OBSTETRICS

Patient counseling increases postpartum follow-up in women with gestational diabetes mellitus

Marina Stasenko, BA; Jennifer Liddell, RN, CDE; Yvonne W. Cheng, MD, MPH; Teresa N. Sparks, MD; Molly Killion, RN; Aaron B. Caughey, MD, PhD

OBJECTIVE: The objective of the study was to evaluate the efficacy of an educational intervention at increasing the rates of postpartum (PP) follow-up for women with gestational diabetes mellitus (GDM).

STUDY DESIGN: A retrospective cohort study of all patients with GDM delivering during 2002-2009 was conducted. The primary outcome was obtaining PP diabetes testing. The 2002-2006 cohort was advised to obtain PP testing by their providers. The 2007-2009 cohort received educational counseling at the 37-38 week visit by a nurse educator. Univariate and multivariable statistical tests were utilized.

RESULTS: The PP testing frequency was 53% for the 2007-2009 cohort, compared with 33% for the 2002-2006 cohort ($P < .001$). When stratified by race/ethnicity, increased rates of testing were seen in whites (28% to 53%, $P < .001$), Latinas (15% to 50%, $P < .001$), and Asians (43% to 59%, $P = .005$). There was a nonsignificant decrease in the African American follow-up, 28% to 17% ($P = .414$).

CONCLUSION: GDM precedes the development of type 2 diabetes. Antepartum education counseling increases postpartum diabetes testing. More efforts are needed to obtain universal screening.

Key words: gestational diabetes mellitus, postpartum screening

Cite this article as: Stasenko M, Liddell J, Cheng YW, et al. Patient counseling increases postpartum follow-up in women with gestational diabetes mellitus. Am J Obstet Gynecol 2011;204:522.e1-6.

Each year, between 2% and 10% of pregnancies in the United States are complicated by gestational diabetes mellitus (GDM), defined as insulin resistance with initial onset or recognition during pregnancy.[1] The incidence of GDM varies widely amongst populations, with significantly higher rates among Asian, Hispanic, Native American, and potentially African American women compared with whites.[2,3] Women diagnosed with GDM are at increased risk for a variety of pregnancy complications including gestational hypertensive disorders, fetal macrosomia, shoulder dystocia, and cesarean delivery.[4,5]

Although well-controlled GDM has not been shown to be associated with increased perinatal mortality,[6] all women with GDM, regardless of the level of control of GDM, are at increased risk for developing type 2 diabetes mellitus (T2DM) and cardiovascular disease, such as hypertension,[7,8] later in life. In fact, a recent metaanalysis reported that women with GDM were 7 times more likely than women with normoglycemic pregnancies to develop T2DM, with mean postpartum follow-up varying from 6 weeks to 28 years.[9] Given the increased risk for T2DM and hypertension, women with a history of GDM carry a higher lifetime risk of atherosclerosis and coronary artery disease. Because heart disease is the leading cause of death for women in the United States,[10,11] early diabetes screening and prevention may be crucial parts of health maintenance.

Taking into account the long-term implications, early identification of postpartum T2DM risk and glucose intolerance is imperative and can be done by postpartum glucose screening.[12,13] The American Congress of Obstetricians and Gynecologists Committee on Obstetrics Practice recently released a committee opinion recommending that all women with GDM be screened 6-12 weeks postpartum using either a 2 hour oral glucose tolerance test (OGTT) or a fasting blood glucose (FBG).[14] Furthermore, the American Diabetes Association ad-

From Weill Cornell Medical College, New York, NY (Ms Stasenko); the Diabetes and Pregnancy Program (Ms Liddell, Drs Cheng and Caughey, and Ms Killion) and the Department of Obstetrics, Gynecology, and Reproductive Sciences (Dr Cheng), University of California, San Francisco, School of Medicine, San Francisco, CA; Brigham and Women's Hospital, Massachusetts General Hospital, Boston, MA (Dr Sparks); and the Department of Obstetrics and Gynecology, Oregon Health and Science University, Portland, OR (Dr Caughey).

Presented as a poster at the 30th Annual Meeting of the Society for Maternal-Fetal Medicine, Chicago, IL, Feb. 1-6, 2010.

Received Oct. 6, 2010; revised Dec. 2, 2010; accepted Jan. 26, 2011.

Reprints: Aaron B. Caughey, MD, PhD, Professor and Chair, Department of Obstetrics and Gynecology, Oregon Health and Sciences University, Mail code: L466, 3181 SW Sam Jackson Park Rd., Portland, OR 97239-3098. caughey@ohsu.edu.

A.B.C. is supported as a Robert Wood Johnson Physician Faculty Scholar Grant RWJF-61535. Y.W.C. is supported by the University of California, San Francisco, Women's Reproductive Health Research Career Development Award, National Institutes of Health, *Eunice Kennedy Shriver* National Institute of Child Health and Human Development Grant K12 HD001262.

0002-9378/$36.00 • © 2011 Published by Mosby, Inc. • doi: 10.1016/j.ajog.2011.01.057

vocates continued diabetes screening at least every 3 years after initial GDM diagnosis.[15]

Although the value of postpartum glucose screening has been well documented, there is evidence that such tests are significantly underutilized. In several recent US-based retrospective studies, the frequency of postpartum screening, using either the OGTT or the FBG, varied from 23% to 54%.[16-20] Although these study populations differed widely by socioeconomic and racial/ethnic breakdowns, all agree that the rate of glucose screening postpartum is subpar. Reasons proposed for such lack of follow-up include confusion over the recommended guidelines, poor bridging from antepartum to postpartum care, lack of patient awareness, and the patient's lack of interest in personal health.[16-18]

Given this background, we designed a retrospective study to examine the effectiveness of an education intervention on postpartum follow-up of diabetes mellitus screening among women diagnosed with gestational diabetes. The study aim was to examine whether antepartum written and verbal counseling on the importance of postpartum glucose screening would increase rates of follow-up.

Materials and Methods

A retrospective cohort study of women with GDM delivering at the University of California, San Francisco (UCSF), from 2002 to 2009 was conducted. Institutional review board approval was obtained from the Committee on Human Research at UCSF. UCSF is a large academic medical center serving the socioeconomically and racially/ethnically diverse population of the San Francisco Bay Area.

According to institutional protocol, all pregnant women receiving care at this institution undergo screening for GDM between 24 and 28 weeks or during the first trimester if risk factors for diabetes mellitus are present. GDM is diagnosed based on the Carpenter-Coustan criteria (2 elevated values on a 3 hour glucose tolerance test with thresholds of 95 mg/dL fasting, 180 mg/dL at 1 hour, 155 mg/dL at 2 hours, and 140 mg/dL at 3 hours after the glucose load). At discharge from the hospital postpartum, all women with GDM are given a laboratory requisition to obtain glucose testing prior to their 6 week postpartum visit. Those who do not have the test by that visit are given another slip and encouraged to obtain testing as quickly as possible.

Women received either an FBG test, or a 2 hour OGTT. The FBG is a plasma glucose level drawn the morning after an overnight fast. The OGTT is an FBG followed by a 75 g oral glucose load and a plasma glucose test 2 hours later. Plasma glucose was measured by the glucose oxidase technique in the clinical laboratory at UCSF. Women delivering between 2002 and 2006 received antepartum and postpartum GDM care as directed by this protocol.

To augment the standard protocol, women with GDM delivering between 2007 and 2009 were also given antepartum verbal and written counseling on the importance of postpartum follow-up. At the 37-38 week visit, all GDM patients, regardless of GDM subtype, had a 5-10 minute meeting with a registered nurse who is a certified diabetes educator. They were specifically educated about the increased risk for T2DM and were instructed to return for glucose screening prior to their postpartum appointment. All questions were answered and at the conclusion of the session, the patients were given a 2 page handout with the following information: follow-up recommendations with instructions for obtaining an OGTT prior to the postpartum visit, instructions for blood sugar follow-up in the future, recommendations for weight loss and exercise as T2DM preventative strategies, and UCSF-based diabetes resources. Of note, the diversity of women with GDM mandates that counseling be conducted in the patient's primary language. Non–English-speaking patients were provided all information in their primary language of choice via translator phone or UCSF interpreter services.

Once the 2 subcohorts were identified (women preeducational intervention [2002-2006] and posteducational intervention [2007-2009]), data were abstracted from medical records and laboratory reports to obtain follow-up information on the postpartum glucose testing that was done within 6 months of delivery and other clinical data, including maternal demographics and clinical characteristics, as well as perinatal outcomes. To make sure that women who obtained follow-up after the standard 6-12 week cutoff were included, we chose a 6 month cutoff.

The primary outcome examined was whether the patients obtained postpartum glucose testing. Medical records were reviewed for documentation of FBG or OGTT within 6 months of delivery. The outcomes were compared between the pre- and postintervention groups. Associations with maternal race/ethnicity, age, GDM subtype (A1 vs A2), and preterm birth were examined.

Data were abstracted and recorded using Excel (Microsoft, Redmond, WA), and statistical analyses were conducted with STATA version 9.0 software (Statacorp, College Station, TX). Dichotomous outcomes were compared with the χ^2 test, except when the cell sizes were less than 10, and the Fisher's exact test was utilized instead. Multivariable logistic regression controlled for potential confounders (maternal race/ethnicity, age, GDM subtype, and preterm birth). Results were considered statistically significant if $P < .05$ and/or if 95% confidence intervals did not contain 1.0.

Results

During the 2002-2009 study period, 805 women with GDM were identified. The overall frequency of postpartum glucose testing for women in the postintervention (2007-2009) group was 52.7% (129 of 245), compared with 33.4% (187 of 560) in the preintervention (2002-2006) group ($P < .001$) (Table 1). When controlling for potential confounders, women who received verbal and written counseling were 2 times more likely to return for follow-up than women who did not receive counseling (adjusted odds ratio, 2.06; 95% confidence interval, 1.49–2.85) (Table 2).

TABLE 1
Frequency of postpartum glucose screening in women with GDM

Variable	FBG/OGTT screen 2002-2006 (n = 560) % (n/N)	FBG/OGTT screen 2007-2009 (n = 245) % (n/N)	*P* value
Educational intervention			
Preintervention	33.4 (187/560)	—	< .001
Postintervention	—	52.7 (129/245)	
Race/ethnicity			
White	27.8 (48/173)	52.9 (36/68)	< .001
African American	38.3 (13/46)	16.7 (2/12)	.414
Latina	14.5 (11/76)	50.0 (18/36)	< .001
Asian	43.4 (111/256)	58.7 (71/121)	.005
Maternal age, y			
<35	31.5 (105/333)	51.2 (64/125)	< .001
≥35	36.1 (82/227)	54.2 (65/120)	.001
GDM subtype			
A1 (diet/exercise)	21.6 (50/232)	45.1 (32/71)	< .001
A2 (insulin)	41.8 (137/328)	55.8 (97/174)	.003
Delivery			
Term (≥37 wks)	36.8 (165/449)	54.8 (121/221)	< .001
Preterm (<37 wks)	19.8 (22/111)	33.3 (8/24)	.149

FBG/OGTT, fasting blood glucose/oral glucose tolerance test; *GDM*, gestational diabetes mellitus.

Stasenko. Increased rates of follow-up in GDM patients. Am J Obstet Gynecol 2011.

Widespread increase in follow-up was noted among the different subgroups examined. When the follow-up frequencies were examined by race/ethnicity, 3 of the 4 major race/ethnicity categories demonstrated an increase in follow-up between the preintervention and the postintervention groups. Among white women, follow-up rose from 27.8% in the preintervention group to 52.9% in the postintervention group ($P < .001$). Similarly, Asian women demonstrated increased follow-up to from 43.4% to 58.7% ($P = .005$). The largest increase was seen amongst Latina women, with an increase from 14.5% in the preintervention group to 50.0% in the postintervention group ($P < .001$). African Americans were the only group to show a decrease in postpartum follow-up, from 28.2% in the preintervention group to 16.7% in the postintervention group ($P = .414$).

The study cohorts were further stratified by maternal age. Among women 35 years old and older, there was an increase in postpartum follow-up between the pre- and postintervention groups: 36.1% compared with 54.2%, respectively ($P = .001$). Those younger than 35 years also demonstrated an increase in postpartum follow-up, from 31.5% in the preintervention group to 51.2% ($P < .001$).

Furthermore, we stratified the study cohorts by severity of GDM: A1 (glycemic control by diet and exercise only) and A2 (glycemic control requiring medication, insulin, and/or oral hypoglycemic agents). Follow-up rates before and after intervention for women with A1GDM increased from 21.6% to 45.1% ($P < .001$). Similarly, for women with A2GDM, follow-up also increased, from 41.8% to 55.8% ($P = .003$).

Finally, association of follow-up with preterm vs term birth was examined. Preterm birth was defined as birth prior to 37 weeks' gestation. Women who delivered a term infant had a postpartum follow-up increase from 36.8% in the preintervention group to 54.8% in the postintervention group ($P < .001$). Those with preterm deliveries also had postpartum follow-up increase, 19.8% in the preintervention group to 33.3% in the postintervention group ($P = .149$).

Comment

GDM often precedes the development of T2DM, such that the initial development of the GDM screen in pregnancy was specifically designed to identify women who had an increased risk of developing T2DM.[21] It is well documented in the literature that postpartum glucose screening is an excellent means to identify women at risk for developing diabetes.[10,11] However, many women are not returning for the postpartum follow-up testing, with follow-up frequencies ranging from 23% to 54%, depending on the population examined.[16-18]

To address this issue, several groups have demonstrated that increasing patient awareness on the necessity of glucose screening significantly increases follow-up. A recent study by Hunt and Conway,[22] which utilized case-manager nurses to follow up patients during and after pregnancy, saw an increase in follow-up rates from 18% to 57%. Although the increase was tremendous, the authors pointed out that the homogenous population (over 90% were Mexican American women) makes it difficult to apply the findings to broader populations. Furthermore, the nurses' extensive involvement in the care of the patients (at least 3 visits antepartum, with a possible home visit postpartum) may be impractical and costly to implement on a wide scale.

More recently, Clark et al[23] demonstrated in a randomized controlled study that sending a postpartum postal reminder to patients, physicians, or both addressing the need to obtain an OGTT increased the follow-up screening rate from 14.3% to 51-60%. Both studies therefore demonstrated that patients are more likely to return for follow-up when they are better educated on its importance.

Similarly, the current study has further established the importance of patient education in GDM postpartum glucose testing. In our racially/ethnically

TABLE 2
Odds ratios of follow-up using multivariable logistic regression analyses for women with GDM[a]

Variable	Adjusted OR	95% CI
Educational intervention		
Preintervention	1.00	—
Postintervention	2.06	1.49–2.85
Race/ethnicity		
White	1.00	—
African American	0.67	0.34–1.31
Latina	0.69	0.41–1.17
Asian	1.72	1.21–2.43
Maternal age, y		
<35	1.00	—
≥35	1.19	0.87–1.62
GDM subtype		
A1 (diet/exercise)	1.00	—
A2 (insulin)	2.13	1.54–2.95
Delivery		
Term (≥37 wks)	1.00	—
Preterm (<37 wks)	0.80	0.68–0.94

CI, confidence interval; *GDM*, gestational diabetes mellitus; *OR*, odds ratio.
[a] Variable controlled for included maternal race/ethnicity, maternal age, GDM subtype, and preterm delivery.

Stasenko. Increased rates of follow-up in GDM patients. Am J Obstet Gynecol 2011.

and socioeconomically diverse study population, antepartum verbal and written counseling significantly increased the postpartum glucose screening frequency. Furthermore, this intervention increased follow-up in nearly all subgroups examined. Our previous study[20] noted a disproportionate rate of return among racial/ethnic groups. Although Asian women returned at a frequency of 43%, Latinas returned at the much lower frequency of 18% (whites and African Americans returned at a comparable rate of 28% and 29%, respectively).

To examine factors that may be associated with such discrepant return rates and whether group-specific approaches should be taken to increase follow-up, we examined our current study cohort with stratification by race/ethnicity. It is therefore worthwhile to note that whereas an increase in postpartum follow-up was seen for Asian, Latina, and white women after the educational intervention was implemented, we observed a nonstatistically significant decrease in follow-up in African American women. Although the total number of African-American women in the study was very low (46 in the preintervention group and 12 in the postintervention group), this was an unexpected outcome. Although UCSF strives for diversity in its staff, there is only 1 African American nurse among all of the staff in the obstetrics clinic, with a higher proportion of Latinas and Asians. This may have contributed to the inefficacy of the educational intervention in this subgroup.

When examining other characteristics of the postintervention group, it was found that women who delivered preterm were less likely to return for follow-up than women delivering at term. Although these women did not receive in-clinic counseling (because they delivered prior to the last antepartum clinic visit), attempts were made by the registered nurse to contact patients admitted to the antepartum service. It is likely that the more pressing health concerns of the newborns overshadowed the necessity for maternal postpartum care. Perhaps follow-up with these women should be scheduled for 4-6 months postpartum when the majority of them will be at home with their neonates and have gotten into a more stable routine.

In contrast to these findings, women with A2GDM demonstrated a higher testing rate than women with A1GDM. This may have been due to a self-perception of more severe disease and thus a greater determination to obtain testing. Alternatively, there may be a natural bias in the communication from providers that A1GDM is less of a concern than A2GDM, thereby allowing the patient to be less motivated in obtaining follow-up testing.

Although the educational intervention dramatically improved follow-up, a screening frequency of 53% remains far from the target of universal testing. Significant barriers to obtaining postpartum testing remain. Scheduling and keeping an extra, time-consuming appointment in addition to the 6 week postpartum obstetrics appointment may prove difficult for women who are unable to secure child care or for those who have returned to full-time work. Those women who transition their care from an obstetrician to a primary care physician (PCP) after their 6 week postpartum appointment may fail to receive reminders about the necessity of the screening from the PCP if the obstetrician and PCP are not in communication about the patient's health needs.

Additionally, women with Medicaid who fail to obtain postpartum screening may not be able to afford to do so after 6 weeks postpartum because they may no longer be eligible for state-funded medical insurance.

Finally, there may be a component of denial in this group. Although they underwent the testing during pregnancy and were willing to make substantial lifestyle changes to improve the outcomes of their fetuses, some women may prefer not to know whether they are diabetic or prediabetic in the same way that women with a family history of breast cancer do not always obtain genetic testing.[24] Therefore, possible ways to reach the target of universal testing may include a

seamless transition from obstetric to primary care providers, incorporating glucose testing into the postpartum clinic visit itself, assuring that all women have access to health insurance or a health care system, and continuing to emphasize the importance of postpartum diabetes screening during the antepartum period. Overall, it may be that home visits with point-of-care testing would improve follow-up rates quite dramatically, but infrastructure for such testing is not currently available in most settings.

Although we report a novel approach to increasing postpartum glucose screening in a large, diverse population, there are several limitations. First, this study design compared intervened cohort with historical controls, and thus, the impact of the intervention on the follow-up frequency is inferred. It is plausible that it was the increased focus of the medical staff on the patient and her postpartum health care needs and not the education intervention itself that led to the screening increase. Ideally, a randomized controlled trial that assigns women to receive either an educational intervention or usual care could best assess the causal effect of such an intervention on postpartum follow-up of diabetes screening. However, before committing to a prospective study that can be expensive and time consuming, this study offers preliminary information regarding an educational intervention on diabetes screening and serves as a first step in examining this important issue that is often overlooked in the postpartum care of women with gestational diabetes.

The original intent/objective of the education program of diabetes screening was simply to increase women's awareness and compliance in postpartum screening; thus, there was no active effort by the diabetic educator or the clinic director in tracking each provider's rates of patient follow-up. Also, the clinical staff and director remained constant without any personnel changes during the entire study period. The retrospective review of data regarding patient education was conceived 2 years after the initiation of this program and after the study period. Thus, the observed difference between intervention and historical control is likely not due to the Hawthorne effect. Furthermore, because these were data from an actual practice, it represents the effectiveness of the measure as opposed to just the efficacy as would be seen in a prospective study in an experimental setting.

Additionally, as a retrospective study, it is subject to potential cofounding bias. Although we used multivariable logistic regression models to control for some of these cofounders, there may be unidentified or unobserved cofounders that lead to residual confounding and thus bias the effect estimates. For example, we did not have information on preferred/primary language of the patients, particularly for Asian and Latina women, In general, about 10-15% of Latinas who seek care at UCSF speak Spanish only. Many of our providers do speak fluent Spanish, and multilingual interpreter services are readily available by either person or telephone interpreter. Thus, although we could not accurately estimate the effect of language preference on the association between education intervention and diabetes screening, we believe it may not be great.

Finally, because of the retrospective nature of the study, it is conceivable that some subjects sought diabetes-related care with their primary care physicians outside the UCSF hospital system. Thus, they potentially would have received diabetes screening postpartum but were not captured as having had follow-up, which may contribute to underestimation of the effect of intervention. However, given that the frequency of return for the 6 week postpartum visit in the study population is greater than 90% and the study was limited to women who received prenatal care at our institution, this potential bias is likely minimal. Finally, our study population consisted of an urban population who sought care at an academic center. Whereas the heterogeneous racial/ethnic and socioeconomic background of the Bay Area contributes to patient diversity, this may, at the same time, limit the valid inference of study results to a broader population.

To identify women at risk for developing T2DM, it is vital that all women with GDM receive postpartum glucose screening. This study examined a simple educational intervention that significantly increased follow-up. However, the study fell short of achieving universal testing. It also identified 1 subgroup, African Americans, that did not demonstrate an increase in follow-up postpartum glucose testing. Further studies are necessary to elucidate why an educational intervention failed to increase screening among African American women and to devise new strategies to obtain widespread testing. ■

REFERENCES

1. American College of Obstetricians and Gynecologists Committee Opinion—postpartum screening for abnormal glucose tolerance in women who had gestational diabetes mellitus. Obstet Gynecol 2009;113:1419-21.

2. Lawrence JM, Contreras R, Chen W, Sacks DA. Trends in the prevalence of preexisting diabetes and gestational diabetes mellitus among a racially/ethnically diverse population of pregnant women, 1999-2005. Diabetes Care 2008; 31:899-904.

3. Caughey AB, Cheng YW, Stotland NE, et al. Maternal and paternal race/ethnicity are both associated with gestational diabetes. Am J Obstet Gynecol 2010;202:616.e1-5.

4. American Diabetes Association. Gestational diabetes mellitus. Diabetes Care 2004; 27:S88-90.

5. Nesbitt TS, Gilbert WM, Herrchen B. Shoulder dystocia and associated risk factors with macrosomic infants born in California. Am J Obstet Gynecol 1998;179:476-80.

6. O'Sullivan JB, Charles D, Mahan CM, Dandrow RV. Gestational diabetes and perinatal mortality rate. Am J Obstet Gynecol 1973;116: 901-4.

7. O'Sullivan JB. Subsequent morbidity among gestational diabetic women. In: Sutherland HW, Stower JM, eds. Carbohydrate metabolism in pregnancy and the newborn. Edinburgh (Scotland): Churchill Livingstone; 1984:174-80.

8. Dawson SI. Glucose tolerance in pregnancy and the long-term risk of cardiovascular disease. Diabetes Res Clin Pract 2009;85:14-9.

9. Bellamy L, Casas JP, Hingonrani AD, Williams D. Type 2 diabetes mellitus after gestational diabetes: a systematic review and meta-analysis. Lancet 2009;373:1773-9.

10. Davis CL, Gutt M, Llbre MM, et al. History of gestational diabetes, insulin resistance and coronary risk. J Diabetes Complications 1999;13: 216-23.

11. Centers for Disease Control and Prevention. Leading causes of death in females, United States, 2006. Available at: http://www.cdc.gov/women/lcod/. Web page edited Feb. 19, 2010. Accessed April 4. 2010.

12. Damm P, Kuhl C, Bertelsen A, Molsted-Pedersen L. Predictive factors for the develop-

ment of diabetes in women with previous gestational diabetes mellitus. Am J Obstet Gynecol 1992;167:607-16.
13. Lauenborg J, Hansen T, Moller-Jense D, Vestergaard H, Molsted-Pedersen L. Increasing incidence of diabetes after gestational diabetes. Diabetes Care 2004; 27:1194-99.
14. American College of Obstetricians and Gynecologists. ACOG Committee on Obstetrics Practice, committee opinion, no. 435. Postpartum screening for abnormal glucose tolerance in women who had gestational diabetes mellitus. Obstet Gynecol 2009;113:1419-21.
15. American Diabetes Association Position Statement. Standards of medical care in diabetes. Diabetes Care 2008;31(Suppl 1):S12-54.
16. Ferrara A, Peng T, Kim C. Trends in postpartum diabetes screening and subsequent diabetes and impaired fasting glucose among women with histories of gestational diabetes mellitus. Diabetes Care 2009;32:269-74.
17. Kim C, Tabaei B, Burke R, et al. Missed opportunities for diabetes screening among women with a history of gestational diabetes. Am J Public Health 2006;96:1-9.
18. Russell M, Phipps M, Olson C, Welch H, Carpenter M. Rates of postpartum glucose testing after gestational diabetes mellitus. Obstet Gynecol 2006;108:1456-62.
19. Smirnakis K, Chasan-Taber L, Wolf M, Markenson G, Ecker J, Thadhani R. Postpartum diabetes screening in women with a history of gestational diabetes. Obstet Gynecol 2005; 106:1297-303.
20. Stasenko M, Cheng YW, McLean T, Jelin AC, Rand L, Caughey AB. Postpartum follow up for women with gestational diabetes mellitus. Am J Perinatol 2010;27:737-42.
21. O'Sullivan JB. Gestational diabetes and its significance. Adv Metab Disord 1970;1(Suppl 1):339-44.
22. Hunt KJ, Conway DL. Who returns for postpartum glucose screening following gestation diabetes mellitus? Am J Obstet Gynecol 2008; 198:404.e1-6.
23. Clark HD, Graham ID, Karovitch A, Keely E. Do postal reminders increase postpartum screening of diabetes mellitus in women with gestational diabetes mellitus? A randomized controlled trial. Am J Obstet Gynecol 2009;200: 634.e1-7.
24. Levy DE, Garber JE, Shields AE. Guidelines for genetic risk assessment of hereditary breast and ovarian cancers: early disagreements and low utilization. J Gen Intern Med 2009;24: 822-8.