Ontario

COVID-19 PANDEMIC

RAEB'S Evidence Update

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

August 30, 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.

Understanding the Disease

***Nature*: Longitudinal analysis of antibody decay in convalescent COVID-19 patients**

August 18, 2021. This study found that for a majority of recovering COVID-19 patients, the reduction rate of naturally occurring anti-nucleocapsid (anti-N) Immunoglobulin G (IgG) antibodies was relatively higher at the beginning, then gradually decreased to a steady state after four months, at which point the fluctuation of IgG levels exhibited random variation across all recovered patients. This study is clinically important for the prediction of immune response capacity in COVID-19 patients. Future studies are needed to understand the sustainability of antibodies and time course of eliciting the adaptive immune response after an initial exposure to the SARS-CoV-2 virus or vaccination. *Article*.

Transmission

***Journal of the American Medical Association (JAMA)*: COVID-19 transmission dynamics among close contacts of index patients with COVID-19 in China**

August 23, 2021. This study followed 730 index patients with a COVID-19 diagnosis and 8,852 close contacts from January 8 to July 30, 2020. Transmission potential was greatest in the first two days before and three days after onset of symptoms in the index patient. When contacts received a diagnosis of COVID-19 infection, they were more likely to present asymptomatically if they had been exposed to an asymptomatic patient. The study concluded that that the

quantity of exposure to a patient with COVID-19 may be associated with clinical presentation among close contacts who develop COVID-19. *Article*.

***Nature*: The risk of indoor sports and culture events for COVID-19 transmission**

August 19, 2021. This German study investigated the risk of transmitting SARS-CoV-2 by droplets and aerosols during an experimental indoor mass gathering event. The overall burden of infections resulting from indoor mass gatherings depends largely on the quality of the ventilation system and the hygiene practices (e.g., mask wearing, number of entrances/exits). Presuming an effective ventilation system, indoor mass gathering events with suitable hygiene practices have a very small effect, if any, on epidemic spread. *Article*.

Disease Management

***British Medical Journal (BMJ)*: Risk of thrombocytopenia and thromboembolism after COVID-19 vaccination and SARS-CoV-2 positive testing in adults in England**

August 27, 2021. This study found that increased risks of haematological and vascular events that led to hospital admission or death were observed for short time intervals after first doses of the AstraZeneca and Pfizer vaccines. The risks of most of these events were substantially higher and more prolonged after SARS-CoV-2 infection than after vaccination in the same population. *Article*.

***The New England Journal of Medicine (NEJM)*: Safety of the Pfizer vaccine in a nationwide setting in Israel**

August 25, 2021. This study used data from the largest health care organization in Israel to evaluate the safety of the Pfizer vaccine. The vaccine was not associated with an elevated risk of most of the adverse events examined. The vaccine was associated with an excess risk of myocarditis (one to five events per 100,000 persons). The risk of this potentially serious adverse event and of many other serious adverse events was substantially increased after SARS-CoV-2 infection. *Article*.

***Cochrane Library*: Interventions for palliative symptom control in COVID-19 patients**

August 23, 2021. This review found very low certainty evidence for the efficacy of pharmacological interventions for palliative symptom relief in COVID-19 patients. No evidence was found on the safety of pharmacological interventions or the efficacy and safety of non-pharmacological interventions for palliative symptom control in COVID-19 patients. Based on these findings, no conclusions could be drawn on palliative symptom control of people with COVID-19. *Article*.

BMJ: Effectiveness of the CoronaVac vaccine in older adults during a Gamma variant-associated epidemic of COVID-19 in Brazil

August 20, 2021. This study found that 14+ days after receiving a second dose, vaccination with CoronaVac was associated with a reduction in symptomatic COVID-19 (46.8%), hospital admissions (55.5%), and deaths (61.2%) in adults aged ≥70 years in a setting with extensive transmission of the Gamma variant. Vaccine protection was, however, low until completion of the two-dose regimen. Vaccine effectiveness was observed to decline with increasing age among this elderly population. *Article*.

BMJ: Effectiveness of Pfizer-BioNTech or Moderna vaccines against symptomatic SARS-CoV-2 infection and severe COVID-19 outcomes in Ontario

August 20, 2021. This study of 324,033 participants, conducted between December 14, 2020 and April 19, 2021, found two doses of mRNA COVID-19 vaccines to be highly effective against symptomatic infection and severe outcomes. For adults aged ≥70 years, vaccine effectiveness estimates were observed to be lower for intervals shortly after one dose but were comparable to those for younger people for all intervals after 28 days. *Article*.

NEJM: Early convalescent plasma for high-risk outpatients with COVID-19

August 18, 2021. This study found that high-risk patients who presented to the emergency department within seven days after the onset of COVID-19 symptoms and were treated with convalescent plasma containing high titres of neutralizing antibodies against SARS-CoV-2 did not have a lower incidence of disease progression than those who received placebo. Outcomes regarding worst illness severity and hospital-free days were similar in the two groups. *Article*.

NEJM: Pan-sarbecovirus neutralizing antibodies in BNT162b2-immunized SARS-CoV-1 survivors

August 18, 2021. This study suggests that people who recovered from SARS-CoV-1 infection in 2002-03 have neutralizing antibodies documented for up to 17 years. Vaccinating such people with the BNT162b2 (Pfizer) vaccine elicited high titers of antibodies capable of neutralizing not only all SARS-CoV-2 variants of concern but also coronavirus types found in bats and pangolins that have the potential to cause human infection. Immunity against all beta-coronaviruses may be achievable with a pan-sarbecovirus vaccine strategy. *Article*.

Public Health Measures

JAMA: Experience and response to COVID-19 waves 2 and 3 in Canada

August 23, 2021. This commentary describes the Canadian experience and response to the larger second and third waves of COVID-19 infections during the period September 2020

through August 2021, focusing on provincial/territorial responses, federal government responses, and vaccines. The next year may see Canada addressing new challenges that will require some difficult government decisions and individual choices, including implementing vaccine mandates, vaccine passports, and the upcoming campaign to vaccinate children. Canada's significant access to and uptake of vaccines will most likely help lessen the effects of a fourth or subsequent waves of COVID-19, but disparate interprovincial public health policies and limited critical care capacity continue to pose challenges. *Article*.

***JAMA*: Youth perceptions of vaccination for COVID-19 in the US**

August 20, 2021. This study collected the opinions from a diverse sample of US youth after the initiation of mass immunization campaigns regarding COVID-19 vaccine acceptability, perceived barriers to vaccination, and anticipated changes in behaviour. Overall, 74.6% of youth respondents were interested in getting vaccinated to protect themselves and return to normal. Despite widespread reported trust in science and data, and a desire to return to normalcy, youth reported being concerned about short- and long-term adverse effects of the vaccines. *Article*.

Health System Impacts

***JAMA*: Association of remote versus in-person delivery of the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) with participation during the COVID-19 pandemic**

August 20, 2021. This study found that offline US states (states that require WIC beneficiaries to mail-in or present their electronic benefits transfer debit cards in person at their local WIC office to reload their benefits) were associated with significant relative decreases in WIC participation during the COVID-19 pandemic, driven both by increased WIC participation in online states (states where WIC benefits are automatically reloaded) and decreased WIC participation in offline states. These findings support growing concerns that even seemingly minor barriers to accessing public programs may substantially reduce participation. *Article*.

Health Equity and Vulnerable Populations

***Nature*: Association between obesity and hospital mortality in critical COVID-19 in Montreal**

August 25, 2021. This study found that obesity was prevalent in 94 patients hospitalized with critical illness (pneumonia) secondary to COVID-19, and a higher body mass index was associated with higher hospital mortality. Further studies are needed to validate this association and better understand its underlying mechanisms. *Article*.

***JAMA*: Self-reported mental and physical health among Norwegian adolescents before and**

during the COVID-19 pandemic

August 24, 2021. This study found that adolescents who started high school during the pandemic year had lower odds of organized sports participation in late 2020 but were otherwise comparable in terms of self-reported mental and physical health with their pre-COVID-19 counterparts. However, adolescents in the COVID-19 cohort experiencing high pandemic-related anxiety had significantly greater odds of poorer mental and physical health than adolescents in the pre-COVID-19 cohort. Strategies aiming to mitigate the impact of COVID-19 may benefit from identifying youth disproportionally affected by the pandemic conditions. *Article*.

***BMJ*: Mental health and wellbeing of children and adolescents during the COVID-19 pandemic**

August 24, 2021. This article covers common impacts and effects of the pandemic on children and adolescents; guidance for the assessment of their mental health and wellbeing, including recognition of symptoms suggestive of mental health disorders; and management guidance, including referral and mitigation of the potentially adverse impacts of the pandemic. A child or adolescent may show no observable or reported symptoms of distress or may show them at some later time. When assessing mental health and wellbeing, providers should consider developmental stage, functional or behavioural manifestations, proximity to and severity of pandemic related hardships, and individual, family, and community strengths, supports, and protective 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.

- During the second half of August, there were 13 newly added evidence syntheses. Two of these syntheses provide insights across all domains of the COVID-END taxonomy (public health measures, clinical management, health-system arrangements, and economic and social response) and the remaining focus on public health measures (n=8), and clinical management (n=3). Please visit Canadian Spotlight 8.2 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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