

# COVID-19 PANDEMIC – RAEB'S EVIDENCE UPDATE

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

• April 19, 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

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## RAEB'S RAPID RESPONSES FOR ONTARIO'S HEALTH SECTOR

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

### • Detection of COVID-19 by Dogs

Studies have found that properly trained disease-detector dogs are efficient tools for identifying COVID-19 with test sensitivity above 80%, and specificity above 90% (i.e., the test would generate a small number of false-positive results). Results are comparable to, or better than, the standard RT-PCR and antigen testing procedures but there are safety concerns about transmissibility of COVID-19 to or from dogs, and the use of detector dogs will require frequent COVID-19 testing of dogs and their handlers. Training time ranges from one week to over a year depending on prior experience of the dog; additional time may be required to adjust to new environments (e.g., airports). Use of detection dogs is a suitable preliminary screening method but it cannot be considered as a replacement for highly sensitive molecular diagnostic tests. Screening for COVID-19 using dogs is suitable in a variety of settings including: hospitals, senior care facilities, schools, universities, airports, and even large public gatherings for sporting events and concerts. More research is needed to determine standardized measures concerning the best fluids to test, testing procedures, risks associated with dog exposure, and best practices for implementation.

\* 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*

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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.

- **Health System Recovery Plans following Responses for COVID-19 Waves 2 and 3**

(Produced in collaboration with Ontario Health [Cancer Care Ontario])

The identified research literature and jurisdictional experiences highlighted that the lessons learned from the COVID-19 pandemic thus far present unprecedented opportunities for health system reform in a broad range of areas. Most of the identified recovery plans from Canadian, American, United Kingdom, European, and Australian jurisdictions, as well as international organizations, not only focus on health system recovery, but also include economic and social system recovery priorities.

- *Challenges to be Addressed:* These include: COVID-19 outbreak management (e.g., vaccination, contact tracing), public health, primary care, hospitals, surveillance systems, mental health, community and social care, integrated health systems, infrastructure, supply chain, laboratories and diagnostics, affordable medicines and medical devices, adaptive surge capacities, backlogs, e-health systems, digital technologies, health workforce recruitment and retention, health inequities of vulnerable populations (e.g., low-income, Indigenous communities, seniors), performance measurement, health datasets, scientific research, international cooperation, and governance.
- *Lessons Learned:* Based on research evidence and prior experiences with other crises and the ongoing COVID-19 pandemic, the following considerations have informed recovery plans: surveillance systems, flexible work options, expanded scope of practices, mental wellbeing, partnerships, project management, community resilience, trust in government, and the needs of vulnerable populations. Common-sense health measures (e.g., vaccination, infection prevention and control) also generally remain in place and inform recovery plans.
- *Barriers to Success:* These include: ongoing fluctuations in the COVID-19 crisis, financial resources, capacity and capabilities, access to vital commodities and supplies, increased costs of living, population growth, climate change, social justice issues, other concurrent crises (e.g., wildfires, racial justice protests, cyberattacks on government systems), misinformation, and “decision fatigue” of leaders.
- *Governance:* Recovery planning is primarily managed by cross-sector advisory groups led by government and/or external experts, using scenario-based planning and risk prioritization approaches.
- *Ontario Analysis:* As of March 4, 2021, Ontario Health is partnering with the Ministry of Health to renew the focus on health system modernization and plan to restore routine access to non-COVID-19-related health care services, as trends in key public health indicators improve.

## 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

- ***Lancet: Suicide trends in the early months of the COVID-19 pandemic***  
[Apr 13, 2021](#). This study assessed the early effect of the COVID-19 pandemic on suicide rates around the world using real-time suicide data from 21 countries (16 high-income and five upper-middle-income countries) between September 1 and November 1, 2020. There was no evidence of a significant increase in suicide risk in any country or area since the pandemic began. In high-income and upper-middle-income countries, suicide numbers either remained unchanged or declined in the early months of the pandemic. [Read](#).
- ***Lancet: Socioeconomic inequalities and vulnerabilities and health system response to COVID-19 in Brazil***  
[Apr 12, 2021](#). This study assessed the relationships between health system preparedness, responses to COVID-19, and the pattern of spread of the COVID-19 in Brazil. Findings indicated that existing socioeconomic inequalities, rather than age, health status, and other risk factors for COVID-19, have affected the course of the epidemic, with a disproportionate adverse burden on states and municipalities with high socioeconomic vulnerability. Local government responses and population behaviour in the states and municipalities with higher socioeconomic vulnerability have helped to contain the effects of the epidemic. Targeted policies and actions are needed to protect those with the greatest socioeconomic vulnerability. [Read](#).
- ***International Long-Term Care Policy Network: The use of information and communications technology (ICT) and data sharing in long-term care (LTC)***  
[Apr 12, 2021](#). This interim report summarizes emerging evidence from 21 studies on how ICT and data sharing interventions were used in LTC settings in response to the COVID-19 pandemic, including: 1) providing or maintaining care (e.g., in Italy, nurse-assisted phone and video call consultations replaced in-person psychological counselling); 2) monitoring COVID-19 patients remotely (e.g., in Spain, the use of electronic health records allowed real-time monitoring of infection within facilities); 3) providing training and guidance to informal and professional carers (e.g., in the United Kingdom, a care home used WhatsApp to enable staff to share tips for the care of patients with dementia; 4) combating isolation (e.g., in Malaga, Spain, an existing technology system called [AssistDem](#) was adapted to provide stimulation for those with cognitive impairment, as well as basic care information, social connectedness functionality, and information on physical activity); and 5) tracking COVID-19 exposure, as well as other applications. [Read](#).
- ***International Journal of Clinical and Health Psychology: Prevalence of depression during the COVID-19 outbreak January-April 2021***. This systematic review of 12 community-based studies on depression that were conducted during the COVID-19 pandemic (January 1 - May 8, 2020) reported prevalence rates of depression ranging from 7.45% to 48.30%. The pooled prevalence of depression was 25%. Compared with a global estimated prevalence of depression of 3.44% in 2017, the study's pooled prevalence of 25% appears to be seven times higher, thus suggesting an important impact of the COVID-19 outbreak on people's mental health. [Read](#).

## RESEARCH EVIDENCE/JURISDICTIONAL EXPERIENCE cont'd

### DISEASE MANAGEMENT

- **UK Royal Colleges: Factors affecting nurses' intention to accept the COVID-19 vaccine**  
[Apr 12, 2021](#). This study measured the confidence and willingness of 693 nurses in Palestine to accept the COVID-19 vaccine. Findings indicated that 40% of nurses planned to get the vaccine when available, 41% would take it later when adequate protection and safety were presented, and 18% would never take it. Age, lack of knowledge about the vaccine, concern about long-term side effects, natural immunity preference, media misrepresentation, and acquiring COVID-19 from the vaccine were associated with vaccine intention. This demonstrates that action is needed to address nurses' fears and raise their confidence, as nurses' vaccine-related decisions can influence the public's vaccine acceptance. [Read](#).
- **Lancet: Genomic characteristics and clinical effect of the emergent SARS-CoV-2 B.1.1.7 lineage in London, UK**  
[Apr 12, 2021](#). Using data collected from a cohort of 341 patients hospitalized with COVID-19 on or before December 20, 2020, this study suggests that the increased transmissibility of the SARS-CoV-2 variant of concern, B.1.1.7, was not associated with greater disease severity (defined as point six or higher on the WHO ordinal scale within 14 days of symptoms or positive test) and death within 28 days of a positive test. [Read](#).
- **UK Royal Colleges: Management of patients presenting to the emergency department/acute medicine with symptoms after receiving the Oxford AstraZeneca COVID-19 vaccine**  
[Apr 10, 2021](#). In the UK, the Royal College of Emergency Medicine, the Society for Acute Medicine, and the Royal College of Physicians produced guidance for doctors seeing patients who have concerns about symptoms after receiving the Oxford AstraZeneca vaccine. The guidance suggests that anyone who presents with symptoms suggestive of COVID-19 vaccine-induced thrombosis and thrombocytopenia (VITT) (e.g., severe headaches, shortness of breath, cold lower limbs) should have a full blood count to check their platelet level. The guidance notes that VITT is unlikely if the platelet count is greater than  $150 \times 10^9/L$ , but if platelets are below this level then a clotting and d-dimer test should be requested and VITT suspected if fibrinogen is low. Patients with suspected VITT and headache symptoms should have cerebral venous imaging with computed tomography or magnetic resonance venography. [Read](#).
- **Ontario Science Advisory Table: Guidance on Clinical Treatment of VIPIT**  
[Apr, 2021](#). Ontario's Science Advisory Table (SAT) has published guidance on the clinical treatment of VIPIT in their science briefs pertaining to [healthcare professionals in emergency department and inpatient setting](#), [healthcare professionals in the outpatient settings](#), and a [lay summary on VIPIT following AstraZeneca COVID-19 vaccination](#). [Read](#).



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### DATA ANALYTICS, MODELLING AND MEASUREMENT

- **Lancet: Risk of COVID-19 epidemic rebound and the reopening of international borders in Vietnam**  
[Apr 12, 2021](#). This study reported that higher levels of symptomatic testing would improve the country's already successful COVID-19 response. If the population of Vietnam remains highly compliant with mask-wearing policies, projections indicate that the epidemic would remain under control even if a small but steady flow of imported infections escaped quarantine into the community. If complacency increases and testing rates are relatively low (10% of symptomatic individuals are tested), the epidemic could rebound again. [Read](#).

### PUBLIC HEALTH MEASURES

- **Nature: Genetic evidence for the association between COVID-19 epidemic severity and timing of non-pharmaceutical interventions (NPIs)**  
[April 12, 2021](#). This study analyzed more than 29,000 publicly available whole genome SARS-CoV-2 sequences from 57 locations (24 in Europe, 20 in North America, five in the Middle East, six in Asia, one each in South America and Africa). The study reported that the time elapsed between the start of the epidemic and maximum intervention (e.g., lockdown) is associated with different measures of epidemic severity and explains 11% of the variance in reported deaths one month after the most stringent intervention. Locations where strong NPIs were implemented earlier experienced much less severe COVID-19 morbidity and mortality during the period of study (January to June 2020). [Read](#).
- **WHO: Strengthening population health surveillance**  
[2021](#). This guidance provides a tool for selecting indicators to signal and monitor the wider effects of the COVID-19 pandemic. It consists of a: 1) list of mechanisms through which the COVID-19 pandemic influences population health and related indicator areas; 2) set of important considerations for monitoring the wider effects of the pandemic focusing on health inequalities, data sources, and working with trends; and 3) list of core indicators that can serve as a practical starting point for monitoring the wider effects of the pandemic. [Read](#).

### FRONTLINE WORKERS

- **Lancet: Post-vaccination COVID-19 among health care workers in Israel**  
[Apr, 2021](#). COVID-19 symptoms can be mistaken for vaccine-related side effects during initial days after immunization. Among 4,081 vaccinated health care workers in Israel, 22 (0.54%) developed COVID-19 from one to 10 days (median 3.5 days) after immunization. Clinicians should not dismiss post-vaccination symptoms as vaccine-related and should promptly test for COVID-19. [Read](#).



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#### FRONTLINE WORKERS

- ***Lancet: SARS-CoV-2 infection rates of antibody-positive compared with antibody-negative health care workers*** [Apr 9, 2021](#). This study in England investigated whether antibodies against SARS-CoV-2 were associated with a decreased risk of symptomatic and asymptomatic reinfection between June 18, 2020, to Jan 11, 2021. A total of 155 infections were detected in the positive cohort (n=8,278 participants, 7.6 reinfections per 100,000 person-days) compared with 1,704 new PCR positive infections in the negative cohort (n=17,383 participants, 57.3 primary infections per 100,000 person-days). A previous history was associated with an 84% lower risk of infection, with median protective effect observed seven months following primary infection, demonstrating that previous infection with SARS-CoV-2 induces effective immunity to future infections in most individuals. [Read](#).

#### INFECTION, PREVENTION AND CONTROL IN SPECIFIC SETTINGS

- ***Canadian Institute for Health Information: The first six months of long-term care (LTC) and COVID-19 in Canada*** [Mar 30, 2021](#). This report examines the impact of COVID-19 on LTC residents and staff during the first six months of the pandemic (Wave 1) and provides early comparisons of outbreaks, cases, and deaths between the first and second waves (to February 15, 2021). Key findings included: 1) COVID-19 cases among residents of LTC and retirement homes increased by nearly two-thirds during Wave 2 compared with Wave 1; 2) compared with pre-pandemic years, in Wave 1, LTC residents had less physician visits, hospital transfers, and contact with friends and family; and 3) in all provinces where it could be measured, the total number of resident deaths was higher than normal during this period, even in places with fewer COVID-19 deaths. Provincial and national inquiries (to date) on COVID-19 in LTC have made similar recommendations and speak to long-standing concerns in the sector. [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.
- 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.

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- COVID-19 Evidence Network to support Decision-making (COVID-END) in Canada:
  - COVID-END is a time-limited network that brings together more than 50 of the world's leading evidence-synthesis, technology-assessment, and guideline development groups to support decision-making. In addition to Living Evidence Profiles, COVID-END produces Canadian and global spotlights and horizon scans on emerging issues, as well as hosting an inventory of best COVID-19 evidence syntheses from around the world. An up-to-date and comprehensive list of sources, organized by type of research evidence, is available on McMaster Health Forum's 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. During the first half of April, contributing evidence-synthesis teams in [Canada](#) shared 14 completed evidence syntheses and five questions that they have newly taken on, and [globally](#), there are a number of emergent issues related to COVID-19 for which evidence syntheses are or will be needed ([see here](#)). To receive an email containing hyperlinks to these products twice a month, [subscribe here](#).