

AN ANALYSIS OF GROUP PRENATAL CARE IN A HIGH-RISK  
OBSTETRIC POPULATION

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Submitted to the School of Nursing and The Graduate Faculty of the University of Kansas in  
partial fulfillment of the requirements for the degree of Doctor of Nursing Practice.

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Obstetric Population**

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Date Approved:  
10 January 2019

## Abstract

**Problem:** Preterm birth and low birth weight (LBW) are the second leading causes of infant mortality after birth defects. In 1985, an expert panel from the Institute of Medicine concluded that prenatal care services reduce low birth weight. Despite this, and recommendations to expand prenatal care services, the rate of LBW infants has risen. A preliminary study of Strong Start for Mothers and Newborns, a four-year initiative begun in 2012, demonstrated that women whom received birth center and group prenatal care (GPNC) were less likely to have a preterm birth or LBW newborn compared to women that received care in a more traditional model at a maternity care home.

**Project Aims:** GPNC has not been widely studied in women with high-risk pregnancies, who are at increased risk of preterm birth and LBW infants. The aim of this project was to assess perceptions of GPNC among high-risk prenatal care providers at an academic health center. A secondary aim was to assess prenatal care experiences of women receiving care in a high-risk obstetrics clinic.

**Project Method:** A SWOT analysis was completed assessing strengths, weaknesses, opportunities, and threats to GPNC in the high-risk obstetric patient population at an academic health center. A survey was sent to clinic stakeholders assessing past experiences with GPNC and their perceptions of internal and external environments relative to GPNC in the high-risk obstetric patient population. A second survey was administered to pregnant patients with high-risk obstetric medical conditions, assessing their experience with traditional care in the high-risk obstetric setting at the academic health center and determine their interest in participating in GPNC.

Findings: For the staff survey, perceived strengths of GPNC in the high-risk OB population included community/peer support and improved patient knowledge and preparation for pregnancy, labor, and birth. The primary perceived weakness to GPNC in the high-risk OB population was difficulty in implementation. Outside referrals were considered an opportunity for success in this population and reimbursement and cost were the most prominent perceived threats to GPNC. In the patient survey, perceived benefits of participating in GPNC included feeling more prepared for pregnancy, labor, and birth, and social support. Scheduling, lack of childcare, and lack of transportation were perceived barriers to attending GPNC. More than 50% of women believed attending GPNC would strengthen their belief in themselves to complete a task or reach a goal in some area of their lives and most women believed attending GPNC could influence them to make healthier lifestyle choices.

Conclusion: Findings from this SWOT Analysis may provide insight for other organizations serving women with high-risk pregnancies interested in implementing GPNC.

*Key Words:* prenatal care, group prenatal care, high-risk obstetric, preterm birth, low birth weight

## Contents

The Problem and Significance .....	5
Background.....	6
Perinatal Outcomes of GPNC .....	8
High-Risk Obstetric Applications of GPNC .....	9
Midwifery Care and GPNC.....	10
Project Aims.....	10
Key Concepts/Variables.....	10
Theoretical Framework.....	11
Methods.....	13
Design.....	13
Setting.....	13
Sample.....	14
Procedure.....	14
Data Analysis .....	15
Institutional Review Board.....	16
Results.....	16
Staff Survey.....	16
Strengths. ....	17
Weaknesses.....	18
Opportunities. ....	19
Threats. ....	20
Suggested population.....	21
Patient Survey .....	22
Perceived benefit. ....	22
Perceived barriers. ....	22

Self-efficacy.....	23
Activity-related effect.....	23
Level of interest.....	24
Age of participants.....	25
Satisfaction and location of prenatal care.....	25
Discussion.....	26
More Time with Provider and More Education .....	26
Community and Peer Support .....	27
Increased Provider Availability and Time Savings.....	27
Reimbursement and Cost .....	27
Appropriate Fit for GPNC.....	28
GPNC and Diabetes Education Class.....	29
Model Fit for Disease Process.....	29
Barriers and Weaknesses.....	30
Self-efficacy .....	31
Theoretical Framework .....	31
Midwifery-Led GPNC in the High-Risk OB Population .....	32
Implications for Future Practice and Research .....	32
Summary.....	34
References.....	35
Mother and Child Health Coalition. (n.d.). From birth to one. Retrieved from <a href="https://www.mhcinfanthealthgkc.net/">https://www.mhcinfanthealthgkc.net/</a> .....	38
Appendix A.....	41
Appendix B.....	43

## An Analysis of Group Prenatal Care in a High-Risk Obstetric Population

Infant mortality is the death of an infant during the first year of life. The infant mortality rate (number of infant deaths per 1,000 live births) is a key indicator of overall health of a population (Centers for Disease and Prevention [CDC], 2018a; Sawyer & Gonzales, 2017). In 2017, the infant mortality rate in the United States was 5.8 deaths per 1,000 live births, ranking significantly higher than other similar developed countries such as Canada (4.5), The United Kingdom (4.3), Switzerland and The Netherlands (3.6), and Sweden (2.6) (*World Factbook, Central Intelligence Agency, 2017*).

Preterm birth (birth prior to 37 completed weeks of pregnancy) and LBW (newborn weighing less than 2,500 grams at birth) are the second leading causes of infant mortality after birth defects (CDC, 2018a; March of Dimes, 2018). Preterm birth and fetal growth restriction are the most common causes of LBW newborns (March of Dimes, 2018). The neonatal mortality rate (number of newborn deaths before 28 days of life per 1,000 live births) is twice as high among non-Hispanic blacks compared to Whites in the U.S. (Sawyer & Gonzales, 2017).

### **The Problem and Significance**

The World Health Organization (WHO, 2017) reports that LBW contributes to 60-80% of all neonatal deaths with global prevalence of 15.5%, or approximately 20 million newborns. There was a steady decline in the incidence of LBW infants in the United States from the 1960s to the early 1980s, however that rate began to level off and remained at 6.8% from 1980 to 1983 (Kranz & Davis, 2012). In response, the Institute of Medicine (IOM) convened to study factors effecting the incidence of LBW in the U.S. In 1985, the Committee issued *Preventing Low Birthweight*, in which the IOM Committee concluded, “the overwhelming weight of the evidence indicates that prenatal care reduces low birth weight” (p. 8).

The Committee recommended expanding prenatal care services to decrease LBW rates with importance placed on improvement of insufficient Medicaid funding, as this population was most at risk for giving birth to LBW infants (Kranz & Davis, 2014). Legislators responded by expanding Medicaid coverage during pregnancy, resulting in a drastic uptake of prenatal care services, especially by African American women, the group with the highest incidence of LBW infants (Kranz & Davis, 2014). Despite Medicaid expansion for pregnancy services and the increased uptake of prenatal care, the rate of LBW infants climbed to 8.2% in 2007 and has remained near 8% since (CDC, 2017; Kranz & Davis, 2012).

Strong Start for Mothers and Newborns was a four-year initiative, begun in 2012, aimed to reduce early elective births before 39 weeks gestation and provide funding to test enhanced group prenatal care services to reduce the number of preterm births among women enrolled in Medicaid or the Children's Health Insurance Program (CHIP). A preliminary study of the Strong Start initiative demonstrated that women whom received birth center and group prenatal care (GPNC) were less likely to have a preterm birth or LBW newborn compared to women that received care in a more traditional model at a maternity care home (Hill et al., 2017).

### **Background**

There are many models of GPNC including CenteringPregnancy®, CenteringPregnancy® Plus, Expect with Me, and Moms2B. CenteringPregnancy®, the most widely studied model of GPNC, stemmed from consumer and provider frustration with traditional prenatal care (Schindler Rising, 1998). At the time of implementation in the late 1990s, childbirth and parenting education programs and the effect of support groups on health and healing were well described and evaluated in the literature (Schindler Rising, 1998).



CenteringPregnancy® brought a significant shift from traditional prenatal care while addressing risk assessment, education, and support in the group setting (Schindler Rising, 1998).

Most models of GPNC are comprised of groups of 8-12 pregnant women meeting for 90-120 minutes approximately 10 times during pregnancy and partners are encouraged to attend. While some models, such as CenteringPregnancy®, emphasize the importance of cohorts being approximately the same gestational age to allow coordination of education to timing in pregnancy, other models accommodate groups over a broad gestational age. Some community-based group models (CBGM), such as Moms2B®, are equipped to serve groups as large as 25 women. CBGMs typically offer more community and social support resources and are designed as an adjunct to traditional prenatal care (Gabbe & Gabbe, 2018; Gabbe et al., 2017).

A comprehensive literature review was completed using CINAHL, PubMed, Ovid, Google search and review of reference lists of relevant research articles. The aim of the review was to identify previous studies exploring group prenatal care in women with high risk medical conditions and to gain understanding of the historical perspective of prenatal care. Key words and phrases searched included: “group prenatal care”, “group prenatal care and high-risk pregnancy”, “group antenatal care”, “group antenatal care and high-risk pregnancy”, “enhanced prenatal care”, “enhanced prenatal care and high-risk pregnancy”, “group prenatal care and diabetes”, “group prenatal care and gestational diabetes”, “group prenatal care and diabetes mellitus”, “group prenatal care and type II diabetes”, “group prenatal care and hypertension”, “group prenatal care and high risk medical condition”, “group prenatal care and lupus”, “CenteringPregnancy®”, “CenteringPregnancy Plus®”, “Expect with Me”, and “Moms2B”. Inclusion criteria were English language, published in the last five years, primary studies and systematic reviews, studies involving group prenatal care and high-risk pregnancy or group

prenatal care and women at risk for preterm birth. Exclusion criteria were date prior to 2013, unless the article served as historical reference. Fifteen studies were included in the final review. Major themes that emerged from the review of the literature were: (a) Perinatal Outcomes of GPNC; (b) High-Risk Obstetric Applications of GPNC; and (c) Midwifery Care and GPNC. Each of these themes is discussed below.

### **Perinatal Outcomes of GPNC**

The first randomized controlled trial (RCT) of CenteringPregnancy® showed a significant decrease in the rate of preterm birth in women participating in this model of prenatal care (Ickovics et al., 2007). However, a recent systematic review and meta-analysis demonstrated no difference in preterm birth rates, low birth weight, or neonatal intensive care unit admission in women participating in GPNC versus traditional care except possibly in African American women (Carter et al., 2016). Two high-quality studies, one RCT and an observational study, showed African American women participating in GPNC had significantly lower rates of preterm birth (Ickovics et al., 2007; Picklesimer, Billings, Covington-Kolb, Hale, & Blackhurst, 2012). This is an important finding, considering infant mortality rates of non-Hispanic Blacks is twice that of non-Hispanic Whites (CDC, 2018b).

A cluster RCT of GPNC and perinatal outcomes among adolescents in New York City demonstrated decreased preterm births and LBW infants (Ickovicks et al., 2016). In that same study, adolescents that participated in GPNC also reported decrease in rapid repeat pregnancy, reportedly used condoms more frequently, and engaged in fewer acts of unprotected sex when they attended at least 50% of GPNC sessions (Ickovicks et al., 2016). Other benefits of GPNC cited in the literature include higher rates of breastfeeding initiation (Gabbe et al., 2017; Schellinger et al., 2017), higher rates of exclusive breastfeeding at six weeks postpartum

(Schellinger et al., 2017), more time with providers to ask questions (Kugler & Farmer, 2015), access to peer support (Gabbe & Gabbe, 2018; Kugler & Farmer, 2015), and high patient satisfaction with the overall prenatal care experience (Kugler & Farmer, 2015).

### **High-Risk Obstetric Applications of GPNC**

GPNC has not been widely studied in pregnant women with specific high-risk medical conditions, except for gestational diabetes mellitus (GDM) (Carter et al., 2018; Mazzoni et al., 2016), a study in women with pre-gestational diabetes (Tate et al., 2018), and one study conducted in a fetal care center with women diagnosed with fetal anomalies (Kugler & Farmer, 2015). Though limited studies have been completed in women with high-risk pregnancies, Schindler Rising (1998) emphasized that women with high-risk pregnancies attending group care should be evaluated for the need for closer monitoring but should not be discouraged from attending group prenatal care sessions.

Studies evaluating GPNC in women with GDM demonstrated fewer women requiring insulin initiation if they participated in GPNC versus traditional care (Mazzoni et al., 2016; Schellinger et al., 2017). These women were also more likely to return for postpartum care and were significantly more likely to receive follow-up glucose tolerance testing ( $p < 0.001$ ) (Carter et al., 2018; Mazzoni et al., 2016; Schellinger et al., 2017). Mazzoni et al. (2016) found that GPNC participants progressed to GDMA2 less frequently (40% of the time versus 84% in traditional care). Tate et al. (2018) demonstrated GPNC as a safe alternative to traditional prenatal care in women with pre-gestational diabetes and women receiving GPNC demonstrated greater knowledge of diabetes at the end of pregnancy.

## **Midwifery Care and GPNC**

The Institute of Medicine (IOM, 2010) has called advanced practice nurses to be full partners with physicians and other health care providers in redesigning healthcare. Midwives as leaders of GPNC classes, in collaboration with physician partners and nurses, has been well documented in the literature (Gabbe & Gabbe, 2018; Kugler & Farmer, 2015; Mazzoni, Hill, Webster, Heinrichs, & Hoffman, 2016). Prenatal care for women with high-risk medical conditions is often focused on management of the disease process of the patient and fails to meet the woman's need for general pregnancy education and support. Midwives are experts in educating women to normal pregnancy physiology and are well positioned to provide GPNC to this patient population.

### **Project Aims**

The aim of this project was to assess previous experience with GPNC among perinatologists, maternal-fetal medicine fellows, obstetrics/gynecology residents, nurses, medical assistants, office manager, and administrator, and complete a SWOT (strengths, weaknesses, opportunities, and threats) analysis of GPNC in the high-risk obstetrics setting at an academic health center. A secondary aim was to assess prenatal care experiences of women receiving care in a high-risk obstetrics clinic.

### **Key Concepts/Variables**

For this analysis, the definitions below were used:

- GPNC was defined as a group of expectant women receiving pregnancy related education and care in a group setting, meeting regularly throughout pregnancy.

- A perinatologist is an obstetrician who subspecializes in care of the mother and fetus during pregnancy, labor, and delivery, specifically when the mother or fetus is at high-risk for complications (medical-dictionary, 2018).
- A maternal-fetal medicine fellow is an obstetrician that has completed four years of residency and is in-training to become a perinatologist.
- High-risk medical conditions were defined as any chronic or acute illness affecting the pregnancy and requiring referral to a perinatologist.
- High-risk prenatal care providers and staff were any persons employed by or trained in the high-risk obstetric clinic, excluding sonographers, schedulers, and genetic counselors.

### **Theoretical Framework**

Many women are open to health education and adopting a healthy lifestyle during pregnancy. Rich and Butts (2015) describe Nola J. Pender's Health Promotion Model, defining health promotion as a behavior spurred "by the individual's desire to increase well-being and optimize human health potential" and is a multidimensional concept including the individual, the family, community, socioeconomic status, cultural factors, and environmental factors (p. 399). See Figure 1 for a depiction of Pender's Health Promotion Model for this study.

Behavior-specific cognitions and affect are a second major category in Pender's model and include: (1) perceived benefits of action, (2) perceived barriers to action, (3) perceived self-efficacy, and (4) activity-related affect (Butts & Rich, 2015). Two other cognitions in the model include interpersonal influences and situational influences. Interpersonal influences include family, peers, and healthcare providers and often influence the individual's likelihood of participating in health-promoting behaviors (Butts & Rich, 2015). Situational influences include

perception of available options, demand characteristics, and aesthetic features of the environment (Butts & Rich, 2015).

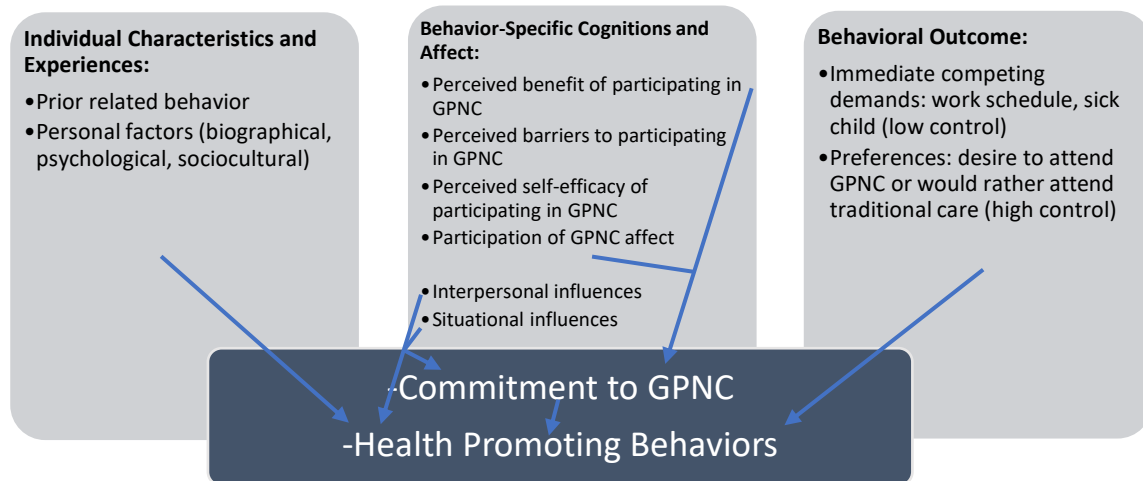


Figure 1. Nola Pender's Health Promotion Model. Adapted from Gonzalo, 2011.

Behavioral outcome is the third major category in Pender's model. The decision to follow through with a plan is the beginning of a behavioral event. It is thought by the author, and in line with Pender's model, that the commitment to participate in GPNC will direct the pregnant woman into health promoting behaviors, unless the ability to choose GPNC is complicated by unavoidable factors or preference that the individual does not resist.

Nursing interventions are directed at behavior-specific cognitions because they respond to change. Pender's behavior-specific cognitions and affect were used to guide formation of patient survey questions in this analysis. Interventions focus on raising awareness of health-promoting behaviors, promoting self-efficacy, promoting benefits of change, providing a controlled environment to support behavior change, and managing barriers to change (Butts & Rich, 2015). GPNC is well designed to support these health-promoting interventions with the goal of attaining positive health outcomes for pregnant women and their newborns.

## **Methods**

### **Design**

This was a descriptive, qualitative study to determine healthcare provider, staff, and patient perceptions of GPNC and patient prenatal care experience in a high-risk obstetrics (OB) population. A SWOT analysis is an analytical tool used by an organization to assess internal and external elements to assist in decision-making that aligns with organization goals (Reference, 2018); a SWOT analysis was used for this study. Strengths and weaknesses are classified as internal elements describing an organization's internal assets or barriers while opportunities and threats represent external elements left open for exploitation and challenges to organizational viability (Reference, 2018).

A SWOT analysis was conducted to assess healthcare provider and staff perceptions of GPNC in the high-risk OB population and years of experience with GPNC among high-risk prenatal care providers at an academic health center. A seven-question survey was sent to providers and staff in a high-risk OB clinic (See Appendix A). An eight-question survey was administered to pregnant women receiving care in a high-risk OB clinic at an academic medical center (See Appendix B). The survey assessed satisfaction with current prenatal education and perceived benefits, perceived barriers, perceived self-efficacy, and perceived effect of participating in group prenatal care.

### **Setting**

The High-Risk OB Clinic at a midwestern academic medical center was selected as the setting for this analysis due to convenience and diversity of healthcare providers, staff, and patients with high-risk OB medical conditions served at this location. The clinic serves patients with high-risk medical conditions such as autoimmune disorders, chronic hypertension,

congenital heart disease, connective tissue disease, deep vein thrombosis and/or pulmonary embolism, diabetes mellitus, gestational diabetes mellitus, incompetent cervix, liver failure/disease, recurrent preterm birth, renal failure, thrombophilia or bleeding disorders, and other conditions required specialty care during pregnancy (The University of Kansas Health System [TUKHS], 2018). The Project Director is employed at the academic medical center and had access to conveniently coordinate survey distribution with clinic leadership.

### **Sample**

The staff of the High-Risk OB Clinic is comprised of six perinatologists (maternal-fetal medicine physician specialists), four maternal-fetal medicine fellows, sixteen obstetrics/gynecology residents, five registered nurses, five medical assistants, one office manager, and one administrator. Four obstetrics/gynecology residents that had not completed a rotation in the High-Risk OB clinic were excluded from this analysis. The High-Risk OB Clinic location serves high-risk pregnant women primarily from The Greater Kansas City area, Topeka, and Junction City, KS, though women from all over the United States have sought care from this clinic. Approximately 120 patients are served at this location each week. Considering the number of patients seen at this location each week, a sample size of at least ten English-speaking pregnant women with high-risk medical conditions was sought.

### **Procedure**

REDCap is a secure web application designed for data capture for research studies (Vanderbilt University, 2018) and was used to collect data for this analysis. A seven-question REDCap survey was sent electronically to thirty-three high-risk OB healthcare providers and staff members the High-Risk OB Clinic (See Appendix A). An introduction to the REDCap survey included a description of group prenatal care and known benefits supported in the



literature. Survey questions assessed each responder's role in the clinic; years of experience with GPNC; perceived weaknesses, strengths, opportunities, and threats to GPNC in the high-risk OB population; and optimal target population for GPNC within the high-risk OB demographic.

Pregnant women with high-risk medical conditions were invited to complete an eight-question paper survey upon check-in for their appointment at the High-Risk OB Clinic (See Appendix B). The survey assessed perceived benefits, barriers, self-efficacy, and activity-related effect of attending GPNC. The Project Director was also interested in assessing participant level of interest in attending GPNC and comparing current prenatal education satisfaction in women receiving all care at the High-Risk OB Clinic versus women whom had received some care elsewhere. Patients placed completed surveys in an envelope at the front desk and the Project Director collected completed surveys at the completion of the data collection period.

### **Data Analysis**

After surveys were collected, the Project Director copied patient and staff survey responses into two different Excel spreadsheets, one for patient survey responses and one for staff survey responses. Spreadsheets were organized with survey questions in columns across the top of each spreadsheet and individual responses to questions in rows below. Verbatim participant responses were examined for theme and pattern recognition, identifying similar phrases, relationships, commonalities, and differences (Vaismoradi, Turunen, & Bondas, 2013). The responses were initially coded, then organized into themes and subthemes by the Project Director using color highlighting within the spreadsheets for each question. Themes and subthemes were reviewed to see how they worked in relation to the entire data set and were named. After initial coding was completed, secondary verification of coding was performed by

the primary research mentor and two secondary research mentors to evaluate and enhance reliability of themes (Polit & Beck, 2012).

### **Institutional Review Board**

This study was approved for Flexible Institutional Review Board (IRB) Review by the Human Research Protection Program at the University of Kansas Medical Center. No identifiable and/or sensitive information was collected or recorded. The Project Director had no direct interaction with patients. Consent was implied upon survey completion and was stated as such on the surveys. The risk of harm as it relates to legal, psychological, physical, and social areas was minimal.

## **Results**

### **Staff Survey**

Twelve staff members, out of thirty-three invited, completed the survey resulting in a 36% response rate. See Table 1 for comparison of staff member invitation and survey completion by role. Four staff members reported having up to 1 year of experience with GPNC (2 MFM fellows, 1 RN, and 1 resident), all other staff members reported having no experience with GPNC.

Major themes that emerged from the SWOT Analysis administered to staff members for perceived strengths to GPNC in the high-risk OB population included improved outcomes; improved efficiency for provider and patient; community/peer support; and improved knowledge and preparation for pregnancy, labor, and birth. Major themes for weaknesses to GPNC in the high-risk OB population were difficulty in implementation, sharing of inaccurate information, unclear benefits for measurable outcomes, and neglect of high-risk OB problem. Major opportunity themes included potential for improved outcomes, outside referrals as potential

candidates for GPNC, potential to expand on current services, and potential for extension of other services from GPNC such as group exercise classes. Themes emerging from threats to success of GPNC included reimbursement and cost, lack of knowledge of how to successfully implement GPNC, patient related factors, and potential for no improvement in outcomes.

Table 1

*Staff Member Invitation and Survey Completion by Role*

Staff members invited to participate by role		Staff member survey completion by role	
Perinatologists	6	Perinatologists	2
MFM Fellows	3	MFM Fellows	2
Obstetrics/gynecology residents	12	Obstetrics/gynecology residents	5
Registered Nurses	5	Registered Nurses	2
Office Manager/Administrators	2	Office Manager/Administrators	1
Medical Assistants	5	Medical Assistants	0
Total	33	Total	12

*Note.* Total of 16 residents, 4 were excluded from the survey because they had not completed a rotation in the high-risk OB clinic prior to the time the survey was sent out.

From the patient survey, prominent themes for perceived benefit of GPNC in the high-risk OB population included more education, social support, and more time with the provider. Major themes from perceived barriers were scheduling, lack of childcare, and transportation issues. Increased confidence was the primary theme for self-efficacy with subthemes being increased confidence and reassurance in the birth experience and increased confidence in ability to breastfeed. Activity-related affect dealt with the effect GPNC might have on a woman. Overriding themes emerging from activity-related affect were healthier lifestyle choices, peer support, and increased comfort in group settings.

**Strengths.** Decreased health care costs, prevention of bad outcomes, and improved patient satisfaction were all subthemes of improved outcomes. Subthemes of improved

efficiency for provider and patient included more time with provider, increased provider availability, and time savings for the patient. Two participants reported more provider time as a strength, “even though time would be spent in a group setting”. Community/Peer Support subthemes included the positive impact of witnessing success of other patients, the ability to learn from others’ questions and responses, a group of women united in philosophy and commitment to GPNC, information sharing, and shared experiences lend to feelings of support. One staff participant reflected “Patients may feel more comfortable knowing that they have a group of peers in a very stressful time”. See Table 2 for Strengths identified in the staff survey.

**Weaknesses.** Major themes and subthemes for perceived weaknesses to GPNC in the high-risk OB population were: difficulty in implementation including time, space, scheduling; coordination of care; interest/enrollment of patients; and potential negative effect of non-compliance on other group members. Receiving inaccurate information from either peers or instructors, unclear benefits for measurable outcomes such as Cesarean delivery rate, neglect of high-risk OB problem, and experiences unique to the high-risk OB population including desire for privacy, desire or need for more individualized care, and not all patients are candidates for GPNC. See Table 2 for Weaknesses identified in the staff survey.

Table 2

*Staff Survey Themes and Subthemes: Strengths & Weaknesses (Internal Elements)*

Strengths
<ol style="list-style-type: none"> <li>1) Improved outcomes               <ol style="list-style-type: none"> <li>a) Decreased health care costs</li> <li>b) Prevention of bad outcomes</li> <li>c) Improved patient satisfaction</li> </ol> </li> <li>2) Improved Efficiency for Provider and Patient               <ol style="list-style-type: none"> <li>a) More time with provider</li> <li>b) Increased provider availability</li> <li>c) Time savings for patient</li> </ol> </li> <li>3) Community/Peer Support               <ol style="list-style-type: none"> <li>a) Positive impact of witnessing success of other patients</li> <li>b) Learn from others' questions and responses</li> <li>c) A group of women united in philosophy and commitment to GPNC</li> <li>d) Information sharing</li> <li>e) Shared experiences lend to feelings of support</li> </ol> </li> <li>4) Improved Patient Knowledge and Preparation for Pregnancy, Labor, and Birth               <ol style="list-style-type: none"> <li>a) More prepared for pregnancy, labor, and birth</li> </ol> </li> <li>5) Facility Assets for Success               <ol style="list-style-type: none"> <li>a) Large patient volume</li> <li>b) Facilities appropriate for group education</li> <li>c) Excellent nurse educators</li> </ol> </li> </ol>
Weaknesses
<ol style="list-style-type: none"> <li>1) Difficulty in implementation               <ol style="list-style-type: none"> <li>a) Time</li> <li>b) Space</li> <li>c) Coordination of group care/scheduling</li> <li>d) Enrollment/getting women to commit to group care</li> <li>e) Group Dynamic: Effect of non-compliance on other group members</li> </ol> </li> <li>2) Inaccurate information (from either peers or leaders)</li> <li>3) Unclear benefits for measurable outcomes</li> <li>4) Neglect of HROB problem</li> <li>5) Unique experience of the high-risk population               <ol style="list-style-type: none"> <li>a) Patient desire for privacy</li> <li>b) Patient may desire or require more individualized care</li> <li>c) Not all patients are candidates for GPNC</li> </ol> </li> </ol>

**Opportunities.** Opportunities were resources outside the health system or organization that would encourage or support GPNC. Major themes that emerged for opportunities included potential for improved outcomes (“whether direct or indirect”), outside referrals, potential for

extension of other services/resources from GPNC such as group exercise classes, and potential to expand on current services such as diabetes education class. One participant stated they were “not aware of any opportunities”. See Table 3 for Opportunities identified in the staff survey.

**Threats.** Perceived threats are barriers that might prevent implementation of GPNC that exist outside the organization or health system. Major themes were reimbursement and cost including concern with insurance payment, potential for decreased profits, potential for additional cost to patient, lack of knowledge of how to successfully implement GPNC, and patient related factors including peer pressure, patient resistance, some patients requiring more individualized care, patient scheduling, and privacy. Other themes included potential for no improvement in outcomes and one person reported that they did not know of any external threats, stating “Unknown, I can’t see how it [GPNC] wouldn’t be beneficial”. Difficulty with implementation and maintenance of GPNC emerged as a major theme, though subthemes were all related to internal issues such as time, space, ability to coordinate with other appointments, and finding a qualified private instructor to lead classes. See Table 3 for Threats identified in the staff survey.

Table 3

*Staff Survey Themes and Subthemes: Opportunities & Threats (External Elements)*

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Opportunities

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- 1) Potential for improved outcomes
  - 2) Outside referrals as potential candidates for GPNC
  - 3) Potential to expand on current services
    - a) Gestational diabetes education class
  - 4) Potential for extension of other services from GPNC
    - b) Exercise classes
  - 5) Unknown opportunities
- 

Threats

---

- 1) Reimbursement and cost
    - a) Concern insurance will not cover high-risk appointments and GPNC
    - b) Potential for decreased profits
    - c) Potential for additional cost to patient
    - i) Parking
  - 2) Lack of knowledge of how to successfully implement GPNC
  - 3) Patient related factors
    - a) Peer pressure
    - b) patient resistance
    - c) patients may require more individualized care
    - d) patient scheduling
    - e) privacy
  - 4) Potential for no improvement in outcomes
  - 5) Unknown threats
  - 6) Difficulty with implementation and maintenance (internal problems)
    - a) Time
    - b) Space
    - c) Ability to coordinate with other appointments
- 

**Suggested population.** Providers and staff members suggested GPNC in the high-risk OB population for patients with the following high-risk medical conditions: renal disease, heart disease, fetal anomalies, history of fetal loss, history of extreme preterm birth, connective tissue disorders, patients desiring trial of labor after previous Cesarean section, obesity, smoking and other substance abuse, multiple gestation, thrombophilia, asthma, and cystic fibrosis. The top three high-risk medical conditions mentioned by staff members were diabetes--unspecified type (75%), hypertensive disorders (66.6%), and gestational diabetes (25%). One participant recommended having four separate cohorts for Type 1 diabetics, Type II diabetics, diet

controlled gestational diabetics (GDMA1), and gestational diabetics on either oral hypoglycemic agents or insulin (GDMA2). Another participant recommended separating cohorts by language rather than medical condition to meet the needs of English and non-English speaking patients.

### **Patient Survey**

Eleven women completed the survey and 4 women submitted partially-completed surveys. The women who submitted partially completed surveys had indicated that they were not interested in GPNC and did not finish the survey. See Table 4 for patient survey themes and subthemes.

**Perceived benefit.** Increased education, social support, and more time with provider were the three major themes that emerged from patient perceived benefits of GPNC. A subtheme of increased education was feeling more prepared for pregnancy, labor, and birth. One participant noted that she thought GPNC would be “great for first time moms”. Reflecting on the combined benefit of group support and education, another participant remarked, “It’s possible I would get questions answered that I didn’t realize I had seeing other points of view”.

**Perceived barriers.** Barriers to attending GPNC included scheduling (53%), lack of childcare (26.6%), lack of transportation (26.6%), lack of interest (20%), and location (6%). Forty percent of the time themes were mentioned in pairs such as “scheduling and childcare”, “transportation and no childcare for my two kids”, “scheduling and work”, “scheduling issues and no childcare for other children”, “location and available dates”, and “interest and time” indicating multiple perceived barriers to GPNC for some participants. One participant indicated lack of transportation, “depending on what day it is” suggesting the possibility of participation, depending upon the day and another stated “I prefer individualized care” indicating no interest in GPNC.



**Self-efficacy.** Self-efficacy was defined as the extent or strength of one's belief in one's own ability to complete tasks and reach goals. Sixty-two percent of participants indicated "Yes", attending GPNC could strengthen their belief in themselves to complete a task or reach a goal in some area of their life and 39% of participants indicated that attending GPNC would not strengthen their belief in themselves to complete a task or reach a goal. Two participants indicating they were not interested in GPNC did not respond to this question. Other participants indicating disinterest in GPNC responded "I have issues with this already" and "I don't want/need someone to tell me what's right/wrong. I'll learn by doing".

Increased confidence was the major theme that emerged among patients indicating that GPNC could strengthen their belief in themselves to complete a task or reach a goal in some area of their life. Subthemes of increased confidence included: increased confidence and reassurance in birth experience, increased confidence in ability to breastfeed, increased confidence to make better choices, and increased confidence in mothering skills. One participant stated, "It's possible that after seeing others do something, I'd see that I could do it, too".

**Activity-related effect.** When asked what effect attending GPNC would have on them, forty-five percent (5 out of 11 women) reported that it could or might help them make healthier lifestyle choices, including making more nutritious food choices, increasing physical activity, and helping them quit smoking. Other themes included perceived peer support (36%) with one woman stating she could "make friends" and several others reporting participation could "make me feel more supported". Twenty-seven percent said it could help them feel more comfortable in a group setting. One person reported that attending GPNC could give her "more awareness". Four participants that previously indicated they were not interested in GPNC did not answer this question.

Table 4

*Patient Survey Themes and Subthemes: Perceived Benefits, Barriers, Self-efficacy, and Activity-related Affect of GPNC*

<b>Benefits</b>
1) More education a) Feeling prepared for pregnancy, labor, and birth
2) Social support
3) More time with provider
<b>Barriers</b>
1) Scheduling
2) Lack of Childcare
3) Transportation Issues
4) Lack of interest
5) Location
<b>Self-efficacy</b>
1) Increased confidence a) And reassurance in birth experience b) In ability to breastfeed c) Generalized confidence d) To make better choices e) In mothering skills
<b>Activity-related affect</b>
1) Make healthier choices a) More nutritious choices b) Increase physical activity c) Smoking cessation
2) Peer support a) Feel more supported by other pregnant women b) Friendship
3) Increased comfort in group settings
4) Acquire more awareness

**Level of interest.** Six women reported having no interest in attending GPNC. Two additional women did not respond to this question, though they indicated elsewhere on the survey they were not interested in GPNC. Four women were curious and interested in learning more about GPNC and three women were completely interested and indicated they would attend GPNC. In this sample, more women indicated that they had no interest in attending GPNC than women desiring more information or women completely interested in GPNC.

**Age of participants.** The Project Director was interested in examining age of participants and interest in attending GPNC to determine if there was a certain age group that was more interested or less interested than other age groups. See Table 5 for participant interest by age. More women ages 25-29 reported complete interest in attending GPNC, though this was the age group with the largest response rate.

Table 5

*Number of Participants Interested in GPNC by Age*

Ages	Not interested at all	I'm curious, I would like to know more	I'm completely interested, I would attend
	<i>n</i> (%)	<i>n</i> (%)	<i>n</i> (%)
14-18	0	0	0
19-24	1	2	1
25-29	2	1	2
30-34	1	1	0
35-39	1	0	0
40+	1	0	0
Totals	6 <sup>a</sup> (46.15)	4 (30.76)	3 (23.07)

<sup>a</sup>Two participants indicated they were not interested in GPNC, though they did not provide their age on the survey, therefore they are not represented in the table.

**Satisfaction and location of prenatal care.** Of eleven respondents, four reported being mostly satisfied with general pregnancy education in their current pregnancy (36%) and 7 women were completely satisfied with general prenatal education received (64%). Twelve women gave information about where they received prenatal care. Seven participants (58%) received all care at TUKHS High-Risk OB clinic in Kansas City, KS and 5 participants (42%) were co-managed between the High-Risk OB Clinic in Kansas City, KS and an outside clinic. The Project Director was interested in location of prenatal care during the current pregnancy and satisfaction with general pregnancy education. Of participants co-managed with the High-Risk OB Clinic and an outside clinic, two women reported being mostly satisfied with general pregnancy education and 2 other participants were completely satisfied with general pregnancy

education received. Of participants receiving all prenatal care at the High-Risk OB Clinic in Kansas City, KS location, two participants reported being mostly satisfied with pregnancy education and five participants reported being completely satisfied with pregnancy education received. No participants were completely unsatisfied or only somewhat satisfied, regardless of where they received prenatal care, demonstrating that women participating in this survey were mostly or completely satisfied with general pregnancy education received.

### **Discussion**

Strengths of this study included insights from women with high-risk pregnancies and feedback from staff members currently working with the high-risk OB population.

Limitations included a small sample size and data collection by survey resulting in missing or incomplete data from some participants. This survey was limited to English-speaking women and did not capture the reflections of non-English speakers and opinions expressed were not necessarily representative of all women with high-risk medical conditions. This study was designed to address one Midwest health center and may not be generalizable to other clinic locations or settings.

### **More Time with Provider and More Education**

Staff members and patients overwhelmingly agreed that improved knowledge and preparation for pregnancy, labor, and birth was a major benefit and strength of GPNC. Staff members stated that women may value more time with the provider even though it would be in a group setting, emphasizing that additional education received from GPNC might be more important to some women than one-on-one care. Increased provider time was viewed as a major benefit to GPNC on the patient survey, further validating the assumption that women value provider time and education in pregnancy.

## **Community and Peer Support**

Survey responses clearly demonstrated patients and staff members were aware of and value the benefits of peer support available through GPNC. Less clear is the understanding of how negative peer pressure and non-compliance of some group members might affect other group members in this patient population. As in any group education setting, a strong leader needs a solid understanding of group dynamics to maneuver through challenges that might arise (Reddicks, 2013). Individual issues will need to be addressed on a case-by-case basis.

“Non-compliance”, or adherence, is a multifactorial issue. When adherence is a problem, it is rarely a deliberate decision to not follow the recommended plan. More often, the patient is lacking resources to pick up medications or supplies or the means to arrive at the appointment (Chesanow, 2014). The group leader will need to be knowledgeable and skilled at managing group dynamics to minimize disruptions to the flow of class while addressing the issues of negative peer pressure and adherence discreetly and privately as needed.

## **Increased Provider Availability and Time Savings**

Increased provider availability and time savings were two strengths listed by staff members as a means for improved efficiency. GPNC at this location could improve efficiency in several ways. Patients would attend high-risk OB appointments and GPNC, though wait time would be less if perinatologists were able to focus on the high-risk pregnancy condition, leaving general pregnancy education for GPNC. This could contribute to shorter appointments and less wait time for patients.

## **Reimbursement and Cost**

Reimbursement and cost of GPNC in the high-risk OB population were considerable concerns of staff members. GPNC must be profitable to be feasible. Historically, grants have

been available through private and public sectors to help fund GPNC start-ups (Centers for Medicare and Medicaid Services, 2018; Centering Health Institute, 2019; March of Dimes, 2019). TUKHS leadership team could research available grant funding to help cut the cost of GPNC implementation and maintenance. Staff members were also concerned about cost to the patient. Many women pay out-of-pocket for care and may not be able to afford high-risk OB appointments and GPNC. Other patients may have GPNC paid for by their insurance and pay a co-pay for high-risk OB visits, also adding to their out-of-pocket expense. Depending on the insurance plan, co-pay amounts can range from \$5 to hundreds of dollars (Fay, 2019).

Patients with limited financial resources may choose to skip high-risk OB appointments if they do not have money for out-of-pocket expenses and instead, just show up for GPNC, thus neglecting their high-risk OB issue. This can and does occur with patients attending traditional care as well. Further evaluation of reimbursement and cost is needed to better understand possible solutions for this perceived barrier to GPNC in the high-risk OB population.

### **Appropriate Fit for GPNC**

There were concerns with difficulty of implementation of GPNC due to the unique experience of the high-risk OB patient. Some apprehensions were not specific to the high-risk OB population, such as “Women who have challenging social situations would either thrive in connecting with other women or find themselves feeling more isolated”. The loose group structure can be challenging for women with behavioral or psychiatric disorders (Magriples, 2018). Women with difficult behavioral, social, and psychological situations exist in the high and low-risk OB populations. All women begin prenatal care with an initial OB appointment with either an obstetrician or midwife. Whether GPNC is the best choice for them individually

can be discussed at that time. A screening tool administered at the initial OB appointment might be helpful in determining which patients would benefit most from GPNC.

### **GPNC and Diabetes Education Class**

For several years, the High-Risk OB Clinic at TUKHS has successfully offered separate gestational diabetes education classes for English and Spanish speaking women diagnosed with GDM in the second trimester of pregnancy. One staff member suggested offering continued group care beyond the initial diabetes class. Though this model would not provide an opportunity for group care through the entire pregnancy, it would offer women with a shared medical diagnosis and experience the opportunity to glean the benefits of group care for the last trimester of pregnancy. Another opportunity mentioned on the staff survey was the possibility of extending group care services to include a group exercise class, further promoting increased physical activity and social support during pregnancy.

### **Model Fit for Disease Process**

There was wide variety in opinions regarding which patients with high-risk medical conditions would be candidates for GPNC. Dividing cohorts by disease process would be taxing on resources. It might be more realistic to exclude patients with more complex medical management needs than break up cohorts by disease process, though it seems unfair to disqualify certain patients from GPNC based on their disease process. A woman with Type 1 diabetes requiring complex management of glucose levels during pregnancy also deserves the benefits of GPNC if she desires. Also suggested was dividing groups by language to meet the needs of English and non-English speaking women, primarily Spanish speaking women. TUKHS leadership team would need to evaluate the feasibility of offering multiple cohorts divided by disease process and language.

## **Barriers and Weaknesses**

Staff members identified cost of parking and limited space as weaknesses to implementation of GPNC at the high-risk OB Clinic at TUKHS and one patient identified location as a barrier to attendance. Finding space for group care classes on the main campus at TUKHS has historically been a significant challenge for leaders of other group classes such as childbirth preparation and breastfeeding classes. Patients spend time searching for classes despite signage and they do not appreciate paying for parking. Moving GPNC classes to an off-site location with free parking may be one solution to these problems. If there is no room availability at other TUKHS sites, the medical center may consider paying to secure a room in a desired location, though this may increase the cost of care which may not be an option. Consideration would need to be given to site location to ensure availability to those interested in participating.

Women cited scheduling, lack of childcare, transportation issues, and lack of interest as major barriers to GPNC. One option for dealing with lack of childcare and transportation issues that has been implemented in a community GPNC program in Ohio is to make childcare services available during classes and offer cab vouchers or bus passes to and from GPNC sessions (Gebbe et al., 2017). The resources required for this type of program are extensive and it is unknown if TUKHS would have the resources available to invest in this service to make GPNC more accessible to women.

Scheduling is a challenge for GPNC in any population, as most women balance work, home, and life responsibilities. Not every woman will be able to commit to GPNC, and as the patient survey revealed, not all women desire group care. Staff members suggested there might be a problem with enrollment if not enough women were interested or could commit to attending



group care. A more extensive study of women at TUKHS is needed to determine if GPNC would be a viable option.

### **Self-efficacy**

Over half of women believed attending GPNC could strengthen their belief in themselves to complete a task or reach a goal in some area of their life and all these women were interested in learning more about GPNC or interested in attending GPNC. All women who responded “no”, attending GPNC would not strengthen their belief in themselves to complete a task or reach a goal were also not interested in attending GPNC and did not want to learn more. These findings could indicate that women who believe GPNC could have a positive impact on them are likely to benefit the most from the GPNC experience. Women answering the self-efficacy question with a “no” response should perhaps consider whether GPNC is the right choice for them. This question could be utilized on an evaluation tool to help women decide if they are a good candidate for GPNC.

### **Theoretical Framework**

Schindler Rising (1998), the founder of CenteringPregnancy®, believed pregnancy is a time of growth and transition when women are open to learning. In Pender’s Health Promotion Model, interventions are focused on health promoting behaviors. In alignment with Pender’s model, Schindler Rising (1998) viewed GPNC as a means to provide improved education to raise awareness of health-promoting behaviors during pregnancy and to promote benefits of change. GPNC provides a controlled environment to support behavior change and to help manage barriers to change within a group setting.

According to Pender’s model, commitment to GPNC is dependent upon the woman’s perceived benefit, perceived barriers, perceived self-efficacy, and participation of GPNC affect.

A woman's interpersonal influences and situational influences also affect her commitment to GPNC and health promoting behaviors. Work schedule, lack of childcare, and transportation issues (immediate competing demands in which she has little control of) and her desire to attend GPNC (a preference in which she has high control over) all contribute to whether she will choose to participate in GPNC. Additionally, her prior related behavior, such as previous experience with traditional prenatal care versus GPNC, and personal factors, such as biographical, psychological, and sociocultural factors, also contribute to whether she will choose GPNC and follow through with health-promoting behaviors. GPNC is an experience designed to bring a group of pregnant women and their partners together during one of the most significant seasons of their lives. The experience should be rich in education and social support, leading women to health-promoting behaviors that result in positive outcomes for mother and baby.

### **Midwifery-Led GPNC in the High-Risk OB Population**

Education received during GPNC, delivered by midwives, is general and applicable to most women. Pregnant women with high-risk medical conditions should be given the same opportunity to attend GPNC as low-risk pregnant women, if they so desire. Women with high-risk pregnancies attending GPNC should be encouraged to ask questions specific to their situation and medical condition during one-on-one time with the midwife. The midwife should collaborate closely with physician partners to ensure the high-risk medical needs of patients are met in addition to general pregnancy, labor, and birth needs.

### **Implications for Future Practice and Research**

This analysis of GPNC in the high-risk OB population has contributed the personal reflections and opinions of pregnant women with high-risk OB conditions and staff members who work directly with this patient population. Future studies should focus on cost of GPNC in

the high-risk OB population and perceptions of GPNC in the high-risk OB population among non-English speaking women. If GPNC is to be successful and the aim is to help women most in-need, then it is vital to target the barriers that keep women from attending GPNC. It might be necessary for TUKHS to poll women to determine optimal scheduling of GPNC classes. Lack of childcare and transportation issues are difficult, but not impossible challenges to overcome. It would take innovative and open minds to come up with solutions to these problems, but if the goal is to be inclusive and improve pregnancy outcomes, then these challenges must be addressed. The Moms2B program is a robust community-based GPNC program that could potentially be used as a model and modified use at TUKHS.

### **Improved Outcomes**

The potential for improved outcomes was a reoccurring theme throughout this analysis. Though there has been inconsistent data showing GPNC lowers preterm birth rate, except in African American women (Carter et al., 2016), women participating in GPNC have demonstrated down-trending cesarean section rates (Byerly & Haas, 2017). Women attending GPNC have also demonstrated higher rates of breastfeeding initiation and continuation, have consistently shown increased patient satisfaction over traditional PNC, have increased pregnancy and labor knowledge, and have increased readiness for labor and birth (Byerly & Haas, 2017). Improved blood glucose control and high rates of postpartum follow-up care in women with diabetes in pregnancy have also been well documented improved outcomes in the literature (Carter et al., 2018; Mazzoni et al., 2016; Schellinger et al., 2017). The results from this analysis agree with current literature findings, particularly increased pregnancy and labor knowledge and increased readiness for labor and birth in women attending GPNC.

The goal of GPNC is improved pregnancy and birth outcomes. TUKHS is in the heart of Wyandotte County, KS, where the infant mortality rate was 7.9 from 2012-2016 (Mother and Child Health Coalition, n.d.). Wyandotte County has dense African American and Latino populations, those at highest risk for preterm birth, other poor pregnancy outcomes, and infant death (Mother and Child Health Coalition, n.d.). TUKHS already serves many of these women through their prenatal clinics and gestational diabetes education classes. GPNC in the high-risk OB Clinic at TUKHS has the potential to further decrease preterm birth rates and pregnancy outcomes in the highest-risk populations in Wyandotte County, KS.

### **Summary**

The purpose of this project was to conduct a SWOT analysis of GPNC in the high-risk OB population at an academic health center, assess the patient experience with traditional care in the high-risk OB setting, and determine patient interest in participating in GPNC. Upon completion of this project, the Project Director will distribute final analysis to the High-Risk OB Clinic providers and staff to assist in further exploration of implementation of GPNC in the high-risk OB population.

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## Appendix A

### Provider and Staff Survey

#### **An Analysis of Group Prenatal Care in a High-Risk Obstetric Population**

**Thank you for agreeing to complete this survey. Your consent to participate in this survey is implied upon survey completion.**

**Group prenatal care is when 8-12 pregnant women meet once for 90-120 minutes each month throughout pregnancy for prenatal appointments and prenatal education. Class is led by a provider and a nurse. Privacy is provided for belly measurements, listening to fetal heart rate, and one-to-one time for questions with the provider. If women have a high-risk medical condition, these monthly visits would be in addition to regular visits with their high-risk OB doctor. Studies show that patients attending group prenatal care have better prenatal knowledge, feel more-ready for labor and delivery, are more satisfied with their care, and initiate breastfeeding more often.**

**Please answer the following questions based on your thoughts or perceptions of group prenatal care. If you do not have an answer for a particular question, please indicate “N/A” or “not applicable”.**

Thank you for agreeing to complete this survey. Your consent to participate in this survey is implied upon survey completion.

Please respond to the following questions:

1. Please indicate **your role** in the High-Risk Obstetrics Clinic:

Manager or Administrator

Medical Assistant

Nurse

OB Resident

MFM Fellow

Maternal-Fetal Medicine physician

2. How many years of experience do you have with group prenatal care?

No experience, up to 1 year, 1-4 years, 5-10 years, more than 10 years

3. What are the perceived strengths to group prenatal care in the high-risk OB population?  
*Consider those things that are in place or available within the health system to encourage or facilitate group prenatal care.*
4. What are the perceived weaknesses to group prenatal care in the high-risk OB population?  
*Consider those things that might be barriers within the clinic or health system to implementing group prenatal care.*
5. What are the perceived opportunities to group prenatal care in the high-risk OB population?  
*Consider resources outside the health system or organization that would encourage or support group prenatal care.*
6. What are the perceived threats to group prenatal care in the high-risk OB population?  
*Consider barriers or things that might prevent implementation of group prenatal care that exist outside of the organization or health system (such as health policy, reimbursement, etc.).*
7. Some have suggested that group prenatal care in the high-risk OB patient population should be divided up by disease process. What disease processes do you think would be a good fit for this model?

## Appendix B

### Introduction Letter and Patient Survey

Dear expectant mother,

We, Cara Busenhart, School of Nursing faculty, and Amber Clark, DNP student, are contacting you because you are a patient of the high-risk obstetrics department at The University of Kansas Health System. We are recruiting research participants to help us better understand perceptions of group prenatal care and current prenatal experiences of women receiving care in a high-risk obstetric clinic. Participation involves completing a survey that will take about 10 minutes. No identifiable information will be collected about you, and the survey is anonymous. In addition to the survey questions, we will request your age. After you have finished the survey, please place the survey in the envelope at the front desk.

There are no personal benefits or risks to participating in this study. Participation is voluntary, and you can stop taking the survey at any time.

If you have any questions, please contact Cara Busenhart at [cbusenhart@kumc.edu](mailto:cbusenhart@kumc.edu) or 913-588-3354. For questions about the rights of research participants, you may contact the KUMC Institutional Review Board (IRB) at (913) 588-1240 or [humansubjects@kumc.edu](mailto:humansubjects@kumc.edu)

Sincerely,

Cara Busenhart, PhD, APRN-NM, CNM, FACNM

Amber Clark, DNP student

## An Analysis of Group Prenatal Care in a High-Risk Obstetric Population

Thank you for agreeing to complete this survey. Your consent to participate in this survey is implied upon survey completion.

**Group prenatal care is when 8-12 pregnant women meet once for 90-120 minutes each month throughout pregnancy for prenatal appointments and prenatal education. Class is led by a provider (physician or midwife) and a nurse. Privacy is provided for belly measurements, listening to fetal heart rate, and one-to-one time for questions with the provider. If you have a high-risk medical condition, these monthly visits would be in addition to regular visits with your high-risk OB doctor. Studies show that patients attending group prenatal care have better prenatal knowledge, feel more-ready for labor and delivery, are more satisfied with their care, and initiate breastfeeding more often.**

**Please answer the following questions based on your thoughts or perceptions of group prenatal care:**

1. What would be the benefit to you of participating in group prenatal care? (Examples of benefits are more education, feeling more prepared for labor and delivery, having more time with the midwife/physician, support from other pregnant women.)
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2. What would prevent you from attending group prenatal care classes? (Examples of barriers are: no transportation, scheduling issues, no childcare for other children, I do not want to meet in a group.)
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3. Self-efficacy is the **extent or strength of one's belief in one's own ability to complete tasks and reach goals**. Could attending group prenatal care strengthen your belief in yourself to complete a task or reach a goal in some area of your life? **YES / NO**. Please explain. (Examples might include: more confidence in my ability to breastfeed or increase confidence in myself that I can make healthy choices.)
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4. What effect do you think attending group prenatal care would have on you and your pregnancy? (Examples might include help me make nutritious food choices, increase my physical activity, help me feel more comfortable in a group setting, make me feel supported, help me quit smoking.)

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5. Please indicate your level of interest in attending group prenatal care if your schedule allowed:

0) Not interested at all                      1) I'm curious, I would like more information

2) I'm completely interested, I would attend

6. **General prenatal education** is basic pregnancy information about nutrition, exercise, what to eat, what to avoid in pregnancy, and travel. Rate your level of satisfaction with **general prenatal education** from your current prenatal care provider:

0- completely unsatisfied

1- somewhat satisfied

2- mostly satisfied

3- completely satisfied

7. Have you received all your prenatal care at the High-Risk OB clinic at The University of Kansas Health System in Kansas City, KS location? **YES / NO**

8. Please indicate your age?

14-18

19-24

25-29

30-34

35-39

40+