

Shifting Sugar Standards: Maternal and Neonatal Outcomes with Altered Diagnostic Criteria for Gestation Diabetes Mellitus

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BACKGROUND

- Women with gestational diabetes mellitus (GDM) are more likely to have adverse maternal and neonatal outcomes
- In January 2015, Queensland Health adopted new diagnostic criteria for GDM
- This follows results from the HAPO trial¹
- We aimed to determine if this new diagnostic criteria resulted in improved perinatal outcomes
- Outcomes assessed were:
 - Incidence of GDM
 - Neonatal outcomes such as birth weight, nursery admission, apgar score and shoulder dystocia
 - Mode of delivery
 - Number of inductions of labour

RESULTS

Table 1. Demographics comparing pre-2015 to updated GDM criteria.

Demographic	Pre-2015	Updated Criteria	P-Value
N (% total)	3869 (50.0%)	3869 (50.0%)	-
Maternal Age			0.779
- <20 years	101 (2.6%)	94 (2.3%)	-
- 20-35 years	2957 (76.4%)	2 980 (77.0%)	-
- >35 years	811 (21.0%)	795 (20.6%)	-
Parity			0.588
- Nulliparity, n (%)	1668 (43.1%)	1 689 (43.7%)	-
- Multiparity, n (%)	2 201 (56.9%)	2 174 (56.3%)	-
Body Mass Index (kg/m²)			0.060
- BMI <18	180 (4.7%)	238 (6.2%)	-
- BMI 18 -25	2 265 (58.5%)	2 203 (59.9%)	-
- BMI 25 – 29.9	847 (21.9%)	841 (21.7%)	-
- BMI 30 – 34.9	352 (9.1%)	356 (9.2%)	-
- BMI ≥= 35	225 (5.8%)	231 (6.0%)	-

CONCLUSION

- Updated GDM diagnostic criteria has led to an increase in diagnosis of GDM and subsequently an increased burden to health service
- No demonstrated improvement in perinatal outcomes
- Special care nursery admissions were increased with updated diagnostic criteria

METHODS

- Retrospective matched case control study over 4 years at a tertiary obstetric hospital
- Patient's diagnosed with GDM by the pre-2015 criteria were compared to patients diagnosed with updated criteria
- Cases were matched to controls by maternal age, BMI and parity in a 1:1 ratio
- Outcomes assessed included incidence of GDM and perinatal outcomes
- Data was analysed with Pearson's chi-squared test with categorical variables and independent t-test with continuous variables for statistical significance using SAS Studio

RESULTS

Table 2. Outcomes of pregnancies with pre-2015 GDM and updated GDM criteria.

Outcome	Pre-2015	Updated Criteria	P-Value
N (% total)	3869 (50.0%)	3869 (50.0%)	-
Birthweight (g; mean, SD)	3402 (606)	3387 (593)	0.256
Gestational Age			0.348
• <37 weeks	335 (8.7%)	329 (8.5%)	-
• 37 – 37+6 weeks	267 (6.9%)	315 (8.1%)	-
• 38 – 38+6 weeks	573 (14.8%)	567 (14.7%)	-
• 39 – 39 +6 weeks	984 (25.4%)	1 011 (26.1%)	-
• 40 – 40+6 weeks	982 (25.4%)	944 (24.4%)	-
• >41 weeks	728 (18.8%)	703 (18.2%)	-
Admission to SCN/NICU	624 (16.1%)	699 (18.1%)	0.023
Apgar <7 at 5min	74 (1.9%)	87 (2.3%)	0.301
Mode of birth			
• Caesarean section	940 (24.3%)	997 (25.8%)	0.135
• Vaginal birth	2 929 (75.7%)	2 872 (74.2%)	
○ Non instrumental vaginal birth*	2 506 (85.6%)	2 421 (84.3%)	0.238
○ Instrumental vaginal birth*	422 (14.4%)	451 (15.7%)	
Diagnosis of GDM			
- No GDM	3 533 (92.1%)	2 665 (88.8%)	
- GDM Diet	179 (4.7%)	210 (7.0%)	<0.001
- GDM Insulin	123 (3.2%)	126 (4.2%)	
Shoulder Dystocia	44 (1.1%)	47 (1.2%)	0.752

*Comparison within vaginal birth group

REFERENCES

1. The HAPO Study Cooperative Research Group. Hyperglycemia and Adverse Pregnancy Outcome (HAPO) Study: Associations With Neonatal Anthropometrics. *Diabetes*. 2009;58(2):453-459.