The Gestational Diabetes Group Program

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ABSTRACT

The purpose of the Gestational Diabetes Group Program (GDGP) was to provide patients with diabetes self-management education that occurs in a supportive, prenatal group care setting. The Centering Pregnancy Interdisciplinary Model of Empowerment and the Chronic Care Model guided the program. The pilot project took place at an urban clinic that cares for a diverse, underserved population. The GDGP, a series of four prenatal group sessions after the diagnosis of gestational diabetes and one postpartum group, used an interprofessional/interdisciplinary approach to care with the groups cofacilitated by certified nurse-midwives, certified diabetes nurse-educators, and other community partners. The program was able to show statistically significant changes in knowledge and empowerment, optimal pregnancy outcomes, and high patient satisfaction.

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INTRODUCTION

The prevalence of gestational diabetes (GD; glucose intolerance that begins or is first recognized during pregnancy) is estimated to be 2%–6% of all pregnancies, and may be as high as 10%–20% in high-risk populations (Galtier, 2010). African American, Asian American, and Hispanic women are at a disproportionately higher risk than non-Hispanic White women of developing GD (Fujimoto, Samoa, & Wotring, 2013). Gestational diabetes has been

associated with increased risk of fetal macrosomia (estimated fetal weight greater than 4,000 grams), newborn hypoglycemia, shoulder dystocia during the birth process, newborn respiratory distress syndrome, a higher rate of maternal cesarean surgery, and other serious maternal and neonatal complications (Webb, 2013).

All women with GD, regardless of race or ethnicity, have an increased risk of developing Type II diabetes later in life and currently, an estimated 50%

will progress to diabetes within 22–28 years after pregnancy (England et al., 2009). Berry et al. (2013) described pregnancy as an “unrealized window of opportunity for primary prevention of diabetes” (p. 1). The National Diabetes Education program recommends that obstetrics/gynecology providers “take the lead to initiate long-term interventions” for women to “minimize the mother’s risk of developing diabetes or to diagnose diabetes as early in its course as possible” (Gabbe, Landon, Warren-Boulton, & Fradkin, 2012, p. 175). These recommendations include: (a) increasing the postpartum diabetes screening rate; (b) initiating referrals for early treatment and prevention including diet counseling, physical activity, and weight loss; and (c) implementing therapies that improve long-term changes in behavior (Gabbe et al., 2012).

Purpose

The purpose of the Gestational Diabetes Group Program (GDGP) was to combine key features from diabetes self-management education (DSME) programs that used a shared medical appointment approach while also providing prenatal care in a supportive “Centering Pregnancy” group model format (Centering Healthcare Institute, 2014). The GDGP used an interprofessional/interdisciplinary approach to meeting patient’s care needs (certified nurse-midwife; certified diabetes nurse-educators; medical students; advance practice nursing students) and also involved community partners (Young Men’s Christian Association [YMCA] and the local food bank community educators).

DSME strategies are reported in the literature and in several comprehensive reviews as a way to improve the health and attempt to prevent many of the comorbidities patients with diabetes incur (Colagiuri & Eigenmann, 2009; Fitzpatrick, Schumann, & Hill-Briggs, 2012). Self-management education for gestational diabetics includes lifestyle modification (exercise and diet), blood glucose monitoring, and possible medication management (Metformin, Glyburide, and/or insulin) (Webb, 2013). Control of blood glucose (euglycemia) has been found to significantly decrease the risk of adverse pregnancy outcomes (Crowther et al., 2005). England et al. (2009) noted that lifestyle changes and medication may delay or prevent Type II diabetes in women with GD.

Shared medical appointments (health-care provider) or group medical appointments have been

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well documented as an alternative to traditional one-on-one medical appointments as a way to provide more comprehensive care and DSME for adult patients with diabetes (Riley & Marshall, 2010; Ridge, 2012; Sanchez, 2011; Trotter, 2013). Group care for prenatal patients has also been well documented as an alternative to traditional care with many published studies utilizing the Centering Pregnancy model for group prenatal care reporting improved pregnancy outcomes (Bell, 2012; Klima, 2009; Thielen, 2012). Group care promotes values such as community building, learning from others, and results in a “sharing of power between the provider and the consumer” (Rising, 1998, p. 53). American College of Nurse-Midwives (2010) has endorsed group prenatal care as a model that is “woman-centered” and has demonstrated improved pregnancy outcomes for women and their babies, including decreased premature birth rate and increased breastfeeding initiation and duration (Ickovics et al., 2007).

Theoretical Frameworks

This GDGP was guided by two theoretical frameworks, the “Centering Pregnancy: Interdisciplinary Model of Empowerment” and “Wagner’s Chronic Care Model (CCM).” Rising (1998), founder of Centering Pregnancy, described the group prenatal care program as an “interdisciplinary empowerment model” that unifies “the components of prenatal care—risk assessment, education and support within the group and encourages women to take responsibility for their own health” (p. 46). Risicky, Asghar, Chaffee, and DeGennaro (2013), in their qualitative analysis of women’s perceptions of the Centering Pregnancy model, found that the women in the study talked about empowerment and feeling that they could advocate for themselves. Women were also influenced by the supportive atmosphere

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of the group, both in developing close relationships with their peers and also with the nurse-midwife facilitating the group.

Wagner et al. (2001) developed the CCM to address the multiple needs of patients with chronic illnesses, including managing symptoms, medications, psychosocial issues, lifestyle changes, and obtaining ongoing medical care to ultimately improve quality by redesigning delivery of care. In a variety of settings, the CCM has provided a framework for evaluating the effectiveness of shared medical appointments for managing diabetes (Sanchez, 2011; Simmons & Kapustin, 2011; Watts et al., 2007) and integrating the wider community when caring for patients with chronic illness. While GD is not a “chronic illness,” management is similar to other chronic illnesses like Type II diabetes.

Group Care for Gestational Diabetics: Literature

A review of the literature found few published studies describing group prenatal care specifically for patients with GD and, until recently, there was approximately a 10-year interval between distant publications. Two older articles by Littlefield and Siebert (1978) and Nichol, Cleave, and Seto (1993) provided important structure and content information for GD group care. They both described elements of diabetes self-management that were included in their programs, such as healthy eating strategies, blood glucose monitoring, and the effect of physical activity. Littlefield and Siebert (1978) recognized the importance of the group process for learning to “cope with situational or developmental crises” (p. 278) and reviewed some of the benefits of group learning such as: facilitation of coping ability; members joining the group because they wanted to learn; learning from other group members instead of just an “authority” person; emotional support from group members; and evidence that group education provided support for changing health-care behaviors. Nichol et al. (1993) also found group sessions to be “a supportive and desirable way to learn about gestational diabetes” (p. 16).

More recently, Schlachter, Ahern, and Brown (2013) reported significant improvement in pre-test scores (75%) to posttest scores (96%) and patient satisfaction of 96% after patients attended a 2-hour class developed specifically for gestational diabetics. In addition, Schellinger et al. (2013) reported improved outcomes for Hispanic patients with GD who attended a Centering Pregnancy

group program adapted for this high-risk population. Finally, Frazzitta, Anderson, and Egan (2013) described postpartum diabetes screening rates for gestational diabetics using a group format that met for one session, 6–8 weeks after giving birth. They reported an increase in the postpartum screening rate for Type II diabetes from 15% to 42% in women that attended this unique postpartum educational group meeting that included the recommended postpartum diabetes screening as part of the program.

Program Development

Key stakeholders involved in planning for the GDGP included: (a) the nurse-midwife (lead author) who would cofacilitate the group program, (b) the diabetes nurse-educators, and (c) the Directors of the OB/GYN residents, family medicine residents, nurse-midwifery clinics. Key staff members from the YMCA National Diabetes Prevention Program (NDDP) were also invited to be part of the GDGP. The NDPP is designed to prevent Type II diabetes at the community level, by promoting evidence-based programs that may contribute to effective lifestyle changes for high-risk populations (Burge & Schade, 2014). In addition, community educators from the local food bank were included to offer an interactive cooking class that would incorporate diabetic diet principles and healthy cooking options. Medical students currently completing their third-year ambulatory OB/GYN clerkship were also involved in the group sessions as clinic time allowed and advanced practice nursing students working with the lead author also took part in some of the sessions.

Scope of the Program

The GDGP was a series of group visits (four visits during the prenatal period and one visit 6–8 weeks after giving birth) and was a supplement to routine prenatal care. The group sessions were 2 hours in length and included DSME principles. A variety of topics were incorporated in the curriculum including: diabetic diet principles, physical activity, blood glucose testing and control, medication use, addressing barriers to adopting healthier lifestyles, and routine prenatal care educational information and fetal surveillance for women with GD if indicated.

The content of the curriculum was guided by the national standards for DSME content (Haas et al., 2013; Harden et al., 2014); by the current recommendations of the American Association of

Diabetes Educators (2015); the Endocrine Society Clinical Practice Guidelines (Blumer et al., 2013); and the Centering Diabetes curriculum (Centering Diabetes Notebook, 2014). Permission was obtained from Centering Healthcare to use the Centering Diabetes Notebook and curriculum. The program also included the option of routine prenatal assessments (obtaining weight, blood pressure, fundal height assessments, and fetal heart tone checks) if needed or at patient request (see Appendix for detailed outline of program components).

METHODOLOGY

Design

A pretest/posttest design was used to determine the effect of the program on knowledge and empowerment for the patients attending the GDGP (see measures below). The pretest screens were obtained prior to the first group session and the posttest was obtained at the 4th session (or mailed to the participant to complete if they missed that session). The group cohorts were organized based on EDC (estimated date of confinement) and, for this 6-month pilot program, patients agreed to receive their DSME (and optional prenatal assessments) in the GDGP, over three EDC cohorts (November/December; January/February; March/April). At the postpartum visit, 2-hour glucose testing was incorporated as part of the reunion group with the patients arriving for the early morning session having fasted. If time/need allowed, participant's postpartum exam (individual) was completed.

Sample/Safety

A convenience sample of patients with GD—defined as elevated 3-hour glucose challenge test using Carpenter and Coustan (1982) criteria or the National Diabetes Data Group (NDDG) criteria (Mayfield, 1998 with two of four values elevated for either test), or an elevated 1-hour initial screening of greater than 200 mg/ml—were recruited from four primarily urban practice sites located in Rochester, New York, and affiliated with the lead author's clinical practice sites. While the local OB/GYN system favors the NDDG criteria for diagnosis, the system's diabetes education and referral center currently provide DSME for patients diagnosed with GD by either NDDG or C/C; therefore, patients were included if diagnosed by either criterion. All four practices had similar obstetric volume numbers and demographics. Patients were referred to the study by providers

and/or nursing staff or they self-referred. Patients with preexisting diabetes, those less than 18 years of age, and multiple gestation pregnancies were excluded.

Consent was obtained prior to the first group meeting after the study was reviewed with the patient by the lead author. Patients who did not desire the GDGP were referred for traditional, individual DSME and care. Patients also signed a specific HIPAA (Health Insurance Portability and Accountability Act) consent form that gave permission to share their information in the group setting (Theobald & Masey, 2009). The pretest and posttest were obtained anonymously and were paired by matching of three unique identifiers (participant's favorite food, color, and animal) and were color-coded to match each specific EDC cohort. Institutional Review Board approval from the lead author's college was obtained prior to recruitment as well as approval from the affiliated hospital's research committee.

Patients with elevated blood glucose levels after the first or second session were referred to the endocrinologist/nurse practitioner at the affiliated diabetes management center for an individual appointment for medication management (recurrent fasting blood glucose greater than 95 or 1-hour post-prandial levels greater than 130). The patient's electronic record was reviewed to communicate blood glucose results with patients via the patient portal when possible and to obtain demographic and outcome data in the postpartum period.

Measures

The Diabetes in Pregnancy Knowledge Screen (Spirito, Ruggiero, Bond, Rotondo, & Coustan, 1990) was used to assess knowledge gains (verbal permission to use the form was obtained from the Dr. Spirito). The screen consisted of 14 multiple-choice items that target women's knowledge of diet, exercise, blood glucose testing, and long-term risks. Several of the items had more than one correct answer and partial credit was given if one of the correct answers was identified. A maximum score of 22 was possible and the measure was designed primarily for diet-controlled pregnant patients with GD. Internal consistency ($r = .71$) and test-retest reliability ($r = .76$) were noted by the authors (Spirito et al., 1990).

The Diabetes Empowerment Scale-Short Version (Anderson, Fitzgerald, Gruppen, Funnell, & Oh,

2003) was used to demonstrate changes in perceived empowerment from pre-program to post-program attendance (permission granted by accessing the form on the Michigan Diabetes Research Center, 2015 website). The short version (eight statements; 5-point Likert scale, 1 = strongly disagree, 5 = strongly agree) was modified from the original 28-point Diabetes Empowerment Scale (Anderson, Funnell, Fitzgerald, & Marrero, 2000) and has a reported Cronbach's α of .84 (Anderson et al., 2003). The scale was designed for use with Type I and Type II diabetics, but has also been used with patients with GD (Homko, Sivan, & Reece, 2002).

Key pregnancy outcomes were also obtained for the patients that participated in the prenatal sessions, but due to the small sample size the outcomes were compared to the literature. Also, at the postpartum session, participants were asked to complete a program evaluation, the *Centering Diabetes Patient Evaluation Satisfaction Survey* (Centering Diabetes Notebook, 2014). This survey (5-point Likert scale, 1 = strongly disagree, 5 = strongly agree) included nine satisfaction statements and an optional "comment" section. The rate of completion of the 2-hour postpartum glucose testing and results were obtained and recorded.

Statistical Analysis

Changes in the knowledge and empowerment scores were analyzed using Wilcoxon signed-ranks statistical testing. This test was chosen because of the small sample size, nonparametric results, and is appropriate for comparing paired data (pretest/posttest measurements) for a single sample of subjects (Urdan, 2010). Statistical Package for the Social Sciences (SPSS) Version 22 was used to enter and analyze the results.

RESULTS

Attendance/Demographics

Twelve patients registered for the program, across the three EDC cohorts. The first cohort (November/December) started out with three participants, but one patient lost her transportation to the sessions and did not return. The second cohort (January/February) also started out also with three participants, but one patient was a late registrant to care and gave birth to her baby the next day after agreeing to attend the GDGP. The final cohort (March/April) had six participants interested in attending the sessions with five that attended. All 12 patients

TABLE 1
Demographics

Demographic Characteristics (n) = 12	Number and Mean or (%)
Age (years)	26 (mean)
Maternal race: Caucasian	5 (42%)
Maternal race: African/American	4 (33%)
Maternal race: Somalia/Nepalese	2 (17%)
Maternal race: Hispanic	1 (08%)
Nulliparous	6 (50%)
Multipara	6 (50%)
High school education	7 (60%)
College education	5 (40%)
Insurance: Medicaid/Option	8 (66%)
Insurance: Private	4 (34%)
Criteria for GD diagnosis, (NDDG)	6 (50%)
Criteria for GD, 1 hour > 200	3 (25%)
Criteria for GD, C/C	2 (17%)
Other (diagnosed after screening)	1 (8%)
Marital status, married	6 (50%)
Marital status, single	6 (50%)

Note. C/C = Carpenter/Coustan; NDDG = National Diabetes Data Group.

completed at least the pretest measures. Of the three cohorts, most participants attended three of the four prenatal sessions, and, of those that attended prenatally, 77% attended the postpartum group.

The demographic results are summarized in Table 1. The mean age of the participants was 26 years old and approximately 60% of the participants were from high-risk ethnic groups as was expected in the urban practices that patients were recruited from.

Pretest/Posttest Results: Knowledge and Empowerment

The results of the Wilcoxon signed-ranks test indicated a significant change in knowledge and empowerment on the pretest and posttests for the patients that completed both tests after attending the prenatal portion of the program. The median scores of the tests were compared due to the small sample size (see Table 2). Only eight patients' scores were compared for knowledge measure due to one outlier.

Key Pregnancy Outcomes

Only the nine patients who completed the prenatal sessions were included in the outcome data. The mean gestational age at birth was >39 weeks, although two patients did give birth between 35 and 36 weeks gestation. Most patients had vaginal births,

TABLE 2
Pretest/Posttest Scores and Wilcoxon-Signed Ranks

	Pretest (n) = 12 Median	Posttest (n) = 8 Median	p value (n) = 8 *p < .05
Diabetes in Pregnancy Knowledge Screen (maximum score 22)			
Knowledge Screen	11.50	15.50	.046*

Source: Diabetes in Pregnancy Knowledge Screen (Spirito et al., 1990)

	Pretest (n) = 11 median	Posttest (n) = 9 median	p value (n) = 9 *p < .05
Diabetes Empowerment Scale–Short Form (5-point Likert scale)			
Diabetes Empowerment Scale-Short Form	4.12	4.75	.027*

Source: Diabetes Empowerment Scale – Short Form (Anderson et al., 2000). Retrieved from: www.med.umich.edu/mdrtc

*p < .05.

with one elective repeat and one primary cesarean birth. Only one of the patients developed mild pre-eclampsia. All the newborns weighed <4,000 grams and only one had hypoglycemia initially after birth. Seventy-seven percent attended the postpartum reunion group and all attending completed their postpartum glucose screening. All postpartum screening results were normal except for one patient that had impaired glucose tolerance.

Patient Satisfaction Survey

The mean scores on the satisfaction survey administered at the postpartum reunion group are summarized in Table 3. The total mean satisfaction score was 4.89 (out of a maximum score of 5) demonstrating a high patient satisfaction with the GDGP. Comments included statements such as: “I kept going with the diet after having the baby in hopes

to get healthier”; and “it was a wonderful way to provide more information about diabetes while connecting with another mother going through the same thing”; and “the group was educational and very supportive.”

DISCUSSION

While this project was a small pilot program, with only 12 patients initially registered and only nine completing both pre- and posttests, the gains in knowledge were statistically significant for median scores indicating the importance of DSME for this population. Participants often discussed their limited knowledge of carbohydrates, simple sugars, and the effect of fruit and fruit juice on their blood glucose values as well as not realizing the importance of having protein in their diet and balancing protein intake with carbohydrate intake. Their blood glucose values were shared with the principal investigator and the diabetes nurse-educators via the patient portal of the electronic record and in person during subsequent visits. Blood glucose levels and dietary changes were discussed at every prenatal group session. Participants would comment and make suggestions for others in the group such as recommending making small egg omelets in muffin tins to increase protein at breakfast. If blood glucose values were higher than dietary changes could control, patients were referred to endocrinology for medication management. Only two participants needed insulin to supplement their dietary changes. Poolsup, Suksomboon, and Amin (2014), in their systematic review and meta-analysis, found “robust evidence in favor of GD mellitus treatment” (p. 8) with dietary

TABLE 3
Centering Diabetes Satisfaction Survey

Survey Items	Mean Score
I learned new information. . .	4.86
The session reinforced what I . . .	4.86
The session increased my confidence. . .	4.71
I will change the way I manage. . . .	4.71
The presence of interpreter. . .	N/A
The doctor gave me treatment. . .	5.0
The nurses were helpful caring for me	5.0 (one N/A)
The cooking instruction will help me. . .	5.0 (one N/A)
The diabetes groups are fun and easy. . .	5.0
Total	4.89

Note. Administered at postpartum reunion group.

Likert Scale, 5 points, 1 = strongly disagree; 5 = strongly agree; N/A. (n) = 4.

Source: Centering Diabetes Notebook (2014).

Guided by the Centering Pregnancy Interdisciplinary Model of Empowerment, the Gestational Diabetes Group Program provided a supportive atmosphere that not only engaged patients in learning new skills but facilitated an open discussion and dialogue among the participants.

modifications, glucose monitoring, and medication if needed. Delivering DSME in a group format was an effective way for patients to acquire the knowledge needed to make lifestyle changes and communication of blood glucose values via the patient portal of the electronic record was an effective way to track abnormal (and normal) values.

Guided by the Centering Pregnancy Interdisciplinary Model of Empowerment, the GDGP provided a supportive atmosphere that not only engaged patients in learning new skills but facilitated an open discussion and dialogue among the participants. At the first group session, many of the participants were surprised by their diagnosis and expressed concerns about being able to manage their GD and the possible effects on their unborn baby. They were reassured by being with others in the group at similar gestational ages and sharing this unexpected diagnosis. At subsequent groups, the patients and families were genuinely happy to see each other and to be able to offer each other support and encouragement. Comments on the satisfaction survey included statements that reflected this, such as: “this group really helped to take away the anxiety or concerns about this diagnosis” and “it was valuable to have an additional platform in which to process my diagnosis of GD and review dietary changes and experiences I was having. It gave me a lot more confidence.” The statistically significant empowerment scores from pretest to posttest reflected these changes and were consistent with other published studies. Dasgupta et al. (2013) found that women clearly expressed the “need for social support from family, health professionals and from peers to achieve changes in eating and physical activity behaviors” (p. 6), and a qualitative study by Abraham and Wilk (2014) also found that women were overwhelmed at the time of the diagnosis and felt they could not manage their diabetes alone.

The third and fourth prenatal group sessions incorporated the wider community as part of

the program by involving the YMCA’s Diabetes Prevention Program staff and the community educator from the local food bank. Patients were actively engaged and took part in both a prenatal exercise session and in a healthy cooking class. One patient commented on the satisfaction survey that “the cooking class was delicious, and I learned so much about fiber! I would recommend this to every pregnant woman who is diagnosed with GD.” Incorporating community resources is one of the six essential elements of the CCM (Wagner et al., 2001) that guided this program development and implementation.

As previously noted above, the key pregnancy outcomes of the patients that completed the prenatal group sessions were as good as or better than outcomes previously reported in other studies (Frazzitta et al., 2013; Kwik, Seeho, Smith, McElduff, & Morris, 2007; Landon et al., 2009; Langer, Yogeve, Most, & Xenakis, 2005; Palatnik et al., 2015; Xiong, Saunders, Wang, & Demianczuk, 2001). The majority of the patients came to the postpartum reunion group and, of those attending the postpartum group, all completed their postpartum diabetes. One patient in this small sample was diagnosed at the postpartum screening as having impaired glucose tolerance and was referred to her primary care provider for ongoing management. This high rate of postpartum testing contributes to meeting the American College of Obstetricians and Gynecologists (2013) key performance measure to increase rates of postpartum screening for diabetes in this high-risk population. While the small pilot study limits any broad generalizations regarding the effect of GDGP on pregnancy outcomes, the results are reassuring and support this model of care for DSME.

LIMITATIONS

This pilot project was limited by the number of participants and the convenience sample, although the demographic data were reflective of the urban population the clinic site serves. In addition, the small sample size of 12 patients that were recruited and only nine completing the program limits broad generalizations. Recruitment was limited to system-specific practices already involved with group prenatal care models, thus excluding other potential patients with GD from community-based OB/GYN offices. Some patients were interested in

the study but could not attend due to other time commitments. The majority of the patients only attended three of the four prenatal group sessions, although most attended the postpartum reunion group.

IMPLICATIONS FOR PRACTICE AND PERINATAL EDUCATORS

The GDGP pilot project was able to combine self-management education within the supportive, facilitative approach of a Centering Pregnancy group. Statistically significant knowledge and empowerment pretest and posttest scores, high patient satisfaction, optimal pregnancy outcomes, and a high rate of postpartum testing for Type II diabetes all contributed to the program's success. In addition, the program was implemented with an interprofessional/interdisciplinary approach to care, involved medical and advanced practice nursing students, and the facilitated linkage of patients to the larger community including the YMCA's NDDP.

The authors recommend that the program be implemented on a broader scale across the local health-care system as well as the wider community. As the prevalence of GD increases, the GDGP offers a cost-effective way to provide DSME to a potential larger group of patients needing care. Keygan (2013) notes that GD "presents health professionals such as midwives and diabetic educators with distinct opportunities for education and intervention" (p. 17) and offers a new opportunity for existing perinatal educators as well. The GDGP offers a unique, innovative way to provide women with education, a supportive, empowering care environment; connections with community-based agencies; and may contribute to the prevention of the longer-term complications of Type II diabetes.

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APPENDIX

Educational Content and Format for Group Sessions

(American Association of Diabetes Educators, 2015; Blumer et al., 2013; Haas et al., 2013; Harden et al., 2014; Notebook, 2014)

Group 1

Review HIPPA confidentiality and obtain consent to participate in group program

Introduction to program, staff, ice breaker (i.e., each person introduces themselves with a word used to describe themselves, i.e., “Joyful Jacquie”) (Harden et al., 2014).

Vital signs (height, weight, blood pressure); fetal heart checks and fundal height check (private space in group room) (if needed)

Administration of “Diabetes in Pregnancy Knowledge Test” and “Diabetes Empowerment Scale”

Group education on diabetic diet and blood glucose testing (Diabetes Nurse Educator, Diabetes Health Source), opportunity to practice blood glucose testing during group

Set individual goals

Healthy snack provided (will be provided at each group)

Group 2

Welcome, ice breaker, team building, discuss a challenge and a success in past 2 weeks (Harden et al., 2014)

Vital signs and fetal heart check, fundal height check (private space in group room if patient needed/desired)

Group discussion on diet and blood glucose monitoring review from last visit, issues/concerns

Referral to endocrinologist if medication management for elevated blood glucose needed

Group discussion on symptom management, family involvement

Pregnancy related concerns/issues

Group 3

Welcome, ice breaker, “kick ball, say one positive, unexpected feeling/experience, then kick the ball over to a fellow mother-to-be” (Harden et al., 2014, p. 562).

Vital signs, fetal heart check, fundal height check (private space in group room if patient needed/desired)

Group discussion on diabetes self-management issues/concerns, review of blood glucose readings

Staff from YMCA for physical activity exercises (safe in pregnancy), plan for ways to include exercise at home, follow-up at YMCA encouraged

Pregnancy related issues/concerns

Group 4

Welcome, ice breaker, “Follow the leader, participants share what their favorite home work-out exercise is and pick a song to coincide with the motions” (Harden et al., 2014, p.562).

Vital signs, fetal heart check, fundal height check (private space in group room if patient needed/desired)

Group discussion on diabetes self-management issues/concerns, review of blood glucose

Staff from Foodlink to discuss shopping for healthy foods economically and have patients participate in a healthy cooking demonstration

Pregnancy related issues/concerns

Discuss breastfeeding

Complete posttest surveys of “Diabetes in Pregnancy Knowledge Test” and “Diabetes Empowerment Scale”

Plan for postpartum (Session 5) group “reunion” (need for postpartum blood glucose testing at that visit)

Group 5, Postpartum Session

Welcome, ice breaker, review of labor and birthing concerns/issues

Patients come to group fasting (group will be in the morning), go to clinical lab for fasting blood glucose (on-site), administer 75-gram glucola drink, repeat blood glucose 2 hours later at the end of the group

Vital signs, schedule postpartum visit with provider after group if patient desires to combine group with her routine postpartum care, or help patients schedule future appointment

Discuss postpartum diet/exercise, ways to incorporate into routine with new baby

Help to establish ongoing links with community partners, YMCA, Foodlink

Assist with WIC (Women Infant Child) nutrition program referral if needed

Closing activity (yarn ball), toss yarn to each patient and have her say positive comment about herself or her baby (yarn forms a web as it is tossed to each person), cut a piece of yarn string for them to take with them.