

COVID-19 PANDEMIC – RAEB'S EVIDENCE UPDATE

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

• November 23, 2020 •

FEATURED

- RAEB's rapid responses for Ontario's health sector
- 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

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RAEB'S RAPID RESPONSES FOR ONTARIO'S HEALTH SECTOR

Please contact [Evidence Synthesis Unit](#) for the full read of this rapid response

- **Impact of COVID-19 on Hospital Funding and Payment Mechanisms**
 - Approaches to hospital funding during the COVID-19 pandemic include:
 - **Providing Funding to Cover COVID-19 Costs:** Most international jurisdictions provided new funding in the form of payments or new fees to help hospitals cover COVID-19-related costs. For example, the Australian government is paying 50% of costs incurred by hospitals to assess, diagnose, treat, and contain COVID-19, and paying 100% of the cost of ensuring that private hospital beds and the private hospital workforce are available to supplement public hospitals during COVID-19 outbreaks.
 - **Compensation for Revenue Shortfalls:** Belgium, France, Germany, Switzerland, and the United Kingdom (UK) are providing funding to help hospitals compensate for lost revenue due to circumstances such as the cancellation of elective surgeries and the extra-costs of preparing hospitals for the influx of COVID-19 patients.
 - **Modified Sources of Revenue:** Ontario and England temporarily changed from activity-based budgets to global budgets. In Norway, since non-essential treatment has been suspended in the hospitals, some of the freed resources have been reallocated to covering the costs related to COVID-19. Belgium, France, Germany, Norway, Poland, Switzerland, and the United States (US) have modified diagnosis-related group (DRG) payment codes to account for COVID-19 expenses. For example, the US, has federal funds that are disbursed through a Medicare add-on payment of 20% for rural and urban inpatient hospital COVID-19 patients.

* 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*

RAEB'S RAPID RESPONSES FOR ONTARIO'S HEALTH SECTOR cont'd

- **Behavioural Change Strategies in Response to COVID-19**
 - There are behavioural change strategies undertaken across jurisdictions to increase and ensure adherence to public health measures during the COVID-19 pandemic (i.e., handwashing measures; communication strategies and tools; physical distancing measures). Nine models of behaviour change, each focusing on different motivational processes, provide insights relevant to behaviours necessary to limiting community transmission of COVID-19 (i.e., prime theory; prospect theory of judgement and decision-making/judgement heuristics; conflict theory of decision making; cognitive dissonance theory; temporal discounting; social norm theory; operant learning theory; habit theory; and, the five-factor theory of personality). The UK's Behavioural Insights Team recommend that policy makers and practitioners follow the four principles of the 'EAST Framework' to encourage behaviour change in response to the COVID-19 pandemic: 1) Make it easy; 2) Make it attractive; 3) Make it social; and 4) Make it timely.

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.

UNDERSTANDING THE DISEASE

- ***The Journal of the American Medical Association (JAMA):* Pregnancy outcomes among women with and without SARS-CoV-2**
[Nov 19, 2020](#). This study reported that SARS-CoV-2 infection during pregnancy was not associated with adverse pregnancy outcomes. Neonatal infection may be as high as 3% and may occur predominantly among asymptomatic or mildly symptomatic women. Placental abnormalities were not associated with disease severity, and hospitalization frequency was similar to rates among nonpregnant women. [Read](#).

DATA ANALYTICS, MODELLING AND MEASUREMENT

- ***Nature Biomedical Engineering:* Open resource of clinical data from patients with pneumonia for predicting COVID-19 outcomes**
[Nov 18, 2020](#). This article describes an open resource containing data from 1,521 patients with pneumonia (including COVID-19 pneumonia) consisting of chest computed tomography (CT) images, 130 clinical features (from a range of biochemical and cellular analyses of blood and urine samples), and laboratory-confirmed SARS-CoV-2 clinical status. The study demonstrates the utility of the database for prediction of COVID-19 morbidity and mortality outcomes using a deep learning algorithm trained with data. [Read](#).

RESEARCH EVIDENCE/JURISDICTIONAL EXPERIENCE cont'd

DATA ANALYTICS, MODELLING AND MEASUREMENT

- **JAMA: Estimation of US children's educational attainment and years of life lost associated with primary school closures during the COVID-19 pandemic**
[Nov 12, 2020](#). This study estimated the potential years of life lost (YLL) associated with primary schools being closed or remaining open during the COVID-19 pandemic in the US. Comparing the full distributions of estimated YLL under both "schools open" and "schools closed" conditions, the analysis identified a 98.1% probability that schools remaining open would have been associated with a lower total YLL than school closures. Future decisions regarding school closures during the pandemic should consider the association between educational disruption and decreased expected lifespan. [Read](#).
- **The Lancet: Cost-effectiveness of public health strategies for COVID-19 epidemic control in South Africa**
[Nov 11, 2020](#). This study developed a COVID-19 microsimulation model to assess clinical and economic outcomes and cost-effectiveness of epidemic control strategies in KwaZulu-Natal province, South Africa (i.e., healthcare testing; contact tracing; isolation centres; mass symptom screening, and quarantine centres). Health care testing alone (i.e., where diagnostic testing is done only for individuals presenting to health care centres) resulted in the highest number of COVID-19 deaths during the 360-day period. A combination of health care testing, contact tracing, use of isolation centres, mass symptom screening, and use of quarantine centres reduced mortality by 94%, increased health care costs by 33%, and was cost-effective. [Read](#).

VULNERABLE POPULATIONS

- **Journal of Psychiatric Research: Impact of the COVID-19 pandemic on anxiety diagnosis in general practices in Germany**
[Nov 17, 2020](#). This study compared the number of adults diagnosed with an anxiety disorder in Germany between January-June 2019 and January-June 2020 and suggested that the number of patients with an anxiety disorder and newly diagnosed with an anxiety disorder increased in 2020. Public health measures are urgently needed to mitigate the negative impact of the COVID-19 pandemic on anxiety disorders. [Read](#).
- **The Lancet: Ethnicity and clinical outcomes in COVID-19**
[Nov 12, 2020](#). This review and meta-analysis of 18,728,893 patients from 50 studies found that individuals from Black and Asian ethnicities had a higher risk of COVID-19 infection compared to White individuals. Individuals of Asian ethnicity may also be at higher risk of intensive care unit admission and death. These findings are of critical public health importance for informing interventions to reduce morbidity and mortality in ethnic minority groups. [Read](#).

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PUBLIC HEALTH MEASURES

- ***Journal of the American College of Emergency Physicians: Barriers to emergency department (ED) usage during the COVID-19 pandemic***
[Nov 12, 2020](#). This study surveyed 855 US residents in May 2020 to investigate the public's willingness to use the ED during the COVID-19 pandemic. Only 49% of survey respondents were willing to visit the ED during a pandemic if they felt ill compared with 71% before the pandemic. [Read](#).
- ***Nature: Digitally screening citizens for COVID-19 risks via a chatbot***
[Nov 4, 2020](#). This study tested the accuracy of [Symptoma](#), a freely available symptom-to-disease digital health assistant, by using a set of diverse clinical cases combined with case reports of COVID-19 to show 96.32% accuracy of clinical cases. When considering only COVID-19 symptoms and risk factors, Symptoma identified 100% of those infected when presented with only three signs. Unlike other online questionnaires, Symptoma allows free text input, furthered with disease-specific follow up questions in 36 languages. [Read](#).

TRANSMISSION

- ***New England Journal of Medicine: SARS-CoV-2 transmission among marine recruits during quarantine***
[Nov 12, 2020](#). This study investigated SARS-CoV-2 infections among 1,848 US Marine Corps recruits who underwent a two-week quarantine at home followed by a second supervised two-week quarantine at a closed college campus. Within two days after arrival on campus, 16 (0.9%) tested positive for SARS-CoV-2. An additional 35 participants (1.9%) tested positive on day seven or on day 14. Most recruits who tested positive were asymptomatic, and no infections were detected through daily symptom monitoring. Shared rooms and shared platoon membership were risk factors for transmission. [Read](#).
- ***JAMA: Association between nursing home crowding and COVID-19 infection and mortality in Ontario, Canada***
[Nov 9, 2020](#). This study of Canadian nursing homes suggested that crowding was common in homes and crowded homes were more likely to experience larger and deadlier COVID-19 outbreaks. [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.
- An up-to-date and comprehensive list of sources, organized by type of research evidence, is available on McMaster Health Forum's COVID-19 Evidence Network to support Decision-making (COVID-END) [website](#).
- 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.