

COVID-19 PANDEMIC

RAEB'S Evidence Update

Highlights of health research synthesized by the Research, Analysis and Evaluation Branch

December 13, 2021

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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.

Strategies that Facilitate Optimal Movement Behaviours during COVID-19

(Produced in collaboration with CADTH and Ontario Health)

Health promotion messaging (e.g., media campaigns, consultation clinics, guidelines), home-based activities (e.g., family co-participation in physical activity, individualized exercise programs), e-health technologies (e.g., internet telecommunication policies, virtual fitness programs, wearable technologies), environmental constructs (e.g., outdoor access to green space), and transport policies and programs (e.g., roadway conversions for non-car uses, subsidized bike share programs) may be effective physical activity interventions during the pandemic for the general population.

- Many countries implemented one or more of these strategies to promote and motivate people to engage in physical activity during the pandemic. Governments have also made

funding investments to help promote active behaviours (e.g., build expanded networks of pathways, bike lanes, and trails; support inclusive, accessible, and local sport activities).

- Other population-specific interventions may include:
 - **Children and Youth:** School-based physical activity interventions include incorporating physical activity literacy in pre-school/school agendas, and encouraging breaks for getting up, stretching, and walking during in-person and online school classes.
 - **Seniors:** Facilitators for movement strategies include simple and frequent information displayed in appropriate media, awareness campaigns for community programs, transportation access to fitness classes, integrated assessments by multidisciplinary health care providers, and behaviour change techniques (e.g., goal-setting, clear instructions, social rewards). There is low-to-moderate evidence on the effectiveness of e-health technologies in improving physical activity in older adults; alternative technologies (e.g., phone, radio, television) should be considered.
 - Two Ontario organizations are funding the evaluation of innovative technologies (including a virtual reality bike, apps, online training programs, robotics, and devices) that could support healthy aging in the community.
 - **Economically/Socially Marginalized Populations:** Effective strategies may include: adapting to the needs and preferences of marginalized groups; creating community groups that instill safety, motivation, and cohesion; improving the quality of physical activity facilities or green spaces that following a disability-friendly and universal design approach; and changing laws through government-non-profit collaborations.

Research Evidence and 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.

Disease Management

Journal of the American Medical Association (JAMA): Implementation of state vaccine incentive lottery programs and uptake of COVID-19 vaccinations in the US

Dec 9, 2021. This study of 403,714 adult participants in the Household Pulse Survey and state daily vaccination rates found that vaccine lottery programs were associated with an increase in COVID-19 vaccination rates overall and in some states but not in others. These findings suggest that policy makers should consider a heterogeneous response to vaccine incentive lottery programs when implementing similar policies. [Article](#).

World Health Organization (WHO): Therapeutics and COVID-19

Dec 7, 2021. This living guideline (seventh edition) incorporates new recommendations on therapies for COVID-19 and provides updates on existing recommendations. The latest update is a strong recommendation against the use of convalescent plasma in patients with non-severe illness, and a recommendation against its use in patients with severe and critical illness, except in the context of a randomized controlled trial. [Article](#).

Nature: Evidence of calcifediol or vitamin D prescription and mortality rate of COVID-19 among hospitalized Andalusian patients

The findings from this study, which analyzed large-scale real-world data from COVID-19 patients (n=15,968) hospitalized in Andalusia (Spain) between January and November 2020, show that prescription with vitamin D endocrine system (VDES) metabolites significantly reduces the risk of death in patients hospitalized for COVID-19. This effect is stronger in patients who received a prescription for calcifediol, but also occurs in patients who received **Dec 3, 2021.** cholecalciferol (vitamin D3) and was inconclusive in the case of calcitriol. [Article](#).

medRxiv: Third COVID-19 vaccine dose boosts neutralizing antibodies (NAb) in poor responders

Dec 2, 2021. This preprint study found that poor responders are not permanently poor responders; they can generate high NAb levels with an additional vaccine dose – independent of mRNA vaccine manufacturer. Previous reports indicate that NAb levels decline much more rapidly than clinical protection from hospitalization and disease, but that does not account for vaccine recipients who never generated high levels of NAb after two doses. It is possible that poor responders are a source of breakthrough infections. Although it is not known what levels of NAb protect from infection or disease, many vaccine recipients in high-risk professions may wish to keep peripheral NAb levels high, limiting infection, asymptomatic viral replication, and potential transmission. [Article](#).

The New England Journal of Medicine (NEJM): COVID-19 vaccine effectiveness in New York State

Dec 1, 2021. Drawing on data collected from 8,690,825 adults, this study examined the effectiveness of the Pfizer, Moderna, and Johnson & Johnson vaccines against lab-confirmed COVID-19 and hospitalization with COVID-19. Results suggest that, between May 1 and July 10, effectiveness declined for all vaccines from a median of 93.4% to a low-point of 73.5%, when the prevalence of the delta variant was 85.3%. By the week of August 28, when the prevalence of the delta variant was 99.6%, the effectiveness was 74.2%. The effectiveness against

hospitalization remained high, with modest declines limited to Pfizer and Moderna recipients 65 years of age or older. [Article](#).

NEJM: Comparative effectiveness of Pfizer and Moderna vaccines in US veterans

Dec 1, 2021. Using the electronic health records of people who received a first vaccine dose between January 4 and May 14, 2021, this study examined the comparative effectiveness of the mRNA-based vaccines for a range of outcomes across diverse populations (e.g., White/Black, rural/urban). The results suggest the 24-week risk of COVID-19 outcomes was low after vaccination with Moderna or Pfizer, although risks were lower with Moderna. The excess number of events per 1,000 persons for Pfizer as compared with Moderna was 1.23 for documented infection, 0.44 for symptomatic COVID-19, 0.55 for hospitalization, 0.10 for ICU admission, and 0.02 for death. This pattern was consistent across periods marked by alpha- and delta-variant predominance. [Article](#).

Health Systems Impact

JAMA: Trends in US surgical procedures and health care system response to policies curtailing elective surgical operations during the COVID-19 Pandemic

Dec 8, 2021. In this study of more than 13 million US surgical procedures from January 1, 2019, through January 30, 2021, there was a 48.0% decrease in total surgical procedure volume immediately after the March 2020 recommendation to cancel elective surgical procedures. Surgical volume returned to 2019 rates in all surgical specialties (except otolaryngology), a rate maintained during the COVID-19 peak surge in fall and winter. These findings suggest that health systems learned to adapt and were able to self-regulate, maintaining surgical procedure volume during the largest peak in volume of patients with COVID-19. [Article](#).

Health Equity and Vulnerable Populations

JAMA: Analysis of attitudes about COVID-19 contact tracing and public health guidelines among undocumented immigrants in the US

Dec 8, 2021. This study found that undocumented immigrants contend with unique challenges that may have implications for contact tracing programs to reach this population, including fears associated with policies that target undocumented immigrants (e.g., immigration enforcement and eligibility rules, health coverage), language discrimination, and distrust of government agencies. These concerns were more salient among participants who indicated the need to protect their undocumented parents, revealing differential vulnerabilities and opportunities to engage immigrants in contact tracing. More research about the association between inclusive or restrictive immigration policies and the ability to follow public health

strategies is needed to mitigate the health and social implications of COVID-19 for immigrant communities and beyond. [Article](#).

Nature: Disparities in COVID-19 infection, hospitalization, and death in people with severe mental illness (SMI) in the United Kingdom (UK)

Nov 7, 2021. This study investigated COVID-19 related infection, hospitalization, and mortality among people with SMI (e.g., schizophrenia/psychosis, bipolar disorder [BD], major depressive disorder [MDD]) from data in the UK Biobank. Results suggest that people with schizophrenia/psychosis, BD, and MDD have higher risks of COVID-19 infection, hospitalization, and mortality. Only a proportion of these disparities were accounted for by pre-existing demographic characteristics or comorbidities. Vaccination and preventive measures should be prioritized in these particular vulnerable groups. [Article](#).

International LTC Policy Network: International living report on COVID-19 and long-term care (LTC)

Dec 7, 2021. This living report allows users to compare the LTC systems from different countries at the national or regional/sub-national levels; their responses to COVID-19; and their plans for recovery and future reforms aimed at ensuring care systems are better prepared for future emergencies. The report is compiled collaboratively by LTC researchers who provided answers to 64 questions and who will update them as new information and research becomes available. [Article](#).

JAMA: Trends in the incidence of new-onset anorexia nervosa and atypical anorexia nervosa among youth during the COVID-19 pandemic in Canada

Dec 7, 2021. In this study of 1,883 children and adolescents with newly diagnosed anorexia nervosa or atypical anorexia nervosa, the incidence of the disease increased from 24.5 to 40.6 cases per month and hospitalizations among these patients increased from 7.5 to 20.0 per month. During the first wave of the pandemic, the onset of illness was more rapid and disease severity was greater at presentation than before the pandemic. Findings of this study suggest a need for expansion of eating disorder services as well as research to better understand the drivers and prognosis for this pediatric population. [Article](#).

Med J of Aus: Care of older people and people requiring palliative care with COVID-19

Dec 6, 2021. This guideline from the Australian National COVID-19 Clinical Evidence Taskforce includes two clinical flow charts for the management of people with COVID-19 who are: 1) older and living with frailty and/or cognitive impairment; and 2) receiving palliative care for COVID-19 or other underlying illnesses. The flow charts focus on goals of care, communication,

medication management, escalation of care, active disease-directed care, and managing symptoms such as delirium, anxiety, agitation, breathlessness, or cough. [Article](#).

Case Testing and Screening

NPJ Primary Care Respiratory Medicine: COVID-19 assessment in family practice

Nov 25, 2021. Drawing on data collected from 1,141 patients in 19 general practices in Germany, this study evaluated the diagnostic accuracy of contact history and clinical symptoms and developed decision rules for ruling-in and ruling-out SARS-CoV-2 infection in family practice. Patients with ‘contact with infected person’ or loss of smell or taste with or without self-reported ‘fever’ had a high probability of COVID-19 infection up to 84.8%. [Article](#).

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.
- 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 hosts 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. To receive an email containing hyperlinks to these products twice a month, [subscribe here](#).
 - In the second half of November, contributing Canadian evidence-synthesis teams produced eight newly completed evidence syntheses. From the COVID-END taxonomy, the syntheses focus on public health measures (n=6), clinical management (n=1), and health system arrangements (n=1). Please visit [Canadian Spotlight 11.2](#) to view the evidence, or browse past [Canadian evidence spotlights](#). A complete list of the products is available [here](#).

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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