

COVID-19 PANDEMIC – RAEB'S EVIDENCE UPDATE

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

• November 2, 2020 •

FEATURED

- Evidence products produced with 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
[Andrea Proctor](#), Evidence Synthesis
[Emre Yurga](#), Economic Analysis and Evaluation
[Erika Runions-MacNeil](#), Research Planning and Management

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.

- **Impacts of Quadruple-Aim Metrics of Long-Term Care Facility (LTCF) Visitor Restrictions**

(Produced in collaboration with McMaster Health Forum and the Canadian Agency for Drugs and Technologies in Health)

There is limited scientific evidence linking visitors to COVID-19 infection rates in LTCFs, however, many international and Canadian jurisdictions are restricting numbers of visitors along with implementing public health measures and alternative communication modalities (e.g., outdoor visiting).

- Visitor Restrictions: There is limited evidence relating directly to the quadruple aim, except in terms of health-related benefits of public health measures (e.g., preventing transmission of COVID-19).
 - *No Visitors with No Exceptions*: Sweden and South Korea.
 - *Limited Visitors with Specific Exceptions*: British Columbia, Quebec, China, Germany, and Italy adjust LTCF visitor policies based on the state of the pandemic in the local community. In Spain and Singapore, residents can designate a limited number of visitors. Several Canadian provinces limit designated visitors to between one and five, and Yukon permits two pre-identified visitors in certain cases (e.g., resident nearing end-of-life).
 - *Public Health Measures*: Scientific evidence and jurisdictional experience suggest measures such as: limiting the number of visitors, maintaining visitor logs, screening visitors for temperature/symptoms, daily cleaning of frequently touched surfaces and weekly deep cleans, personal protective equipment, mask wearing, and immediate stop of visitors if COVID-19 is confirmed within a LTCF.
- Alternative Communication Modalities: Many Canadian provinces offer alternatives for visitors on an institutional basis, except in Nova Scotia where LTCFs across the province are providing virtual options (e.g., video calls) for visits. Outdoor visitor limits differ by province (e.g., two-five visitors in Alberta).
- Ontario: There are visitation restrictions for: 1) essential visitors (e.g., caregivers, support workers, essential service providers); and 2) general visitors. Public health measures (e.g., verbally attesting to testing negative for COVID-19 within the previous two weeks, mask wearing) must be followed by all visitors.

EVIDENCE PRODUCTS PRODUCED WITH OUR PARTNERS cont'd

- **Best Practices for Knowledge Translation of Public Health/Epidemiological Information to Health Sector Leaders and Decision-Makers**

(Produced in collaboration with the Centre for Effective Practice)

- Challenges to Working with Decision-Makers: These include: logistics and coordination (e.g., urgency of requests, time, information sharing, duplication of work), negotiating tensions and building shared understanding (e.g., aligning research and policy considerations, extrapolation of results from indirect evidence), and external constraints (e.g., changes in personnel, political priorities). Moreover, barriers to the uptake of evidence syntheses by decision-makers include lack of user-friendliness, inaccessible language, dense layouts, and lack of policy-relevant syntheses (e.g., contextualization).
- Enablers that Advance Evidence Use by Decision-Makers: These include: organizational factors (e.g., leadership, dedicated funding, training, champions), personality traits of knowledge synthesizers (e.g., political acuity, credible, persuasive, pragmatic), and stakeholder relationship building among knowledge synthesizers and users (e.g., goals-setting, establishing virtual/physical communication spaces, using knowledge brokers).
- Content: Some health care organizations have formal knowledge translation plans designed to share evidence with end-users, which may include decision-makers in health care, while others offer advice on communicating with non-researchers or advocating for health issues that can be applied to these audiences.
- Format: The research evidence and health care organizations across jurisdictions suggest a wide range of formats for presenting health and research data to decision-makers, for example: decision-support tools (e.g., evidence or policy briefs), systematic reviews, rapid reviews, guidances, presentations, workshops, teleconferences, face-to-face meetings, consultations, conferences, advisory committees, networking events, endorsements, newsletters, digital resource materials, social media, and media press releases.
- Key Principles: Rigour, relevance, readability (e.g., plain language, brief bulleted summaries, visuals), contextualization, and resources (e.g., time, funding, staff) should be considered in evidence synthesis outputs.
- Analysis for Ontario: Public Health Ontario provides scientific support to the government and the health sector through a variety of methods (e.g., written products, stakeholder engagement). The Registered Nurses Association of Ontario recommends starting with low-profile advocacy approaches (e.g., letter writing campaigns) and then gradually increasing to medium- and high-profile strategies (e.g., policy briefs, alliance-building).
- Implementation Implications: The end user needs to be considered and involved in knowledge translation strategies, including determining how much detail is preferred and how much knowledge can be feasibly comprehended from the evidence source. Multifaceted strategies are likely to be more effective in fostering evidence-informed policy-making.

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

- **Reviews in Medical Virology: Airborne transmission of SARS-CoV-2 via aerosols**
[Oct 26, 2020](#). This rapid review of 28 studies found that while viral particles have been detected in air sampling studies with some evidence of clinical infectivity, and virological studies indicate these particles may represent live virus, there is uncertainty as to the nature and impact of aerosol transmission of SARS-CoV-2, and its relative contribution to the COVID-19 pandemic compared with other modes of transmission. Consequently, there is inconclusive evidence regarding the viability and infectivity of SARS-CoV-2 in aerosols. [Read](#).
- **Transbound Emerg Dis: Species susceptibility and viral transmission in experimental and natural conditions**
[Oct 22, 2020](#). This review summarized that studies have successfully demonstrated SARS-CoV-2 infection and transmission in cats, ferrets, hamsters, bats, and non-human primates under experimental settings. Dogs appear to have limited susceptibility to SARS-CoV-2, while other domestic species (e.g., pigs, poultry) do not appear susceptible. Naturally occurring SARS-CoV-2 infections in animals appear uncommon, with 14 pets, eight captive big cats, and an unreported number of farmed mink testing positive to date. Infections typically appear asymptomatic in dogs, while clinical signs of respiratory and/or gastrointestinal disease tend to be mild to moderate in felines, and severe to fatal in mink. Most animals are presumed to have been infected by close contact with COVID-19 patients. In domestic settings, viral transmission is self-limiting, however in high density animal environments there can be sustained between-animal transmission. [Read](#).

DISEASE MANAGEMENT

- **NEJM: Efficacy of tocilizumab in patients hospitalized with COVID-19**
[Oct 21, 2020](#). The efficacy of tocilizumab was tested in a randomized controlled trial involving 243 patients with a severe COVID-19 infection, including fever or a need for supplemental oxygen. The treatment had no significant effect on disease progression, independent from supplemental oxygen or death. [Read](#).

DATA ANALYTICS, MODELLING AND MEASUREMENT

- **Lancet: Temporal association of introducing and lifting non-pharmaceutical interventions (NPIs)**
[Oct 22, 2020](#). This modelling study across 131 countries found that individual NPIs, including school closure, workplace closure, public events ban, ban on gatherings of more than 10 people, requirements to stay at home, and internal movement limits, are associated with reduced transmission of SARS-CoV-2, but the effect of introducing and lifting these NPIs is delayed by one to three weeks, with this delay being longer when lifting NPIs. These findings can inform policy-maker decisions on the timing of introducing and lifting different NPIs, although the reproduction number (R) should be interpreted in the context of its known limitations. [Read](#).

RESEARCH EVIDENCE/JURISDICTIONAL EXPERIENCE cont'd

HEALTH EQUITY AND VULNERABLE POPULATIONS

- **Lancet: Residential context and COVID-19 mortality among adults aged 70 years and older in Stockholm**
[Oct 27, 2020](#). This study found that living with someone of working-age (<66 years), living in a care home, and living in neighborhoods with the highest population density ($\geq 5,000$ individuals per km^2) was associated with increased COVID-19 mortality in older adults. [Read](#).
- **JAMA: Levels of severity of depressive symptoms among at-risk adults in the United Kingdom (UK) during COVID-19**
[Oct 26, 2020](#). This study found that the risk of moderate and severe depressive symptom trajectories were significantly higher among people experiencing abuse or low social support, individuals with low socioeconomic position, and those with pre-existing mental and physical health conditions. Belonging to the Black, Asian, or minority racial/ethnic community was associated with higher depressive symptoms, but these results were explained by other sociodemographic characteristics, abuse, and social support, as well as pre-existing physical or mental conditions. These findings suggest that mental health and socioeconomic interventions in the current or future pandemics should be targeted toward people with these risk factors. [Read](#).
- **JAMA: Factors associated with mental health disorders among confined university students in France**
[Oct 23, 2020](#). This survey study of 69,054 students who were quarantined found high prevalence rates of severe self-reported mental health symptoms. Among risk factors identified, female or nonbinary gender, problems with income or housing, history of psychiatric follow-up, symptoms compatible with COVID-19, social isolation, and low quality of information received were associated with altered mental health. These findings suggest that students' mental health is a public health issue that has become even more critical in the context of a pandemic, underlining the need to reinforce prevention, surveillance, and access to care. [Read](#).
- **Socius: Gender, care work, and attitudes toward risk during the COVID-19 pandemic**
[Oct 22, 2020](#). This study drawing on interviews with college students and members of their households (n=45) over a period of 16 weeks (for a total of 120 interviews), found that gender differences in attitudes toward risk are influenced by the unique and strenuous care work responsibilities generated by the COVID-19 pandemic, which are borne primarily by women – and from which men are mostly exempt. [Read](#).
- **JAMA: Characteristics associated with racial/ethnic disparities in COVID-19 outcomes in Michigan**
[Oct 21, 2020](#). This study of 5,698 patients tested for or diagnosed with COVID-19 at the University of Michigan found that high population density, type 2 diabetes, and kidney disease were associated with hospitalization, in addition to older age, male sex, and obesity. Non-Hispanic Black patients were 1.72-fold more likely to be hospitalized than non-Hispanic White patients, while no significant race differences were observed in intensive care unit admission and mortality. [Read](#).

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PUBLIC HEALTH MEASURES

- **OECD: Impact and policy responses of COVID-19 on the aviation industry**
[Oct 15, 2020](#). This report noted that air transport represents a small share of gross domestic product, but is closely linked to the activities of other sectors, especially airports and aircraft manufacturing. The COVID-19 crisis has precipitated a new suite of loans, loan guarantees, wage subsidies, and equity injections, raising concerns about competition and the efficient use of public resources. To promote a sustainable trajectory for the aviation industry, government policies should prioritize sector-wide measures and competition: 1) balance the need for support and the risk of distorting competition; 2) preserve business dynamics and allow exit; 3) encourage investments in the green transition; and 4) address sustainability along the whole aviation value chain. [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.

* 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*