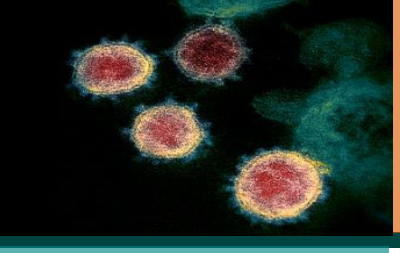
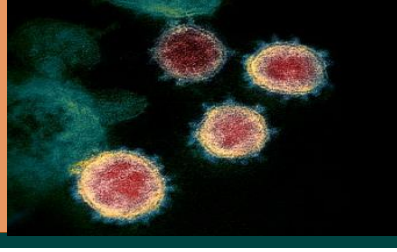


COVID-19 PANDEMIC – RAEB'S EVIDENCE UPDATE

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

• September 28, 2020 •



FEATURED

- COVID-19 Research Opportunities
- RAEB's rapid responses for Ontario's health sector
- Evidence products from our partners
- 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
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COVID-19 CHALLENGE QUESTIONS INITIATIVE

- RAEB has launched the Ministry of Health's COVID-19 Challenge Questions Initiative The objective of the initiative is to accelerate the generation and translation of research and data analytic insights into action and ensure that researchers accessing the Ontario Health Data Platform (OHDP) address high-priority COVID-19 research questions. This initiative is open to researchers across Ontario, including those who do not use the OHDP. Information about the initiative and the full list of Challenge Questions are available on the OHDP website.

RAEB'S RAPID RESPONSES FOR ONTARIO'S HEALTH SECTOR

Please contact Evidence Synthesis Unit for the full read of this rapid response

- COVID-19 Testing Policies for Funding Models, Assessment Sites, and Prioritization
  - **Funding:** COVID-19 tests at government-managed sites are publicly funded with no cost to the user in most jurisdictions, including: Canadian provinces/territories, the United States (for uninsured individuals at the federal level, and some states), United Kingdom, Australia, Germany, Iceland, Israel, Sweden, Switzerland, China, Singapore, and South Korea. In terms of private funding or user fees, costs for COVID-19 tests are covered by: insurance companies for medically insured users (California); users or insurance companies if tests are undertaken at non-state-operated testing sites (New York); users if tests are undertaken at a physician's office (Australia); users if they are asymptomatic and seeking testing at private clinics for reasons that fall outside of public health recommendations (British Columbia); and users if they do not fall into a priority population group (China).
  - Testing Sites:
    - Drive-Through Facilities: Testing is available for symptomatic individuals only (Alberta, Manitoba, Nova Scotia, Quebec, Australia, and South Korea) and symptomatic/asymptomatic individuals (Saskatchewan).
    - Drive-Through Facilities: Testing is available for symptomatic individuals only (Iceland, Israel, and South Korea) and symptomatic/asymptomatic individuals (Manitoba, Saskatchewan, New York, and United Kingdom).
    - Patient's Home: Home-based testing kits are available for self-testing for symptomatic individuals only (Germany and Israel) and symptomatic/asymptomatic individuals (United Kingdom).
    - Pharmacies: Asymptomatic individuals may be tested at pharmacies in Alberta.

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

- COVID-19 Testing Policies for Funding Models, Assessment Sites, and Prioritization cont'd
    - **Prioritization:** Any asymptomatic individual seeking to take a test can do so in Saskatchewan, Georgia, Oklahoma, Vermont, New York, and China. Jurisdictions not providing testing for asymptomatic individuals include Northwest Territories, British Columbia, Arizona, Colorado, Minnesota, Mississippi, and Taiwan. In other jurisdictions, in addition to testing those with COVID-19 symptoms, a wide range of other population groups are prioritized for testing, for example: those that have been in close contact with a positive COVID-19 case, anyone exposed to an outbreak, residents and/or staff of institutions with vulnerable populations, those requiring hospital admissions for non-COVID-19-related care, patients transferring from hospital to other settings, immunocompromised individuals, hospital visitors, essential service providers and first responders, and travellers, among others.

EVIDENCE PRODUCTS FROM OUR PARTNERS

Ministry research partners are actively working with leading agencies and organizations on questions related to COVID-19. The Canadian Agency for Drugs and Technologies in Health (CADTH) recently published the following report:

- Heating, Ventilation, and Air Conditioning (HVAC) Systems in Public Spaces
  Sept 22, 2020. This report reviews evidence related to airflow transmission of Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) and the risk associated with the use of HVAC systems. A targeted literature review, along with a multidisciplinary expert panel discussion, were the primary approaches to examine the evidence. More robust, published peer-reviewed evidence is needed to help clarify the potential role HVAC systems play in spreading and/or mitigating the risk of transmission of SARS-CoV-2 in order to provide more concrete evidence-based recommendations. At this time, the most substantial risk of transmission of SARS-CoV-2 is from close personal contact. As such, it remains critical to follow public health recommendations.

* 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

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.

HEALTH EQUITY AND VULNERABLE POPULATIONS

- *The Lancet*: Diagnosis of physical and mental health conditions in primary care during the COVID-19 pandemic in the United Kingdom (UK)
  Sept 23, 2020. This study identified that the diagnoses of common conditions (e.g., common mental health problems, cardiovascular and cerebrovascular disease, type 2 diabetes, cancer) among a deprived UK population, decreased substantially in the early phase of the COVID-19 pandemic (i.e., March and May 2020), suggesting that a large number of patients may have undiagnosed conditions. Services should prioritize the diagnosis and treatment of these patients to mitigate potential indirect harms. *Read*.
- *The Lancet*: COVID-19 among people experiencing homelessness in England: A modelling study
  Sept 23, 2020. This modelling analyses estimates that the preventive measures imposed in England between February and May 2020 might have avoided 21,092 infections, 266 deaths, 1,164 hospital admissions, and 338 intensive care unit admissions among the homeless population. If preventive measures continue, a second wave may result in a small number of additional cases between June 1, 2020 and Jan 31, 2021. However, if preventive measures are lifted, outbreaks in homeless settings may lead to larger numbers of infections and deaths, even with low incidence in the general population. *Read*.
- *Canadian Medical Association Journal (CMAJ)*: COVID-19 and the decolonization of Indigenous public health
  Sept 21, 2020. This commentary suggests that despite the elevated rates of COVID-19 among Indigenous communities globally and the colonial history of health care and ongoing social inequities, the rate of COVID-19 for Indigenous communities in Canada is lower than the general population. Indigenous self-determination, leadership, and knowledge are noted as protecting Indigenous communities in Canada during the COVID-19 pandemic, and it is recommended that these principles be at the forefront when planning public health approaches (e.g., wellness frameworks, educational materials) with Indigenous Peoples. *Read*.
- *The National Collaborating Centre for Methods and Tools*: The effect of the COVID-19 pandemic on opioid and substance use and related harms
  Sept 21, 2020. This rapid review found minimal evidence available on the effects of the COVID-19 pandemic on opioid and substance use, including overdoses and deaths, and these findings show increases during the COVID-19 pandemic in some jurisdictions, and decreases or steady levels in others. To date, most of the available evidence is based on previous experiences during pandemics and similar events indicate that: 1) people who use substances may have reduced access to harm-reduction and treatment services; and 2) there may be a disruption to the supply of illicit drugs in Canada, affecting availability and cost, and increasing the risk of drug adulteration. *Read*.

RESEARCH EVIDENCE/JURISDICTIONAL EXPERIENCE cont'd

TRANSMISSION

- *Centers for Disease Control and Prevention*: SARS-CoV-2 seroprevalence among health care, first response, and public safety personnel
  Sept 21, 2020. This survey study of antibody testing among 16,403 frontline personnel in emergency medical service agencies and hospitals across Detroit, Michigan revealed that 6.9% participants had SARS-CoV-2 antibodies. The results suggested that seropositivity was associated with exposure to SARS-CoV-2–positive household members, where nurse assistants and nurses had higher likelihood of seropositivity than physicians, and working in a hospital emergency department increased the likelihood of seropositivity. The study noted that consistently using N95 respirators and surgical facemasks decreased the likelihood of seropositivity. *Read*.
- *PLoS ONE*: Effects of temperature and humidity on the spread of COVID-19
  Sept 18, 2020. This systematic review identified high homogeneity across 17 studies regarding the effect of temperature and humidity on the seasonal viability and transmissibility of COVID-19. Cold and dry conditions seem to reduce the spread of the virus; however, the certainty of evidence was low. *Read*.
- *PLoS ONE*: Association of vitamin D status with positivity rates for SARS-CoV-2
  Sept 17, 2020. This study analyzed over 190,000 patients in 50 US states who were tested for COVID-19 and matched with their vitamin D status, and found that SARS-CoV-2 positivity was strongly and inversely associated with vitamin D status, a relationship that persisted across latitudes, races/ethnicities, sexes, and age ranges. The findings recommend exploring the role of vitamin D supplementation in reducing the risk for SARS-CoV-2 infection and COVID-19 disease. *Read*.

DATA ANALYTICS, MODELLING AND MEASUREMENT

- *The Medical Journal of Australia*: Modelling the impact of reducing control measures on the COVID-19 pandemic in a low transmission setting
  Sept 2, 2020. This study (preprint) reports that policy changes leading to the gathering of large, unstructured groups with unknown individuals (e.g., bars opening, increased public transport use) poses the greatest risk of epidemic rebound, while policy changes leading to smaller, structured gatherings with known individuals (e.g., small social gatherings) poses the least risk of epidemic rebound. The simulation supports continuation of working-from-home policies to reduce public transport use, and risk mitigation strategies in the context of social venues opening. The study suggests that care should be taken to avoid lifting sequential COVID-19 policy restrictions within short time periods, as it could take more than two months to detect the consequences of any changes. *Read*.

RESEARCH EVIDENCE/JURISDICTIONAL EXPERIENCE cont'd

SUPPLY CHAIN

- *The Lancet:* Artificial intelligence (AI) in COVID-19 drug repurposing
  Sept 18, 2020. This review suggests that drug repurposing (also termed drug repositioning, reprofiling, or re-tasking) is a strategy for identifying new indications for approved or investigational (including clinically failed) drugs that have not been approved to treat emerging and challenging diseases, including COVID-19. The review notes that drug repurposing has become a promising approach because of the opportunity for reduced development timelines and overall costs. This review introduces guidelines on how to use AI-based assistive tools (e.g., digital pathology data analysis, real-world data such as electronic health records) for accelerating drug repurposing. *Read*.

PUBLIC HEALTH MEASURES

- *medRxiv:* Adherence of the public to UK's test, trace, and isolate system
  Sept 18, 2020. This survey study from over 30,000 people in the UK identified that non-adherence to self-isolation, testing, and contact tracing was associated with: men, younger age groups, having a dependent child in the household, lower socio-economic grade, greater hardship during the pandemic, and working in a key sector. Practical support and financial reimbursement is likely to improve adherence and targeting messaging and policies to men, younger age groups, and key workers may also be necessary. *Read*.
- *CMAJ*: Projected effects of non-pharmaceutical public health interventions to prevent resurgence of SARS-CoV-2 transmission in Canada
  Sept 14, 2020. This study suggests that from May 11, 2020 to January 7, 2022, without any interventions, 64.6% of Canadians will be infected with SARS-CoV-2 (i.e., total attack rate) and 3.6% of the infected and symptomatic will die. Enhanced case detection and contact tracing with physical distancing can reduce the total attack rate to 0.2% and is the only scenario that can keep hospital and intensive care unit bed use within capacity. The study found minimal impact with school closures, but closures of workplaces and mixed-age venues markedly reduced attack rates. *Read*.

CASE TESTING AND SCREENING

- *Proceedings of the National Academy of Sciences of the United States of America*: Estimating unobserved SARS-CoV-2 infections in the US
  Sept 8, 2020. This study estimated that thousands of people in the US were infected with SARS-CoV-2 (i.e., 108, 689) compared to what was reported at the time when the national emergency was declared (i.e., March 13, 2020), where fewer than 10% of locally acquired, symptomatic infections in the US may have been detected over a period of a month. The results note that testing was a major limiting factor in assessing the extent of SARS-CoV-2 transmission during its initial phase in the US. *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.