APPENDIX

Appendix Figure 1: Type 2 diabetes definition

1) Individuals were identified as having possible type 2 diabetes if they met any of the following:

- Had 1 or more hospitalizations with a diagnosis of diabetes mellitus, ICD-9-CM diagnosis code 250; ICD-10-CA codes E10-E14, or
- Had 2 or more physician visits with a diagnosis of diabetes mellitus, ICD-9-CM diagnosis code 250, or
- Had 1 or more prescriptions for drugs used in diabetes, e.g., insulin, blood glucose lowering drugs (ATC code A10 excluding metformin), or
- Had 1 or more prescriptions for metformin with at least one physician visit for diabetes, or
- Had 1 or more HbA1c tests with a result ≥ 6.5% (Punthankee et al), or
- Were identified as having type 2 diabetes in the Diabetes Education Resource for Children and Adolescents (DER-CA).

Note: To prevent classifying gestational diabetes as type 2, all diagnoses, prescriptions and HbA1c tests for pregnant women occurring from 120 days before delivery to 90 days after delivery were excluded from the above algorithm.

2) Those likely to have non-type 2 diabetes were excluded and were defined as those who met any of the following criteria):

- Had 1 prescription for metformin without a diagnosis for diabetes from a hospitalization or physician visit (suggests metformin was prescribed for an indication other than diabetes), or
- Ever had 1 or more prescriptions for an insulin pump infusion set (Manitoba Product Identification Numbers: 00905739, 00908300, 00992968, 00992976, 00992984, 00992991), as the practice in Manitoba is for use only in type 1 diabetes, or
- Ever had 1 or more diagnoses for cystic fibrosis from a hospitalization or physician visit (ICD-9-CM diagnosis code 277.0; ICD-10-CA code E84 [diabetes most likely secondary to cystic fibrosis]), or
- Age at first diabetes diagnosis was less than 7 years old (as type 2 diabetes is extremely rare under the age of 7) (Sawatsky et al.), or
- Were identified as having any ty pe of diabetes other than type 2 in the Diabetes Education Resource for Children and Adolescents (DER-CA), e.g., type 1, medication induced

Databases used: health insurance registry, hospital records, medical claims/medical services, DPIN, laboratory data, DER-Ca; Punthakee Z, Goldenberg R, & Katz P. Diabetes Canada 2018 Clinical Practice Guidelines for the Prevention and Management of Diabetes in Canada: Definition, classification and diagnosis of diabetes, prediabetes and metabolic syndrome. Can J Diabetes. 2018;42(Suppl 1):S10-S15.; Sawatsky L, Halipchuk J, & Wicklow B. Type 2 diabetes in a four-year-old child. Can Med Assoc J. 2017;189(26):E888-E890.

Appendix 2, as supplied by the authors. Appendix to: Yamamoto JM, Pylypjuk C, Sellers E, et al. Maternal and neonatal outcomes in pregnancies with type 2 diabetes in First Nation and other Manitoban people: a population-based study. *CMAJ Open* 2022. doi: 10.9778/cmajo.20220025.

Appendix Table 1: Summary of databases used for variables and outcomes included in the study

	Database	Definition details and ICD Codes where applicable
Maternal Characteristics		
Maternal age	Health Insurance Registry	
Urban/ rural residence	Health Insurance Registry	Home address not in one of the two major urban centres in Manitoba with population > 10,000 persons
Parity	Hospital abstract	
Socioeconomic factor index group	Health Insurance Registry, Census data	Area-level measure of socio-economic status that was derived from Statistics Canada census data. Calculated using area level data to 6 digit postal code from: • Average household income • Percent of single parent households, • Unemployment rate for those age 15 and older, and • High school education rate
Maternal Outcomes		
Caesarean section	Hospital abstract	CSECT variable on delivery record
Operative vaginal delivery (vaginal delivery assisted by forceps and/or vacuum)	Hospital abstract	Intervention codes: 5MD55, 5MD54, 5MD53KL, 5MD53KK, 5MD53KN, 5MD53KM, 5MD53KJ, 5MD53KH, 5MD53KS, 5MD53KP, 5MD53JE, 5MD53JD
Induction	Hospital abstract	Intervention code: 5AC30
Mortality/Morbidity	Hospital abstract	ICD–10–CA codes: Eclampsia: O15 Rupture of uterus during labour: O71.1 Puerperal sepsis: O85 HIV disease: B20–B24, Z21 Cardiac arrest, cardiac failure, or myocardial infarction: O89.1, O74.2, O75.4, I21–I22, I46, I50, J81 Assisted ventilation: 1.GZ.31.CA–ND, 1.GZ.31.CR–ND Hysterectomy, open approach: 1.RM.89.LA (excluded if 1PL74, 1RS74, 1RS80 also present), 1.RM.87.LA–GX Blood transfusion: CIHI variable of red blood cell=yes, trans_auto=yes, or trans_other=Yes Repair of bladder, urethra, or intestine (5.PC.8–.JR, 1.NK.8–^^, 1.NM.80^^ Embolization/ligation/suture uterus for postpartum hemorrhage: O72 + 1 of (1.RM.13^^ or 1.KT.521 OR 5.PC.91.LA Placenta previa with hemorrhage and blood transfusion: O44.1 + CIHI variable of red blood cell=yes, trans_auto=yes, or trans_other=Yes Postpartum hemorrhage and blood transfusion: O72 + CIHI variable of red blood cell=yes, trans_auto=yes, or trans_other=Yes Postpartum hemorrhage and hysterectomy: O72 +1.RM.89.LA (excluded if 1PL74, 1RS74, 1RS80 also present), 1.RM.87.LA–GX OR maternal death
Neonatal Outcomes		
Preterm delivery	Hospital abstract	<37 weeks

Early preterm delivery	Hospital abstract	<34 weeks
Birthweight	Hospital abstract	
Large-for-gestational-age	Hospital abstract, weight for gestation tables	>10th percentile as per Kramer et al 2001
Small-for-gestational-age	Hospital abstract, weight for gestation tables	<10th percentile as per Kramer et al 2001
Birth trauma	Hospital abstract	ICD 10 CM codes P10-11, P13-15
Neonatal intensive care unit admission	Hospital abstract	SCU codes during birth hospitalization episode (initial birth hospitalization and any subsequent transfers
Neonatal readmission	Hospital abstract	Any hospital admission within 30 days of discharge
Congenital malformation	Hospital abstract	ICD-10-CM codes on the birth hospitalization record: E7-E9 (not E8687, E84), Q0, Q2 (not Q2.11, Q2.50, Q2.70), Q30.0-Q30.1, Q31-Q37, Q39-Q45, Q50-Q51, Q52 (not Q52.5), Q56, Q60-Q64, Q71-Q75, Q77-Q78, Q79.0, Q79.2-Q79.4, Q79.8, Q80-Q81, Q82.0-Q82.4, Q85-Q89, Q9.

Appendix Table 2: Distribution of age groups of women with type 2 diabetes aged 14-40 prior to the selection of 1 random birth

Age group (in years)	First Nation with type 2 diabetes n=1218		All others with type 2 diabetes n=963	
	n (%)	Crude rate (95% CI)	n (%)	Crude rate (95% CI)
14-19	66 (5.4)	0.071 (0.056, 0.090)	10 (1)	0.028 (0.015, 0.051)
20-24	215 (17.7)	0.15 (0.13, 0.18)	55 (5.7)	0.060 (0.046, 0.078)
25-29	345 (28.3)	0.15 (0.14, 0.17)	197 (20.5)	0.10 (0.088, 0.12)
30-34	349 (28.7)	0.10 (0.092, 0.11)	382 (39.7)	0.097 (0.088, 0.11)
35-40	243 (20.0)	0.044 (0.038, 0.049)	319 (33.1)	0.039 (0.035, 0.044)

CI, confidence interval

Appendix Table 3: Pregnancy and neonatal outcomes in matched cohort of mother-baby pairs

	First Nation with type 2 diabetes	First Nation without type 2 diabetes	All others with type 2 diabetes	All others without type 2 diabetes
	n=816	n=2233	n=690	n=2068
Maternal Outcomes				
Caesarean section	326 (40.0)	381 (17.1)	311 (45.1)	528 (25.5)
Operative vaginal delivery	49 (6.0)	96 (4.3)	48 (7.0)	160 (7.7%)
Induction	452 (55.4)	628 (28.1)	313 (45.4)	449 (21.7)
Mortality/Morbidity	7 (0.9)	23 (1.0)	11 (1.6)	28 (1.4)
Neonatal Outcomes				
Preterm delivery (<37 weeks)	267 (32.7)	183 (8.2)	172 (24.9)	123 (5.9)
Early preterm delivery (<34 weeks)	52 (6.4)	53 (2.4)	22 (3.2)	34 (1.6)
Large-for-gestational-age	387 (47.4)	365 (16.3)	183 (26.5)	227 (11.0)
Small-for-gestational-age	28 (3.4)	188 (8.4)	51 (7.4)	179 (8.7)
Birth trauma	16 (2.0)	7 (0.3)	14 (2.0)	8 (0.4)
Neonatal intensive care unit admission	270 (33.1)	188 (8.4)	185 (26.8)	162 (7.8)
Neonatal readmission	45 (5.5)	77 (3.4)	18 (2.6)	61 (2.9)
Congenital malformation	70 (8.6)	53 (2.4)	30 (4.3)	33 (1.6)

Data are presented as n (%)