COVID-19 PANDEMIC – RAEB'S EVIDENCE UPDATE
Highlights of health research evidence synthesized by the Research, Analysis and Evaluation Branch (RAEB)
• March 15, 2021 •

FEATURED

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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EVIDENCE PRODUCTS PRODUCED WITH OUR PARTNERS

The COVID-19 Evidence Synthesis Network is comprised of groups specializing in evidence synthesis and knowledge translation. The group has committed to provide their expertise to provide high-quality, relevant, and timely synthesized research evidence about COVID-19 to inform decision makers as the pandemic continues. Please contact *Evidence Synthesis Unit* for the full read of these evidence products.

- Transporting Suspected or Confirmed COVID-19 Patients who Require Non-Invasive Ventilation (NIV) Support via Emergency Medical Services (EMS)
  (Produced in collaboration with Cancer Care Ontario)

  Due to lack of information on patient infection status and limited resources and space, the risk of COVID-19 transmission in land/air ambulances is potentially higher than for other health care providers. As well, many medical interventions increase the risk of virus transmission, including aerosol-generating procedures (AGPs) such as NIV.
  - According to the majority of scientific evidence and jurisdictional guidance, AGPs in ambulances should be avoided unless absolutely necessary. To protect against contact, droplet, and airborne transmission, caution should be exercised if AGPs are undertaken by using appropriate distancing (e.g., initial assessments beginning from at least two metres from the patient), personal protective equipment (e.g., N95 masks, filters in ventilatory equipment to filter expired air), barriers (e.g., curtains, separate compartments for drivers and patients), Patient Isolation Units (PIUs; e.g., Swiss Air Rescue [Rega], EpiShuttle® from Norway), and decontamination of all exposed surfaces, equipment, and contact areas upon arrival at the final destination.
  - Other innovative approaches include: portable and reusable aerosol shields and helmets that cover patients' faces to provide protection from virus transmission; and high-risk ambulances that are easy to decontaminate (e.g., HEPA filtration/UV light disinfection), have separate AC systems for the isolated driver and patient compartments, and achieve negative-pressure status for the treatment area.
  - Clear standard operating procedures and routine scenario-based training of EMS providers can also help reduce some of the risks.

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

- *JAMA:* SARS-CoV-2 on ocular surfaces in a cohort of patients with COVID-19 in Italy
  Mar 4, 2021. Using reverse transcription–polymerase chain reaction assay, this study found that SARS-CoV-2 was present on the ocular surface in 52 of 91 patients with COVID-19 (57.1%). The virus may also be detected on ocular surfaces in patients with COVID-19 when the nasopharyngeal swab is negative. These results suggest that SARS-CoV-2 may diffuse from ocular surfaces to the body. *Read*.
- *JAMA:* Alcohol withdrawal (AW) rates in hospitalized patients during the COVID-19 pandemic in Delaware
  Mar 3, 2021. This study found an overall increase in AW rates in 2020, with a peak at the end of the stay-at-home order. Stress, anxiety, disrupted treatment plans, and increased alcohol use may be factors associated with higher rates of AW, because higher rates persisted during the reopening phases. With the recent surge in COVID-19 cases, many states might revert to stay-at-home orders and this trend may worsen. Increased vigilance to identify AW among hospitalized patients and to use systematic screening will be pivotal in the management of AW. *Read*.

TRANSMISSION

- *Lancet:* Factors linked to severe outcomes in multisystem inflammatory syndrome in children (MIS-C) in the US
  Mar 9, 2021. This study investigated factors associated with severe outcomes in 1,080 patients with MIS-C between March 11 and October 10, 2020. Compared with patients up to five years old, ICU admission was more likely in patients aged 6-12 years and patients aged 13-20 years. ICU admission was also more likely in non-Hispanic Black patients compared with non-Hispanic White patients, and for patients with shortness of breath and abdominal pain, but lower in patients with cough. Similar associations were found for decreased cardiac function, shock, and myocarditis. Identifying important demographic and clinical characteristics could aid in early recognition and prompt management of severe outcomes for patients with MIS-C. *Read*.
- *Environmental Research:* Influence of temperature and relative/absolute humidity on COVID-19 incidence
  Mar 6, 2021. To anticipate how COVID-19 cases will develop with the changing seasons in 54 cities in England, this study assessed the association between COVID-19 incidence and meteorological factors: absolute humidity (AH), relative humidity (RH), and daily mean temperature. Results suggest that at 11.9°C there was 1.62 times the risk of cases compared to the temperature-level with the smallest risk (21.8°C). The analysis suggests that meteorological variables likely influence COVID-19 case development and reinforces the importance of non-pharmaceutical interventions (e.g., social distancing and mask use) during all seasons, especially with cold and dry weather conditions. *Read*.

RESEARCH EVIDENCE/JURISDICTIONAL EXPERIENCE cont'd

DISEASE MANAGEMENT

- *Nature:* Attributes and predictors of long COVID-19
  Mar 10, 2021. This study analyzed reports (n= 4,182) from the UK (88.2%), US (7.3%), and Sweden (4.5%) of COVID-19 in which individuals self-reported their symptoms in the COVID Symptom Study app. A total of 558 (13.3%) participants reported symptoms lasting ≥28 days, 189 (4.5%) for ≥8 weeks, and 95 (2.3%) for ≥12 weeks. Long COVID-19 was characterized by symptoms of fatigue, headache, difficulty breathing, and loss of sense of smell, and was more likely with increasing age, body mass index, and female sex. Experiencing more than five symptoms (i.e., fatigue, headache, difficulty breathing, hoarse voice, myalgia) during the first week of illness was associated with long COVID-19. *Read*.
- *JAMA:* Effect of ivermectin on time to resolution of symptoms among adults with mild COVID-19 in Columbia
  Mar 4, 2021. Among adults with mild COVID-19, a five-day course of ivermectin, compared with placebo, did not significantly improve the time to resolution of symptoms. The findings do not support the use of ivermectin for treatment of mild COVID-19, although larger trials may be needed to understand the effects of ivermectin on other clinically relevant outcomes. *Read*.

DATA ANALYTICS, MODELLING, AND MEASUREMENT

- *Nature:* Impact of contact tracing and household bubbles on deconfinement strategies for COVID-19
  Mar 9, 2021. This modelling study simulated different levels of social interactions and contact tracing strategies in Belgium (population of 11 million) to analyze COVID-19 transmission dynamics. It was found that the burden of COVID-19 is impacted by both the intensity and frequency of physical contacts, so household bubbles have the potential to reduce hospital admissions by 90%. It was also found that it is crucial to complete contact tracing four days after symptom onset. While assumptions on the susceptibility of children affect the impact of school reopening, business and leisure-related social mixing patterns may have more impact on COVID-19-associated disease burden. *Read*.

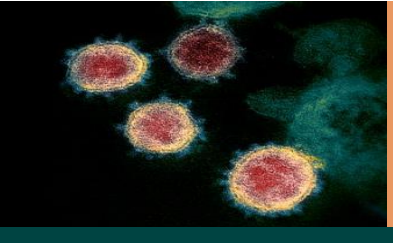
HEALTH EQUITY AND VULNERABLE POPULATIONS

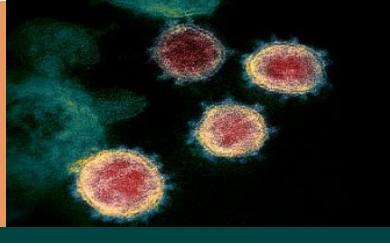
- *JAMA:* Experiences of Latinx Individuals hospitalized for COVID-19 in San Francisco, California, and Colorado
  Mar 11, 2021. In this study of 60 Latinx adults, participants reported COVID-19 misinformation, felt COVID-19 compounded existing social disadvantage, and risked infection because of the need to work. Participants hesitated to seek hospital care because of immigration and economic concerns. These findings suggest that to contain community spread and reduce unnecessary morbidity, immigration, employment, and economic distress must be addressed through tailored public health messaging and public policy interventions that improve economic condition. *Read*.

RESEARCH EVIDENCE/JURISDICTIONAL EXPERIENCE cont'd

PUBLIC HEALTH MEASURES

- *JAMA:* Hospital admissions associated with non-communicable diseases (NCDs) during the COVID-19 outbreak
  Mar 8, 2021. This study from Sao Paulo (Brazil) assessed the number of hospital admissions for neoplasms, metabolic diseases, cardiovascular diseases (CVDs), and musculoskeletal (MSK) diseases between January and June 2020 compared with the previous three years. A decrease in the absolute numbers of hospital admissions for NCDs was observed, with mean reductions in hospital admissions per month of 505 for CVDs, 332 for neoplasms, 136 for MSK diseases, and 76 for metabolic diseases. Social and physical distancing measures and the fear of SARS-CoV-2 infection may have been associated with the reduction. *Read*.
- *Journal of Occupational Health:* The effects of working from home during the COVID-19 pandemic in Tokyo
  Mar 8, 2021. This study surveyed 1,239 workers living in the Tokyo Metropolitan Area to compare worktime physical activity (PA) and sedentary behaviour (SB) between those who work from home (WFH) and at workplaces (no WFH). Overall, SB time was longer during work hours in the WFH group than in the no WFH group. Light-intensity PA (i.e., standing) and moderate-to-vigorous PA (i.e., walking) were significantly shorter in the WFH group compared to the no WFH group. The findings suggest that workers who telecommuted were less physically active and had longer sedentary behaviours during worktime. *Read*.
- *Journal of Psychiatric Research:* Psychosocial experiences of postnatal women during the COVID-19 pandemic
  Feb 2021. This UK-wide study examined the psychosocial outcomes for postnatal women (n=614) during the COVID-19 pandemic. Prevalence rates of clinically relevant maternal depression and anxiety were extremely high when compared to both self-reported current diagnoses of depression and anxiety, and pre-pandemic prevalence studies. Perceived psychological changes occurring as a result of the introduction of social distancing measures predicted unique variance in the risk for clinically relevant maternal depression and anxiety. *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 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. COVID-19 responses can include the full spectrum of public health measures, clinical management, health system arrangements, and economic and social responses. To receive an email containing hyperlinks to these products twice a month, subscribe here.
- COVID-END and the McMaster Health Forum are producing living evidence profiles (LEPs), which identify research evidence addressing pressing questions related to the COVID-19 pandemic. The LEPs are updated regularly, with each update focused on profiling insights from the most salient newly identified and highly relevant evidence documents and from jurisdictional scans. The first COVID-19 LEP addresses anticipated COVID-19 vaccine roll-out elements (updated every two weeks); the second addresses preventing and managing COVID-19 outbreaks and about supporting renewal in long-term care homes (updated monthly).
- 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.

* 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*