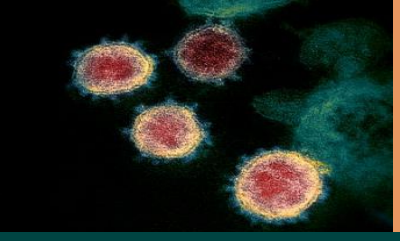
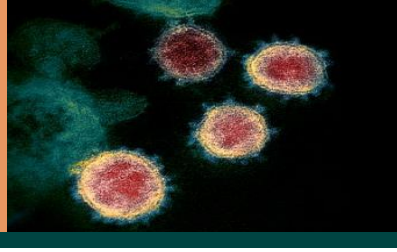


COVID-19 PANDEMIC – RAEB'S EVIDENCE UPDATE

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

• March 1, 2021 •



FEATURED

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

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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.

- Cohorting in Community Hospitals

  Seven research articles and guidance documents on patient cohorting were identified from Canada and international jurisdictions.

  - Cohorting Rationales: Several articles and an international survey suggest that the rationale for cohorting in hospitals during the COVID-19 pandemic is to mitigate the spread of infection, limit the number of exposed health care workers, and conserve supplies (e.g., personal protective equipment).
  - Cohorting Principles/Recommendations: Recommendations for patient cohorting during COVID-19 in hospitals are mixed. In many instances, cohorting in single isolation rooms (as compared with multi-bed wards) for COVID-19 patients is preferable. The decision to cohort patients in a health care facility should be made in consultation with IPAC experts, including infection control specialists. Widespread point-of-care testing will allow for clearer distinctions between areas and patients by COVID-19 status.
  - Hospital Settings: The research literature describes differing approaches to cohorting patients in various health care settings, including COVID-19 units/risk-based zoning in wards; segregated isolation wards for COVID-19 cases and general multi-bed cohorted wards; and designated critical care units. Most jurisdictions cohort patients in inpatient units, floors, or wards. One UK article described the implementation of a triage tool, which involved the creation of confirmed and suspected COVID-19 wards.
  - Flow of Patients within Hospitals: Two guidance documents (Manitoba, UK) recommend enhancing patient flow by either: 1) moving recovering COVID-19 patients from a COVID-19-dedicated unit to another unit within a single hospital; or 2) discharging patients who are well enough to isolate at home. Two articles discussed the need to separate COVID-19 patients (suspected or confirmed) from other vulnerable patients in the hospital (e.g., post-transplant and immunocompromised communities).
  - Effectiveness of Cohorting in Hospitals: Evidence regarding the effectiveness of cohorting patients with suspected or confirmed COVID-19 to reduce the risk of nosocomial transmission is limited. One article from Singapore described a multi-tiered infection control strategy including patient cohorting that was successful in mitigating patient-health care worker transmission of COVID-19 over a six-month period (January to June 2020), despite caring for more than 1,500 cases of COVID-19 campus-wide.

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

- Best Practices for Limiting the Transmission of COVID-19 Variants of Concern (VOCs)

  Despite public health measure such as non-pharmaceutical interventions (NPIs) being implemented in most countries, the circulation of COVID-19 VOCs has progressed in terms of the number and proportion of all cases. Countries should continue or enhance the application of NPIs at personal, environmental, and societal levels with the rise in VOCs. Recommendations include:
  - Preventing Transmission: Stricter measures are needed to reduce the transmission of SARS-CoV-2 VOCs which may include: reducing non-essential travel and social activities; introducing a national lockdown; identifying people with an epidemiological link to cases with the new variant; and following up with reports of suspected cases of COVID-19 reinfection.
  - Aerosol Transmission: Due to the higher viral load of the new VOCs, it is recommended that ventilation rates are adjusted to account for increased risk and transmissibility.
  - Infection Prevention and Control (IPC) and Public Health Measures:
    - Personal Protective Equipment (PPE): Wearing a face covering with a filtering face piece (FFP) that is electrospun with composite air filter membranes may improve protection against more transmissible VOCs. Due to their better filtration efficiency and the emergence of VOCs, respirators may be considered for community use.
    - Physical Distancing: The physical distancing rule of two metres may need to be expanded given the rise in VOCs.
    - Multiprong IPC and Public Health Measures: Using public health measures simultaneously may decrease the transmissibility of VOCs, which include: physical distancing, wearing a mask, keeping rooms well-ventilated, avoiding crowds, hand hygiene, coughing into a bent elbow or tissue, delaying travel, contact tracing, testing, and screening.

  Implications for Ontario: Despite the recent emergence of VOCs in Ontario, there have been no updated recommendations or changes to IPC and public health measures. VOCs and potential changes to measures should be closely monitored in the coming weeks.
  - Preventing Transmission: Current public health measures (e.g., PPE, physical distancing, contact tracing) should be reviewed, audited, and reinforced, particularly in high-risk settings such as congregate living settings, childcare, and schools, where the transmissibility of VOCs may be greater.
  - IPC: The following are recommended changes with respect to increased circulation of VOCs:
    - Physical Distancing: Health care settings should have sufficient break space where health care workers can physically distance to limit noncosmical transmission of the new VOCs.
    - Leadership, Education, and Training: In health care settings, a safety coach is recommended where staff practices are inconsistent in high-risk areas of suspected or confirmed COVID-19 patients.
    - Multiprong IPC and Public Health Measures: In health care settings, basic measures should be implemented to prevent nosocomial COVID-19 such as universal masking, physical distancing, and hand hygiene.

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

- Paid Sick Leave Benefits During the COVID-19 Pandemic

Countries around the world have responded to the economic shock resulting from the COVID-19 outbreak and associated containment by introducing social and labour market measures to support workers and their family. This response has included the expansion of paid sick leave policies that have played a key role in protecting incomes, health, and jobs. In most OECD countries, approximately 4-6% of all employed workers were on paid sick leave in the most critical period. For example, at the peak of the outbreak in March 2020, take-up of paid sick leave roughly tripled in Sweden and doubled in Italy, before reverting to normal levels. Several studies have reported that sick leave policies in the US, including the Families First Coronavirus Response Act (FFCRA), have been associated with economic protection, improved physical distancing, and reduced transmission of COVID-19 and influenza-like-illnesses. Given these results across jurisdictions, comprehensive paid sick leave policies that cover all workers in Ontario, including the self-employed, are recommended.

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.

UNDERSTANDING THE DISEASE

- *Nature:* Diagnosis, clinical characteristics, and outcomes of COVID-19 patients from a large health care system in northern New Jersey
  Feb 23, 2021. A total of 722 patients who were admitted to Hackensack University Medical Center between March 12 and April 8, 2020 with laboratory-confirmed diagnoses of COVID-19 had a median age of 63 years and 272 (37.7%) were females. Mortality was 25.8%, with an increase observed from age 40 to≥80 years by 10-year intervals. Viral load was significantly higher in the oldest patient group (≥80 years), and inversely correlated with survival. This is the first report to describe the clinical characteristics and outcomes in a large hospitalized COVID-19 patient series from New Jersey. *Read*.
- *Nature:* Altitude conditions seem to determine the evolution of COVID-19 in Brazil
  Feb 23, 2021. This Brazilian study evaluated the effect of altitude on the incidence of COVID-19 in 154 Brazilian cities. The analysis found that the relative incidence, the relative death rate, and air relative humidity (RH) were lower in cities located in high altitudes when compared to the middle and low altitude cities. The study suggests that there is a negative correlation between the incidence of COVID-19 with altitude and a positive correlation with RH in the cities analyzed. Thus, high altitude cities may be favourable to shelter people at risk. *Read*.
- *JAMA:* Sequelae in adults at six months after COVID-19 infection
  Feb 19, 2021. This study reported that 30% of the study sample (n=234) with COVID-19 who were followed up to nine months after illness, reported persistent symptoms, with fatigue identified as the most commonly reported symptom. Persistent symptoms were reported by one-third of outpatients, of which 36% did not return to baseline health by 14 to 21 days following infection. This study overall suggests that the health consequences of COVID-19 extend far beyond acute infection, even among those who experience mild illness. Comprehensive long-term investigation will be necessary to fully understand the impact of this evolving viral pathogen. *Read*.

PUBLIC HEALTH MEASURES

- *JAMA:* Association of the timing of school closings and behavioural changes during the pandemic in the US
  Feb 22, 2021. In this study of US COVID-19 data, voluntary behavioural changes, such as reductions in time spent at work, had an association with COVID-19 incidence and mortality that was three times stronger than that of school closures. These findings suggest that less harmful ways of preventing SARS-CoV-2 transmission are available than mandatory school closures such as leveraging the public's willingness to protect itself through voluntary behavioural change. *Read*.

RESEARCH EVIDENCE/JURISDICTIONAL EXPERIENCE cont'd

DISEASE MANAGEMENT

- *Lancet:* Effectiveness of BNT162b2 mRNA vaccine against infection in health care workers (HCWs) in England
  Feb 22, 2021. This UK study (preprint) demonstrates that the BNT162b2 vaccine effectively prevents both symptomatic and asymptomatic infection among HCWs working in publicly funded hospitals. A single dose of BNT162b2 vaccine demonstrated vaccine effectiveness of 72% 21 days after the first dose and 86% seven days after two doses in the antibody-negative cohort. *Read*.
- *Lancet:* Early rate reductions of SARS-CoV-2 infection and COVID-19 in BNT162b2 vaccine recipients
  Feb 18, 2021. This Israeli study demonstrates substantial early reductions in SARS-CoV-2 infection and symptomatic COVID-19 rates among health care workers vaccinated at Sheba Medical Centre following first dose of the BNT162b2 vaccine. Early reductions of COVID-19 rates provide support for delaying the second dose in countries facing vaccine shortages and scarce resources, to allow higher population coverage with a single dose. Longer follow-up to assess long-term effectiveness of a single dose is needed to inform a second dose delay policy. *Read*.

DATA ANALYTICS, MODELLING AND MEASUREMENT

- *Nature:* Integrated vaccination and physical distancing interventions to prevent future COVID-19 waves in Chinese cities
  Feb 18, 2021. This study used anonymized mobile geolocation data in China to devise a mobility-associated social contact index to quantify the combined impact of physical distancing and vaccination measures. Building on this index, the epidemiological model reveals that vaccination combined with physical distancing can contain resurgences without relying on stay-at-home restrictions, whereas a gradual vaccination process alone cannot achieve this. For cities with medium population density, vaccination can reduce the duration of physical distancing by 36% to 78%, whereas for cities with high population density, infection numbers can be well-controlled through moderate physical distancing. *Read*.

FRONTLINE WORKERS

- *Current Psychology:* Mental health of medical workers in Japan during COVID-19
  Feb 20, 2021. This study investigated the associations between mental health problems, loneliness, hope, and self-compassion among Japanese medical workers, and to compare these findings with those of the general population. Online self-report measures were completed by 142 medical workers and 138 individuals in the general population. Medical workers had higher levels of mental health problems and loneliness, and lower levels of hope and self-compassion than the general population. Loneliness was the strongest predictor of mental health problems in the medical workers. *Read*.

RESEARCH EVIDENCE/JURISDICTIONAL EXPERIENCE cont'd

HEALTH EQUITY AND VULNERABLE POPULATIONS

- *JAMA:* Effect of an empathy-focused program of telephone calls on loneliness, depression, and anxiety among adults during the COVID-19 pandemic
  Feb 23, 2021. This randomized clinical trial of a four-week empathy-oriented telephone program focussing on empathetic listening improved loneliness, depression, anxiety, and general mental health. Future research can determine whether effects on depression and anxiety can be extended to maximize clinical relevance. *Read*.
- *CMAJ:* COVID-19 in patients undergoing long-term dialysis in Ontario
  Feb 22, 2021. This Canadian study aimed to describe the incidence, risk factors, and outcomes for infection in patients undergoing long-term dialysis in Ontario who were diagnosed with SARS-CoV-2 compared to those who did not acquire the infection, between March 12 and August 20, 2020. Of the 187 patients undergoing dialysis and diagnosed with SARS-CoV-2 infection, 117 (62.6%) were admitted to the hospital and the case fatality rate was 28.3%. Some predictors of infection included in-centre hemodialysis versus home dialysis, living in the Greater Toronto Area, Black ethnicity, and Indian subcontinent ethnicity. The study identified that this population is at increased risk of SARS-CoV-2 infection and death, therefore, these patients should be prioritized for vaccination. *Read*.
- *Lancet:* Potential effect of COVID-19-related disruptions on HIV incidence and HIV-related mortality in the US
  Feb 19, 2021. This study examined the potential impact of COVID-19 on HIV incidence and HIV-related mortality among US men who have sex with men (MSM). Researchers used an HIV transmission model for MSM in Baltimore and data on COVID-19-related disruptions to HIV services to predict effects of reductions in sexual partners, condom use, HIV testing, viral suppression, pre-exposure prophylaxis (PrEP) initiations, PrEP adherence, and antiretroviral therapy (ART) initiations, starting January 1, 2020 and lasting six months. Results suggest that maintaining access to ART and adherence support is of the utmost importance to maintain viral suppression and minimize excess HIV-related mortality due to COVID-19 restrictions in the US, even if disruptions to services are accompanied by reductions in sexual partnerships. *Read*.
- *JAMA:* Assessment of the inclusion of racial/ethnic minority, female, and older individuals in vaccine clinical trials
  Feb 19, 2021. This study found that among US-based vaccine clinical trials, members of racial/ethnic minority groups (i.e., Black or African American, American Indian or Alaska Native, Hispanic or Latino) and older adults were underrepresented, whereas female adults were overrepresented. These findings suggest that diversity enrollment targets should be included for all vaccine trials targeting epidemiologically important infections. *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.

* 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*