Ontario

COVID-19 PANDEMIC

RAEB'S Evidence Update

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

January 24, 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.

Protecting Vulnerable Patients in Hospitals during COVID-19

(Produced in collaboration with McMaster Health Forum)

- **Delivery of Care to Vulnerable Patients during COVID-19:** Prior to the Omicron wave, the United Kingdom (UK) provided guidance on the treatment of cancer patients (e.g., shared decision-making with patients to discuss the risks and benefits of starting, continuing, or deferring treatment); and the safety of patients on dialysis (e.g., cohorting; providing separate entrances for suspected COVID-19 cases).
- **Guidelines for Infection Prevention and Control (IPAC) during COVID-19:** The World Health Organization concluded that their international guidelines are not yet concrete and uniform enough to be applied to hospital settings, but some recommendations include: a single isolation room for pre-emptive isolation; and an isolation policy for patients with confirmed COVID-19. In the context of Omicron, UK IPAC guidance recommends that patients with other infectious agents (e.g., gastrointestinal) and patients with underlying health

conditions who are at higher risk of severe outcomes be prioritized for placement in single rooms.
    - In Manitoba, IPAC recommendations include: not transferring patients to other units unless there is vacant space; and not having staff care for both red/orange (patients with COVID-19 infection/patients who have been transferred from a unit that has an outbreak) or green (patients who have recovered from COVID-19) zone patients if possible. In Ontario, routine testing of all asymptomatic patients prior to radiation or treatment is at the discretion of the clinician. Patients undergoing hemodialysis with symptoms should be tested especially when an outbreak is declared in a hemodialysis unit.
- **Health System Approaches to Protecting Patients from Omicron:** The Australian government is working with public and private hospitals on options for transfers (e.g., safe cohorting onsite), where clinically indicated or supported for public health reasons. The UK National Health Service plans to set up 'Nightingale' facilities (i.e., temporary structures capable of housing around 100 patients) on the grounds of eight hospitals across the country.

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.

Health Equity and Vulnerable Populations

***Journal of the American Medical Association (JAMA):* School closures during social lockdown and mental health, health behaviours, and well-being among children and adolescents during the first COVID-19 wave**

January 18, 2022. In this systematic review of 36 studies from 11 countries, school closures and social lockdown during the first COVID-19 wave were associated with adverse mental health symptoms (e.g., distress, anxiety) and health behaviours (e.g., higher screen time, lower physical activity) among children and adolescents. The effects of school closures could not be assessed separately from broader social lockdown measures. *Article*.

***Nature:* Impact of COVID-19 on pregnancy outcomes in a diverse cohort in England**

January 18, 2022. This study found symptomatic COVID-19 is associated with preterm birth, which may be due to an increase in iatrogenic deliveries (i.e., caesarean or induced preterm deliveries) for maternal indications. However, there seems to be no effect of COVID-19 on fetal

growth, and maternal and neonatal outcomes are comparable to those seen in women without COVID-19, particularly for asymptomatic women. There was no evidence of an increase in perinatal deaths associated with the pandemic. *Article*.

***Nature:* SARS-CoV-2 infection and COVID-19 vaccination rates in pregnant women in Scotland**

January 13, 2022. This study found that severe complications associated with COVID-19 in pregnancy (critical care admission, higher rates of perinatal mortality within 28 days of birth) were more common in women who were unvaccinated at the time of COVID-19 diagnosis than in vaccinated pregnant women. The authors suggest their data support the importance of women being vaccinated in pregnancy to prevent adverse outcomes associated with COVID-19. *Article*.

Disease Management

***JAMA:* Frequency of adverse events (AE) in the placebo arms of COVID-19 vaccine trials**

January 18, 2022. In this systematic review and meta-analysis, significantly more AEs were reported in vaccine groups compared with placebo groups, but the rates of reported AEs in the placebo arms were still substantial. Public vaccination programs should consider the high rates of AEs in placebo arms. *Article*.

***medRxiv:* Limited cross-variant immunity after infection with the SARS-CoV-2 Omicron variant without vaccination**

January 17, 2022. This preprint study shows that while the Omicron virus is immunogenic, infection with this variant in unvaccinated individuals may not elicit effective cross-neutralizing antibodies against other variants. In vaccinated individuals, however, Omicron infection effectively induces immunity against itself and enhances protection against other variants. This finding, together with the finding that Delta infection is broadly immunogenic in mice, supports the inclusion of Omicron- and Delta-based immunogens in future multivalent vaccination strategies for broad protection against variants. *Article*.

Understanding the Disease

***Nature:* Genetic risk factor found for COVID-19 smell and taste loss**

January 17, 2022. Six months after contracting COVID-19, as many as 1.6 million people in the US are still unable to smell or have experienced changes in their ability to smell. This study found that a genetic locus near two olfactory genes (UGT2A1 and UGT2A2) is associated with

increased likelihood of COVID-induced loss of smell and taste by 11%. A locus is the fixed position of a gene on a chromosome. *Article*.

***Nature:* Better COVID-19 Intensive Care Unit (ICU) survival in females**

January 14, 2022. This study based in Belgium, the Netherlands, and Germany found that ICU survival in female SARS-CoV-2 patients was 40% higher than in male patients, independent of age, disease severity, smoking, obesity, comorbidities, anti-infection/inflammatory therapy, and country. Sex-specific biological mechanisms may play a role, emphasizing the need to address diversity, such as more sex-specific prediction, prognostic, and therapeutic approach strategies. *Article*.

Health System Impacts

***Nature:* Variation in community and ambulance care processes for out-of-hospital cardiac arrest during the COVID-19 pandemic**

January 17, 2022. This systematic review and meta-analysis found that out-of-hospital sudden cardiac arrest (OHCA) at home was more common during the pandemic. Bystander cardiopulmonary resuscitation (BCPR) did not differ during and before the COVID-19 pandemic, although bystander defibrillation was significantly lower during the COVID-19 pandemic. EMS call-to-arrival time was significantly higher during the COVID-19 pandemic. Resuscitation duration did not differ significantly between pandemic and pre-pandemic timeframes. *Article*.

***JAMA:* Assessment of functional mobility after COVID-19 in adults aged 50 years or older in the Canadian Longitudinal Study on Aging**

January 12, 2022. This study of 24,114 participants found that community-living middle-aged and older adults with confirmed, probable, or suspected COVID-19 had nearly two-fold higher odds of worsening mobility and physical function compared with adults without COVID-19, although most participants with COVID-19 had mild to moderate disease and were not hospitalized. These findings suggest that individuals with mild and moderate COVID-19 who were predominantly not hospitalized experienced deficits in functional mobility compared with those without COVID-19. *Article*.

Public Health Measures

***Nature:* Model-based evaluation of alternative reactive school closure strategies against COVID-19**

January 14, 2022. Reactive school class closures have been widely implemented to mitigate COVID-19 outbreaks. This study shows that, compared to symptom-prompted PCR testing,

screening for cases in schools with antigen tests leads to greater reductions in infection rates in both students and the wider community. *Article*.

***New England Journal of Medicine (NEJM):* Effectiveness of Pfizer vaccine against critical COVID-19 in adolescents**

January 12, 2022. This study assessed the effectiveness of the Pfizer vaccine to prevent COVID-19-related hospitalization, ICU admission, or receipt of life support (e.g., mechanical ventilation) among adolescents (age 12 to 18 years) in 23 US states. Among 445 case patients and 777 controls, of the 180 patients admitted to an ICU, only two had been fully vaccinated (i.e., with two doses); all seven deaths occurred in unvaccinated patients. *Article*.

***NEJM:* Effectiveness of COVID-19 vaccines over a nine-month period in North Carolina (US)**

January 12, 2022. In an analysis involving more than 10 million North Carolina residents, COVID-19 vaccines Pfizer (two doses), Moderna (two doses), and Johnson & Johnson (one dose) were highly effective in preventing hospitalization and death up to nine months after vaccination. Waning protection against infection over time was found to be due to both declining immunity and the emergence of the Delta variant. *Article*.

***NEJM:* Duration of protection against mild and severe disease by COVID-19 vaccines**

January 12, 2022. This study of more than six million persons in England who received two doses of the AstraZeneca or Pfizer vaccine (interval, three to 12 weeks) showed high vaccine effectiveness against hospitalization and death from COVID-19 at 20 weeks or more after vaccination. Waning of vaccine effectiveness was greater in older persons (aged 65 years or older) and those with underlying risk factors. *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 January 2022, contributing Canadian evidence synthesis teams produced 14 newly completed evidence syntheses. One synthesis provides insight on three domains of the COVID-END taxonomy (public health measures, clinical management, and health-system arrangements), and one synthesis provides insight on two of the domains (public health measures and health system arrangements). The remaining focus on public health measures (n=12). Please visit Canadian Spotlight 13.1 to view the evidence, or browse past Canadian evidence spotlights. A complete list of the products is available here.

About RAEB

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