeptical parties within the practice help ensure that the program will run and eventually expand smoothly. Centering renders such extensive changes across the practice that building support across the entire practice will expedite institutionalization of the program. As a CHI faculty member put it, “This is a doable change, but you have to involve everyone.” All of the practices have been actively engaging and reaching out to providers, staff and administrators who are not directly involved with Centering to build support. Educating all of the staff and providers in large, high-volume practices can be challenging, and not everyone is immediately endeared to the model. Facilitators in two practices encourage physicians and other staff to either stop by groups or spend time with the facilitators to learn what Centering is all about. Finally, getting several people across the clinic involved in the steering committee can generate investment and enthusiasm.

**Steering Committee involvement**

When GHS first planned to implement Centering, the medical director found it useful to create a steering committee that brought together the “politically powerful” of the clinic to address challenges and concerns, brainstorm solutions, and guide the future direction of the program. Practices have found it helpful to involve people from various
areas of the clinic, so as to bring multiple perspectives to the table, and in recognition that Centering affects multiple areas of the clinic. Throughout the implementation process, practices have found it useful to hold regular, if informal, meetings, sometimes spreading topics of discussion and consensus over the phone and email since everyone is so busy.

**Need for Centering coordinator(s)**

By virtue of its design, the Centering model has extra administrative, logistical, time, and care demands when compared to individual prenatal care, including the need for refreshments, group scheduling, financial considerations, setup, outreach and recruitment, ongoing training, and more. Clinic staff providing traditional prenatal care often feel that they already work at capacity, and so having a designated coordinator to address the additional needs of Centering can be very beneficial to the practice. At GHS, especially at a time when only one other practice in the state offered Centering, hiring a coordinator was essential to institutionalize the program. The coordinator’s role may involve “cheerleading” the program (building support and enthusiasm, especially when stress runs high), troubleshooting problems, evaluating the program practice compliance to the model, tracking data (which is required for Site Certification), developing ongoing training opportunities, and facilitating communication among the staff. The coordinator may also be “the expert in the room” who has a strong understanding of the model and can guide new facilitators. If these various roles are assumed by multiple people, good communication between them is essential.

For the five practices implementing in 2013, financial limitations prevented them from hiring a full-time coordinator for Centering; rather, responsibilities had to be reorganized and shuffled across persons already working within the clinic. While this has
meant that finding time for all the extra demands of Centering has been a challenge, the five new practices benefit from the experience and support of the two practices that have been running Centering for over five years.

One of the things I was really worried about was not making it burdensome on people's jobs that they were already doing. Cause everybody pretty much felt that they were working at their capacity, I didn't want to be adding stuff on top, which is why with our Centering Coordinator we tried to pick up the extra burdens that people were being assigned, so that was one of the things that [our first coordinator] did some of, and [our current coordinator] has done a lot more.

(Administrator, GHS)

In another practice, several people balance coordinator tasks:

There is a person who schedules out who will do what group. It was challenging at first, but it’s gotten better. There is another person who organizes faculty schedules and she looks ahead to see when they have Centering groups so they are covered, [and they communicate really well]. (Administrator, Practice A)

A team effort

Finally, practices with extremely cooperative staff have found that teamwork makes challenging tasks, from scheduling to reorganizing patient flow in the clinic to recruitment, more manageable. As one administrator said,

They think that they are all working together and making it work. Sometimes they have to come up with ideas to make [the snacks] healthy, which can be hard. At first it was overwhelming, but now they are used to it and they all pitch in.

(Practice D)
Another practice described staff efforts:

They constantly exchange ideas during clinic. It’s been a good team effort. The front staff has to talk to patients on the back end and getting patients on the schedule. They have been great in helping out. … The staff as a whole on the first floor, as mad as they might get at one another, or if they have a bad day, really pull together. They try to work together to figure it out and are resourceful. They are wonderful; they want it to work and want it to be successful.

(Administrator, Practice E)

Logistics

Since CenteringPregnancy prenatal care requires multiple logistical changes to the way care is provided (space for a group setting, refreshments, educational supplies for women and facilitators, multiple women receiving care at once, etc.), a major theme of Logistics emerged, with major subthemes of time and space; technology, scheduling and recruitment issues also emerged as logistical considerations for the practices.

Time

Within the “time” subtheme, practices benefited from the overall understanding that change inherently takes time and flexibility. Implementing Centering involves a lot of extra planning and work, especially in the beginning; practices that had counted on the enhanced reimbursement to immediately offset the extra demands were upset when the billing changes took longer than anticipated. Designating time to plan for staff was a challenge, but practices found out that carving out time within staff schedules was necessary. As an administrator in practice E stated, “You don’t really know how much
work it is until you’re in it,” though staff attitudes towards the program (stressed and upset vs. enthusiastic and committed) can make changes seem worthwhile or not.

Practices also came to understand that Centering is inherently more time-consuming and leads to less productivity than individual prenatal care (IPNC). A lesser volume of patients can be seen within the 2 hour time frame, especially if recruitment numbers are low (7-8 women vs. 10-12 in groups). The model calls for much greater time to be spent with women in care, allowing two hours for each session compared to the average of 10-15 minutes women spend in individual care (20 hours total vs. a range of 1.5 to 7 hours; see Lathrop, 2013). The benefit of increased time was recognized, however; one staff member commented on how time is precious to everyone, but moving women in and out of the clinic “like hustling cattle” doesn’t actually give them what they need. For self-pay patients, staff feel that women have actually received their money’s worth of care and time to ask questions. In a practice where the provider salary does not depend on patient volume, steering committee members hoped that this would allow for greater flexibility with the increased care time. In another practice, staff anticipated that pulling low-risk women into Centering groups would allow providers to spend more time with high-risk women in IPNC.

Finally, it was recognized that while the women certainly benefit from increased time, the clinic, depending on its current financial and practice structure, may not. Therefore, providers noted that the motivation for providing enhanced PNC cannot be about increasing financial revenue, but rather that the focus must be on patient care and satisfaction. Conversely, the Centering Healthcare Institute (CHI) currently advertises Centering as more efficient than traditional care, something that all the practices did not
find accurate. This may create misunderstandings for new practices who perceive Centering as a path to increased productivity and revenue.

Practices found that having *dedicated* time, space and personnel made a difference in time management during implementation. For practices without a dedicated space for groups, which means that the room has other uses besides Centering, setting up and breaking down the room is very time-consuming and a lot of work. Providers anticipated that planning Centering sessions would become easier and more efficient with time and experience, but that some degree of planning would be required for all ongoing groups. Having dedicated time to plan during the work week made it manageable for some providers, though balancing all the new and ongoing requirements of their jobs was still challenging. Providers who were not given dedicated time had to use a lot of personal time, which could eventually lead to burnout. In three of the practices there seemed to be a consensus that having several people work together on the issues made it less overwhelming for individuals.

*Space*

Providing care for a group of 8-12 women and their partners requires a room with enough space to comfortably maneuver and complete all the educational and assessment tasks involved with Centering. Having an appropriate, designated space for Centering groups is necessary for practices to carry out groups successfully. For three practices, this required remodeling or renovating parts of the clinic. For two practices without designated spaces, setting up and breaking down the rooms before and after each session is a major challenge for staff, as it is time-consuming (practices are already extremely
busy), stressful, and tiring. In one practice, the lack of a designated space limits the program’s ability to expand and increase the number of groups per month.

Practices with appropriate room found that a large, comfortable space can help with recruitment and women’s satisfaction. One practice that renovated has enough room for maximum-capacity groups (up to 14 women, plus support people) and more elaborate refreshments; several practices will show their Centering spaces to women during the recruitment process. If the Centering room must be used for other purposes, however, some practices have found it manageable to leave the set-up in place for days at a time (encompassing all groups within that time frame), and to have assistance with set-up and break-down. Practices have also had to consider the need for storage space for supplies, educational materials, chairs (if they do not stay in the Centering room), and the massage table (likewise). Having close kitchen access can also assist with preparing snacks and cleanup after groups.

I think it sends a good message to the patient as well that this isn’t just a “fly by night” thing that we’re just trying out, that we’re committed to this as a practice, and in South Carolina this is something… we’re serious about it, designating a space… and personalizing it. (Facilitator, Practice E)

Technology

Two practices using electronic medical records (EMR) have encountered challenges using the system during groups, especially if the system is not set up to match the needs of Centering. Charting, scheduling, and entering information during “mat time” to the EMR have been noted as extremely time-consuming, making it difficult for

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2 “Mat time” occurs during the initial half-hour to 45 minutes of each session. Each woman takes her turn going to a mat in the corner of the room to be checked individually by the clinical provider for fundal
facilitators to accomplish their tasks, both within the groups and outside of them, efficiently. Two other practices, however, have not encountered as many difficulties; one involved the IT professionals within their organization to set up an appropriate template; in the other, facilitators use laptops that they can carry and move as necessary.

Recruitment

Most of the practices are currently not using an “opt-out” approach to Centering, which means that it has been necessary to identify and experiment with strategies for recruiting patients. Generally, most of the practices are advertising Centering through various outlets, including fliers and materials around the office, staff t-shirts, features in magazine articles, billboards, local newspapers, and the radio. Facilitators at all sites pitch the program to women at either their first or second obstetrical appointment; some sites show women the Centering room at that time to build interest. Recruitment seems to be successful particularly in practices where the staff are cooperative and coordinate with each other. The Centering Healthcare Institute recommends that practices use an opt-out approach to recruit women, but thus far only one practice seems to be using this approach.

Scheduling

At least initially, scheduling can be a very complex, challenging task to figure out. Aligning the schedules of all parties involved can be an organizational challenge, especially when facilitators may be faculty physicians whose availability may be limited by more than scheduled clinical time. Technological challenges with EMR can be time-consuming and labor-intensive; other practices use paper to organize and collect

height and fetal heart tones. The mat is not completely secluded, but allows for more private interaction with the provider, should the woman have individual questions or concerns (Rising et al., 2004).
information, going back and entering data into the EMR later. One challenge is distinguishing between patients who were scheduled to attend and those who actually attended, as removing patients from all the schedule groups can be time-consuming. For practices whose scheduling is manageable, good communication and collaboration between all involved parties seem to help smooth the process.

**Sustainability**

Sustainability is a key component of implementation, and factors affecting sustainability need to be considered and addressed before and during active implementation, as issues in the short-term may affect the potential for long-term maintenance of the program. In order for a program to be sustainable the benefits of the program must be maintained, the original components and activities of the program sustained in an identifiable form, and attention to the issues at hand, in the form of financial and political support for the intervention, must also continue even after external funding ceases (Fixsen et al., 2005; Scheirer, 2005; Scheirer & Dearing, 2011; Shediac-Rizkallah & Bone, 1998). Maintaining community partnerships, institutionalizing the program at the original site, and diffusing and replicating the program to other sites are also indicators (Scheirer & Dearing, 2011; Shediac-Rizkallah & Bone, 1998). For all of the sites who have implemented Centering, subthemes of financial perspectives, the impact of recruitment, and program institutionalization (i.e. addressing major logistical challenges, or “business-as-usual difficulties;” see Scheirer & Dearing, 2011) were the most pressing when it came to considering sustainability. While the Centering Healthcare Institute has the greatest priority to make Centering sustainable, as the
model’s developer, clearly local practices also seek successful maintenance of the program.

While in the startup phase, which may last from 2-4 years, practices hope to see benefits of the model immediately, but major benefits (such as reductions in preterm birth rates) cannot be determined until enough women have gone through the program, which requires time. Certain issues of sustainability, such as maintaining the program in an identifiable form and tracking data to ensure benefits continue, will occur as part of practice sites receiving and then maintaining Site Approval from the Centering Healthcare Institute. Sustaining attention to the issue at hand – maternal and child health outcomes – will depend on the state and national contexts as well as the local one; the movement to improve MCH in the United States has been gathering steam for several years, and will continue to build in the foreseeable future as long as local and national health outcomes are not at optimal levels.

Financial perspectives

Based on comments from some of the practices, it seems that in many ways, health care systems are already subject to waves of change and uncertainty when it comes to funding and budgets, which makes the issue of sustainable funding even more pressing for Centering programs. High costs are associated with starting the program, including those of training, consultation from CHI and obtaining new educational materials, and extra costs (comparable to traditional prenatal care) are still associated with maintaining the program (including CHI membership, snacks, notebooks for women, administrative time for planning, and ongoing training). Current systems of reimbursement from third party insurers cover most costs associated with IPNC, but are not nearly enough to cover
Centering. Practices looking to maximize providers may prefer to use less expensive, midlevel providers for Centering, freeing up specialized providers (physicians) for high-risk care and more expensive procedures. In GHS, these extra costs are currently covered by grants from the March of Dimes, but those will not be forever available. As a result of improved health outcomes for women in Centering, both women and their insurance providers save money, while hospitals and practices lose it; the amount of money saved increases with higher risk populations, which could mean that in areas where women are relatively low-risk, the willingness to invest in “slightly” improved outcomes (via Centering) may be lower. Ultimately, finances could become a barrier for implementing Centering if the practice is unable to recoup costs. Foreseeing this, key stakeholders in the Centering expansion are negotiating with commercial insurers to provide enhanced reimbursement for Centering (Medicaid has already begun to do so). South Carolina has an advantage in this instance, since one major insurance company dominates a majority of the commercially insured population.

Impact of recruitment

Recruitment, or the number of women receiving care in Centering, is also a key consideration for sustainability. Successes in the program can help build and maintain support; providers, staff or administrators concerned about the practices’ finances may eventually be worn down – persuaded to adapt – by improved patient outcomes and increased satisfaction. The more women that are in a Centering group, the less provider productivity will be shortchanged. Sites that are successfully recruiting women are using an opt-out approach or actively engaging women and selling the perks of the program to
them; even within the first few groups, women seem to be enjoying the model and word of mouth spreading.

At the same time, patients may have hesitations, a negative perception of the model, or other barriers to attending groups. In one practice a large portion of their patient population did not complete high school, and so the perception of Centering as a “class” repels them (although CHI is firm in maintaining that Centering groups are not classes, some of the staff at implementing practices still referred to sessions as “classes”). Some women do not offer reasons for refusing Centering; others prefer the privacy of an individual interaction. Women of lower socioeconomic status are sometimes unable to find childcare for other children or transportation, which can be major barriers. Practices struggling with recruitment must first understand why women may not be open to Centering, and then find innovative ways to address those barriers. Encouraging hesitant women to just “try it” for one session to see what it is like, or using an opt-out approach may at least get women in the door. At the same time, most practices understand that not Centering is not for every woman – there will always be individual prenatal care. The point is that women now have a choice – as one coordinator said, “Yeah, we're not going to force somebody to be in Centering if they don't want to do Centering, but Sharon Schindler Rising's point is, women have never had a choice about prenatal care. So why are we so worried about giving it to them now?”

Another consideration of sustainable recruitment is that the current obstetrical “market” is competitive. Almost all of the practices noted that Centering could be a “market differentiator” for them, though some acknowledged not wanting to damage relationships with other obstetrics providers through overt advertising. Thus, several
practices will be relying primarily on “word of mouth” to grow the program, which is more easily accomplished with greater numbers of women in groups. Also, marketing departments of hospital-based clinics may or may not want to assist with advertising Centering, depending on the patient population being advertised to.

*Getting the program institutionalized*

Several factors influence the degree to which a program gets institutionalized in a practice, or how “extracurricular” the program’s functioning is to daily practice. As has been previously described, Centering changes many things about how care is provided and received in a clinic, especially when it comes to practice logistics, and thus logistical challenges must be addressed for efficient long-term operation. In order to institutionalize those changes, buy-in from administrators and those running the program is essential. It is necessary to find or create either a permanently designated space for groups or an arrangement that does not exhaust the staff. Technological and scheduling barriers must be overcome for maximum efficiency, and administrative time must be built into the normal schedule to handle the additional needs of Centering (as stated earlier, having one or multiple coordinators helps in this regard). It also must be understood that institutionalization takes time, even years, before reaching a comfortable level of operation – the challenge may be maintaining motivation and support for the program while getting to that point. Even after the program has been institutionalized, like at GHS, staff recognize the need for ongoing training; improvement is always possible because the dynamics of each group will be as different as the individual women in them. Practices that are able to adapt and find solutions that work for their particular practice may achieve efficiency sooner.
CONCLUSION

CenteringPregnancy is an innovative, midwifery-based model of group prenatal care that has expanded geographically over the last two decades. The expansion of the model in South Carolina has come about as the result of numerous factors that include external support and funding from sociopolitical agents and the experience of a major Ob-Gyn practice with Centering and its health outcomes. Despite the breadth and depth of changes that occur when transitioning from a traditional model of care to Centering, the potential benefits of Centering seem to outweigh many of the potential barriers associated with major change.

Medical practices wishing to implement the Centering will need to consider several factors before and during the implementation process. The inner contexts of all medical practices differ from one another, as do outer contexts that could encompass the local, regional or state levels. In the case of South Carolina, all of the outer context stakeholders were in support of the Centering expansion, which has helped facilitate the implementation process. It also likely facilitated the scale of the expansion, for without the funding support from DHHS not nearly as many practices would have been able to start at once. When it comes to inner context, practices obviously differ in their organization, structure, and scope of care (in the family medicine practice, for example, obstetrics comprises only a small portion of their services). All of the SC practices had some level of readiness for change before beginning active implementation and have considered long-term sustainability throughout. The creation of steering committees, staff working together as teams, and open attitudes from staff and providers have helped negotiate the “fit” between Centering by involving individuals across the practice (and
not necessarily those with traditionally the most decision-making power). Some practices may need to make more logistical adjustments than others, but staff cooperation and teamwork, attitudes, and administrative support for making necessary changes can help overcome those barriers. It seems that support from various stakeholders and collaboration in and outside of the practice is the key element to making Centering a sustainable feature of obstetric practices. Logistical issues must be resolved as well, but troubleshoot and brainstorming the best solutions will not occur without effort and cooperation, and possibly even communication with others also involved with Centering (the interorganizational network and external supporters including CHI).

One of the strengths of this research is that it has been conducted even as practices have implemented Centering and draws on substantial amount of interview data. Data collected from GHS, which has been running Centering for over five years, helped give insight into issues of sustainability and implementation as they experienced it. One limitation, however, is that not all stakeholders involved in Centering were interviewed, due to practice time and schedule constraints, and thus other perspectives on the implementation process might have been missed. This study focused on the practices’ and providers’ perceptions of the Centering expansion, which does not necessarily give insight into how the clients themselves – pregnant women – experienced the changes allegedly associated with the new model (see Heberlein, 2014). Also, given that the data was taken in the early stages of implementation for the five new practices, other factors influencing sustainability may arise that were not experienced by GHS, and thus not included in the themes. Future research could examine the implementation process in
other practices in other states to help determine which factors hold across implementation sites and which are specific to South Carolina and its practices.
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APPENDICES

1. Baseline Interview Guides
2. Interview Consent Form
3. Field Notes form
4. Greenville Health System Medical Director Interview Guide
5. Greenville Health System Provider Interview Guide
6. Site Follow Up Guide
7. CHI Readiness Assessment and Scoring
1. What does Centering Pregnancy mean to you?
2. What does it signify for your site
   a. In terms of practice and work flow
   b. In terms of how women (and families) are served
   c. In terms of birth outcomes, other outcomes
3. How many women, on average, are seen per month in your practice?
   a. About what % are eligible for Centering groups?
   b. Describe the women in terms of age, parity, race/ethnicity, etc.
4. Who do you think will be the Centering group facilitators? Explain why? What skills do they need?
5. Who on staff (no names-unless that seems warranted, just cadre) is extremely excited and supportive of incorporating Centering into your practice?
   a. What makes them excited or supportive?
   b. PROBE ON ADMINISTRATORS, NURSES, DOCTORS, STAFF
   c. # providers? # supervisors?
   d. What organizational norms and policies will facilitate
6. Who on staff (no names, just cadre) is putting up barriers or resisting
   a. What are the barriers or resistance
   b. PROBE ON ADMINISTRATORS, NURSES, DOCTORS, STAFF
   c. What organizational norms and policies will hinder?
7. How do you think the practice will use the support named above?
8. How might it address the resistance?
9. What do you expect the biggest change in your practice to be?
10. What do you hope to see in terms of change in this practice with Centering?
11. Physical resources – private counseling space, private exam room, equipment, protocols, information systems
12. Management tools and procedures
13. Community outreach
Title: The Expansion of CenteringPregnancy Prenatal Care in South Carolina Hospitals

Investigator’s name(s): Dr. Deborah Billings, Kristin Van De Griend, & Noël Marsh

Introduction
You are being asked to participate in a research study about the expansion of CenteringPregnancy prenatal care in South Carolina hospitals. The Institutional Review Board of the University of South Carolina has reviewed this study for the protection of the rights of human participants in research studies, in accordance with federal and state regulations. However, before you choose to be a research participant, it is important that you read the following information and ask as many questions as necessary to be sure that you understand what your participation will involve. Your signature on this consent form will acknowledge that you received all of the following information and explanations verbally and have been given an opportunity to discuss your questions and concerns with the investigator(s).

Purpose
The purpose of this study is to understand the factors that influence and affect the expansion of CenteringPregnancy group prenatal care into five OB-GYN practices in South Carolina. For this purpose, we would like to interview health providers, hospital staff and/or administrators, and other trained Centering facilitators.

Methods and Procedures
If you agree to participate, we would like to interview you in a setting where you will feel comfortable to speak with us. During the interview, you will be asked questions about your perceptions and experiences thus far with CenteringPregnancy, and your thoughts on its implementation in this practice. There are no right or wrong answers to the interview questions and only your personal thoughts, opinions and experiences are required. I may also take notes by hand during the course of the interview.

Risks and Benefits
There are minimal to no risks to participating in this study. You may feel somewhat inconvenienced by the time and effort it takes to participate in the interview. If there are questions that make you uncomfortable, you do not need to answer them.

There is no direct benefit for your participation. You will not be compensated for participating. If you participate, your participation will help us better understand the process of implementing CenteringPregnancy prenatal care in a hospital setting. This understanding may in turn assist other practices who expand their services in the future to include CenteringPregnancy prenatal care. You may therefore find an indirect benefit in knowing you participated in a study that will contribute to the body of knowledge around CenteringPregnancy and its expansion into various healthcare practices.
Voluntary Participation
Participation in this study is completely voluntary (your choice). You may refuse to participate or to withdraw at any time, for whatever reason, without negative consequences. You may refuse to answer interview questions to which you do not wish to respond.

Confidentiality
We will make every effort to protect your privacy. Your name will not appear with answers to your questions or on the audio recording. No staff, administrators, or persons affiliated with your practice will have access to your interview information. Your answers will be kept in a locked cabinet or on password protected computers in a locked office. Your name will never be presented in any reports or publications.

Contact for Questions
For more information concerning this study, or to ask further questions, give comments, or express concerns, you may contact Dr. Deborah Billings at billindl@mailbox.sc.edu, Kristin Van De Griend at vandegrk@email.sc.edu or Noël Marsh at marshln@email.sc.edu. You may contact the USC Office of Research Compliance at (803) 777-7095, or its Director, Thomas Coggins at tcoggins@mailbox.sc.edu.

Consent to Participate
I agree to participate in this interview.

__________________________
Printed Name of Participant

__________________________  ______________  ______________
Signature of Participant     Date          Time

Recording the Interview:
In order to capture all of the information in this interview, and to help me listen to you in the best way possible, this interview will be audio recorded with your permission. Your name and contact information will not be recorded. If you give us permission to record the interview, your recording will be stored on a password protected computer until the project is over. Once the project is over, the recording will be destroyed. Your name and identity will be kept confidential.

I agree to have this interview audio recorded.

__________________________  ______________  ______________
Signature of Participant     Date          Time
Centering Pregnancy Interview Field Notes

Participant__________
Date/Time/location__________________
Interviewer_______________

1. ENVIRONMENT OF INTERVIEW (What is the place like where you are interviewing: temperature, enough space, noise level, anything else you observe?)

2. DESCRIPTION OF THE PARTICIPANT (What is she wearing, what is her mood, seems interested to participate, was she quiet or talkative, anything else important about the participant?)

3. METHODOLOGICAL OBSERVATIONS (How did the interview go: what happened before/after the interview, did anything happen that was unplanned, did the equipment work properly, anything else?)

4. ANALYTIC OBSERVATIONS (What is your brief overall impression of how the participant answered the questions: what were the major themes?)

5. QUALITY OF INTERVIEW (Overall, how was the interview: very good, good, average, poor, very poor and describe the quality.)
Centering Pregnancy Interview questions
Medical Director of Greenville Health System OB/GYN Center

Face to face interview, audio-recorded.

I’d like to start the interview talking about some of your own personal experiences with Centering Pregnancy and as a health care provider overall:

- Can you tell me a little bit about your background as a healthcare professional and your role in the Greenville Hospital System?

- How did you first hear about Centering Pregnancy?

- What made you want to bring the program to GHS?
  - From your perspective, what makes it different from traditional face-to-face PNC?
  - What is the “added value” of Centering, in comparison to traditional PNC?
  - How has it been funded?
  - What have you done to make Centering sustainable over time at GHS (in terms of):
    - Funding
    - staff motivation
    - administrative issues
    - Policy changes/ new policies

- What is your favorite aspect of Centering? What is your least favorite aspect of Centering?

- What has Centering meant to you, personally and professionally?
  - Has it changed you in any ways? (personally and professionally?)
  - Has it changed your own way of practicing medicine in any ways? In what ways?

Next I’d just like to talk about the overall process and challenges involved with introducing and setting up Centering at the OB-GYN clinic.

- What kinds of things did you have to do to introduce the idea, and then the actual model, into the clinic?
  - Introducing the idea to the hospital system?

- Whose input did you need / who had to get on board (administratively and in the staff) to get it started?
  - To let it continue?
• I know you have grants from the March of Dimes, so could you talk about what the process of applying for funds was like?
  o Who was involved in that process?

• Did or do you have any concerns about the model or its implementation at GHS?
  o Have those concerns been allayed? If so, how?

• What were some of the early challenges that you / the clinic faced?

• Who was (and not names, but just sort of generally speaking) excited, or more enthusiastic about Centering?
  o Where they staff, administrators, providers?
  o Where did most of the initial support come from?

• Who (again, generally speaking) maybe put up barriers or were more resistant to the change, initially?
  o What kind of negotiations had to take place for Centering to get established at the clinic?

• Was there anything about the practice as it was that maybe facilitated or helped with the introduction of Centering?
  o Or conversely, anything that made it more difficult?

• What was it like to facilitate the first group?
  o Was there anything you’ve struggled with, or found easy?
  o How difficult or easy was/is it to stay true to the original model? (13 essential elements, site certification)

• What was the process of creating group space in the Center like?
  o Who or what was involved in the decision(s) to remodel/renovate the clinic?

• (If not previously mentioned) Were there any challenges associated with scheduling or billing?
  o How were you able to streamline those processes?

In this section of the interview, I’d like to talk about your experiences with and perceptions of CenteringPregnancy as it is now within the OB-GYN clinic at GHS:

• Because Centering providers spend more time with their patients and interact with them in facilitative ways, have you seen any changes in patient-provider relationships?

• Are there any other challenges that remain, or still need to be overcome?
• What would you say about the sustainability of the Centering model? (refer to issues of sustainability mentioned above - funds, staff, administration, policy)
  o Financially-speaking, especially?

• Would you say Centering is more, less or as efficient (in how many patients can be seen) as traditional care?
  o If less efficient, does that pose any problems / challenges?

• Does the practice intend to make Centering the standard of care for all patients who want it, and if so, how?

• Are there any final thoughts or comments you have about Centering, the transition to Centering at GHS, or prenatal care generally speaking?

In this last section, I’d like to talk with you about the state expansion process

I know that you have been instrumental to the process of expanding CenteringPregnancy throughout South Carolina.

• What are your overall expectations? / Dreams for the program?

• Do you have any fears or reservations?

• What do you think are the most important processes needed for success of the expansion?
  o What do you think about the role of BOI?

• What general observations do you have about how the process is going so far?

Thank you very much for your time and participation.
Centering Pregnancy Interview questions
Providers/Staff at Greenville Health System OB/GYN Center

Face to face interview, audio-recorded.
Introduce myself, give consent form, explain that I’ll be asking some questions about their facility, practice and their experience/perceptions of Centering. Since I’m also conducting some interviews with other practices who are just newly implementing Centering this year, I’m interested to hear about the experiences at GHS, though it's been several years since implementation. Thank the participant for his/her time and clarify how long the interview will take — about 45 minutes once we start (estimate time when you will end); ask permission to record.

I’d like to start the interview talking about some of your own personal experiences with Centering Pregnancy and as a health care provider overall:

• How long have you been working at the Greenville Health System OB/GYN Center?
  o In what roles?
  o Role in Centering?

• How did you first hear about Centering Pregnancy?
  o What did you think about it then?

• How were you involved in the decision-making process to bring Centering to GHS?
  o If not involved, do you know what the process was like / as an outside observer?

• Have you attended any Centering facilitation trainings?
  o If so, when?
  o What stood out most from the training?
  o Can you tell me about it?

• What has the support for Centering been like?
  o At the beginning
  o Now
  o From the CHI
  o From the overall hospital system?

• What is your favorite aspect of Centering?
  o Has that changed over time?
• What has Centering meant to you – personally and professionally?
  o Has it changed you in any ways?

I’d now like to talk with you about some of the challenges that the practice has faced in implementing Centering Pregnancy and how those challenges have been addressed:

• When CP began to be implemented here, did you have any concerns about the CP model?
  o And if so, what were they?
  o Were those concerns allayed? (if so, how)
  o Have any concerns remained?

• What challenges do you think the OB/GYN Center has faced so that Centering could be included in the practice?
  o How have those challenges been overcome?
  o Which still remain?

• What has the scheduling process been like?
  o *Billing process?
  o How were you able to streamline those processes?

• What was process of creating group space like in the Center?

• How does your Center handle patients who need childcare?

• What is it like to facilitate groups?
  o Is there anything you’ve struggled with, or found easy?
  o How difficult or easy was/is it to stay true to the original model? (13 essential elements, site certification)
  o How do you troubleshoot/develop skills that you (or other facilitators) may struggle with?

• Will you be using Centering Counts (a data system for Centering sites to ensure model fidelity, track their practice scale, and understand their impact)?

• Do the prenatal care providers (for Centering and one on one appointments) generally deliver their patients?
  o If participants have concerns about that, how do you work with them?

In this last section of the interview, I’d like to talk about your experiences with and perceptions of the changes that have taken place since Centering Pregnancy has been implemented here at GHS:
• Because Centering providers spend more time with their patients and interact with them in facilitative ways, have you seen any changes in patient-provider relationships?
  o What does that look like?
  o What were patient-provider relationships like before Centering?

• Can you describe the sustainability of the Centering model?

• Does the practice intend to make Centering the standard of care for all patients who want it, and if so, how?

• Are there any final thoughts or comments you have about Centering, the transition to Centering at GHS, or prenatal care, or any questions you wish I would have asked?

Thank you very much for your time and participation.
THEMES

- The training itself - useful? Gaps? What’s needed?
- Who is on the steering committee
- Space (get photos). What has been done, how is it working
- Recruiting of women - strategies used
- Marketing of Centering - in the hospital among staff; in the community
  - Buy in from staff overall; any resistance? Particular champions?
- Groups themselves
  - How many going, what days
  - Facilitator experiences
- Scheduling of groups and women/ facilitators - how done?
- Use EMR? How working with groups? How about mat check?
- Any issues with billing? Reimbursement? (insurance/Medicaid mix of women)
- Plans for ongoing sustainability
- Any major changes that have had to make? (policies, flow, infrastructure)
- Any surprises so far?
Centering Readiness Assessment Scoring Key

Five questions: each earns 0, 1 or 2 points for a total score of 0-10. Answers in the first column = 0, 2nd column = 1, and 3rd column = 2.

The five questions are meant to assess the site's readiness to transition to Centering group care based on appropriate space for group sessions, adequate patient volume to support starting at least one new group per month, adequate number of providers (minimum two provider teams), what % of all prenatal care providers will be in Centering (the higher the better), and general administrative support for the change.

Choose the Option that Best Describes your Practice Situation

Group Space*
- ☐ There is no space identified or available yet, or the space is smaller than 25 x 25, or the space is shared-use and only available after hours (like a waiting room).
- ☐ Room size is appropriate for groups, but is shared-use space such as an education or meeting room that has limited availability.
- ☐ The room has ample space for group care, is dedicated, private, comfortable and attractive.

Patient population for this model*
- ☐ Fewer than 150 patients per year
- ☐ Between 150 - 200 patients per year
- ☐ More than 200 patients per year

Health care providers who will lead Centering groups*
- ☐ No providers have been identified yet
- ☐ There is one provider team (provider + co-facilitator)
- ☐ There are two or more provider teams

Percentage of total providers participating in Centering*
- ☐ Less than 50% of care providers will participate
- ☐ Between 50% and 75% of care providers will participate
- ☐ More than 75% of care providers will participate

Administrative Participation and Support*
- ☐ There is grant support only and no budget for ongoing expenses. Limited or no staff time.
- ☐ Outside funding to start with commitment for future budget. Some staff time provided.
- ☐ Administrative participation, funding and budget and release time for Centering activity.
9-10  Site has the necessary components to begin planning for Centering model implementation. A CHI representative will contact you to discuss next steps.

6 - 8  Site has many of the necessary components to begin planning for Centering. A CHI representative will contact you to discuss your site's strengths and challenges.

0-5  There are significant barriers to implementing Centering at this time. Use the information provided here and in the start-up packet to discuss readiness with your site leadership. You may resubmit this assessment if adjustments are planned that increase your site's readiness to implement Centering.