CenteringPregnancy:
Meeting the Quadruple Aim in Prenatal Care

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CenteringPregnancy is a group prenatal care model that engages pregnant women in their care, which results in promising health and system outcomes. This commentary will review this innovative care model with a focus on patient experience, population health outcomes, cost effectiveness, and provider experience.

Exciting changes are occurring in health care as the United States transitions to a value-based system. In 2014, Bodenheimer challenged us to seek not only the Triple Aim (enhancing the experience of care, improving population health, and reducing health care costs) but also to attend to the well-being of health care providers—the fourth part of what is now known as the Quadruple Aim [1, 2]. Group medical visits are an innovation in health care that shows promise in meeting these goals. CenteringPregnancy, a finalist for the 2016 Hearst Health Prize [3], is a group prenatal care model supported by the Centering Healthcare Institute that is offered in 450 practices across the United States. This groundbreaking model for providing patient-centered maternity care in groups is meeting the Quadruple Aim in North Carolina.

A Model of Group Prenatal Care

In CenteringPregnancy, pregnant women participate in prenatal appointments with 8–12 other women sharing similar due dates. Ten appointments, each lasting 90–120 minutes, follow the recommended schedule of prenatal care [4]. CenteringPregnancy reconfigures the typical components found in traditional prenatal care. In this model, patients meet with provider teams in a facilitated session that incorporates health assessment, interactive learning, and patient activation. Each group maintains continuity throughout the patients' pregnancy care, which fosters community building and provides a supportive network.

Developed in the early 1990s by certified nurse midwife Sharon Rising, CenteringPregnancy is now supported by the Centering Healthcare Institute. The mission of the Centering Healthcare Institute is to transform health care using patient-centered group care models [5]. In addition to improving patient outcomes, the CenteringPregnancy model also boosts provider satisfaction. CenteringPregnancy is thus delivering the Quadruple Aim of improved patient experience, quality of care, cost containment, and provider satisfaction (see Table 1).

Comparing CenteringPregnancy With Traditional Care

While all clinical aspects of traditional prenatal care are maintained in the CenteringPregnancy model, there are important changes related to the total time invested in the patient's care and the way in which women interact with their providers. Compared to a pregnant patient's traditional 10–15-minute prenatal visit, women in a CenteringPregnancy session engage in 2 hours of care. Each group session begins with patients' taking their own vital signs and then having time to socialize while the provider meets with patients one-on-one for a brief prenatal health assessment. For the rest of the visit, patients discuss topics related to their pregnancy as an interactive group (see Figure 1).

CenteringPregnancy providers receive special training to develop effective facilitation skills [6]. Two cofacilitators, typically a provider and a support staff member, lead guided discussions and direct activities to optimize group functioning. The Centering Healthcare Institute encourages and supports practices in tracking outcomes related to patient education, patient satisfaction, and the quality of facilitation, in addition to tracking pregnancy and birth outcomes.

Quadruple Aim Outcomes

Patient Experience

The CenteringPregnancy model improves the patient care experience in several ways [7-9]. First, the added time during visits allows for a dynamic dialogue between the women in the group and their providers; such dialogue would be difficult to achieve during a fast-paced individual visit. In this extra time, patients have the opportunity to ask questions and solve problems with the help of the group and the provider team. Group participants, given time to choose and explore topics of most interest to them, better understand

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TABLE 1.
Experiences in CenteringPregnancy

Patient quotes	Provider quotes [17]	Staff and administrator quotes [8]
"We started on time and ended on time and something happened the whole time we were there."	"When you have a better relationship, you feel like you are providing better care because I think there's less likely to be a hidden agenda or worries that the patient has that they don't bring forward to you."	"Mothers enjoy CenteringPregnancy because they don't wait for their appointments and they leave at a certain time."
"I get more attention and get more out of the group than a one-on-one." [6]	"When I'm doing one-on-one care…I have more time constraints…I can't impart everything I've learned from 20 years of delivering babies in… five 7-minute visits…I can get more across in… 2-hour groups."	"Participants are 'really happy about the program,' want to come to prenatal care, and recommend group care to their friends."
"I loved the program because every time you come you can share your story."	With CenteringPregnancy "it feels like we're able to provide a much… richer quality of care to the patients…sometimes I feel like when I go back to giving my regular care…it's like, 'oh, it's not fair, you're not getting as much as the other ones are.'"	"They take their own blood pressures and say, 'We can do this ourselves.'"

what is happening to their bodies during pregnancy and feel more prepared for childbirth. Patients who receive care through the CenteringPregnancy model are empowered to manage their health and their baby's health. The experience fosters patient engagement, which is an important strategy to improve population health. Table 1 contains patients' reflections on their experience in the CenteringPregnancy groups.

Population Health

In addition to high ratings for patient satisfaction, participation in the CenteringPregnancy model is associated with significant health benefits for both mothers and newborns. Most striking of these is a reduced rate of preterm birth, one of most challenging and devastating adverse events in maternity care. In a 2007 randomized controlled trial, only 9.8% of women assigned to group prenatal care had a preterm birth compared with 13.8% of women in individual prenatal care, representing a 33% risk reduction [7]. Similarly, a 2012 retrospective analysis reported a 47% reduction in preterm birth among women receiving group prenatal care compared with those in traditional care [10]. In both of these studies, disparities in rates of preterm birth between white and black mothers were also significantly reduced. Research is ongoing to determine mechanisms for these significant outcomes and to understand the full impact of delivering prenatal care using the CenteringPregnancy model.

There are myriad additional maternal health benefits associated with this care delivery model, many of which occur after delivery. These benefits may be related to the enhanced preparation for and promotion of activities and behaviors important to women's health that comprise this model. For example, several studies have shown increased breastfeeding rates among group prenatal care participants [7, 8, 11, 12]. Increased attendance at postpartum visits among CenteringPregnancy participants, specifically within teen and Latina populations, has also been reported [13, 14]. In addition, Hale and colleagues demonstrated that CenteringPregnancy participants had significantly higher rates of utilization for family-planning services compared with women receiving individual prenatal care ($P < .05$) [15]. While the total impact of CenteringPregnancy on long-term outcomes for women and families warrants further assessment, it is well established that birth weight and breastfeeding influence health beyond infancy. For babies whose mothers received care through the CenteringPregnancy model, these outcomes may have even longer-term implications for improved health.

Impact on Health Care Costs

The CenteringPregnancy model can result in impressive savings for the health care system, primarily through improved birth outcomes. A recent South Carolina study of the CenteringPregnancy model demonstrated Medicaid savings as a result of reduced rates of preterm birth and neonatal intensive care unit stays. Gareau and colleagues found that there was an average savings of $22,667 in health expenditures for every premature birth prevented and an estimated return on investment of nearly $2.3 million, after a $1.7 million investment in the CenteringPregnancy model [16].

FIGURE 1.
CenteringPregnancy Interactive Group

Assessment of the cost effectiveness of this model is complicated by the fact that cost, care, and outcomes are realized across both mothers and newborns whose care is shared by multiple providers in both outpatient and inpatient settings (prenatal practice, hospital labor and delivery, and neonatal intensive care unit). Maternity providers who plan to provide care via the CenteringPregnancy model face the cost of training a team of cofacilitators, as well as the challenge of investing in implementation support to guide the systematic transition to providing care in groups.

It is not necessary to hire new staff; however, dedicated staff time is required to manage scheduling and coordination for group visits. Once implemented, CenteringPregnancy visits are billed and reimbursed at the same rates as individual prenatal care appointments, and the model is approximately cost neutral at an average group size of 10–11 women [17]. Despite the improved patient outcomes associated with CenteringPregnancy, the larger health care system realizes the actual cost savings—rather than the practices providing this enhanced prenatal care. Reinvestment of downstream savings could offset the cost of implementing and maintaining the group prenatal care model. Strategies to provide financial support and incentives to start and sustain the CenteringPregnancy model may be important to increasing access to the model.

Provider Experience

CenteringPregnancy reshapes the way clinicians engage with patients and improves their enjoyment and satisfaction in providing care, thereby meeting the fourth criterion of the Quadruple Aim. Providers in a CenteringPregnancy practice have the opportunity to explore the content of most relevance and interest to patients in a fun and satisfying way. The repetition that is common in a busy obstetric office is replaced with a model that fosters efficiency and patient engagement. Qualitative analyses of clinical care providers' experiences with the CenteringPregnancy model consistently show that, despite initial concerns about providing prenatal care in a group setting, providers ultimately gain confidence in their facilitation skills and feel rewarded by providing better quality care [18-20]. Table 1 highlights provider and staff comments regarding their experiences with the CenteringPregnancy model.

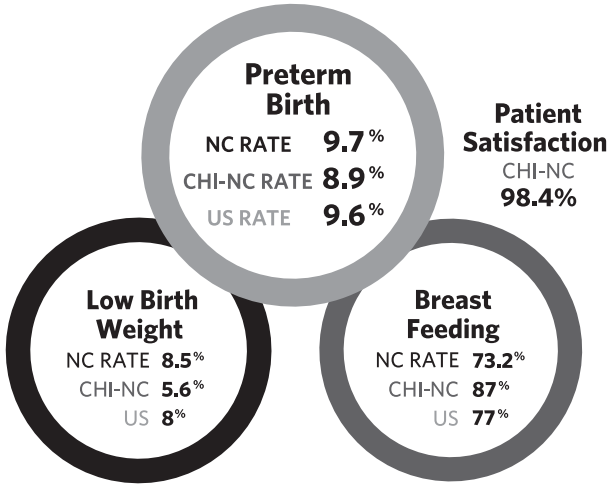
CenteringPregnancy in North Carolina

The CenteringPregnancy model is growing as a prenatal care option; it is currently available at 19 medical practices in North Carolina and more than 425 locations across the country. CenteringPregnancy is available in a variety of health care settings in North Carolina including health departments, birth centers, private obstetrics and gynecology offices, teaching programs, and military health care providers. As shown in Figure 2, North Carolina practices that offer this model demonstrate improved birth outcomes compared with both statewide and national data [21-23]. Initially offered primarily by midwives, CenteringPregnancy can be directed by any maternity care provider including family physicians, nurse practitioners, or obstetricians. A majority of sites providing CenteringPregnancy in North Carolina have received start-up grant funding through the North Carolina chapter of the March of Dimes, an organization committed to reducing rates of premature birth [24].

Most North Carolina CenteringPregnancy sites also benefit from participation in a statewide network, the North Carolina CenteringPregnancy Consortium. Started in 2011 with support from the Northwest Community Care Network of Community Care of North Carolina, this group sponsors 2 meetings each year to support sites committed to providing CenteringPregnancy. Efforts to educate others about the model, to support activities such as seeking grant funding, and to develop best practices have helped sites to overcome barriers to sustainability and to grow in volume.

Maternity and newborn care account for a large proportion of Medicaid costs in North Carolina; premature births are the leading cause of infant death in the state and are responsible for significant spending [25, 26]. The CenteringPregnancy model improves important outcomes for pregnant women and their families. Moreover, this model is associated with significant cost savings to the health care system. Local opportunities exist to support and promote CenteringPregnancy, particularly in areas of training and implementation. Support at the level of large health systems and/or payers could further increase capacity for more North Carolina women to receive prenatal care via this model. Large-scale, rigorous assessment of the outcomes associated with existing CenteringPregnancy practices in North Carolina is warranted to assist stakeholders in fully understanding the potential impact of scaling and spreading this innovative care model.

FIGURE 2.
2015 CenteringPregnancy Outcomes in North Carolina



Note. CHI-NC, Centering Healthcare Institute – North Carolina.
Source: 2015 Centering Counts™ data from 7 approved sites in NC (777 women), March of Dimes Peristats.

In 1998, Sharon Rising reflected, "Whenever a new model is being developed, those involved need to be imaginative in its creation. Reorienting thinking from individual to a group model can be difficult and requires creative, imaginative thinking and design" [27]. Health care has entered an era of significant transformation as new value-based models of care delivery are being actively pursued. Patient activation is recognized as a powerful strategy in this effort. In a recent NCMJ article on the value of exceptional patient experience, Joan Wynn notes, "Assuring an exceptional experience means arming people with skills, knowledge, and confidence to participate as fully informed partners in their own care, and this leads to better health outcomes and lower cost of care—the very definition of value" [28]. CenteringPregnancy, a model based on building patient engagement through group care, provides a promising path to meeting the goals of health care's Quadruple Aim. NCMJ

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