Ontario

COVID-19 PANDEMIC

RAEB'S Evidence Update

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

April 25, 2022

Featured

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.

Assessment and Treatment of Post-COVID-19 Condition

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

Models of Care: Three care models (Primary Care Provider, Hybrid Care, and Post-COVID-19 Clinic) for post-COVID-19 condition were identified. The latter two use virtual modalities, which has become a leading method of delivering treatment, but consideration should be given to the context and population being served to address potential accessibility and operational limitations:

- Hybrid Care Model: Noted strengths include streamlined resources, timely access to care, coordinated care, and strategically delegated responsibilities. Virtual modality limitations include difficulty establishing pathways of referral, and digital poverty and illiteracy hindering access to telemedicine appointments.
- Post-COVID-19 Clinic Model: A noted strength includes improved patient ratings after post-COVID-19 rehabilitation, while limitations include patient difficulty using

telemedicine, longer wait times due to the need for translators, and unintegrated electronic medical records.

- **Waitlists**: There are long waitlists (i.e., seven to nine months) for treating patients with post-COVID-19 condition due to: 1) limited post-COVID-19 clinics due to insufficient funding; 2) low staffing at post-COVID-19 clinics, resulting in months-long waitlists; 3) lengthy triage processes from referral to therapy (e.g., three months); and 4) limited access to treatment (e.g., three months wait). Issues can be addressed by establishing more clinics and increasing medical/administrative staffing to shorten the triaging and time to receive treatment.
- **Insurance Assessments**: Barriers to post-COVID-19 condition insurance assessments identified across three population types (low-income, marginalized, and the general population) include: 1) limited medical evidence; 2) asymptomatic COVID-19 symptoms; 3) unreliable insurance policies: 4) inconsistent billing infrastructure; and 5) difficulty classifying health conditions due to ambiguous symptomology. Post-COVID-19 symptomology, insurance policies, and billing structures should be standardized by insurance providers to deliver equitable assessments and coverage.

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.

Understanding the Disease

Journal of the American Medical Association (JAMA): Association of short-term air pollution exposure with SARS-CoV-2 infection among young adults in Sweden

April 20, 2022. In this study of 425 participants with SARS-CoV-2 infection identified within a Swedish population-based birth cohort, short-term air pollution exposure was associated with increased risk of SARS-CoV-2 infection despite relatively low levels of air pollution exposure. These findings suggest that air pollution may play a role in COVID-19 and support the potential benefit of reducing air pollutant levels. *Article*.

Journal of Infectious Diseases: Global prevalence of post-COVID-19 condition

April 16, 2022. This systematic review and meta-analysis found that the global estimated pooled prevalence of post COVID-19 condition was 0.43 with regional prevalence estimates of: Asia (0.51), Europe (0.44), and North America (0.31). Global prevalence for 30, 60, 90, and 120 days after infection were estimated to be 0.37, 0.25, 0.32, and 0.49, respectively. Fatigue was

the most common symptom reported with a prevalence of 0.23, followed by memory problems at a prevalence of 0.14. *Article*.

Transmission

***Nature:* High-resolution contact networks to evaluate SARS-CoV-2 transmission and control in large-scale multi-day events**

April 12, 2022. This study found that passengers on cruise ships had a median of 20 unique close contacts per day, and over 60% of their contact episodes were made in dining or sports areas where mask wearing is typically limited. In simulated outbreaks, the study found that vaccination coverage and rapid antigen tests had a larger effect than mask mandates alone, indicating the importance of combined interventions against the Delta variant to reduce event risk in the vaccine era. *Article*.

Infection, Prevention and Control in Specific Settings

***Health Environments Research & Design Journal:* Factors associated with COVID-19 infections in long-term care facilities (LTCF)**

April 12, 2022. This rapid review concluded that LTCF managers/policymakers and health care designers can help mitigate COVID-19 infections by: 1) providing additional resources to vulnerable LTCFs; 2) enhancing the training of personal protective equipment use and guideline compliance; and 3) investing in amenities, such as sinks, quarantine rooms, and outdoor spaces. Digital activities and accessible green spaces can mitigate mental health and behaviour issues. Future LTCF design can benefit from flexible spaces, natural ventilation, and reduced crowding. *Article*.

Disease Management

***JAMA*: Rates of COVID-19 among unvaccinated adults with prior COVID-19**

April 20, 2022. In this study, among 121,615 patients with more than 10 million days of follow-up, unvaccinated individuals with prior symptomatic COVID-19 had 85% lower risk of acquiring COVID-19 than unvaccinated individuals without prior COVID-19. The finding that patients with prior COVID-19 had 88% protection against hospitalization for COVID-19 and 83% protection against COVID-19 not requiring hospitalization suggest that natural immunity was associated with similar protection against mild and severe disease. mRNA vaccines are associated with similar prolonged protection from severe COVID-19, although vaccine-associated protection from mild COVID-19 has been shown to wane at six months. *Article*.

***JAMA*: Identification of drug interaction adverse events in patients with COVID-19**

April 19, 2022. The drug-drug interactions (DDIs) identified in this systematic review involved 46 different drugs. In total, 575 DDIs for 58 drug pairs (305 associated with at least one adverse drug reaction) were reported. The drugs most involved in DDIs were lopinavir and ritonavir. The findings suggest that the use of drug interaction checkers could have identified several DDI-associated adverse drug reactions, including severe and life-threatening events. Both the interactions between the drugs used to treat COVID-19 and between the COVID-19 drugs and those already used by the patients should be evaluated. *Article*.

***Centres for Disease Control and Prevention:* Hospitalizations of children aged 5-11 years with laboratory-confirmed COVID-19 in 14 states in the US**

April 19, 2022. This study shows that during the period of Omicron predominance (December 2021 – February 2022), COVID-19-associated hospitalization rates in children aged 5-11 years were approximately twice as high among unvaccinated as among vaccinated children. Non-Hispanic Black children represented the largest group of unvaccinated children. Thirty percent of hospitalized children had no underlying medical conditions, and 19% were admitted to an intensive care unit. Children with diabetes and obesity were more likely to experience severe COVID-19. *Article*.

***JAMA*: Surveillance of safety of three doses of COVID-19 mRNA vaccination using electronic health records**

April 14, 2022. This study of electronic health record data for 47,999 individuals receiving three-dose mRNA COVID-19 vaccines found no significant increase in the reporting of severe adverse events (i.e., anaphylaxis, cerebral venous sinus thrombosis, myocarditis, and pericarditis) after the third vaccine dose compared with before vaccination and after prior doses. Significantly increased reporting was found for low-severity adverse events (i.e., fatigue, lymphadenopathy, nausea, and headache). These findings suggest that third-dose vaccination with COVID-19 mRNA vaccines may be safe. *Article*.

Health Equity and Vulnerable Populations

***Journal of Eating Disorders:* Change of symptoms of eating disorders (ED) during the COVID-19 pandemic**

April 13, 2022. This systematic review and meta-analysis demonstrated that the COVID-19 pandemic and its related social restrictions detrimentally impacted the mental health (i.e., anxiety and depression) of the majority of individuals with ED (59.65% of 7,848 patients).

Limited and impaired access to health care interventions appeared to have further exacerbated mental health issues of individuals with ED. *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 first half of April 2022, contributing Canadian evidence-synthesis teams shared seven newly completed evidence syntheses, all focusing on public health measures. Please visit Canadian Spotlight 16.1 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
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