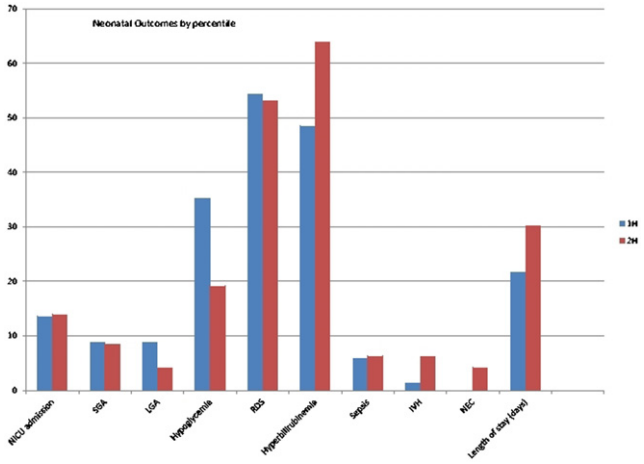
Neonatal outcomes

	NICU admission	SGA	LGA	Hypoglycemia	RDS	Hyperbilirubinemia	Sepsis	IVH	NEC	Length of Stay
1H screen	13.57%	8.82%	8.82%	35.29%	54.41%	48.53%	5.88%	1.47%	0.0%	21.8 days
2H screen	13.99%	8.51%	4.26%	19.15%	53.19%	63.83%	6.38%	6.38%	4.26%	30.3 days



274 Association of the Pro12Ala polymorphism of PPARγ2 with mild gestational hyperglycemia and gestational diabetes

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OBJECTIVE: To determine the prevalence of the Pro12Ala polymorphism in pregnant women with normoglycemia, mild gestational hyperglycemia, and gestational diabetes (GDM).

STUDY DESIGN: Diagnosis of GDM was made using the 100g oral glucose tolerance test according to the ADA criteria. Gestational hyperglycemia was diagnosed using the glycemic profile test, during which a standardized 2,840 calorie diet is administered across five meals, with measurement of glucose levels fasting and two hours following each meal. Mild gestational hyperglycemia was diagnosed with one or more abnormal values of fasting glucose >90 mg/dL or postprandial glucose >130 mg/dL. Genotyping for the Pro12Ala allele was performed on DNA from maternal serum samples by the RFLP method using the BstU1 restriction endonuclease. Patients were classified as Pro/Pro homozygotes (single 244 base pair (bp) segment), Pro/Ala heterozygotes (244, 223, and 21 bp segments), or Ala/Ala homozygotes (223 and 21 bp segments). Genotype frequencies were compared between groups using the Chi-Square test with $p<0.05$ for statistical significance.

RESULTS: One hundred fifty-one pregnant women were included in the study. Fifty-four women were normoglycemic, 32 had mild gestational hyperglycemia, and 65 were classified as GDM. There were no Ala/Ala homozygotes in any group. The frequency of Pro/Ala heterozygotes was significantly lower in women with mild gestational hyperglycemia relative to normoglycemic women (9.4% vs. 17.3%, $p<0.05$), and in women with GDM relative to normoglycemic women (10.9% vs. 17.3%, $p<0.05$). The frequency of heterozygotes did not differ between patients with mild gestational hyperglycemia and GDM.

CONCLUSION: The prevalence of Pro12Ala was higher among normoglycemic women, suggesting that this polymorphism may be protective against hyperglycemia in pregnancy. Further investigation is needed to elucidate the effect of this polymorphism on adverse maternal and neonatal outcomes associated with these conditions.

275 A1C at the first prenatal visit: is it useful?

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OBJECTIVE: To evaluate A1C at the first prenatal visit as a triaging tool for deciding when to test for GDM.

STUDY DESIGN: An A1C was obtained at the first prenatal visit. ADA guidelines were used in which A1C ≥ 6.5% is considered diabetes and an A1C between 5.7-6.4% is glucose intolerance. Enrollment occurred between August 2011 and March 2012. All women had the first prenatal visit prior to 20 weeks. Women with an A1C ≥ 6.5% (group 1) were instructed on diet and daily self monitoring of blood glucose. Women with an A1C between 5.7-6.4% (group 2) were tested immediately for GDM and if necessary, again at 24-28 weeks. Women with an A1C < 5.7% (group 3) were tested at 24-28 weeks. Patients were started on medication if they failed to meet glycemic goals of fasting ≤ 95 mg/dl and 2 hour postprandial ≤ 120 mg/dl.

RESULTS: 296 patients were included in the study. There were 16 patients in group 1. 15/16 (95%) required medication to achieve euglycemia. The mean gestational age at which medication was required in group 1 was early at 14 ± 6 weeks; Postpartum, 14/16 patients (87%) remained diabetic. Group 2 contained 75 patients. 60 patients (80%) were given a diagnosis of GDM and 48 patients (64%) required medication. The mean gestational age at which medication was started in group 2 was 20 ± 7.8 weeks. This is 4 to 8 weeks earlier than if these patients had received testing at the standard time of 24-28 weeks. There were 205 patients in group 3. 18 patients in group 3 (8.7%) were diagnosed with GDM and 13 patients (6%) required medication.

CONCLUSION: A1C at the first prenatal visit can be used to optimize the timing of screening for gestational diabetes. An A1C ≥ 6.5% identifies women with a degree of hyperglycemia consistent with preexisting diabetes who may benefit from diet and daily glucose monitoring. A1C between 5.7-6.4% identifies women with a degree of glucose intolerance who may benefit from early testing. A1C <5.7% is associated with minimal glucose intolerance and testing may be undertaken at the usual 24-28 weeks.

276 Examining gestational weight gain recommendations in diabetic pregnancy

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OBJECTIVE: The Institute of Medicine (IOM) does not make recommendations for gestational weight gain (GWG) specific to diabetic women. We aimed to assess the impact of GWG outside the IOM recommendations on pregnancy outcomes in diabetic women.

STUDY DESIGN: Secondary analysis of a prospective, 4-year cohort of women with gestational or Type 2 diabetes. Women were approached for enrollment at entry to care & excluded for Type 1 DM, multiple gestation, fetal anomalies, unknown body mass index (BMI), unknown GWG & incomplete delivery records. Primary neonatal outcomes were fetal growth restriction (FGR), defined as birthweight <10th percentile on Alexander growth standard, & macrosomia, defined as birthweight >4000g. Maternal outcomes were cesarean delivery (CD) & preeclampsia. Secondary neonatal outcome was a composite of: delivery <37 wks, admission to level 3 nursery, respiratory distress syndrome, shoulder dystocia, 5-minute Apgar≤3, cord pH<7.1, & cord base excess <−12. Women were classified as GWG within (WITHIN), less than (LESS), or greater (MORE) than IOM

recommendations for BMI. GWG within IOM recommendations was the reference group.

RESULTS: Of 345 subjects, 82 (23.8%) gained within IOM recommendations, 60 (17.4%) gained less than recommended, and 203 (58.8%) gained more than recommended. LESS was significantly more likely to have FGR than WITHIN (18.3% vs 4.9%, relative risk (RR) 3.76, 95% confidence interval (CI) 1.26-11.23) & less likely to have macrosomia (3.3% vs 15.9%, RR 0.21, 95% CI 0.05-0.90). The risk of FGR & macrosomia was similar in the MORE & WITHIN groups. Other neonatal outcomes were similar between groups. The risk of preeclampsia was similar between groups. The risk of CD was higher in MORE compared to WITHIN (65.5% vs 44.4%, RR 1.47, 95% CI 1.13-1.92).

CONCLUSION: Diabetic women who gained less than the IOM recommendations were at greater risk for FGR but at lower risk for macrosomia. Until further research is available, diabetic women should be encouraged to gain within the IOM guidelines for the BMI category.

Maternal & neonatal outcomes by gestational weight gain

	Gain Less than IOM Recommendations (n=60)	Relative Risk (95% Confidence Interval)	Gain Within IOM Recommendations (n=82)	Gain More than IOM Recommendations	Relative Risk (95% Confidence Interval)
Neonatal Outcomes					
Fetal Growth Restriction	11 (18.3%)	3.76 (1.26-11.23)	4 (4.9%)	12 (5.9%)	1.21 (0.40-3.65)
Macrosomia	2 (3.3%)	0.21 (0.05-0.90)	13 (15.9%)	46 (22.7%)	1.42 (0.82-2.50)
Composite Neonatal Outcome	29 (49.2%)	1.06 (0.74-1.51)	37 (46.3%)	101 (50.3%)	1.09 (0.83-1.43)
Maternal Outcomes					
Preeclampsia	11 (18.3%)	0.87 (0.44-1.73)	17 (21.0%)	61 (30.1%)	1.43 (0.89-2.29)
Cesarean Delivery	26 (43.3%)	0.98 (0.67-1.42)	36 (44.4%)	133 (65.5%)	1.47 (1.13-1.92)

277 Defining an abnormal first stage of labor: does the 95th percentile make sense?

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OBJECTIVE: By tradition, surpassing the 95th percentile (%ile) in the 1st stage of labor defines dystocia. However, these women may deliver vaginally, avoiding unnecessary cesarean delivery (CD) and raising questions about definitions of abnormal. Therefore, we sought to determine a threshold for defining abnormal labor associated with adverse maternal & neonatal outcomes.

STUDY DESIGN: Retrospective cohort of all consecutive women admitted ≥37.0 weeks gestation from 2004-2008 who reached the 2nd stage of labor. Detailed information was collected on maternal demographics, labor progress, & neonatal outcomes. The 90th, 95th, & 97th %ile for progress in 1st stage of labor was determined specific for parity & labor onset. Women with 1st stage above & below each centile were compared. Maternal outcomes were CD in 2nd stage, operative delivery, prolonged 2nd stage, post-partum hemorrhage, & maternal fever. Neonatal outcomes were a composite of: admission to level 2 or 3 nursery, 5-minute Apgar ≤3, shoulder dystocia, cord pH ≤7.1, & cord base excess ≤−12.

RESULTS: 5,385 were included in the analysis. Exceeding 90th, 95th, & 97th %ile in the 1st stage of labor was associated with increased risks of prolonged 2nd stage, maternal fever & the composite neonatal outcome, although the risk of other outcomes were similar. Compared to women in the 90-94th centile, women exceeding the 95th %ile in labor were more likely to experience maternal fever (relative risk (RR) 1.63, 95% confidence interval (CI) 1.08-2.46) & shoulder dystocia (RR 1.86, 95% CI 1.13-3.06) but had similar risk of the composite neonatal outcome (RR 1.28, 95% CI 0.97-1.71).

CONCLUSION: Although women who experience labor dystocia may ultimately deliver vaginally, a 1st stage ≥90th %ile is associated with an increased risk of maternal fever and adverse neonatal outcomes. Lowering the cut-off for dystocia from the 95th%ile to the 90th%ile may decrease the risk of maternal fever and adverse neonatal outcomes, but at the cost of an increased cesarean rate for labor dystocia.

Length of labor & outcomes

	<90th percentile (n=3,918)	90th -94th percentile (n=516)	95th - 96th percentile (n=336)	≥97th percentile (n=615)	p
Maternal Outcomes					
Cesarean in Second Stage	58 (1.5%)	12 (2.3%)	6 (1.8%)	11 (1.8%)	0.52
Operative Vaginal Delivery	479 (12.4%)	77 (15.3%)	46 (13.9%)	79 (13.1%)	0.30
Prolonged Second Stage	168 (4.3%)	34 (6.6%)	16 (4.8%)	43 (7.0%)	0.01
Postpartum Hemorrhage	102 (2.6%)	11 (2.1%)	4 (1.2%)	10 (1.6%)	0.21
Maternal Fever	130 (3.3%)	28 (5.4%)	33 (9.8%)	51 (8.3%)	<0.01
Neonatal Outcomes					
Composite Neonatal Outcome	378 (9.7%)	59 (11.5%)	49 (14.6%)	91 (14.9%)	<0.01
Apgar ≤5	13 (0.3%)	3 (0.6%)	3 (0.9%)	6 (1.0%)	0.09
Admission to Level 2 or 3 Nursery	172 (4.4%)	34 (6.6%)	20 (6.0%)	43 (7.1%)	0.01
Shoulder Dystocia	180 (4.6%)	19 (3.7%)	26 (7.7%)	39 (6.4%)	0.01
pH≤7.10	36 (0.9%)	8 (1.6%)	3 (0.9%)	10 (1.6%)	0.27
Base Excess ≤-12	41 (1.1%)	8 (1.6%)	3 (0.9%)	9 (1.5%)	0.60

278 Impact of pre-pregnancy body mass index on maternal and fetal outcomes in type 1 diabetitc preganancy (T1DM)

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OBJECTIVE: Our objective was to asses the risk of maternal and perinatal complications in a T1DM pregnancy group and their relationships with pre-pregnacy BMI.

STUDY DESIGN: We retrospectively reviewed the data-charts of singleton T1DM pregnancies who delivered in our hospital between May 2004 and July 2012. Patients were divided in two groups according to BMI: normal weight (BMI<25) and overweight (BMI≥25). Maternal and fetal outcomes were statistically analyzed and compared through Fisher's test and T-test.

RESULTS: During the study period 80 patients with T1DM delivered in our hospital, 55 (69 %) had normal weight, 25 (31%) were overweigth. Maternal characteristics (parity, maternal age, duration of diabetes, pre-pregnancy diabetic complications) were statistically similar between the two groups. Fourty-eight patients had continuous subcutaneous insulin infusion (CSII) and 32 multiple daily injections (MDI) with no different distribution among the groups. The delivery mode was significantly different between the two groups, with a higher incidence of cesarean section in the overweight group (16/25 vs 24/55; p=0,04). The other obstetric outcomes (pre-eclampsia, thiroyd disease, preterm delivery, fetal malformation) were not affected by BMI. The overweight group had a significant increase on HbA1c levels during second and third trimester of pregnancy (Table). The two groups were not significantly different in terms of neonatal outcomes (neonatal weight, number of LGA, umbilical artery pH, Apgar at 5', neonatal intensive care need, perinatal mortality).

CONCLUSION: In our population the overweighted patients had a higher incidence of cesarean delivery. High pre-pregnancy BMI was correlated with a significantly increase of HbA1c, levels from the second trimester till the end of pregnancy, with no effect on the rate of adverse neonatal outcomes.

	BMI<25 (n=55)	BMI≥25 (n=25)	p
Hb A1c 1° trimester	6.8 ± 1.2	7.2 ± 1.3	0.23
Hb A1c 2° trimester	6.0 ± 0.7	6.7± 0.9	0.01
Hb A1c 3° trimester	6.1 ± 0.8	6.5 ± 0.5	0.03