Supplementary Online Content

Persson M, Shah PS, Rusconi F, et al. Association of maternal diabetes with neonatal outcomes of very preterm and very low-birth-weight infants: an international cohort study. *JAMA Pediatr*. Published online July 2, 2018. doi:10.1001/jamapediatrics.2018.1811

This supplementary material has been provided by the authors to give readers additional information about their work.

eTable 1. Screening protocols, diagnostic criteria and registry data for diabetes in pregnancy by participating network or country

Network/ country	Screening protocol for GDM	Diagnostic criteria for GDM	Data on diabetes in registry
Canada[1,2]	Preferred screening[1] (2-step) of all pregnant women at 24-28 wks GA: 1hr, 50-gr oral glucose challenge test (GCT). If p-glucose is 140 to 198 mg/dL (7.8 to 11.0 mmol/L) -> OGTT should be performed. Alternate screening[2] (1-step) of all pregnant women at 24 to 28 wks GA: OGTT (75g) with fasting plasma glucose, 1-hr and 2-hr p-glucose.	GDM diagnosed at OGTT if: i. Fasting p-glucose ≥95 mg/dL (5.3 mmol/L) or ii. 1-hr p-glucose ≥ 190 mg/dL (10.6 mmol/L) or iii. 2-hr p-glucose ≥ 160 mg/dL (9.0 mmol/L) If the value of p-glucose challenge screening test is ≥ 200 mg/dL (11.1 mmol/L), GDM is diagnosed ALTERNATE STRATEGY GDM diagnosed at OGTT if: i. Fasting p-glucose ≥92 mg/dL (≥5.1 mmol/L) or ii. 1-hour p-glucose ≥180 mg/dL (≥10.0 mmol/L or iii. 2-hour p-glucose ≥153 mg/dL (≥ 8.5 mmol/L)	Diabetes yes or no
Finland	Risk-factor based screening: if BMI ≥35 kg/m^2; previous GDM; glucosuria at start of pregnancy; type 2 DM in grandparents, parents or siblings; systemic corticosteroid treatment or PCOS -> OGTT at 12–16 weeks GA. OGTT performed in almost all women at 24–28 weeks GA.	National guidelines from 2013: GDM diagnosed if fasting glucose ≥ 95 mg/dL (5,3 mmol/l) or OGTT 1-hr glucose: ≥180 mg/dl (≥10,0 mmol/l or OGTT 2-hr glycose: ≥155 mg/dL (≥8,6 mmol/l)	Diabetes yes or no
Israel	Universal screening at 28 wks GA; Step-1: 1hr, 50-gr oral glucose challenge test (GCT). Step-2 in women screened positive in step-1, i.e. 1-hr post-load p-glucose >140 mg/dL (≥7.8 mmol/L) -> OGTT	GDM (according to Carpenter & Coustan criteria): OGTT (100g) At least 2 vaules ≥ - fasting p-glucose: 95 mg/dL (5.3 mmol/L); - 1-hr: 180 mg/dL (10.0 mmol/L); - 2-hr: 155 mg/dL (8.6 mmol/L); - 3-hr: 140 mg/dL; (7.8 mmol/L)	Diabetes defined as pre-gestational or gestational

eTable 1. (Continued)

Network/ country	Screening protocol for GDM	Diagnostic criteria for GDM	Data on diabetes in registry
NRNJ/ Japan	Universal screening in early pregnancy (≤ 13 wks GA) with random p-glucose and if ≥100 mg/dl (5.6 mmol/L) or at 24-28 wks GA, random p-glucose ≥ 100 mg/dL (5.6 mmol/L) or 50g GCT with 1-hr p-glucose ≥140 mg/dl (7.8 mmol/L) -> OGTT	Current GDM-criteria: 1. Fasting p-glucose ≥92mg/dl (5.1 mmol/L) or 2. OGTT (75g) 1h p-glucose ≥180 mg/dl (10.0 mmol/L) or 3. OGTT (75g) 2h p-glucose ≥153 mg/dl (8.5 mmol/L) GDM-criteria before July 2010: 2 or more of the following: 1. Fasting p-glucose ≥100mg/dl (≥5.6 mmol/L) 2. OGTT (75g) 1-hr glucose ≥180 mg/dl (≥10.0 mmol/L) 3. OGTT (75g) 2-hr glucose ≥150 mg/dl (≥8.3 mmol/L and for both time periods not meeting the criteria for overt DM: 1. Fasting glucose ≥126mg/dl (≥7 mmol/L) or 2. HbA1c ≥ 6.5% or 3. Confirmed retinopathy due to DM or 4. Random p-glucose ≥200mg/dl (≥11.1 mmol/L) or OGTT (75g) 2-hr p-glucose ≥200mg/dl (≥11.1 mmol/L) in addition to one of the criteria 1-3	Diabetes yes or no
SNQ/Sweden	Risk-factor based screening (family history, previous GDM, previous LGA-infant, obesity) or random p-glucose ≥ 162 mg/dL (≥9 mmol/l) (performed 4-6 times during pregnancy in all pregnancies) -> OGTT	GDM: fasting p-glucose ≥126 mg/dL (7mmol/l) or OGTT 2-hr p-glucose ≥180 mg/dL (10.0 mmol/l)	Diabetes defined as pre-gestational type 1 DM or gestational

eTable 1. (Continued)

Network/ country	Screening protocol for GDM	Diagnostic criteria for GDM	Data on diabetes in registry
Tuscany	Risk-factor based screening: - at 16-18 weeks GA: if BMI ≥30 kg/m^2; previous GDM; random p-glucose 100 to 125 mg/dl (5.6 to 6.9 mmol/L) -> OGTT. - at 26-28 weeks GA: if maternal age >35 years; BMI ≥ 25 kg/m^2; family history, previous LGA infant; mother born in country with high prevalence of diabetes -> OGTT	GDM: fasting p-glucose ≥126 mg/dl (7 mmol/L) or random p-glucose ≥200 (≥11.1 mg/dl) or OGTT (75g) 1-hr glucose ≥180 mg/dL (10.0 mmol/L) or OGTT 2-hr p-glucose ≥153 mg/dl (8.5 mmol/l)	Up to 2014: no differentiation between pre-pregnancy and gestational diabetes. After 2015: Documented as diabetes before pregnancy and gestational diabetes.

eTable 1. (Continued)

Network/ country	Screening protocol for GDM	Diagnostic criteria for GDM	Data on diabetes in registry
UK	Risk-factor based screening: BMI>30 kg/m^2; previous macrosomic baby with BW ≥4.5 kg; previous GDM; family history of diabetes (first-degree relative); minority ethnic family origin with a high prevalence of diabetes -> OGTT [5]	GDM-diagnosis: fasting p-glucose ≥100mg/dl (≥5.6 mmol/L) *or* OGTT (75g) 2-hr glucose 140 mg/dL (7.8 mmol/L) Offer women who had GDM in previous pregnancy: - early self-monitoring of p-glucose *or* - OGTT as soon as possible after booking and a further OGTT at 24–28 weeks if the results of the first OGTT are normal. Offer women with a diagnosis GDM a review with the joint diabetes and antenatal clinic within 1 week. Inform the primary healthcare team when a woman is diagnosed with GDM	Diabetes yes or no

[1] Berger H, Gagnon R, Sermer M, Basso M, Bos H, Brown RN et al. Diabetes in Pregnancy. J Obstet Gynaecol Can. 2016 Jul;38(7):667-679.e1. doi: 10.1016/j.jogc.2016.04.002. Epub 2016 May 12.
[2] https://www.canada.ca/content/dam/canada/health-canada/migration/healthy-canadians/publications/healthy-living-vie-saine/maternal-diabetes-diabete-maternelle/alt/maternal-diabetes-diabete-maternelle-eng.pdf
[3] Sato T, Sugiyama T, Kurakata M, Saito M, Sugawara J, Yaegashi N, et al. Pregnancy outcomes in women with type 1 and type 2 diabetes mellitus in a retrospective multi-institutional study in Japan. Endocr J. 2014;61(8):759-64.
[4] Sugiyama T, Saito M, Nishigori H, Nagase S, Yaegashi N, Sagawa N, et al. Comparison of pregnancy outcomes between women with gestational diabetes and overt diabetes first diagnosed in pregnancy: a retrospective multi-institutional study in Japan. Diabetes Res Clin Pract. 2014;103(1):20-5.
[5] https://www.nice.org.uk/guidance/ng3

Abbreviations:T1DM – type 1 diabetes mellitus, T2DM – type 2 diabetes mellitus, GDM – gestational diabetes, wks – weeks, GA – gestational age, GCT – glucose challenge test, OGTT – oral glucose tolerance test, mg – miligrams, dL – deciliter, mmol – milimolar, kg – kiligram, m – meter, PCOS – polycystic ovary syndrome, yrs - years

eTable 2. Adverse neonatal outcomes of very preterm boys compared to girls of diabetic mothers

Adverse outcomes	Adjusted[a,b] OR (95% CI)
In-hospital mortality	0.98 (0.69, 1.39)
In-hospital mortality or severe[c] neonatal morbidity	1.05 (0.85, 1.30)
Respiratory distress syndrome	1.19 (0.98, 1.44)
Severe neonatal brain injury (IVH 3-4, cPVL)	1.11 (0.81, 1.53)
Treated patent ductus arteriosus	1.08 (0.89, 1.32)
Treated retinopathy of prematurity	0.98 (0.66, 1.45)
Bronchopulmonary dysplasia	1.23 (0.96, 1.57)
Necrotizing enterocolitis[d]	1.10 (0.75, 1.61)

[a]Adjusted for the following: maternal age (≥35 years), maternal hypertensive condition, antenatal corticosteroids, mode of delivery, GA, outborn, birth weight z-score, and network

[b]Girls (n=1573) are the reference in the adjusted analysis. Total number of boys = 1707.

[c]Severe neonatal morbidity: IVH grade 3-4, cPVL, treated ROP or BPD

[d]UKNC info unavailable

Abbreviations: IVH=intraventricular hemorrhage; cPVL= cystic periventricular leukomalacia

eTable 3. Adverse neonatal outcomes in very preterm infants of diabetic mothers versus non-diabetic mothers, stratified by sex

Adverse outcomes	Boys[a,b]	Girls[a,c]
In-hospital mortality	1.00 (0.78, 1.29)	1.37 (1.06, 1.77)
In-hospital mortality or severe neonatal morbidity	0.89 (0.77, 1.04)	1.10 (0.94, 1.29)
~~RDS~~ Respiratory distress syndrome	0.98 (0.85, 1.12)	1.04 (0.90, 1.20)
Severe neonatal brain injury (IVH 3-4, cPVL)	0.88 (0.70, 1.10)	0.95 (0.75, 1.21)
Treated patent ductus arteriosus	1.07 (0.93, 1.23)	0.90 (0.78, 1.04)
Treated retinopathy of prematurity	0.82 (0.62, 1.08)	0.89 (0.66, 1.19)
Bronchopulmonary dysplasia	0.98 (0.82, 1.15)	1.05 (0.87, 1.26)
Necrotizing enterocolitis[d]	1.10 (0.84, 1.44)	1.29 (0.96, 1.72)

[a]Adjusted for the following: maternal age (≥35 years), maternal hypertensive, antenatal corticosteroids, mode of delivery, gestational age, outborn, birth weight z-score, and network

[b]male very preterm infants of diabetic mothers (n=1707) versus male very preterm infants of non-diabetic mothers (n= 38 484)

[c]female very preterm infants of diabetic mothers (n=1573) versus female very preterm infants of non-diabetic mothers (n= 38 646)

[d]UKNC info unavailable