Maternal Diabetes in Canada: 2004/05-2014/15

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Outline

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Introduction

• Both type 1 and type 2 diabetes in pregnancy is known to be associated with an increased risk of complications during pregnancy such as perinatal mortality and congenital anomalies. 1-3

• Gestational diabetes mellitus (GDM) is known to have adverse effects on fetal and infant outcomes, such as: elevated risks of late intrauterine fetal death, macrosomia, birth trauma, hyperbilirubinemia, hypoglycaemia, and respiratory distress syndrome to name a few. 4-5

• Research has shown that women with a history of GDM have an increased risk of developing type 2 diabetes or impaired glucose tolerance in the years following pregnancy.

• Recent estimates show that the prevalence of maternal diabetes, in particular pre-existing type 2 diabetes and GDM, is increasing in several countries including the United Kingdom, the United States and Finland. 6
Methods

- **Data sources**: Canadian Institute for Health Information Discharge Abstract Database (CIHI-DAD)
  - Does not include data for Quebec
- **Years of data analysed**: 2004/05 – 2014/15
- **Classification systems**: International Statistical Classification of Diseases and Related Health Problems, Tenth Revision. Canadian (ICD-10 CA)
- **Definitions**
  - O24.000-.009/E10: Pre-existing diabetes mellitus, insulin-dependent
  - O24.100-.109/E11: Pre-existing diabetes mellitus, non-insulin dependent
  - O24.400-.409: Diabetes mellitus arising in pregnancy
    - After 2006, the ICD-10CA codes for diabetes changed to O24.5-O24.9 respectively
- **Rates were age standardized for provincial comparisons**
Maternal diabetes 2004-2014

Rate per 1,000 deliveries

Fiscal year

Pre-existing type 1, p=0.08
Pre-existing type 2, p<0.01
GDM, p<0.01
Maternal diabetes 2004-2014 excluding British Columbia

- Pre-existing type 1
- Pre-existing type 2
- GDM
- GDM excluding BC, p<0.01
Pre-existing type 1 diabetes in pregnancy by province/territory 2014

Age standardized to 2014 Canadian obstetric population
Pre-existing type 2 diabetes in pregnancy by province/territory 2014

Age standardized to 2014 Canadian obstetric population
GDM by province/territory 2014

Age standardized to 2014 Canadian obstetric population
Pre-existing type 2 diabetes in pregnancy by age group 2004-2014

![Bar chart showing the rate per 1,000 deliveries by age group from 15-19 to 45-49, with the highest rate in the 45-49 age group at 17.2 and the lowest in the 15-19 age group at 1.4.]
GDM by age group 2004-2014
Discussion

- Overall, between 2004-2011 all provinces/territories showed increased rates of GDM and type 2 diabetes
- BC have adopted different screening criteria in 2011
  - Relative change in GDM since adopting new criteria: 22% increase
  - Rates are higher than rest of Canada
  - Implications for surveillance
- Maternal weight
  - Obesity growing at a faster rate than overweight
  - Likely attributing to increase in type 2 diabetes and GDM
- Maternal age
  - Increasing trend of older mothers (>35 years)
- Other
  - Epigenetic?
Discussion

• Limitations include:
  – No access to behavioural/risk information including maternal BMI (i.e. pre-pregnancy or gestational weight gain)
  – Coding issues
  – Quebec not represented in national estimates
• We can expect the increase in trends in both GDM and type 2 to continue.
• Continued national surveillance of diabetes in pregnancy is needed to better inform and guide prevention efforts.
Thank you!

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References


