

COVID-19 PANDEMIC

RAEB'S Evidence Update

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

October 25, 2021

Featured

[Research Evidence and Jurisdictional Experience
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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.

Case Testing Screening

Nature: Results of an early second PCR test performed on SARS-CoV-2-positive patients may support risk assessment for severe COVID-19

Oct 14, 2021. This study of nationwide electronic health records data in Israel of SARS-CoV-2-positive individuals indicated that a second negative PCR test conducted two to seven days after a SARS-CoV-2 positive test was associated with lower risk for severe illness compared to a positive result. The study suggests that an early second PCR test may be used as a supportive risk-assessment tool to improve disease management and patient care. [Article](#).

Transmission

Nature: Effect of delta variant on viral burden and vaccine effectiveness against new SARS-CoV-2 infections in the UK

Oct 14, 2021. This study found that the effectiveness of the Pfizer-BioNTech and AstraZeneca vaccines against infections with symptoms or high viral burden is reduced with the Delta variant compared to the Alpha variant. With the Delta variant, infections occurring after two vaccinations had similar peak viral burden as those in unvaccinated individuals. [Article](#).

Understanding the Disease

***Can. J. Infect. Dis. Med. Microbiol:* Predictors of COVID-19 infection**

Oct 13, 2021. This study examined the predictors of COVID-19 in hospitalized patients in China in January and February, 2020. Study results suggest that the following predictors provide robust evidence for the diagnosis of COVID-19: exposure history, elevated enzymes (i.e., alanine aminotransferase, lactate dehydrogenase), absence of rhinorrhea (nasal discharge), lymphopenia (reduced lymphocytes), and bilateral involvement on chest CT imaging. [Article](#).

Disease Management

***Journal of the American Medical Association (JAMA):* Association between tumor necrosis factor (TNF) inhibitors and the risk of hospitalization or death among patients with immune-mediated inflammatory disease (IMIDs) and COVID-19**

Oct 18, 2021. This study found that TNF inhibitor monotherapy was associated with a lower risk of adverse COVID-19 outcomes compared with other commonly prescribed immunomodulatory treatment regimens among individuals with IMIDs. These findings support the continued use of TNF inhibitor monotherapy among individuals with IMIDs during the pandemic. [Article](#).

Frontline Workers

***Nature:* SARS-CoV-2 vaccine breakthrough infections with the alpha variant are asymptomatic or mildly symptomatic among health care workers (HCWs)**

Oct 15, 2021. This study monitored vaccine breakthrough in 3,720 HCWs who received two doses of the Pfizer vaccine. Vaccine protection against acquisition of SARS-CoV-2 infection was 83% in the overall population when compared to the non-vaccinated control group. All vaccine breakthrough infections were mainly asymptomatic, or symptomatic with few and mild symptoms (e.g., rhinitis). The frequency of symptomatic infections was lower in vaccinated than non-vaccinated individuals (48% vs. 85%). Live infectious virus was detected in only half of the cases of breakthrough infections, and virus transmission to other individuals was documented in 6.1% of the cases. Breakthrough infections were not associated with failure in developing antibody or T-cell response after vaccination. [Article](#).

***Neuroscience and Biobehavioural Reviews:* Correlates of depressive symptoms among HCWs during the SARS-CoV-2 outbreak**

Oct 13, 2021. This systematic review and meta-analysis, involving 14,173 HCWs (3,070 with depressive symptoms), examined the association between individual features and depressive symptoms reported by HCWs during the COVID-19 pandemic. Women, individuals with

suspected/confirmed COVID-19, and those with an infected family member or friend were more likely to report depressive features, which were less frequent among doctors (compared with nurses) and HCWs who felt adequately protected. Results indicate that the COVID-19 pandemic has had a severe psychosocial impact on HCWs, and early screening is crucial to develop tailored mental and occupational health interventions. [Article](#).

Data Analytics, Modelling and Measurement

Nature: The risk of SARS-CoV-2 outbreaks in low prevalence settings following the removal of travel restrictions

Oct 15, 2021. Using a mathematical model, this study demonstrated that there is still a risk that imported cases initiate outbreaks when travel restrictions and other non-pharmaceutical interventions are removed, even if most of the population is fully vaccinated. This highlights the need for continued vigilance in low prevalence settings to prevent imported cases leading to local transmission. [Article](#).

Public Health Measures

JAMA: Association between statewide COVID-19 lottery announcements and vaccinations in the US

Oct 15, 2021. This study found there was no statistically significant association between 19 states' announcements of large COVID-19 cash lotteries (e.g., weekly drawings of one million dollars for individuals who receive at least one COVID-19 vaccine dose) and the number of vaccinations before or after the announcement date. These findings may reflect several factors (e.g., lottery-style drawings may be less effective than incentives that pay with certainty). [Article](#).

Health System Impacts

JAMA: Changes in adverse pregnancy outcomes associated with the COVID-19 pandemic in the US

Oct 15, 2021. This study of pregnant women with health insurance in the US found that the pandemic period from March to December 2020 was associated with a statistically significant higher risk of gestational diabetes, gestational hypertension, poor fetal growth, and preeclampsia (high blood pressure and organ system damage). However, the pandemic period was not associated with a changing risk of stillbirth and provided only modest evidence of a lower risk of preterm birth. [Article](#).

BMC Medical Education: COVID-19 crisis impact on the next generation of physicians

Oct 13, 2021. This study examined the pandemic's impact on 802 medical students (second- to sixth-year) during the SARS-CoV-2 pandemic in France. The study found that: 93% volunteered in COVID-19 units; 38% and 43% of students reported a 7/10 or more on the sadness scale and for anxiety, respectively; and 17% had doubts about their ability to be physicians, while 12% reconsidered their choice of future specialty. While the vast majority of students remained convinced that they want to become physicians, this experience came at a significant psychological cost, especially for women. [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 October, there were nine newly added evidence syntheses. The syntheses focus on public health measures (n=6), clinical management (n=2), and health system arrangements (n=1). 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
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