

# COVID-19 PANDEMIC

## RAEB'S Evidence Update

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

November 8, 2021

### Featured

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### 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.

#### Understanding the Disease

***Journal of the American Medical Association (JAMA): Immune response of neonates born to mothers infected with SARS-CoV-2***

**Nov 3, 2021.** In this study of 21 mothers who tested positive for SARS-CoV-2 at delivery and their 22 newborns, there was one case of potential mother-infant vertical virus transmission and one case of horizontal virus transmission. Infants who received breastmilk during the first two months of life had significantly higher spike-specific salivary IgA antibody levels compared with formula-fed infants, and IgA spike immune complexes were detected in breastmilk. Findings suggest that maternal protection goes beyond passive immunity, with immune complexes in breastmilk stimulating the active development of the neonatal immune system. [Article](#).

***Canadian Medical Association Journal (CMAJ): Evaluation of the relative virulence of novel SARS-CoV-2 variants in Ontario***

**Oct 25, 2021.** This study found that compared with non-variants of concern (VOCs) SARS-CoV-2 strains, the adjusted elevation in risk associated with N501Y-positive variants (i.e., Alpha, Beta, Delta, Gamma) was 52% for hospitalization, 89% for ICU admission, and 51% for death.

Increased risk with the Delta variant was more pronounced at 108% for hospitalization, 235% for ICU admission, and 133% for death. [Article](#).

## Disease Management

### ***Nature*: Pfizer and Moderna vaccine effectiveness against the SARS-CoV-2 Delta variant in Qatar**

**Nov 2, 2021.** This study showed robust effectiveness for both Pfizer and Moderna vaccines in preventing Delta hospitalization and death in Qatar's population, despite lower effectiveness in preventing infection. In particular, the Pfizer vaccine was shown to be only 51.9% effective against symptomatic or asymptomatic Delta infections  $\geq 14$  days after the second dose, in comparison to 73.1% for Moderna. [Article](#).

### ***Centres for Disease Control and Prevention (CDC)*: Effectiveness of two-dose vaccination with mRNA vaccines against COVID-19-associated hospitalizations among immunocompromised adults in nine US states (Jan-Sept, 2020)**

**Nov 2, 2021.** This study found that the effectiveness of mRNA vaccination against laboratory-confirmed COVID-19-associated hospitalization was lower (77%) among immunocompromised adults than among immunocompetent adults (90%), but varied considerably among immunocompromised patient subgroups (e.g., ranging from 59% for organ transplant recipients to 81% for persons with rheumatologic or inflammatory disorder). The CDC advises that immunocompromised persons receiving mRNA COVID-19 vaccines should receive three doses and a booster. [Article](#).

### ***Nature*: Decreased mortality and increased side effects in COVID-19 patients treated with IL-6 receptor antagonists**

**Nov 2, 2021.** This systematic review and meta-analysis found that IL-6 (receptor) antagonists are effective in reducing mortality and mechanical ventilation in COVID-19 patients, while the risk of side effects (e.g., neutropenia, impaired liver function, and secondary infections) was higher. [Article](#).

### ***New England Journal of Medicine (NEJM)*: Early treatment for COVID-19 with SARS-CoV-2 neutralizing antibody sotrovimab**

**Oct 27, 2021.** In this randomized phase three trial, high-risk patients with mild-to-moderate COVID-19 who received sotrovimab had lower rates of hospitalization or death (1%) compared with the placebo group (7%), within five days after the onset of COVID-19 symptoms. Sotrovimab is a pan-sarbecovirus monoclonal antibody that was designed to prevent progression of COVID-19 in high-risk patients early in the course of disease. [Article](#).

**NEJM: Waning immunity after the Pfizer vaccine in Israel**

**Oct 27, 2021.** This study found that following a resurgence of COVID-19 in mid-June 2021, the immunity against the Delta variant of SARS-CoV-2 waned in all age groups a few months after receipt of the second dose of the Pfizer vaccine. Relative and absolute rates of infection and severe disease increased with time since the second vaccine dose in all age groups. [Article](#).

**JAMA: Evaluation of a COVID-19 vaccine campaign and SARS-CoV-2 infection and mortality among adults aged 60 years and older in a middle-income country**

**Oct 29, 2021.** In this cohort study of 663,602 participants, the use of COVID-19 vaccines was associated with a significant reduction in all-cause death, COVID-related death, and documented infection with the use of one dose and even more with the use of two doses. These findings suggest that pragmatic use of available COVID-19 vaccines may significantly reduce morbidity and mortality. [Article](#).

## Health Systems Impact

**Canadian Institute for Health Information (CIHI): Health expenditure trends in Canada**

**Nov 4, 2021.** This 25th edition of the annual publication on health expenditure trends reported that total health spending in Canada is expected to reach a new level in 2021, at more than \$308 billion, or \$8,019 per Canadian. It is anticipated that health expenditure will represent 12.7% of Canada's gross domestic product in 2021, following a high of 13.7% in 2020. Total health expenditure in Canada rose by 12.8% in 2020 due to pandemic response funding. Prior to the pandemic, from 2015 to 2019, growth in health spending averaged 4% per year. Hospitals (25%), drugs (14%) and physicians (13%) are expected to continue to account for the largest shares of health dollars (more than 50% of total health spending) in 2021. The new spending category, COVID-19 Response Funding, makes up 7% of total health spending, which includes federal direct and provincial/territorial government-sector spending. [Article](#).

**JAMA: Analysis of clinician and patient factors and completion of telemedicine appointments using video**

**Nov 4, 2021.** This study of 137,846 video visits showed an overall 90% success rate. Patient rather than clinician factors were more systematically associated with successful completion of video visits, and clinician comfort with technology was associated with successful video visits or conversion to telephone visits. The findings suggest that as policy makers consider expanding telehealth coverage and hospital systems focus on investments, consideration of patient support, equity, and friction should be kept in the forefront. [Article](#).

**JAMA: Screen time use among US adolescents during the COVID-19 pandemic**

**Nov 1, 2021.** This study found that for adolescents surveyed in May 2020, the mean total daily screen use was 7.7 hours per day, higher than pre-pandemic estimates of 3.8 hours per day. Excessive screen use in adolescents has been associated with physical and mental health risks. Although some screen modalities may be used to promote social connection, higher coping behaviors and social support in this sample were associated with lower total screen usage. [Article](#).

## Frontline Workers

**Clinical Social Work Journal: Preliminary study of social workers' perspectives on shared loss in counselling during COVID-19**

**Oct 23, 2021.** This study examined how clinical social workers' have coped with the emotional and psychological impacts of their work. Participants identified the following themes: 1) greater emphasis on one's own well-being; 2) greater focus on maintaining strong therapeutic rapport; 3) the value of creativity in the new therapeutic space; and 4) a continual assessment of dynamic shifts. These results suggest that society, as well as counselors, need to grieve the losses related to COVID-19 and adjust to the current state of the world. [Article](#).

## Health Equity and Vulnerable Populations

**JAMA: Attitudes and intentions of US veterans regarding COVID-19 vaccination**

**Nov 3, 2021.** In this study of 1,178 US veterans in March 2021, 71% of veterans reported being vaccinated against COVID-19. Fears about side effects and worry about the newness of vaccines were the primary reasons given for not getting vaccinated, reflecting vaccine skepticism and deliberation. These findings suggest that targeting veterans' concerns around the adverse effects and safety of COVID-19 vaccines through conversations with trusted Veterans Health Administration health care practitioners is key to increasing vaccine acceptance. [Article](#).

**JAMA: Evaluation of COVID-19 mortality and adverse outcomes in US patients with or without cancer**

**Oct 28, 2021.** This study found that patients who received cancer treatment within three months before receiving a COVID-19 diagnosis had an increased risk of death, intensive care unit admission, and hospitalization. Patients without recent cancer treatment had similar or better outcomes than COVID-19 patients without cancer. [Article](#).

***Archives of Gynecology and Obstetrics: Pregnant and breastfeeding women's attitudes and fears regarding the COVID-19 vaccination***

**Oct 27, 2021.** This study found that for pregnant and breastfeeding women in Germany, most women (57.4%) are not in favour of receiving the vaccine during pregnancy, 28.8% are unsure, and only 13.8% would get vaccinated. Breastfeeding women show higher vaccination willingness (39.5% in favour; 28.1% unsure; 32.5% not in favour). The main reasons for vaccination hesitancy are the women's perception of limited vaccination-specific information, limited scientific evidence on vaccination safety, and the fear to harm the fetus or infant.

[Article](#).

***Cochrane Library: Factors that influence parents' and informal caregivers' views and practices regarding routine childhood vaccination***

**Oct 27, 2021.** This review found that many factors influence parents' vaccination views and practices, including those related to individual perceptions, social relationships, and the wider context in which parents live. When parents make decisions about vaccination for their children, they are often communicating not just what they think about vaccines, but also who they are, what they value, and with whom they identify. A set of questions and prompts that may help policy- and decision-makers when planning and implementing strategies to promote childhood vaccination acceptance or uptake are provided. [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 second half of October, there were seven newly added evidence syntheses. The syntheses focus on public-health measures (n=5) and clinical management (n=2). Please visit [Canadian Spotlight 10.1](#) 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 scan
- Economic analysis
- Evaluation planning
- Research fund management
- Knowledge translation services

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