

COVID-19 PANDEMIC

RAEB'S Evidence Update

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

May 16, 2022

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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.

Health System Impacts

Journal of the American Medical Association (JAMA): Admissions of children and adolescents with deliberate self-harm to intensive care units (ICUs) during the SARS-CoV-2 outbreak in Australia

May 11, 2022. This study identified 813 patients aged 12 to 17 years admitted to pediatric ICUs with deliberate self-harm over 6.5 years. Monthly admissions per million children and adolescents increased significantly at the onset of the pandemic, from 7.2 admissions in March 2020 to 11.4 admissions by August 2020. This study overall suggests that the pandemic in Australia was associated with a significant increase in admissions of children and adolescents to intensive care with deliberate self-harm. [Article](#).

Health Equity and Vulnerable Populations

Nature: Effectiveness and perinatal outcomes of COVID-19 vaccination in pregnancy

May 10, 2022. This systematic review and meta-analysis evaluated 23 studies including 117,552 COVID-19 vaccinated pregnant people, almost exclusively with mRNA vaccines. Vaccination effectiveness against SARS-CoV-2 infection seven days after second dose was 89.5%. The risk of

stillbirth was significantly lower in the vaccinated cohort by 15%. There was no evidence of a higher risk of adverse outcomes including miscarriage, earlier gestation at birth, placental abruption, pulmonary embolism, postpartum haemorrhage, maternal death, intensive care unit admission, lower birthweight Z-score, or neonatal intensive care unit admission. COVID-19 mRNA vaccination in pregnancy appears to be safe and is associated with a reduction in stillbirth. [Article](#).

Journal of Racial and Ethnic Health Disparities: Strategies that promote equity in COVID-19 vaccine uptake in Latinx communities in the US

May 6, 2022. This review found that an integral component of all interventions that promote vaccine uptake was the use of local Latinx community leaders. Leaders were reported to understand the nuances of vaccine hesitancy, access issues, and structural inequities experienced by Latinx communities. These findings provide a basis for developing strategic implementation to increase COVID-19 vaccine uptake during the pandemic and promoting health equity for future bio-events and health crises. [Article](#).

Health & Social Care in the Community: Differential impacts of COVID-19 and associated responses on the health, social well-being, and food security among users social and health programs during the COVID-19 pandemic in Toronto

May 6, 2022. This study of 20 adults with a history of homelessness and serious mental disorders who were receiving Housing First (HF) services in Toronto, reported that around 40% of participants were minimally impacted by the COVID-19 pandemic. Conversely, among the remaining participants (impacted group), some experienced onset of new mental health problems (anxiety, stress, paranoia) or exacerbation of pre-existing mental disorders (depression, post-traumatic stress disorder, and obsessive-compulsive disorder). Furthermore, they also struggled with isolation and loneliness and had limited leisure activities and access to food goods. Overall, most participants were able to adhere to COVID-19 public health measures and get reliable information on COVID-19 preventive measures facilitated by having access to the phone, internet, and media devices and services. The study suggests that access to reliable preventive information through the internet and media plays a vital role in reducing exposure and spread of COVID-19 among people using HF-based supportive social and health programs. [Article](#).

Disease Management

JAMA: Neutralizing antibodies against the SARS-CoV-2 Omicron variant one to 18 weeks after the second and third doses of the Pfizer vaccine

May 13, 2022. This study reported that SARS-CoV-2 neutralizing antibodies are correlated with protection against infection and disease. The study found a rapid decline in Omicron-specific serum neutralizing antibody titers only a few weeks after the second and third doses of the Pfizer mRNA vaccine. The observed decrease in population neutralizing antibody titers corresponds to the decrease in vaccine efficacy against polymerase chain reaction. Taken together, vaccine-induced protective antibody responses following a second and third dose of the Pfizer vaccine are transient and additional booster doses may be necessary, particularly in older people; however, conserved T-cell immunity and non-neutralizing antibodies may still provide protection against hospitalization and death. [Article](#).

JAMA: Factors associated with serological response to SARS-CoV-2 vaccination in patients with multiple sclerosis treated with rituximab

May 11, 2022. In this study of 67 patients with multiple sclerosis, among several assessed disease-and treatment-associated factors, B-cell count was the only factor associated with the serological response to tozinameran, whereas the cellular response was not associated with any of the investigated factors. B-cell counts of at least 40/ μ L were identified as the optimal cut-off to achieve a serological response in most patients. These results suggest that rituximab-treated patients with multiple sclerosis may be vaccinated with tozinameran as soon as possible, with rituximab treatment delayed until B-cell levels reach 40/ μ L, when an additional vaccine dose should be considered. [Article](#).

JAMA: Differences in outcomes and factors associated with mortality among patients with SARS-CoV-2 infection and cancer compared with those without cancer

May 9, 2022. This systematic review and meta-analysis of 81 studies involving 61,532 patients with cancer, patients who were younger, had lung cancer, or had hematologic cancer were at an increased risk of mortality from COVID-19. Among anti-cancer treatments, chemotherapy was associated with the highest mortality risk and endocrine therapy was associated with the lowest risk. [Article](#).

The Lancet: Safety, immunogenicity, and reactogenicity of Pfizer and Moderna vaccines given as fourth-dose boosters following two doses of AstraZeneca or Pfizer and a third dose of Pfizer (COV-BOOST trial in the UK)

May 9, 2022. This phase two randomized controlled trial (RCT) found that fourth dose COVID-19 mRNA booster vaccines are well-tolerated and boost cellular and humoral immunity. Peak responses after the fourth dose were similar to, and possibly better than, peak responses after the third dose. [Article](#).

New England Journal of Medicine (NEJM): Effect of early treatment with Ivermectin among patients with COVID-19

May 5, 2022. In this RCT, treatment with Ivermectin did not result in a lower incidence of medical admission to a hospital due to progression of COVID-19 or of prolonged emergency department observation among outpatients with an early diagnosis of COVID-19. [Article](#).

NEJM: Early outpatient treatment for COVID-19 with convalescent plasma

May 5, 2022. This study among participants with COVID-19, most of whom were unvaccinated, reported that the administration of convalescent plasma within nine days after the onset of symptoms reduced the risk of disease progression leading to hospitalization. [Article](#).

NEJM: Efficacy and safety of a recombinant plant-based adjuvanted COVID-19 vaccine

May 4, 2022. This RCT examined the efficacy of the CoVLP+AS03 vaccine (i.e., coronavirus-like particles (CoVLP) that are produced in plants are combined with an Adjuvant System 03 [AS03] to form the candidate vaccine) to prevent symptomatic COVID-19 beginning at least seven days after the second injection. The RCT found the CoVLP+AS03 vaccine to be effective in preventing COVID-19 caused by a spectrum of variants, with efficacy ranging from 69.5% against symptomatic infection to 78.8% against moderate-to-severe disease. [Article](#).

NEJM: Efficacy and safety of the RBD-dimer–based COVID-19 vaccine ZF2001 in adults

May 4, 2022. This study of 28,904 participants in five countries (i.e., Uzbekistan, Indonesia, Pakistan, Ecuador, and China) were randomly assigned to receive three doses of the ZF2001 vaccine (contains a tandem-repeat dimeric receptor-binding domain of the SARS-CoV-2 spike protein with aluminum hydroxide adjuvant) or placebo. After six months of follow-up, the efficacy was 76% against SARS-CoV-2 infection, 87% against critical or severe disease, and 86% against death. Most side effects were local, low-grade, and transient. [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 April 2022, contributing Canadian evidence-synthesis teams shared six newly completed syntheses on public health measures (n=6). Please visit [Canadian Spotlight 16.2](#) 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