

A comparison of birth outcomes in the Next Generation cohort based on exposure to diabetes in utero and substance use during pregnancy

Priscilla Irabor¹, Elizabeth Sellers^{1,2}, Richard LeDuc¹, and Brandy Wicklow^{1,2}
¹Children's Hospital Research Institute of Manitoba, University of Manitoba; ²Pediatrics and Child Health, University of Manitoba



Background

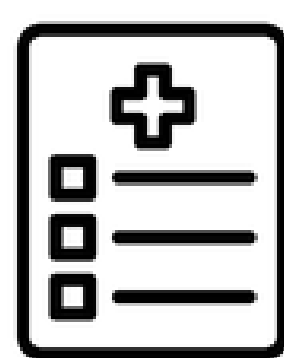
- Infants exposed to diabetes in utero are more likely to experience adverse birth outcomes.
- Exposure to substances (tobacco, marijuana, illicit drugs and/or alcohol) during pregnancy also contributes to poor birth outcomes.

Objectives

- To examine if abstinence from substance use could reduce the rates of adverse birth outcomes for infants exposed to diabetes in utero.
- To determine whether infants exposed to pregestational diabetes (T2D) have a greater risk of experiencing adverse birth outcomes compared to those exposed to gestational diabetes (GDM)

Methods

- The Next Generation (NextGen) cohort consists of Indigenous children born in Manitoba.



Birth outcomes were obtained from reviewing medical charts.



Substance use was self-reported by mothers during their prenatal visits.



Data was analyzed using chi square to test for significance.

Results

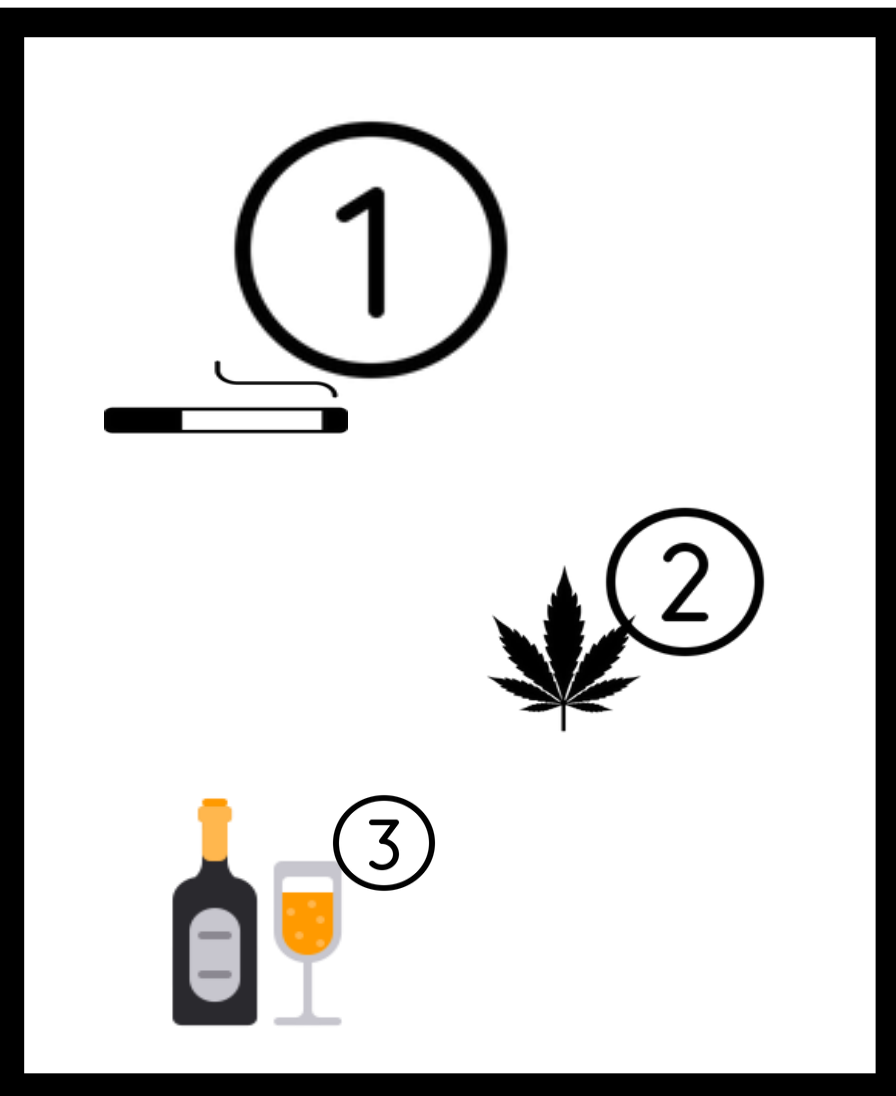
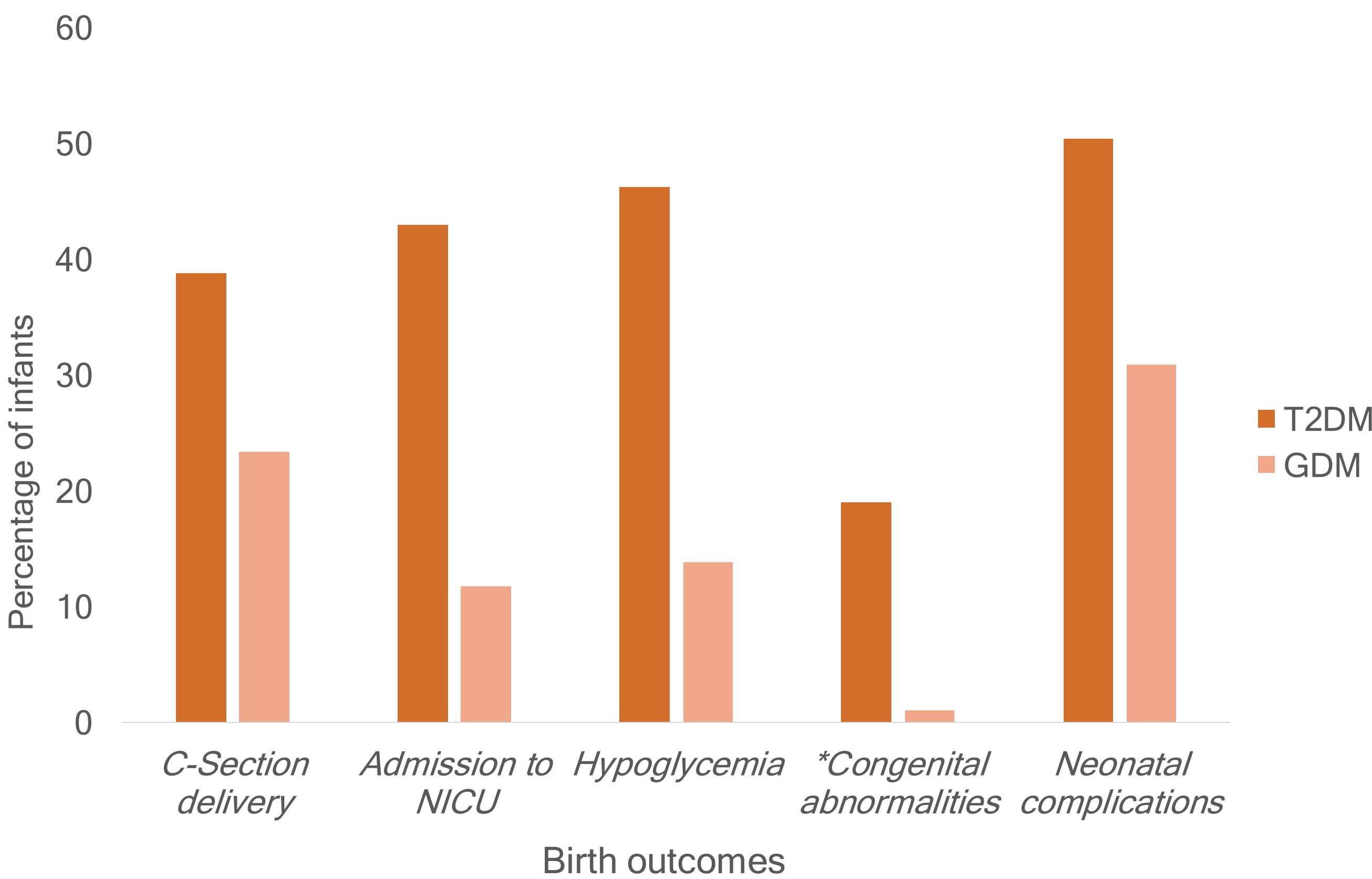


Figure 1: Most common types of substance exposure in the NextGen cohort. Tobacco (smoking) was the most common substance exposure, followed by marijuana and then alcohol.

Table 1: Rates of adverse birth outcomes based on substance exposure for infants exposed to diabetes in utero.

Birth outcomes	Non-exposed (N=103)	Exposed (N=112)	P-value
C-Section delivery	38.8%	25.9%	0.0974
Admission to NICU	31.1%	27.7%	0.3306
Hypoglycemia	30.1%	33.9%	0.8839
Congenital abnormalities	9.7%	12.5%	*
Neonatal complications	39.8%	43.8%	0.9077

*data was inconclusive due to the small number of occurrences



*data was inconclusive due to the small number of occurrences

Figure 2: Rates of adverse birth outcomes based on type of diabetes exposure. For T2DM, N= 121. For GDM, N=94. Differences in c-section delivery (p=0.0192), admission to NICU (p<0.0001), hypoglycemia (p<0.0001) and neonatal complications (p=0.0053) were significant.

Conclusions

- In the Next Generation cohort, abstinence from substance use was not associated with a reduction in the rates of adverse birth outcomes for infants exposed to diabetes in utero.
- Infants born to mothers with T2D are at increased risk for adverse birth outcomes compared to those whose mothers have GDM.

Future Directions



To explore other potential protective factors and their effect on birth outcomes for infants exposed to diabetes in utero.



To compare long-term health outcomes of infants exposed to T2D and GDM in utero.



To advocate for healthier pregnancies, especially for women with T2D.

Acknowledgements

Thank you to all our participants, four arrows regional health authority (FARHA), northern medical staff and our collaborators.

