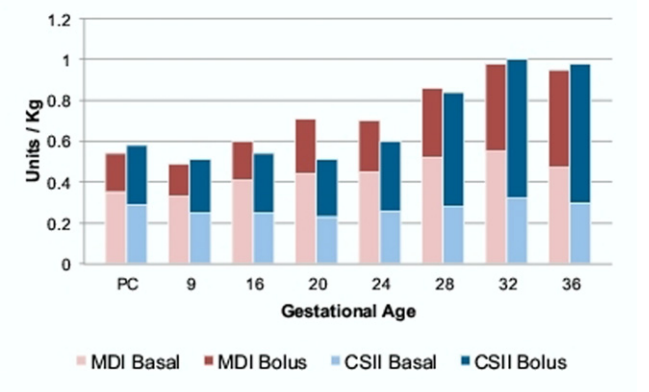
STUDY DESIGN: This retrospective cohort examined women with T1DM with first trimester HbA1c < 7.4. The primary outcome was a comparison of changes in basal and bolus insulin between CSII and MDI from preconception (PC) to delivery.
RESULTS: Five patients managed with CSII and five patients with MDI were compared. There were no differences in maternal age (30±1.3 vs. 28±6.2 years, p=0.38), PC BMI (23.9±3.3 vs. 24.7±1.8 kg/m^2, p=0.67), PC hemoglobin A1C (6.2±0.40 vs. 6.7±0.7%, p=0.38) or third trimester A1C (5.7±3.6 vs. 6.1±0.6, p=0.25). Increases in basal and bolus insulin across gestation were noted for both CSII and MDI patients with a peak at 32 weeks (Figure). There were no statistical differences at any gestational age in total and bolus insulin doses among those managed with CSII versus MDI. A higher basal insulin rate was required across gestation in the MDI group when compared with the CSII group but this difference only reached statistical significance at 20 weeks (Figure). Among the CSII group, the percent change in basal insulin from PC to peak insulin requirement was 10%, while the percent change in bolus insulin was 134%. In the MDI cohort, the corresponding percent change in basal insulin was 57% and in bolus insulin was 152%.
CONCLUSION: In patients with well-controlled T1DM, there are differences in insulin dosing among those managed with CSII and MDI. There was a higher increase in basal insulin requirements in those managed by MDI when compared to those on CSII. These data may improve insulin management in T1DM pregnancies.

Comparison of basal and bolus insulin doses between MDI and CSII



258 Evaluation of the impact of an intensive follow-up program on postpartum glucose tolerance testing

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OBJECTIVE: Gestational diabetes mellitus (GDM) is a strong risk factor for developing overt diabetes later in life, and studies have demonstrated that identification of prediabetes can enable interventions preventing subsequent diabetes. Various professional societies have stressed the importance of postpartum glucose tolerance testing (GTT) for patients with GDM, although few strategies have been evaluated. We assessed the impact of a one-year program sponsored by the Rhode Island Department of Health aimed at increasing postpartum GTT using direct nurse and patient navigator supervision.
STUDY DESIGN: During the year of implementation, all GDMs were followed after their delivery. A nurse or bilingual patient navigator contacted patients as often as necessary to encourage attendance at their scheduled 2-hour 75-gram oral GTT and to overcome obstacles to testing including knowledge deficit, language barriers, directions and transportation. Patients with abnormal testing were referred to the appropriate provider. To assess the impact of this strategy, data from all patients with GDM seen in our specialty clinic the previous year served as a control for comparison with data from our intervention group.
RESULTS: One hundred seventy five patients treated during the year prior to implementation were compared to 193 in the program. Baseline characteristics were smiliar between in groups (Table). Postpartum GTT increased from 76 (43.4%) to 112 (58%), p=0.01. In the course of the project, compared to the previous year, 7 more cases of impaired fasting glucose were discovered (23 vs 16), along with 6 additional cases of impaired glucose tolerance (18 vs 12) and 4 more cases of overt diabetes (8 vs 4). $1670 dollars were spent per additional postpartum test and $3530 per abnormal test.
CONCLUSION: Given that the number needed to treat of prediabetic former GDMs is 5 to prevent or delay one case of diabetes, implementation of direct nurse and outreach worker supervision should be effective with significant long-term benefits.

Comparison between participants with prior to and during grant implementation

	Year prior to project (n=175)	Year of project (n=194)	p value
Maternal Age (years) - Mean (SD)	29.9 (6.38)	30.0 (6.0)	0.63
Maternal BMI at first visit - Mean (SD)	25.8 (5.1)	26.5 (6.5)	0.37
Patients with past h/o GDM	27 (15.4%)	21 (10.8%)	0.22
Patients with past h/o Macrosomia	22 (12.6%)	17 (8.7%)	0.26
Number of Smokers	28 (16%)	30 (15.4%)	0.91
Gravidity Primiparous Multiparous	36 (20.6%) 139 (79.4%)	38 (19.5%) 156 (80.5%)	0.67
50g Glucose challenge (mg/dl) - Mean (SD)	171.8 (44.6)	167.3 (33.5)	0.28
Patients on insulin treatment	76 (43.4%)	69 (35.6%)	0.12
Patients w/ family history of Diabetes	53 (30.3%)	59 (30.4%)	0.87
Pregnancy GTT Fasting (mg/dl) - Mean (SD)	95.3 (15.3)	94.7 (14.5)	0.74
Pregnancy GTT - 1-hr (mg/dl) - Mean (SD)	194.6 (25.3)	193.3 (34.9)	0.69
Pregnancy GTT - 2-hr (mg/dl) - Mean (SD)	168.5 (30.0)	175.5 (32.0)	0.06
Pregnancy GTT - 3-hr (mg/dl) - Mean (SD)	129.1 (31.2)	139.9 (32.7)	0.003
Hemoglobin A1c (%) - Mean (SD)	6.01 (0.88)	5.71 (0.63)	0.11
GA at delivery (weeks)- Mean (SD)	38.3 (1.8)	38.2 (1.7)	0.55
Birth-weight (grams) - Mean (SD)	3282.4 (532.8)	3281.6 (564.4)	0.98

A p value less than 0.05 is considered statistically significant.

BMI, body mass index; *GA*, gestational age; *hr*, hour; *OGTT*, oral glucose tolerance test; *SD*, standard deviation.

259 Outcomes after implementation of first trimester screening for gestational diabetes

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OBJECTIVE: Acknowledging recommendations from the IADPSG, our institution recently transitioned from traditional third-trimester (T3) to first-trimester (T1) screening for gestational diabetes (GDM). This new protocol has doubled the rate of diagnosis of GDM. Our objective was to describe and compare perinatal outcomes based on the mode and timing of diagnosis.
STUDY DESIGN: This retrospective cohort study evaluated patients from our institution diagnosed with GDM from July-December 2011. Beginning in July, new early screening guidelines were initiated which included a diagnosis of GDM if T1 HbA1c ≥ 5.7% or fasting plasma glucose (FPG) was ≥ 92 mg/dL. If both HbA1c and FPG were normal, an abnormal 2-hour glucose tolerance test (GTT) at 24-28 weeks was diagnostic of GDM. However, during this 6-month transition period, many providers continued traditional T3 two-step screening for GDM with a 1-hour glucose challenge test (GCT) followed by a 3-hour GTT. We compared differences in outcomes between T1 and T3 screening groups and within the 4 different subgroups of those diagnosed by T1 screening (HbA1c, FPG, both HbA1c and FPG, or

2-hour GTT). Data regarding GDM types A1 and A2, birthweight (BW), and ponderal index (PI) were abstracted.

RESULTS: A total of 120 patients were diagnosed with GDM during the study period. Sixty-three (53%) had T1 screening: 23 had elevated HbA1c alone, 9 had elevated FPG alone, 11 had both HbA1c and FPG elevated, and 20 had normal HbA1c and FPG and a subsequently abnormal 2-hour GTT. Fifty-seven (47%) patients were diagnosed using traditional T3 two-step screening. There were no significant differences between T1 or T3 screening groups or within T1 diagnostic subgroups with respect to GDM type (A1 vs. A2), BW, or PI (table).

CONCLUSION: GDM diagnosed with T1 HbA1c, FPG, both HbA1c and FPG, or 2-hour GTT results in similar ratios of subtypes (A1 vs A2) as traditional T3 screening. A prospective study is needed to accurately ascertain whether earlier diagnosis of GDM leads to improved neonatal outcomes.

Gestational diabetes outcomes based on mode of diagnosis

	Diagnosed by A1c (N=23)	Diagnosed by FPG (N=9)	Diagnosed by Both HbA1c and FPG (N=11)	Diagnosed by 2-h GTT (N=20)	Diagnosed by 3-h GTT (N=57)	P-Value
GDMA2 # (%)	14 (61)	6 (67)	7 (64)	9 (45)	24 (42)	0.158
Birthweight (g)*	3045± 862	3648 ± 524	2981 ± 776	3284 ± 366	3313 ± 476	0.190
Ponderal Index (kg/m3)*	2.5 ± 0.35	2.62+ 0.31	2.40 ± 0.23	2.48 ± 0.32	2.59 ± 0.36	0.705

*Mean ± SD.

260 The incidence of hypoglycemic episodes in pregnant women with type 1 diabetes using insulin injections versus insulin pump

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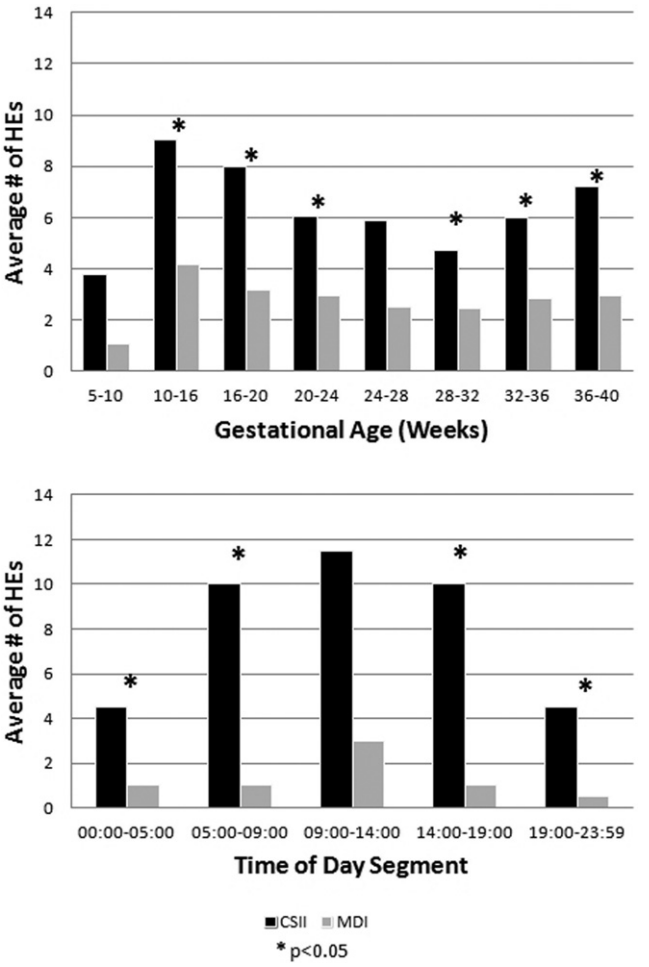
OBJECTIVE: Hypoglycemic episodes (HE) (plasma glucose <60 mg/dL) are not infrequent in patients with Type 1 diabetes mellitus (T1DM) and can lead to morbidity. Our objective was to compare the incidence of HE across gestation and at different times throughout the day between those using multiple daily injections (MDI) or continuous subcutaneous insulin infusion pumps (CSII) for glycemic control.

STUDY DESIGN: This was a retrospective cohort of singleton pregnancies with T1DM from 2007-2010 managed with MDI or CSII. The primary outcome was the total number of HE occurring during gestation in those using MDI as compared with CSII. Secondary outcomes included frequency of HE occurring in 4-6 week gestational age (GA) blocks and during specified time segments throughout the day. BMI, total daily insulin dose per kilogram body weight (TDI), HbA1c and neonatal outcomes were abstracted.

RESULTS: Thirty-five women with T1DM were identified. BMI, TDI, birthweight, GA at delivery, and preconception HbA1c did not differ significantly between MDI and CSII groups. However first (T1) and third trimester (T3) HbA1c were lower with CSII use (T1:MDI 7.0%, CSII 6.2%, p=0.044; T3: MDI 6.5%, CSII 6.2%, p=0.03). The number of HE during gestation in the CSII group was significantly higher (median (25%, 75%); 41 (13, 65) vs. 7 (1, 26), p=0.007). In nearly every GA block and time of day segment, HE were significantly higher with CSII than MDI (Figure). Although mode of insulin administration was the strongest independent predictor of HE, multivariable linear regression controlling for first trimester HbA1c showed no significant difference between MDI and CSII use.

CONCLUSION: Patients using CSII were significantly better controlled during pregnancy than those using MDI but consistently experienced more HE. This trade-off between glucose control and HE must be balanced. Patients with T1DM should be informed regarding occurrence of HE and specifically the importance of having readily available emergency HE therapy.

Figure



Average number of hypoglycemic episodes (HEs) by gestational age (*top*) and by time of day segment (*bottom*).

261 Cord serum C peptide levels in large-for-gestational age infants in diabetic and non-diabetic mothers

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OBJECTIVE: It is hypothesized that diabetic macrosomia is different from non-diabetic macrosomia in terms of fetal metabolic conditions. However, there are few useful clinical markers to distinguish diabetic and non-diabetic macrosomia. The aim of the study was to determine whether cord serum C peptide (CPR) is a useful marker in term large-for-gestational age (LGA) infants.

STUDY DESIGN: In this prospective study, we measured cord serum CPR concentration in singletone term LGA infants of diabetic and non-diabetic mothers. We included both pregestational diabetes and gestational diabetes (GDM) in the diabetic group. We used the Japanese birthweight standard curve to define LGA infants. We compared cord CPR levels between the diabetic and the nondiabetic groups. We also tested the difference between the groups after adjusting for confounding variables including prepregnancy body mass index (BMI), gestational age (GA) at delivery, and birthweight standard deviation (BWSD).

RESULTS: We included 97 LGA infants, in which 25 and 72 infants were born from diabetic and non-diabetic mothers, respectively. Cord