

Improved Screening Rate Following the Implementation of Immediate
Postpartum Diabetes Screening in a Hybrid Community-Teaching Hospital



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BACKGROUND

Women diagnosed with gestational diabetes (GDM) are at increased risk for developing type 2 diabetes (DM2) and cardiovascular disease. Less than 60% of women complete traditional postpartum diabetes testing at 4-12 weeks. At our institution, only 13.5% of hospital-based patients undergo testing within the recommended timeframe.

Immediate postpartum diabetes testing on postpartum days 1 or 2 using a 2-hour glucose tolerance test (2-hr GTT) is feasible and effective. In May 2024, ACOG endorsed this immediate testing approach as this method has demonstrated comparable diagnostic accuracy to the traditional late testing window and significantly improves testing completion rates to 99%. Our institution implemented the universal practice of immediate postpartum DM2 testing in December 2023 to improve testing rates.

OBJECTIVES

1. Determine the completion rate of immediate postpartum DM2 testing on postpartum day 1 or 2 using 2-hr GTT.
2. Evaluate factors associated with the completion rate of immediate postpartum DM2 testing on postpartum day 1 or 2.
3. Determine the rate of abnormal glucose values among patients who underwent immediate postpartum DM2 testing on postpartum day 1 or 2.

MATERIAL AND METHODS

We implemented a practice change of universal immediate postpartum testing for diabetes on December 1, 2023, in collaboration with the diabetes in pregnancy, obstetrical, nursing, and phlebotomy teams. Patients and staff were educated on this change. All patients diagnosed with GDM who delivered in our institution were eligible to undergo a 75g 2-hr GTT on postpartum day 2. An abnormal result was defined by a fasting glucose ≥ 100 or a 2-hr value ≥ 140 for impaired glucose tolerance, and ≥ 126 (fasting) or ≥ 200 (2-hour) for overt DM2. Patients received education on the test at the end of their third trimester diabetes in pregnancy visit. Residents placed the test order after the patient was delivered. Nursing ensured patients fasted for the test and coordinated blood draws with phlebotomy.

We subsequently evaluated this practice change via a retrospective chart review of patients with GDM, ages 18 to 55 years, who delivered at our institution from December 1, 2023, to December 1, 2024. We queried the electronic medical record for patient demographics, type of practice, medical history, delivery information, immediate postpartum diabetes testing results, and newborn information. Data was analyzed using Chi-Square and Fisher’s Exact Test. P-values less than 0.05 were considered significant. A logistic regression identified factors associated with testing. This study was IRB-approved.

Table 1: Characteristics of patients with a history of gestational diabetes eligible for immediate postpartum diabetes testing.				
Patient Characteristics	Total N = 232	Tested 148 (63.79)	Not tested 84 (36.21)	p-value
Age, mean (SD)	33.29 (5.69)	33.08 (5.54)	33.65 (5.96)	0.462
Parity >1	151 (65.09)	93 (62.84)	58 (69.05)	0.340
BMI, mean (SD)	34.79 (6.41)	34.91 (6.64)	34.58 (6.02)	0.701
Language				
English	204 (87.93)	126 (85.14)	78 (92.86)	0.219
Spanish	13 (5.60)	10 (6.76)	3 (3.57)	
Others	15 (6.47)	12 (8.11)	3 (3.57)	
Race				
Asian	60 (25.86)	36 (24.32)	24 (28.57)	0.099
African American/Black	48 (20.69)	36 (24.32)	12 (14.29)	
White	79 (34.05)	44 (29.73)	35 (41.67)	
Other/unknown	45 (19.4)	32 (21.62)	13 (15.48)	
Ethnicity				
Hispanic	44 (18.97)	30 (20.27)	14 (16.67)	0.501
Non-Hispanic	188 (81.03)	118 (79.73)	70 (83.33)	
Marital status				
Married	154 (66.38)	93 (62.84)	61 (72.62)	0.151
Single	69 (29.74)	47 (31.76)	22 (26.19)	
Divorced	9 (3.88)	8 (5.41)	1 (1.19)	
Practice				
Clinic	92 (39.66)	63 (42.57)	29 (34.52)	0.229
Private	140 (60.34)	85 (57.43)	55 (65.48)	
Insurance				
Medicaid	108 (46.55)	71 (47.97)	37 (44.05)	0.565
Private	124 (53.45)	77 (52.03)	47 (55.95)	
Type of diabetes				
GDMA 1	132 (56.9)	81 (54.73)	51 (60.71)	0.376
GDMA 2	100 (43.1)	67 (45.27)	33 (39.29)	
Pregnancy complications				
Preeclampsia (preE)	9 (3.88)	7 (4.73)	2 (2.38)	0.578
PreE with severe features	18 (7.76)	14 (9.46)	4 (4.76)	
Chronic hypertension	12 (5.17)	7 (4.73)	5 (5.95)	
Gestational hypertension	6 (2.59)	4 (2.7)	2 (2.38)	
Cholestasis	3 (1.29)	1 (0.68)	2 (2.38)	
None	184 (79.31)	115 (77.7)	69 (82.14)	
Type of delivery				
Vaginal delivery	116 (50.0)	59 (39.86)	57 (67.86)	<0.001
Cesarean delivery	116 (50.0)	89 (60.14)	27 (32.14)	
GDM Control				
Good	170 (73.91)	103 (70.07)	67 (80.72)	0.077
Poor	60 (26.09)	44 (29.93)	16 (19.28)	
Post-delivery LOS				
Short (≤ 2 days)	38 (16.38)	3 (2.03)	35 (41.67)	<0.001
Long (≥2 days)	194 (83.62)	145 (97.97)	49 (58.33)	
Birth weight (grams), mean (SD)	3200.3 (606.99)	3139.3 (636.8)	3308.1 (537.4)	0.032
n (%)				
GDMA1: Gestational diabetes diet-controlled; GDMA2: Gestational diabetes medication-controlled; LOS: Length of stay.				

Table 2: 2-hour GTT results among patients who completed immediate postpartum diabetes testing.	
2-hour GTT Status	Total N = 148
Normal	78 (52.70)
Impaired	63 (42.57)
Overt diabetes mellitus	7 (4.73)
Those with an abnormal result were more likely to be multiparous [77.46% (n=55); p= 0.0007], married [70.42% (n=50); p=0.0876], and older (p=0.0110).	

RESULTS

- Among 232 patients diagnosed with GDM, 148 (63.79%) completed immediate postpartum diabetes testing (on postpartum day 1 or 2),59 (25.43%) had the testing test ordered but did not complete it, and 25 (10.78%) did not have the test ordered.
- Compared to patients who did not complete testing, those who completed testing were more likely to have a cesarean delivery rather than a vaginal delivery (60.14% vs. 39.86%, p=<.001), have a longer length of stay of > 2 days instead of a shorter length of stay (98% vs. 2%, p=<.001), and a lower neonatal birthweight (3139.3g vs. 3308.1g, p=0.0319).
- A regression analysis showed that those with a longer hospital stay of > 2 days were 37 times more likely to complete testing (OR = 37.69, 95% CI: 10.820–131.340) than those discharged earlier, while married individuals were less likely than single or cohabitating individuals to complete testing (OR = 0.471, 95% CI: 0.229–0.971).
- Compared to patients who completed the 2-hr GTT and those who had the test ordered but did not complete it, the 25 patients for whom the test was not ordered were more likely to be multiparous rather than nulliparous (88% vs. 61% vs. 63%; p = 0.038), to attend a private practice rather than a hospital-based clinic (84% vs. 58% vs. 57%; p = 0.038), to have a vaginal rather than cesarean delivery (72% vs. 63% vs. 38%; p = 0.002), and to have a short hospital stay of < 2 days rather than > 2 days (44.00% vs. 20.3% vs. 40.68% p < 0.001).
- Only 1 out of the 84 (1.19%) patients who did not complete immediate postpartum testing had the test done during the traditional 4–12 weeks postpartum.

SUMMARY / CONCLUSION

Immediate postpartum diabetes testing significantly improved testing completion rates among patients with GDM and identified those in need of further follow-up for impaired glucose tolerance or type 2 diabetes. Early discharge from the hospital was the primary barrier to testing. Traditional testing, 4 to 12 weeks postpartum, was performed in only one person, highlighting the importance of testing in the immediate postpartum period.

To continue to improve our testing rate, we are exploring physician and patient attitudes and perceived barriers to immediate postpartum diabetes testing. Improved immediate postpartum testing rates will support early diabetes intervention and improve long-term health outcomes for women with a history of GDM.