

# COVID-19 PANDEMIC

## RAEB'S Evidence Update

Highlights of health research synthesized by the Research, Analysis and Evaluation Branch

April 19, 2022

### Featured

[Evidence Products Produced with Our Partners](#)  
[Research Evidence and Jurisdictional Experience](#)  
[Trusted Resources](#)

### Evidence Products Produced with Our Partners

The COVID-19 Evidence Synthesis Network is comprised of groups specializing in evidence synthesis and knowledge translation. The group has committed to provide their expertise to provide high-quality, relevant, and timely synthesized research evidence about COVID-19 to inform decision makers as the pandemic continues. Please contact [Evidence Synthesis Unit](#) for the full read of these evidence products.

### Understanding the Post-COVID-19 Condition

(Produced in collaboration with the Canadian Agency for Drugs and Technologies in Health, SPOR Evidence Alliance, and Public Health Ontario)

This briefing note examines the definitions, prevalence, risk factors, symptoms, quality of life (QoL), and activities of daily living of the post COVID-19 condition for the general, working age adult, and low-income populations.

- **Definitions:** Post COVID-19 condition definitions share similar components such as persistent symptoms and/or delayed symptoms of SARS-CoV-2 infection beyond four weeks from symptom onset.
- **Prevalence:** Global prevalence of post COVID-19 condition is estimated at 43% of all cases. In North America, prevalence is estimated at 30%.
- **Risk Factors:** Common risk factors include: severe/critical acute infection; female sex; older age; obesity; hospital admission at symptom initiation; and dyspnea (shortness of breath).

- **Symptomatology:** Commonly reported symptoms of post-COVID-19 condition are chronic fatigue, dysosmia (disordered smell perception), dyspnea, taste dysfunction, headache, pain (e.g., chest, joint, muscle), poor sleep quality, and reduced exercise capacity.
- **QoL:** Post-COVID-19 condition symptoms may lead to decreased QoL and health-related quality of life in the general population and low-income populations.
- **Activities of Daily Living:** The need for care assistance among the general population significantly increases after COVID-19 infection, and individuals who were not dependent previously are reported to be partially dependent on others.
- **Analysis for Ontario:** Based on the emerging available data, post COVID-19 condition has the potential to impact the physical and mental health of a substantial proportion of Ontario's population, as well as impact health care system resources in the coming years.

## Research Evidence and Jurisdictional Experience

The research evidence profiled below was selected from highly esteemed academic journals and grey literature sources, based on date of publication and potential applicability or interest to the Ontario health sector.

### Disease Management

#### ***Journal of the American Medical Association (JAMA): Attitudes and beliefs associated with***

**April 14, 2022.** This study of 295 unvaccinated pregnant women in the US identified two beliefs associated with COVID-19 vaccine uptake during pregnancy: (1) concerns about long-term effects of the vaccine and (2) belief in the ability of the vaccine to pass immunity to the infant. The findings highlight important factors that could be targeted by interventions to address vaccine hesitancy in pregnant people (i.e., national health campaigns providing scientific evidence of COVID-19 vaccination). The study suggested the importance of continued research and publish data on the long-term health outcomes of vaccinated pregnant people and their infants. [Article](#).

#### ***JAMA: Surveillance of safety of three doses of COVID-19 mRNA vaccination using electronic health records***

**April 14, 2022.** This study of electronic health record data for 47,999 individuals receiving three-dose mRNA COVID-19 vaccines found no significant increase in the reporting of severe adverse events (i.e., anaphylaxis, cerebral venous sinus thrombosis, myocarditis, and pericarditis) after the third vaccine dose compared with before vaccination and after prior doses. Significantly increased reporting was found for low-severity adverse events (i.e., fatigue,

lymphadenopathy, nausea, and headache). These findings suggest that third-dose vaccination with COVID-19 mRNA vaccines may be safe. [Article](#).

***JAMA: Association of subcutaneous or intravenous administration of casirivimab and imdevimab monoclonal antibodies (mAb) with clinical outcomes in adults with COVID-19***

**April 12, 2022.** This study of 1,959 high-risk outpatients with mild to moderate COVID-19 symptoms found subcutaneously administered casirivimab and imdevimab was associated with reduced hospitalization and death when compared with no treatment. These results provide preliminary evidence of potential expanded use of subcutaneous mAb treatment, particularly in areas that are facing treatment capacity and/or staffing shortages. [Article](#).

***JAMA: Immunogenicity and risk factors associated with poor humoral immune response of SARS-CoV-2 vaccines in recipients of solid organ transplant (SOT)***

**April 12, 2022.** This systematic review and meta-analysis of 29 studies and 11,713 recipients of SOT found the rates of positive antibody response in recipients remained low despite multiple doses of mRNA vaccines. These findings suggest that more efforts are needed to modulate the risk factors associated with reduced humoral responses and to study monoclonal antibody prophylaxis among recipients of SOT who are at high risk of diminished humoral response. [Article](#).

***The Lancet: COVID-19 vaccine waning and effectiveness and side-effects of boosters***

**April 8, 2022.** This study in the UK among 620,793 participants found that after five months, vaccine effectiveness remained high among individuals younger than 55 years. Booster doses were suggested to restore vaccine effectiveness. Adverse reactions after booster doses were similar to those after the second dose. Furthermore, homologous booster schedules had fewer reported systemic side-effects than heterologous boosters. [Article](#).

***Centres for Disease Control and Prevention (CDC): Cardiac complications after SARS-CoV-2 infection and mRNA COVID-19 vaccination in the US***

**April 8, 2022.** Data from 40 US health care systems participating in a large network found that the risk for cardiac complications was significantly higher after SARS-CoV-2 infection than after mRNA COVID-19 vaccination for both males and females in all age groups. These findings support continued use of recommended mRNA COVID-19 vaccines among all eligible persons aged  $\geq$  five years. [Article](#).

## Understanding the Disease

### ***JAMA: Association of psychiatric disorders with incidence of SARS-CoV-2 breakthrough infection among vaccinated adults***

**April 14, 2022.** This study suggests that psychiatric disorder diagnoses were associated with an increased incidence of SARS-CoV-2 breakthrough infection among vaccinated adult patients, with the strongest associations observed for older individuals. This study suggests that individuals with psychiatric disorders may be at heightened risk for contracting COVID-19 even after vaccination, indicating the need for targeted prevention efforts. [Article](#).

### ***Nature: Persistent COVID-19 symptoms in a community study of 606,434 people in England***

**April 12, 2022.** This study identified a substantial proportion of people who experienced persistent symptoms lasting 12 weeks or more post COVID-19, indicating a high potential population health burden. After the initial decline in symptom prevalence between four and 12 weeks, the prevalence of persistent symptoms plateaued indicating that large numbers of people may have chronic symptoms requiring investigation and intervention including rehabilitation. Economically disadvantaged people and those in deprived areas appear to have a higher burden of persistent symptoms post COVID-19, compounding the excess burden of severe illness and mortality from COVID-19 experienced by these groups. Managing the long-term sequelae of COVID-19 will remain a major challenge for affected individuals and their families and for health services. [Article](#).

### ***Circulation: SARS-CoV-2 infection and associated cardiovascular manifestations and complications in children and young adults***

**April 11, 2022.** In this scientific statement, the American Heart Association describes the epidemiology, pathophysiology, clinical presentations, treatment, and outcomes of SARS-CoV-2 and multisystem inflammatory syndrome in children and young adults with a focus on cardiovascular manifestations and complications. The association reviewed current knowledge about the health consequences of this illness in children and young adults with congenital and acquired heart disease, the public health burden and health disparities of this infection in these populations, and vaccine-associated myocarditis. [Article](#).

## Transmission

### ***Canadian Medical Association Journal (CMAJ): Household transmission of SARS-CoV-2 from unvaccinated asymptomatic and symptomatic household members with confirmed SARS-CoV-2 infection***

**April 12, 2022.** This study of 695 participants from 180 households in Ottawa, Ontario from September 2020 to March 2021 suggested that the rate of SARS-CoV-2 transmission within households was nearly 50% during the study period. Although adults were more likely to spread infection than children, children transmitted infection to roughly one-third of their household members. Children and adults were equally likely to be infected from the infected adult or child in their home. [Article](#).

## Data Analytics, Modelling and Measurement

### ***The Lancet: Dosing interval strategies for two-dose COVID-19 vaccination in 13 middle-income countries (MICs) of Europe***

**April 11, 2022.** This modelling study inferred that longer dosing intervals of over six months could reduce COVID-19 mortality in MICs of Europe. Certain parameters, such as rapid waning of first-dose induced immunity and increased immune escape through the emergence of variants of concern, could significantly shorten the optimal dosing intervals. [Article](#).

### ***The Lancet: Screening and vaccination against COVID-19 to minimize school closures***

**April 1, 2022.** This modelling study suggests that extending vaccination coverage for students, complemented by regular testing with good adherence (i.e., weekly testing of 75% of unvaccinated students and symptom-based testing), are essential steps to keeping schools open when highly transmissible variants are circulating. [Article](#).

## Trusted Resources

- The Evidence Synthesis Network (ESN) is a collaborative COVID-19 response initiative by Ontario's research and knowledge production community. The [ESN website](#) is a portal where research evidence requests can be made and includes previously completed ESN briefing notes.
- The [Ontario COVID-19 Science Advisory Table](#) is a group of scientific experts and health system leaders who evaluate and report on emerging evidence relevant to the COVID-19 pandemic, to inform Ontario's response to the pandemic.
- COVID-19 Evidence Network to support decision-making (COVID-END) in Canada:

- COVID-END is a time-limited network that brings together more than 50 of the world's leading evidence-synthesis, technology-assessment, and guideline development groups to support decision-making. In addition to Living Evidence Profiles, COVID-END hosts an inventory of best COVID-19 evidence syntheses from around the world. An up-to-date and comprehensive list of sources, organized by type of research evidence, is available on McMaster Health Forum's COVID-END [website](#).
- The COVID-19 Evidence Spotlights from COVID-END provide updated information on COVID-19 responses with three types of products from COVID-END in Canada: 1) Canadian spotlights; 2) global spotlights; and 3) horizon scans. To receive an email containing hyperlinks to these products twice a month, [subscribe here](#).
  - In the first half of April 2022, contributing Canadian evidence-synthesis teams shared seven newly completed evidence syntheses, all focusing on public health measures. Please visit [Canadian Spotlight 16.1](#) to view the evidence, or browse past [Canadian evidence spotlights](#). A complete list of the products is available [here](#).

## About RAEB

Through research funding, brokering, translating, and sharing, we promote an enhanced evidence use capacity that supports all aspects of health policy, programming, and investment decision-making. Services include:

- Literature reviews
- Jurisdictional scans
- Economic analysis
- Evaluation planning
- Research fund management
- Knowledge translation services

## Contact RAEB

- [Robert Francis](#), RAEB Director (A)
- [Andrea Proctor](#), Evidence Synthesis
- [Emre Yurga](#), Economic Analysis and Evaluation
- [Hadi Karsoho](#), Research Planning and Management