

# COVID-19 PANDEMIC – RAEB'S EVIDENCE UPDATE

Highlights of health research evidence synthesized by the  
Research, Analysis and Evaluation Branch (RAEB)

• Aug 3, 2021 •

## FEATURED

- Research evidence and jurisdictional experience
- Trusted resources

## 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

[Anne Hayes](#), RAEB Director

[Andrea Proctor](#), Evidence Synthesis

[Emre Yurga](#), Economic Analysis and Evaluation Research Planning and Management

## RESEARCH EVIDENCE/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 AND SCREENING

- ***BMJ*: Diagnostic accuracy of rapid antigen tests in asymptomatic and presymptomatic close contacts of individuals with confirmed SARS-CoV-2 infection** [Jul 27, 2021](#). This study found that the overall sensitivities of the Veritor and Biosensor rapid antigen tests were 90.1% and 86.8%, respectively, when a viral load cut-off was applied for infectiousness. Among those who remained asymptomatic throughout their infection, the overall sensitivities were 88.1% for Veritor and 85.1% for Biosensor. These tests can reliably be used to test close contacts for infectiousness from the fifth day after infection, even when they have not (yet) developed symptoms, but the tests should not be used when the consequences of missed infections will be severe. [Read](#).

### INFECTION, PREVENTION AND CONTROL IN SPECIFIC SETTINGS

- ***Nature*: SARS-CoV-2 acquisition and immune pathogenesis among school-aged learners** [Jul 24, 2021](#). This study concluded that neither remote nor on-site learning strategies could eliminate SARS-CoV-2 infection in school-aged children (seven to 17 years) and that school-associated infections reflected regional rates of infection rather than being primarily determined by remote or on-site learning. These data support the notion embodied in the Centers for Disease Control and Prevention School Health Index that schools can effectively promote good health in children. The study found that seropositive school-aged children with asymptomatic to mild SARS-CoV-2 infections generate robust humoral and cellular immunity. [Read](#).

\* Figures in the header: Transmission electron microscope image shows SARS-CoV-2, the virus that causes COVID-19, isolated from a patient in the United States. Virus particles are emerging from the surface of cells cultured in the lab. The spikes on the outer edge of the virus particles give coronaviruses their name, crown-like. *National Institutes of Health's National Institute of Allergy and Infectious Diseases – Rocky Mountain Laboratories*

## RESEARCH EVIDENCE/JURISDICTIONAL EXPERIENCE cont'd

### DISEASE MANAGEMENT

- **Cochrane: Ivermectin for preventing and treating COVID-19**  
[Jul 28, 2021](#). This review assessed the efficacy and safety of ivermectin compared to no treatment, standard of care, placebo, or any other proven intervention for people with COVID-19 receiving treatment as inpatients or outpatients, and for prevention of an infection with SARS-CoV-2 (post-exposure prophylaxis). Overall, the reliable evidence available does not support the use ivermectin for treatment or prevention of COVID-19 outside of well-designed randomized trials, though several studies are underway that may produce clearer answers in review updates. [Read](#).
- **medRxiv: Six-month safety and efficacy of the Pfizer vaccine**  
[Jul 28, 2021](#). This multi-national study (preprint) randomized 44,165 ≥16-year-old participants and 2,264 12-15-year-old participants to receive two doses, 21 days apart, of the Pfizer vaccine or placebo. With up to six months of follow-up and despite a gradually declining trend in vaccine efficacy, the vaccine had a favorable safety profile and was highly efficacious in preventing COVID-19. Vaccine efficacy of 86%-100% was seen across countries and in populations with diverse characteristics of age, sex, race/ethnicity, and COVID-19 risk factors in participants without evidence of previous SARS-CoV-2 infection. [Read](#).
- **Nature: Mapping pre-existing conditions' association with COVID-19 complications**  
[Jul 27, 2021](#). This study examined clinical notes from 1,803 hospitalized COVID-19 patients to characterize associations between 21 pre-existing conditions and the development of 20 complications (e.g. respiratory, cardiovascular, renal, hematologic) of COVID-19 infection throughout the course of infection (i.e., 0-30 days, 31-60 days, and 61-90 days). Hypertension was the most significant risk factor associated with 10 different complications including acute respiratory distress syndrome, cardiac arrhythmia, and anemia. [Read](#).
- **JAMA: Effect of Canakinumab vs. placebo on survival without invasive mechanical ventilation (IMV) in patients hospitalized with severe COVID-19**  
[Jul 20, 2021](#). This randomized clinical trial identified that treatment with intravenous canakinumab vs. placebo resulted in survival without IMV at 29 days of 88.8% vs. 85.7%, respectively. The authors concluded that among patients hospitalized with severe COVID-19, treatment with canakinumab compared with placebo did not significantly increase the likelihood of survival without IMV at day 29. [Read](#).
- **CMAJ: Achieving and sustaining herd immunity to SARS-CoV-2**  
[Jul 19, 2021](#). Based on estimates of the effectiveness of two vaccine doses against symptomatic infection with B.1.1.7 (Alpha) in Ontario (90% effectiveness), this Ontario commentary states that nearly 90% of vaccine coverage in the population may be required for herd immunity. Increases in the prevalence of more infectious variants and reduced vaccine effectiveness against them would require even higher coverage. Maintaining herd immunity will depend on each vaccine's effectiveness against variants, addressing barriers to vaccination, and sustaining coverage if repeat vaccination is required. [Read](#).

## RESEARCH EVIDENCE/JURISDICTIONAL EXPERIENCE cont'd

### PUBLIC HEALTH MEASURES

- **JAMA: Effect of targeted behavioural science messages on COVID-19 vaccination registration among employees of a large health system**  
[Jul 28, 2021](#). This randomized trial assigned 9,723 employees who had not scheduled a COVID-19 vaccination to a delayed control condition or to receive one of two individually addressed emails that either leveraged social norms or reframed risks. The trial found that both emails (i.e., social norms and reframing risks) led to twice as many vaccination registrations in the first three days than the delayed condition, with no statistically significant differences observed between the two email conditions. [Read](#).
- **Nature: Impact of tiered restrictions on human activities and the epidemiology of the second wave of COVID-19 in Italy**  
[Jul 27, 2021](#). This study found that the introduction of a three-tiered regional restriction system was associated with significant changes in both human activities and SARS-CoV-2 transmission. To counter the second COVID-19 wave in fall 2020, the Italian government introduced a system of physical distancing measures organized in progressively restrictive tiers (coded as yellow, orange, and red) imposed on a regional basis according to real-time epidemiological risk assessments. The reduced SARS-CoV-2 transmissibility resulted in averting about 36% of the hospitalizations between November 6 and November 25, 2020, with larger gains in regions assigned to stricter tiers. As of May 2021, the tier system is still in place, with limited changes to the enacted restrictions, and represents the key strategy used by the Italian government to control SARS-CoV-2 transmission as vaccination rolls out. [Read](#).
- **Nature: Comparison of COVID-19 outcomes among shielded and non-shielded populations in Scotland**  
[Jul 27, 2021](#). This study compared COVID-19 outcomes to investigate the effectiveness of shielding (extended self-isolation) in western Scotland where people presumed to be at high-risk from COVID-19 were advised to shield because of pre-existing conditions (e.g., severe respiratory disease, specific cancers), and others (non-shielded) were classified as moderate risk (e.g., chronic respiratory disease or other chronic conditions such as heart disease, diabetes). The study found that, in spite of the shielding strategy, high risk individuals were at increased risk of death. To be effective as a population strategy, shielding criteria needs to be widely expanded to include other criteria, such as the elderly. [Read](#).

## RESEARCH EVIDENCE/JURISDICTIONAL EXPERIENCE cont'd

### FRONTLINE WORKERS

- **JAMA: Individual- and institutional-level concerns of health care workers (HCWs) in Canada during the COVID-19 pandemic**  
[Jul 27, 2021](#). This study found that the major individual-level concerns among HCWs at the University Health Network were related to risks of contamination and challenges coping with increased workloads as a result of the pandemic. The study also found that these concerns intersected with institutional-level challenges, such as feeling or being valued within the health care setting and long-standing stratifications between types of HCWs. The findings suggest that a mismatch between institutional sources of concern and individual-level interventions may affect the uptake of mental health supports even as the level of distress remains high. [Read](#).
- **Lancet: Effectiveness of CoronaVac among health care workers in the setting of high SARS-CoV Gamma variant transmission in Brazil**  
[Jul 25, 2021](#). This study found that administration of at least one vaccine dose was effective against symptomatic SARS-CoV-2 infection among health care workers in a setting with high prevalence of the Gamma variant. However, it was identified that the low estimated effectiveness of the two-dose schedule underscores the need to maintain non-pharmaceutical interventions while vaccination campaigns with CoronaVac are being implemented. [Read](#).
- **JAMA: Association between COVID-19 exposure and self-reported compliance with public health guidelines**  
[Jul 21, 2021](#). This study found no cases of SARS-CoV-2 infection among essential workers in an institution of higher education in the US. High levels of handwashing and mask wearing were reported at work and outside work, and social distancing was reported significantly less often at work than outside work. These findings suggest that compliance with protective behaviours both at work and outside work may be commensurate with the safe operation of complex work environments during a pandemic. [Read](#).

### HEALTH EQUITY AND VULNERABLE POPULATIONS

- **JAMA Psychiatry: Association between mental health disorders and mortality among patients with COVID-19**  
[Jul 27, 2021](#). This systematic review and meta-analysis of 16 studies in seven countries found that mental health disorders were associated with increased COVID-19-related mortality. The authors recommended that patients with mental health disorders should have been targeted as a high-risk population for severe forms of COVID-19, requiring enhanced preventive and disease management strategies. The highest risk seemed to be found in studies including individuals with schizophrenia and/or bipolar disorders. [Read](#).

## RESEARCH EVIDENCE/JURISDICTIONAL EXPERIENCE cont'd

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- **JAMA: Assessment of prostate cancer treatment among Black and White patients during the pandemic Jul 22, 2021.** This study of patients with untreated non-metastatic prostate cancer during the initial COVID-19 lockdown identified that only 1% of Black men underwent prostatectomy, while 26% of White patients underwent this same procedure. These results indicate that during the initial phase of the COVID-19 pandemic, hospital restrictions were unbalanced, and Black patients experienced a disproportionate lower rate of prostatectomies. Public health efforts are needed to fully recognize the unintended consequence of diversion of cancer resources to the COVID-19 pandemic to develop balanced mitigation strategies as viral rates continue to fluctuate. [Read](#).

### 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](#).
    - During the second half of July, Canadian evidence synthesis teams completed 11 new evidence syntheses. Please visit [Canadian Spotlight 7.2](#) to view the evidence, or browse past [Canadian evidence spotlights](#). A complete list of the products is available [here](#).