COVID-19 PANDEMIC – RAEB'S EVIDENCE UPDATE
Highlights of health research evidence synthesized by the Research, Analysis and Evaluation Branch (RAEB)
• February 8, 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

CONTACT RAEB

Anne Hayes, RAEB Director
Andrea Proctor, Evidence Synthesis
Emre Yurga, Economic Analysis and Evaluation
Erika Runions-MacNeil, Research Planning and Management

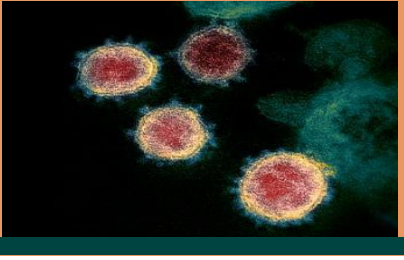
RAEB'S RAPID RESPONSES FOR ONTARIO'S HEALTH SECTOR

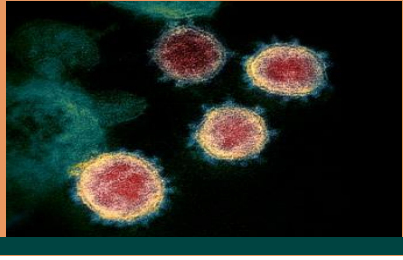
Please contact Evidence Synthesis Unit for the full read of these rapid responses.

- COVID-19 Outcomes for High-Risk Populations and Settings

  Information was identified from seven countries/organizations: Ontario, China, England, New Zealand, the United States (US), the United Kingdom (UK), and the European Centre for Disease Prevention and Control. Some identified information compared outcomes among high risk groups and/or settings, but most focused on COVID-19 outcomes (i.e., outbreaks, cases, prevalence, illness, fatalities) for discrete populations and/or settings. Examples include:

  - Essential Workers: There are risks associated with specific occupations. For example, a Washington-based study concluded that the 15 occupations with the highest predicted risks are all health care professions, with four of the top five in the dental health field. Non-health care workers whose occupations include high risk include: municipal firefighters, ambulance drivers and attendants, correctional officers and jailers, and transportation security screeners. A European study identified 241 individual clusters in acute care hospitals reported by 10 countries, as well as other settings including offices, educational facilities, food production facilities, and packaging/mail distribution centres.
  - Individuals Living in Congregate Settings (excluding seniors in long-term care): Information was identified of outbreaks, prevalence, and fatalities in correctional facilities, homeless shelters, residential care for people with intellectual and development disabilities, mental health and group home facilities, a refugee shelter, and living facilities for migrants. For example, COVID-19 outbreaks and infection rates in custodial facilities appear to be higher than rates in the general population in Canada, the US, England, and Wales.
  - Vulnerable Populations: Those who experience/belong to may be at higher risk of negative COVID-19 outcomes include: homelessness, low-income, mental illness, drug abuse, racialized communities, rural communities, and immigrant or refugee groups.
  - Indigenous populations: In the US, high case rates and fatalities have been reported. For example, a US study (January-July 2020) reported that the cumulative incidence of laboratory-confirmed COVID-19 among American Indian and Alaska Native persons was 3.5 times higher than among non-Hispanic White persons across 23 states.





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.

- Vaccine Uptake among Health Care Workers

  Canadian and international experiences with vaccination hesitancy and uptake among health care workers (HCWs) during the COVID-19 pandemic were examined, as well as interventions used to increase vaccination uptake. Emerging research from around the world (e.g., United States, France, Egypt, Saudi Arabia, China, Hong Kong) suggests that the proportion of HCWs positively inclined toward receiving a COVID-19 vaccine ranges from 27.7% to 81.5%. Differences in vaccine acceptance were associated with individual and group characteristics, which should be addressed to avoid exacerbating health inequities. Barriers to acceptance included: female gender; Black, Latinx, Conservative/Republican HCWs; rural work settings; concerns about COVID-19 vaccine safety; concerns about vaccine effectiveness; and concerns about expedited development/approval process; experience with racial discrimination. Enablers to acceptance included: male gender; older age; physician profession; presence of comorbidities or chronic diseases; fear of COVID-19; perceived risk; stronger vaccine confidence; belief that COVID-19 vaccine will likely to stop the pandemic; social contacts' decisions to have vaccine; and use of US Centers of Disease Control and Prevention (CDC) updates. No identified studies reported specific interventions to increase COVID-19 vaccination uptake among HCWs. Since the distribution of vaccinations began in early December 2020, there likely has not been an opportunity to examine interventions to address COVID-19 vaccine hesitancy.

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.

TRANSMISSION

- *Nature*: Impact of environmental factors on the fate and transport of coronaviruses in aqueous environments
  Jan 29, 2021. This review summarizes the most recent research on the effect of various factors on coronaviruses, including SARS-CoV-2, in aqueous environments. The available data suggest that: 1) increasing temperature decreases the overall persistence of the virus; 2) the presence of organic matter can increase the survivability of coronavirus; 3) chlorine is the most effective and economic disinfectant; 4) membrane bioreactors in wastewater treatment plants are hosts of competitive microorganisms that can inactivate coronaviruses; 5) ultraviolet irradiation is another effective option for virus inactivation. Further research is needed. *Read*.

DISEASE MANAGEMENT

- *Lancet*: Impact of the COVID-19 pandemic on radiotherapy services in England
  Jan 22, 2021. This study assessed changes in mean weekly radiotherapy courses, attendances, and fractionation patterns for cancer in the English NHS between Feb 2019 and June 2020. Radiotherapy activity fell significantly, but the use of hypofractionated regimens (i.e., therapy given over a shorter period of time than standard radiation therapy) rapidly increased in the NHS during the first peak of the COVID-19 pandemic. An increase in treatments for some cancers suggests that radiotherapy compensated for reduced surgical activity. *Read*.

PUBLIC HEALTH MEASURES

- *Nature*: Cross-country evidence on the association between contact tracing and COVID-19 case fatality rates
  Jan 25, 2021. Quantitative analyses of data from 138 countries (including data from the Oxford COVID-19 Government Response Tracker) reveals that jurisdictions that implement comprehensive contact tracing have significantly lower case fatality rates, even after controlling for the number of tests conducted and non-pharmaceutical control measures adopted by governments. The results suggest that comprehensive contact tracing is instrumental not only to curtailing transmission but also to reducing case fatality rates. *Read*.

RESEARCH EVIDENCE/JURISDICTIONAL EXPERIENCE cont'd

HEALTH EQUITY AND VULNERABLE POPULATIONS

- *JAMA*: COVID-19 outcomes among persons living with or without diagnosed HIV infection in New York State
  Feb 3, 2021. This study suggests that persons living with an HIV diagnosis were more likely to receive a diagnosis of, be hospitalized with, and die in-hospital with COVID-19 compared with those not living with an HIV diagnosis. After demographic adjustment, COVID-19 hospitalization remained significantly elevated for individuals with an HIV diagnosis and was associated with elevated mortality. *Read*.
- *JAMA*: Trends in US emergency department (ED) visits for mental health, overdose, and violence outcomes before and during the COVID-19 pandemic
  Feb 3, 2021. This study reported that ED visit rates for mental health conditions, suicide attempts, all drug and opioid overdoses, intimate partner violence, and child abuse and neglect were higher in mid-March through October 2020, during the COVID-19 pandemic, compared with the same period in 2019. These findings suggest that ED use and priorities for care seeking shifted during the COVID-19 pandemic, underscoring mental health, substance use, and violence risk screening and prevention needs during public health crises. *Read*.
- *JAMA*: Assessment of suicide in Japan during the COVID-19 pandemic vs previous years
  Feb 2, 2021. This study, using national data on suicide mortality in Japan, suggests that compared with previous years, suicide rates in Japan in 2020 increased in October and November for men and in July through November for women. *Read*.
- *British Journal of Cancer*: Impact of COVID-19 on Systemic Anticancer Treatment (SACT) delivery
  Feb 2, 2021. This analysis of data from the National Health Service (NHS) Scotland demonstrated that following the UK-wide lockdown on March 23, 2020, SACT patient attendance and treatment declined by 28.7%, with subsequent rapid recovery following service redesign. The smallest decrease was seen in breast cancer (19.7%), and the largest decrease seen was in colorectal cancer (43.4%). The subsequent rapid recovery reflects Scottish government interim governance arrangements for cancer medicines that enabled evidence-based, coordinated and transparent quick adaptions to practice based on clinical consensus, and the creation of COVID-19- protected SACT delivery in Scottish cancer centres. *Read*.
- *Journal of Homosexuality*: Impact of COVID-19 on the mental health of transgender and gender nonbinary (TGNB) individuals
  Jan 27, 2021. This US study surveyed TGNB individuals (N=208) from March-June 2020 and found the pandemic exacerbated ongoing mental health disparities and reduced LGBTQ/TGNB support was associated with increased psychological distress. Interruption and/or delay in gender-affirming health care was not associated with increased psychological distress. Special attention is needed to increase access to LGBTQ/TGNB community support and address long-standing health disparities. *Read*.

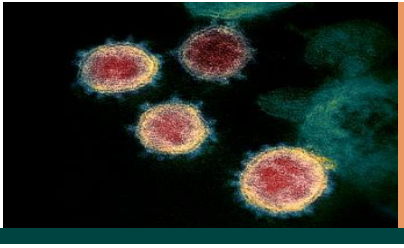
RESEARCH EVIDENCE/JURISDICTIONAL EXPERIENCE cont'd

HEALTH EQUITY AND VULNERABLE POPULATIONS

- *Journal of Homosexuality*: Psychosocial effects of COVID-19 and mental health among LGBTQ+ young adults
  Jan 22, 2021. This study surveyed how the psychosocial effects of the pandemic affected the mental health of LGBTQ+ young adults (N=1,934) from six countries (Portugal, UK, Italy, Brazil, Chile, and Sweden) who were confined with their parents during lockdown periods. Depression and anxiety were higher among participants who were younger, not working, living in Europe, and who reported feeling more emotionally affected by the pandemic, more uncomfortable at home, or more isolated from non-LGBTQ friends. Not attending higher education predicted depression while not being totally confined at home, residing habitually with parents, and fearing more future infection predicted anxiety. LGBTQ+ community groups, as well as health and educational services, should remain particularly attentive to the needs of LGBTQ+ young adults during health crises. *Read*.

DATA ANALYTICS, MODELLING AND MEASUREMENT

- *Nature*: Transmission dynamics and control measures of COVID-19 outbreak in China
  Jan 29, 2021. This UK modelling study shows that in China the basic reproduction number (R_0) was 2.33 before February 8, 2020, which dropped to 0.04 due to control measures taken from January 23, 2020 that affected the transmissibility about two weeks after they were introduced. It was found that at the early stage, the majority of R_0 comes from undetected infectious people. This implies that successful control in China was achieved through reducing the contact rates among people in the general population and increasing the rate of detection and quarantine of the infectious cases. *Read*.
- *Lancet*: The relationship between cultural tightness-looseness and COVID-19 cases and deaths
  Jan 29, 2021. This study examined how cultural tightness-looseness (the strength of social norms) was associated with countries' success in limiting COVID-19 cases and deaths by October 2020. Compared to nations with high levels of cultural tightness (cultures with strict norms and punishments for deviance), nations with high levels of cultural looseness (cultures with weaker norms and are more permissive) are estimated to have had 4.99 times the number of cases (7,132 per million vs 1,428 per million) and 8.71 times the number of deaths (183 per million vs 21 per million), considering several controls. Modelling indicated that tight groups coordinate much faster and have higher survival rates than loose groups, suggesting that tightening social norms might present an evolutionary advantage in times of collective threat. *Read*.



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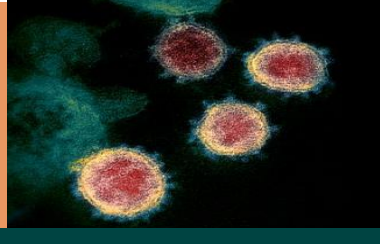

TRUSTED RESOURCES

- 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.

Call for Participation in a COVID-19 Cohort Study in Greater Toronto Area (GTA)

Drs. Allison McGeer and Brenda Coleman (Sinai Health System) & Dawn Bowdish (McMaster University) are conducting the *COVID-19 Cohort Study (CCS): Study of the epidemiology of COVID-19 in healthcare workers and their households*. The study is investigating: how many healthcare workers develop COVID-19 infection; what workplace, community, and household factors are associated with infection; how often infection is spread in households; antibody levels over time; whether there are microbes or early immune responses (in the nose) that protect or make people more susceptible to COVID; and the psychological impact of working during a pandemic.

- Eligibility Criteria: Physicians, nurse practitioners, midwives, physicians' assistants, nurses, or receptionists working in private medical practices/medical clinics who: are 18-75 years of age; work in the GTA; have convenient access to computer or phone with internet access; and plan to be available for at least the next three months.
- Requirements: Questionnaires upon joining and then every week (online); and when (if) tested for COVID-19, report results, symptoms, and contact with ill people and submit a swab to the study the same day.
- Optional activities: Self-collect blood samples upon joining, in six months, at the end of the study, when tested positive for COVID-19, and when vaccinated (to see if there are COVID-19 antibodies). Adults and children in a participant's home can join in the study.
- Participation: Participation is voluntary and participants may leave the study at any time. Participants will be provided with a small token of appreciation for taking part in the study.

For more information about the study, please visit http://www.tibdn.ca/covid-19/phys. If you have any questions about the study, please email the study office at covid.study@sinaihealth.ca or call the office at 416-294-6383.

* 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*