

COVID-19 PANDEMIC – RAEB'S EVIDENCE UPDATE

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

• February 22, 2021 •

FEATURED

- RAEB'S Rapid Responses for Ontario's health sector
- 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

RAEB'S RAPID RESPONSES FOR ONTARIO'S HEALTH SECTOR

Please contact [Evidence Synthesis Unit](#) for the full read of these rapid responses.

• Interventions Preventing or Controlling the Spread of COVID-19 in Workplaces

There are 11 identified interventions in Canada, Europe, and the United States that may prevent or control the spread of COVID-19 in the workplace. Less commonly referenced interventions include COVID-19 organizational leadership, infectious disease preparedness plans, COVID-19 screening, triaging of suspected COVID-19 cases, and heating, ventilation and air conditioning. More commonly recommended interventions are as follows:

- Education on and Awareness of COVID-19 Workplace Interventions: Education, training, and awareness is recommended on topics such as workplace sick leave, personal protective equipment (PPE), hand hygiene, and public health measure communication and information in the workplace.
- Interventions Outside the Workplace: Employers can offer incentives encouraging their employees to use different forms of transportation that may minimize close contact with others (e.g., biking, carpooling).
- Physical Distancing: Interventions recommended to increase physical distancing in the workplace include: flexible worksites (i.e., telecommuting); flexible work hours (i.e., staggered shifts); using signs or visual cues to indicate where to stand; close or limit access to common areas where employees congregate; stagger lunch breaks.
- Hand Hygiene: Frequent and thorough hand washing is recommended in the workplace through hand washing and sanitizing stations.
- Disinfection and Sanitizing: Disinfection and sanitization interventions include routine cleaning of commonly used surfaces in the workplace using cleaning detergent followed by disinfection with an approved disinfectant product.
- PPE: PPE is recommended in essential and non-essential workplaces where face masks must be worn by workers, along with face shields, medical grade masks, and/or disposable gloves where required.
- Implementation Implications: PPE interventions have been implemented in essential workplaces across Ontario. All staff in schools must wear masks, with reasonable exceptions for medical conditions. Child care staff, home child care providers, home child care visitors, and early childhood education students are required to wear a medical mask and eye protection (i.e., face shield, goggles) while inside in the child care premises, including in hallways and staff rooms.

COVID-19 PANDEMIC – RAEB'S EVIDENCE UPDATE

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

• February 22, 2021 •

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.

- **Low Molecular Weight Heparin (LMWH) in Thromboprophylaxis for Long-Term Care Home Residents with COVID-19**

(Produced in collaboration with Cochrane Canada, SPOR Evidence Alliance, OH(Q))

LMWHs are anticoagulants (blood thinners) that treat and prevent abnormal blood clots. Clinical trials to test full doses of anticoagulants in COVID-19 patients were launched because many patients ill with COVID-19, including those who have died from the disease, were found to have blood clots throughout their bodies. This unusual clotting can cause multiple health complications.

- Long-Term Care Settings: No studies were identified on the effectiveness and safety of thromboprophylaxis with LMWH for long-term care residents with COVID-19. Guidance from Canada (federal), Alberta, France, and the United Kingdom recommends the consideration of tailored thromboprophylaxis with LMWH for residents of long-term care homes.
- Hospital Settings: Studies on the use of thromboprophylaxis with LWMH for hospitalized patients with COVID-19 have variable results and it is unclear how outcomes may have been affected by differences in study methods, dosing regimens, patient profiles, and clinical settings. Most Canadian and international guidance suggests using prophylactic dosing of pharmacologic thromboprophylaxis to prevent venous thromboembolism in patients who have been hospitalized with COVID-19, but does not suggest the routine use of extended-duration pharmacologic thromboprophylaxis.
- Non-Hospital/Community Settings: International guidance recommends considering thromboprophylaxis with LMWH in COVID-19 patients under specific circumstances.
- Implementation Implications: The importance of individual risk assessment for decisions on thromboprophylaxis are emphasized both in the scientific literature and available guidance. Clinical recommendations are primarily based on low certainty in the evidence, underscoring the need for high-quality, randomized controlled trials comparing different intensities of anticoagulation. These recommendations are likely to be updated, for example using a living recommendation approach, as new evidence becomes available from ongoing clinical trials.

* 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*

COVID-19 PANDEMIC – RAEB'S EVIDENCE UPDATE

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

• February 22, 2021 •

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

- ***International Long-Term Care Policy Network: The relationship between ownership of nursing homes and their response to the COVID-19 pandemic***
[Feb 17, 2021](#). This systematic review (preprint) found a significant relationship in the unadjusted statistics between ownership status and effectiveness in response to the COVID-19 pandemic, where for-profit providers are more likely to have at least one COVID-19 case. However, the adjusted figures suggest the relationship may be mediated by organizational (e.g., size), process (e.g., access to personal protective equipment), and contextual factors (e.g., regional spread of COVID-19). [Read](#).
- ***JAMA: Association of psychiatric disorders with mortality among patients with COVID-19***
[Jan 27, 2021](#). This study of 7,348 adults with laboratory-confirmed COVID-19 in a New York health system compared patients diagnosed with schizophrenia spectrum, mood, and anxiety disorders with a reference group without psychiatric disorders. The study found that, after adjusting for demographic and medical risk factors, a schizophrenia spectrum diagnosis is associated with an increased risk of mortality among patients with COVID-19. Mood and anxiety disorders were not associated with increased risk of mortality. [Read](#).

TRANSMISSION

- ***Nature: Reduction in mobility and COVID-19 transmission***
[Feb 17, 2021](#). This study analyzed mobility data (i.e., Apple and Google) to characterize the relationship between transmission and mobility for 52 countries that have experienced substantial active SARS-CoV-2 transmission. In countries with a clear relationship between mobility and transmission both before and after strict control measures were relaxed, reduced mobility was associated with lower transmission rates after control measures were relaxed, indicating substantial beneficial effects of ongoing social distancing behaviours. [Read](#).
- ***Archives of Disease in Childhood: SARS-CoV-2 genome and antibodies in breastmilk***
[Feb 10, 2021](#). This systematic review and meta-analysis by the Sinai Health System in Toronto examined 50 studies published between January 2019 and October 2020 and found that SARS-CoV-2 genome presence in breastmilk is uncommon and is associated with mild symptoms in infants. Anti-SARS-CoV-2 antibodies may be a more common finding. Considering the low proportion of SARS-CoV-2 genome detected in breastmilk and its lower virulence, mothers with COVID-19 should be supported to breastfeed. [Read](#).

RESEARCH EVIDENCE/JURISDICTIONAL EXPERIENCE cont'd

PUBLIC HEALTH MEASURES

- **Nature: Modelling safe protocols for reopening school during the COVID-19 pandemic in France**
[Feb 16, 2021](#). This modelling study during the first COVID-19 wave in Île-de-France reported that immediately reopening all school levels may overwhelm the ICU system and priority should be given to pre- and primary schools, whereas full attendance in middle and high schools is not recommended for stable or increasing epidemic activity. Progressive reopening of schools, limited attendance, and strong adoption of preventive measures contributed to a decreasing epidemic after lifting the first lockdown. [Read](#).
- **PLOS One: Running behaviours, motivations, and injury risk during the COVID-19 pandemic**
[Feb 12, 2021](#). This study of 1,147 runners across 15 countries reported that runners increased runs per week, sustained runs, mileage, and running times of day during the pandemic, yet reported fewer workouts (i.e., sprint intervals) and fewer motives (e.g., exercise/fitness, competition/races, socialization, stress relief). Large-scale social isolation associated with the COVID-19 pandemic influenced runners' behaviours resulting in increased training volume, decreased intensity and motivation, and heightened injury risk. [Read](#).
- **The Center for Health Policy Evaluation in Long-Term Care: Nursing home resident and staff COVID-19 cases after the first vaccination clinic**
[Feb 4, 2021](#). This US study compared the weekly rate of new COVID-19 infections among staff and residents in nursing homes that held a vaccine clinic (from December 18 to 27, 2020; n=797) with nursing homes in the same county that had not yet held a clinic (n=1,709). The study reported that vaccinated nursing homes experienced a 48% decline in new resident cases three weeks after the first clinic, compared to a 21% decline among the non-vaccinated nursing homes. Similarly, new staff cases declined by 33% in vaccinated nursing homes compared to 18% in non-vaccinated facilities. [Read](#).

DISEASE MANAGEMENT

- **The Lancet: Patient factors and temporal trends associated with COVID-19 in-hospital mortality in England**
[Feb 15, 2021](#). This study reported that factors that influenced COVID-19 mortality among adult patients in England hospitalized between March 1 and May 31, 2020 included older age, male sex, greater deprivation, Asian or mixed ethnicity, and most of the assessed comorbidities, including moderate or severe liver disease. Reductions in the adjusted probability of in-hospital mortality for COVID-19 patients over time may reflect the impact of changes in hospital strategy and clinical processes. [Read](#).
- **JAMA: Effect of high-dose zinc and ascorbic acid supplementation on symptom length and reduction among ambulatory COVID-19 patients**
[Feb 12, 2021](#). This randomized clinical trial of 214 adult patients with confirmed SARS-CoV-2 infection receiving outpatient care in Ohio and Florida found that treatment with zinc gluconate (50mg), ascorbic acid (8,000 mg), or both does not significantly decrease the duration of symptoms compared with standard of care. [Read](#).

COVID-19 PANDEMIC – RAEB'S EVIDENCE UPDATE

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

• February 22, 2021 •

RESEARCH EVIDENCE/JURISDICTIONAL EXPERIENCE cont'd

DISEASE MANAGEMENT

- ***Lancet*: Challenges in ensuring global access to COVID-19 vaccines**
[Feb 12, 2021](#). This health policy paper discusses the development, production, affordability, allocation, and deployment of COVID-19 vaccines. The paper compares the potential contributions (e.g., efficacy levels, dosing regimens, storage requirements, pricing) of 26 leading vaccine candidates to achieving global vaccine immunity, highlighting important trade-offs that policymakers need to consider when developing and implementing vaccination programs. Moreover, data from a 32-country survey (n=26,758) on potential acceptance of COVID-19 vaccines, conducted from October to December 2020, found vaccine acceptance was highest in Vietnam (98%), India (91%), China (91%), Denmark (87%), and South Korea (87%), and lowest in Serbia (38%), Croatia (41%), France (44%), Lebanon (44%), and Paraguay (51%). [Read](#).
- ***JAMA*: Reports of anaphylaxis after receipt of mRNA COVID-19 Vaccines in the US (December 14, 2020 – January 18, 2021)**
[Feb 12, 2021](#). According to this study, continued safety monitoring of mRNA COVID-19 vaccines in the US confirmed that anaphylaxis (i.e., a life-threatening allergic reaction) following vaccination is a rare event, with rates of 4.7 cases/million Pfizer-BioNTech vaccine doses administered and 2.5 cases/million Moderna vaccine doses administered. When considered in the context of morbidity and mortality from COVID-19, the benefits of vaccination far outweigh the risk of anaphylaxis, which is treatable. Because of the acute, life-threatening nature of anaphylaxis, immediate epinephrine administration is indicated for all cases. CDC guidance on use of mRNA COVID-19 vaccines and management of anaphylaxis is [available](#). [Read](#)

UNDERSTANDING THE DISEASE

- ***Journal of the American College of Cardiology*: International impact of COVID-19 on the diagnosis of heart disease**
[Jan, 2021](#). This study on COVID-19's impact on global cardiovascular diagnostic procedural volumes and safety practices in 108 countries reported that overall procedure volumes have decreased 42% from March 2019 to March 2020, and 64% from March 2019 to April 2020. COVID-19 was associated with a significant and abrupt reduction in cardiovascular diagnostic testing across the globe, especially affecting the world's economically challenged. [Read](#).

COVID-19 PANDEMIC – RAEB'S EVIDENCE UPDATE

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

• February 22, 2021 •

RESEARCH EVIDENCE/JURISDICTIONAL EXPERIENCE cont'd

FRONTLINE WORKERS

- **OECD: Strengthening the frontline – How primary health care helps health systems adapt during the COVID 19 pandemic**
[Feb 10, 2021](#). This policy report highlights that strong primary health care – organized in multi-disciplinary teams and with innovative roles for health professionals, integrated with community health services, equipped with digital technology, and working with well-designed incentives – helps deliver a successful health system response. The report provides examples of how countries have introduced innovative developments in these areas in response to the pandemic. These innovations need to be maintained to make health systems more resilient against future public health emergencies, and to meet the challenges of aging societies and the growing burden of chronic conditions. [Read](#).

INFECTION, PREVENTION AND CONTROL IN SPECIFIC SETTINGS

- ***The Lancet: Factors associated with SARS-CoV-2 infection and outbreaks in long-term care facilities in England***
[Feb 11, 2021](#). This study identifying factors associated with SARS-CoV-2 infection and outbreaks among staff and residents in long-term care facilities (LTCFs) found that half of LTCFs had no cases of SARS-CoV-2 infection in the first wave of the pandemic. Reduced transmission from staff was associated with adequate sick pay, minimal use of agency staff, an increased staff-to-bed ratio, and staff cohorting with either infected or uninfected residents. Increased transmission from residents was associated with an increased number of new admissions to the facility and poor compliance with isolation procedures. [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](#).
- 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.