

COVID-19 PANDEMIC

RAEB'S Evidence Update

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

February 7, 2022

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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): SARS-CoV-2 variant tracking and mitigation during in-person learning at a Midwestern University in the 2020-21 school year

February 3, 2022. This study examined more than 190,000 COVID-19 surveillance tests for 14,894 individuals, including 1,603 positive test results, at a mid-sized Midwestern University from January 6 to May 20, 2021. By April 2021, the highly transmissible Alpha variant was the only variant resulting in persistent numbers of positive cases. An increase in vaccination coverage was associated with a decrease in COVID-19 cases in the campus population. The findings suggest that mass vaccination efforts were associated with a statistically significant decrease in the spread of SARS-CoV-2 even as highly transmissible variants were introduced in a residential campus setting. [Article](#).

The Lancet: Safety and immunogenicity of a high-dose quadrivalent influenza vaccine (QIV-HD) administered concomitantly with a third dose of Moderna in older adults in the US

January 31, 2022. This phase two study found no safety concerns or immune interference for concomitant administration of QIV-HD with Moderna booster in adults aged 65 years and older, supporting co-administration recommendations. [Article](#).

Expert Review of Anti-Infective Therapy: COVID-19 and vitamin D

January 27, 2022. This systematic review analyzed six randomized controlled trials (n=551 patients) finding that COVID-19 patients supplemented with vitamin D are more likely to demonstrate fewer rates of intensive care unit admission, mortality events, and reverse transcription polymerase chain reaction positivity. [Article](#).

Case Testing and Screening

JAMA: Prevalence of select new symptoms and conditions among persons aged <20 years and ≥20 years at 31 to 150 days after testing positive or negative for SARS-CoV-2

February 4, 2022. In this study of 338,024 persons <20 years and 1,790,886 persons ≥20 years who were tested for SARS-CoV-2, new diagnoses of shortness of breath, non-specific heart rate abnormalities, and type 2 diabetes were more common among those hospitalized after positive compared with negative test results; fatigue was more common among those aged ≥20 years. Given these findings, health care professionals should be aware of new symptoms and conditions that may develop after SARS-CoV-2 infection, particularly among those hospitalized. [Article](#).

JAMA: Assessing how consumers interpret and act on results from at-home COVID-19 self-test kits

January 31, 2022. This randomized clinical trial of 360 adults who used at-home COVID-19 self-test kits reported that they may fail to self-quarantine or may quarantine unnecessarily because they misinterpret the implications of test results. Redesigned instructions may increase the benefits and reduce the harms from at-home self-test kits. [Article](#).

Transmission

JAMA: SARS-CoV-2 infections in close contacts of positive cases in the Olympic and Paralympic Village at the 2021 Tokyo Olympic and Paralympic games

February 3, 2022. The number of close contacts of participants with SARS-CoV-2 after the opening of the Olympics and Paralympics increased, but few positive cases were identified. The increasing numbers of SARS-CoV-2 PCR tests of close contacts were likely a consequence of new overseas arrivals to the Village who were identified as close contacts of a positive case on an inbound flight and some close contacts of positive cases returning to the Village from various training camps across Japan. The study findings suggest that the public health control measures at the Tokyo Olympics and Paralympics worked well to prevent COVID-19 clusters inside the Village, despite a surge in new COVID-19 cases recorded in Tokyo during that time. [Article](#).

Public Health Measures

JAMA: Prevalence of common infectious diseases after COVID-19 vaccination and easing of pandemic restrictions in Israel

February 1, 2022. This study of 386,711 patients in community clinics found an increase in incidence rates of various infections among children aged zero to three years and in respiratory infections among all age groups during three months after the easing of COVID-19-related social restrictions. These findings suggest that as global COVID-19 vaccination rates increase and social restrictions are lifted, patterns of non-SARS-CoV-2 infection transmission observed late spring in Israel may be seen elsewhere, requiring early preparation. [Article](#).

Nature: Efficacy and practice of facemask use in general population

February 1, 2022. This systematic review and meta-analysis suggest that facemask use may reduce the respiratory infection in the general population in community settings. There are differences in perception, intention, and practice of facemask use in different regions, and it likely reflects different impacts from various infectious diseases, regional culture, and local policies. Efforts should be made to increase the compliance of facemask use and reduce barriers associated with the use of facemasks, such as reducing stigma and prejudice on facemask use and public education through media. [Article](#).

New England Journal of Medicine: Homologous and heterologous COVID-19 booster vaccinations

January 26, 2022. This study measured the immune response on days 15 and 29 of participants who were fully vaccinated with current COVID-19 vaccines and who received the same (homologous) or different (heterologous) booster as their primary vaccine. Homologous boosters increased neutralizing antibody titers by a factor of four to 20, whereas heterologous boosters increased titers by a factor of six to 73. [Article](#).

Understanding the Disease

Research Square: Safety, tolerability, and viral kinetics during SARS-CoV-2 human challenge

February 1, 2022. This preprint study that recruited 36 volunteers who did not have previous COVID-19 infection or vaccination were inoculated intranasally with 10 TCID₅₀, a wild-type virus (SARS-CoV-2). Eighteen volunteers became infected with a viral load rising steeply and peaking at five days post-inoculation. Virus was first detected in the throat but rose to significantly higher levels in the nose, and viable virus was on average recoverable from the nose up to 10 days post-inoculation. Overall, there were no serious adverse events. Mild-to-

moderate symptoms were reported by 16 infected individuals, beginning two to four days post-inoculation. The findings from this first SARS-CoV-2 human challenge study suggests that no serious safety signals were detected, and the detailed characteristics of early infection and their public health implications were shown. [Article](#).

Health Equity and Vulnerable Populations

Nature: The impact of the COVID-19 pandemic on oral health inequalities and access to oral health care in England

January 28, 2022. According to a literature review and analysis of Public Health England data, people living in deprived areas of England had less access primary dental care than people living in less deprived areas following the resumption of care services in June 2020. The study also reported that the cessation of community oral health improvement programs and the dramatic decline of hospital dental services was associated with the COVID-19 pandemic primarily impacting socially disadvantaged groups (e.g., children and older adults). [Article](#).

Health Systems Impact

British Medical Journal: Health care use in children and adolescents for six months after COVID-19

January 17, 2022. This Norwegian study included participants aged one to 19 years (n=706,885) who were tested or not tested for SARS-CoV-2 from August 1, 2020 to February 1, 2021. Children and adolescents with COVID-19 had limited impact on health care services (i.e., primary care including general practitioner and emergency ward, and specialist care including both outpatient and inpatient care) in Norway. Preschool aged children might take longer to recover (three to six months) than primary or secondary school students (one to three months), due to respiratory conditions. [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 January 2022, contributing Canadian evidence-synthesis teams have produced five newly completed evidence syntheses. From the COVID-END taxonomy, these syntheses focus on public health measures (n=4) and clinical management (n=1). Please visit [Canadian Spotlight 13.2](#) 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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