

# DSEN ABSTRACT

## COVID-19 Infection and Medicines in Pregnancy

### Summary

- Understanding the consequences of COVID-19 infection and related treatments on maternal and neonatal health can help support future studies and clinical practice guidelines
- We aimed to compare medication use in treating COVID-19 and the severity of infection in pregnant and non-pregnant women.
- We also compared the risk of adverse pregnancy/neonatal outcomes in pregnant women with and without COVID-19
- We used data from AB, MB and ON, collected by CAMCCO
- There was very low use of treatments during pregnancy, especially when compared to non-pregnant women with severe infection
- Pregnant women were more likely to have severe COVID-19 infection
- COVID-19 in pregnancy was linked to a higher risk for spontaneous abortions, gestational diabetes, cesarean birth, low birth weight, small for gestational age, neonatal intensive care unit admission and major congenital malformation.
- Severe COVID-19 infection was linked to higher risk of maternal pregnancy and neonatal outcomes compared to pregnant women with non-severe COVID-19

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### What is the current situation?

In early 2020, an estimated 100 million+ pregnant people worldwide were at risk of SARS-CoV-2 infection. In 2021, more than 3,800 pregnant Canadians were infected. Limited data existed on the consequences of COVID-19 infection and related treatments on maternal and neonatal health, particularly considering different gestational ages. Health Canada sought real-world data to fill knowledge gaps on the use of medication to treat COVID-19 in pregnancy and the effects on maternal, pregnancy and neonatal outcomes at a global level to inform future safety and effectiveness studies and clinical practice guidelines.

### What was the aim of the study?

- To estimate and compare the prevalence of medicine use in pregnant women with COVID-19, pregnant women without COVID-19 and non-pregnant women of reproductive age (15-45 years) with COVID-19
- To describe the severity of COVID-19 infection in pregnant and non-pregnant women and the use of medications in these two groups
- To assess the impact of COVID-19 on pregnancy and neonatal outcomes during pregnancy and compare the rate of adverse pregnancy and neonatal outcomes in pregnant women with and without COVID-19 infection

### How was the study conducted?

- Using the Canadian Mother-Child Cohort (CAMCCO), a collaborative research infrastructure based on real-world data from large provincial healthcare databases, we included publicly insured women from Alberta (AB), Manitoba (MB) and Ontario (ON) of reproductive age (15-45 years) (Feb 28 2020 to date of last available data)
- In each province, 2 sets of cohorts were created: i) pregnant women with at least one completed trimester during study period regardless of pregnancy status; ii) non-pregnant women with positive COVID-19 infection
- COVID-19 infection was defined by a positive test result or the presence of ICD-10-CM code U07.1. Disease severity was defined by those infections requiring hospital admissions. Medication exposure was assessed 30 days pre- or 30 days post-COVID-19 positive test/diagnosis

### What did the study find?

- We studied 150,345 pregnant women (3,464 (2.3%) had COVID-19) and 112,073 non-pregnant women with COVID-19 diagnoses.
- Pregnant women with COVID-19 were more likely to have severe infections compared to non-pregnant women with COVID-19 (11.40% vs 1.60%,  $p < 0.001$ ).
- The prevalence of medicine use within 30 days before/after COVID-19 diagnosis was lower among pregnant women compared to non-pregnant women, particularly among those with severe infections.
  - The most frequent medications used in pregnancy to treat COVID-19 were antibacterials (13.96%), psychoanaleptics (7.35%), and medicines for obstructive airway disease (3.20%).
- COVID-19 infection during pregnancy was associated with a higher risk for spontaneous abortions, gestational diabetes, and cesarean birth along with neonatal outcomes such as low birth weight, small for gestational age, neonatal intensive care unit admission and major congenital malformation.
- In pregnant women, severe COVID-19 infection was associated with higher risk of maternal pregnancy and neonatal outcomes compared to non-severe COVID-19.

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