Ontario

COVID-19 PANDEMIC

RAEB'S Evidence Update

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

November 1, 2021

Featured

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

***Vaccines*: Safety, immunogenicity, and efficacy of COVID-19 vaccines in children and adolescents**

Oct 29, 2021. This systematic review identified eight completed studies and 28 ongoing clinical studies of COVID-19 vaccines in children and adolescents. The investigated COVID-19 vaccines (Sinovac and Pfizer/BioNTech) had high rates of immunogenicity and vaccine efficacy. They also had good safety profiles, and most adverse effects were mild or moderate (e.g., injection site pain, fatigue, headache, chest pain). Some studies reported a few cases of myocarditis and pericarditis. Clinical studies in children and adolescents with longer follow-up time, larger sample size, and a greater variety of vaccines are still urgently needed. *Article*.

***Nature*: Neurological complications after first dose of COVID-19 vaccines and SARS-CoV-2 infection in the United Kingdom**

Oct 25, 2021. This study investigated hospital admissions from neurological complications after a SARS-CoV-2-positive test, and in the 28 days after a first dose of ChAdOx1nCoV-19 (AstraZeneca) or BNT162b2 (Pfizer). Overall, researchers estimated 38 excess cases of Guillain-Barré syndrome per 10 million people receiving AstraZeneca and 145 excess cases per 10 million people who tested positive for SARS-CoV-2. The study suggests that although there is

an increased risk of neurological complications in those who received COVID-19 vaccines, the risk of these complications is greater for those who test positive to SARS-CoV-2. *Article*.

***Med J Aust*: Clinical care of children and adolescents with COVID-19: Recommendations from the National COVID-19 Clinical Evidence Taskforce**

Oct 22, 2021. To date, the Taskforce has made 20 specific recommendations for Australian children and adolescents, including definitions of disease severity, recommendations for therapy, respiratory support, and venous thromboembolism prophylaxis for COVID-19 and for the management of paediatric inflammatory multisystem syndrome (PIMS-TS). Corticosteroids are recommended as first line treatment for acute COVID-19 in children and adolescents who require oxygen. Tocilizumab could be considered, and remdesivir should not be administered routinely in this population. Non-invasive ventilation or high flow nasal cannulae should be considered in children and adolescents with hypoxaemia or respiratory distress unresponsive to low flow oxygen if appropriate infection control measures can be used. Children and adolescents with PIMS-TS should be managed by a multidisciplinary team. Intravenous immunoglobulin and corticosteroids, with concomitant aspirin and thromboprophylaxis, should be considered for the treatment of PIMS-TS. *Article*.

***Cochrane Library*: Antibiotics for the treatment of COVID-19**

Oct 22, 2021. This review assessed the efficacy and safety of antibiotics compared to each other, no treatment, standard of care alone, placebo, or any other active intervention with proven efficacy for treatment of COVID-19 outpatients and inpatients. Azithromycin was not found to be an effective treatment for COVID-19. It is unknown whether antibiotics other than azithromycin are effective treatments for COVID-19 because there is not enough research. There are 19 ongoing studies that are investigating antibiotics for COVID-19, and the review will be updated if their results change the conclusion. *Article*.

***New England Journal of Medicine (NEJM)*: BNT162b2 vaccine (BioNtech Pfizer) effectiveness against delta variant in adolescents**

Oct 20, 2021. This study involving more than 188,000 vaccinated and unvaccinated adolescents between the ages of 12 and 18 years in Israel showed increasing levels of protection against COVID-19 during the first month after receipt of two vaccine doses. The estimated efficacy of the Pfizer vaccine on days seven and 21 after receipt of two doses was 90% against infection and 93% against symptomatic disease. *Article*.

***NEJM*: BNT162b2 vaccine (Pfizer-BioNtech) and ChAdOx1 nCoV-19 (AstraZeneca) vaccine effectiveness against death from the delta variant**

Oct 20, 2021. This analysis of mortality among more than 114,000 SARS-CoV-2-infected people in Scotland revealed that vaccine effectiveness against death caused by the delta variant 14 days or more after the second dose was 90% for the Pfizer vaccine and 91% for the AstraZeneca vaccine. *Article*.

***Nutrients*: COVID-19 mortality risk correlates inversely with vitamin D3 status**

Oct 14, 2021. This systematic review and meta-analysis demonstrate strong evidence that low vitamin D3 is a predictor rather than just a side effect of a COVID-19 infection. Despite ongoing vaccinations, it is recommended to raise serum 25(OH)D levels to above 50 ng/mL to prevent or mitigate new outbreaks due to escape mutations or decreasing antibody activity. *Article*.

Public Health Measures

***Centres for Disease Control and Prevention (CDC)*: COVID-19 vaccination and non-COVID-19 mortality risk in seven integrated health care organizations, United States (US)**

Oct 29, 2021. This report suggests that between December 2020 to July 2021, COVID-19 vaccine recipients had lower rates of non-COVID-19 mortality than did unvaccinated persons after adjusting for age, sex, race and ethnicity, and study site. These findings note that there is no increased risk for mortality among COVID-19 vaccine recipients, reinforcing the safety profile of currently approved COVID-19 vaccines in the US. The report recommends that persons aged ≥12 years in the US should receive a COVID-19 vaccine. *Article*.

***Journal of the American Medical Association (JAMA):* Guaranteed financial incentives for COVID-19 vaccination - A pilot program in North Carolina**

Oct 25, 2021. This study used a two-week pilot incentive program that guaranteed a $25 cash card to adults who either received or drove someone to receive their first dose of COVID-19 at participating sites in four counties in North Carolina. Drivers could earn $25 for each trip but were not paid twice for the same trip (e.g., receiving a vaccine while also bringing someone else). The pilot program distributed 2,890 cash cards to vaccine recipients and 1,374 to drivers. Incentives increased vaccination and promoted equitable distribution by alleviating barriers to vaccination, particularly for low-income, Black, and Hispanic individuals. *Article*.

Health Equity and Vulnerable Populations

***JAMA*: Trends in the use of benzodiazepines, Z-hypnotics, and serotonergic drugs among US women and men before and during the COVID-19 pandemic**

Oct 25, 2021. This cohort study of over 15 million adults in the US reported an increase in Z-hypnotic and serotonergic drug prescriptions among men and women, along with an increase in benzodiazepine prescriptions among women at the start of the COVID-19 pandemic. These findings suggest a substantial association of mental health issues with COVID-19-associated social isolation, stay-at-home orders, and other COVID-related mitigation measures, especially among women. *Article*.

Understanding the Disease

***National Collaborating Centre for Methods and Tools*: Risk factors associated with severe COVID-19 outcomes in children 12 years and under**

Oct 25, 2021. This rapid review found uncertain evidence about the association between comorbidities and severe COVID-19 outcomes, as well as between age and severe COVID-19 outcomes in children 12 years and under – findings are likely to change as new data becomes available. No studies reported the association between comorbidities and severe COVID-19 outcomes in those 12 years and under specific to those living with social and structural inequities, such as Indigenous or racialized communities. *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 October, there were seven newly added evidence syntheses. The syntheses focus on public-health measures (n=5) and clinical management (n=2). Please visit Canadian Spotlight 10.1 to view the evidence, or browse past Canadian evidence spotlights. A complete list of the products is available here.

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