

*The Newfoundland & Labrador Centre for Applied Health Research (NLCAHR) sends this COVID-19 e-bulletin to our health system stakeholders on a bi-weekly basis. This e-bulletin includes results from recent searches of health evidence and grey literature on the pandemic under specific subject headings, highlighting those findings considered to be of particular relevance to you.*

*We welcome your [feedback and suggestions](#).*

*To subscribe to this e-bulletin, please email: [Rochelle.Baker@med.mun.ca](mailto:Rochelle.Baker@med.mun.ca)*

You can find all NLCAHR e-bulletins and COVID-19 *Quick Response Reports* [online here](#).

Articles about **COVID-19 VARIANTS** are **highlighted in RED** below.

## CLINICAL PRESENTATION AND BIOLOGY

**Journal of the American Medical Association (JAMA) Network Open:** [Assessment of the Frequency and Variety of Persistent Symptoms among Patients with COVID-19: A Systematic Review](#) (May 26, 2021)

"In this systematic review of 45 studies including 9,751 participants with COVID-19, the median proportion of individuals who experienced at least one persistent symptom was 73%; symptoms occurring most frequently included shortness of breath or dyspnea, fatigue or exhaustion, and sleep disorders or insomnia. However, the studies were highly heterogeneous and needed longer follow-up and more standardized designs." [LINK](#)

**BBC: Black fungus:** [India reports nearly 9,000 cases of rare infection](#) (May 23, 2021)

- "India has reported more than 8,800 cases of deadly "black fungus" in a growing epidemic of the disease.
- The normally rare infection, called mucormycosis, has a mortality rate of 50%, with some only saved by removing an eye.
- In recent months, India saw thousands of cases affecting recovered and recovering COVID-19 patients.
- Doctors say there is a link with the steroids used to treat COVID. Diabetics are at particular risk.
- Doctors have told the BBC that it [the infection] seems to strike 12 to 18 days after recovery from COVID."

[LINK](#)

**Nature:** [SARS-CoV-2 infection induces long-lived bone marrow plasma cells in humans](#) (May 26, 2021)

"Long-lived bone marrow plasma cells (BMPCs) are a persistent and essential source of protective antibodies. Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) convalescent individuals have a significantly lower risk of reinfection. Nonetheless, it has been reported that anti-SARS-CoV-2 serum antibodies experience rapid

decay in the first few months after infection, raising concerns that long-lived BMPCs may not be generated and humoral immunity against this virus may be short-lived. ...Overall, [the authors of this study] show that SARS-CoV-2 infection induces a robust antigen-specific, long-lived humoral immune response in humans." [LINK](#)

**The Lancet: [SARS-CoV-2 infection rates of antibody-positive compared with antibody-negative healthcare workers in England: a large, multi-centre, prospective cohort study \(SIREN\)](#) (April 17, 2021)**

"A previous history of SARS-CoV-2 infection was associated with an 84% lower risk of infection, with median protective effect observed 7 months following primary infection. This time period is the minimum probable effect because seroconversions were not included. This study shows that previous infection with SARS-CoV-2 induces effective immunity to future infections in most individuals." [LINK](#)

**The Lancet: [Assessment of protection against reinfection with SARS-CoV-2 among 4 million PCR-tested individuals in Denmark in 2020: a population-level observational study](#) (March 27, 2021)**

"In this population-level observational study, the authors collected individual-level data on patients who had been tested in Denmark in 2020 from the Danish Microbiology Database and analyzed infection rates during the second surge of the COVID-19 epidemic, from September 1 to December 31, 2020, by comparison of infection rates between individuals with positive and negative PCR tests during the first surge (March to May, 2020). The authors found that protection against repeat SARS-CoV-2 infection is robust and detectable in the majority of individuals, protecting 80% or more of the naturally infected population who are younger than 65 years against reinfections within the observation period. However, [they] observed that individuals aged 65 years and older had less than 50% protection against repeat SARS-CoV-2 infection. Furthermore, data indicate that vaccination of previously-infected individuals should be done because natural protection cannot be relied on." [LINK](#)

**Nature: [What scientists know about new, fast-spreading coronavirus variants](#) (May 24, 2021)**

"Key questions remain about how quickly B.1.617 variants can spread, their potential to evade immunity and how they might affect the course of the pandemic." [LINK](#)

## HEALTH EQUITY AND ETHICS (VULNERABLE GROUPS)

**The Lancet: [Canada is no global health leader on COVID-19 vaccine equity](#) (May 15, 2021)**

"In the 2018 Lancet Series on Canada's global leadership on health, the authors... concluded that "the world, more than ever, needs Canada's leadership on health." Unfortunately, Canadian leadership on vaccine equity was an early casualty of COVID-19. A year into the pandemic, Canada's international image is that of a country who secured over ten doses of scarce vaccine per capita... Canada has not responded to calls for immediate donations for healthcare workers and the most susceptible abroad; despite releasing official timelines outlining when Canada will have more doses than it needs, Canada has not yet announced a corresponding timeline for sharing its excess supply." [LINK](#)

**British Medical Journal Open: [Risk factors for severity of COVID-19: a rapid review to inform vaccine prioritization in Canada](#) (May 13, 2021)**

To provide timely, evidence-informed guidance on pandemic vaccine prioritization, the National Advisory Committee on Immunization, using standardized frameworks, conducted a rigorous and expedited synthesis of the available evidence on population groups that are at increased risk of severe illness and mortality as a result of COVID-19. One of the evidence informed tools that made up these frameworks is the 'Equity Matrix' which has adapted the PROGRESS-Plus model of health determinants and outcomes to ensure that important vaccine-specific equity factors are explicitly included. The resulting 'P<sup>2</sup>ROGRESS And Other Factors' framework includes a range of biological and social factors that likely contribute to inequities in health outcomes across population groups (e.g., pre-existing disease/condition, place/state of residence). The authors then conducted a rapid review to determine the magnitude of association between 'P<sup>2</sup>ROGRESS And Other Factors' and the risk of severe outcomes of COVID-19." [LINK](#)

**Journal of Child & Adolescent Trauma: [The Intersection and Dynamics between COVID-19, Health Disparities, and Adverse Childhood Experiences](#)** (May 15, 2021)

“When observing both case rates and fatality rates of the virus [the authors note] it has the potential to create a new series of long-term health conditions that will disproportionately affect marginalized communities. A foundational first and critical step of adopting a trauma-informed approach will help lead to system change, advance equity, and create a setting of mutuality and empowerment for patients.” [LINK](#)

**Clinical Medicine Insights- Cardiology: [SARS-CoV-2 and Pre-existing Vascular Diseases: Guilt by Association?](#)** (May 16, 2021)

“[The authors] aim to assess if cardiovascular comorbidities and diabetes mellitus render an individual at risk for COVID-19 and mortality, refer to the thrombotic complications and endothelial dysfunctions caused by the virus, identify the course of pre-existing vascular diseases in COVID-19 patients, and describe their prognosis.” [LINK](#)

**The Journal of Nutrition: [The Role of Nutrition in COVID-19 Susceptibility and Severity of Disease: A Systematic Review](#)** (May 19, 2021)

“There may be a potential for nutritional interventions to reduce an individual's susceptibility to infection, progression to symptoms, and likelihood of severe disease (including the use of high- or very-high-dose supplements enterally\* or intravenously as nutraceuticals). However, nutrition information has long been miscommunicated to the public, and nutrition-related myths on COVID-19 protection and treatment are widely prevalent in this pandemic. To this end, we have conducted a comprehensive systematic review of journal articles, preprints, and clinical trial registries to provide a robust evidence base of what is currently known and what gaps remain.” \* *Definition: Within, or by way of, the intestine or gastrointestinal tract.* [LINK](#)

**Scandinavian Journal of Work, Environment & Health: [Return-to-work, disabilities and occupational health in the age of COVID-19](#)** (May 18, 2021)

“The SARS-CoV-2 pandemic creates new challenges for occupational health, shifting attention away from return-to-work after health problems to resuming work during an outbreak, dealing with lockdown, and taking special account of workers with vulnerabilities.” [LINK](#)

**Journal of Medical Ethics: [Ethics of digital contact-tracing wearables](#)** (May 14, 2021)

“We propose that wearables are a ‘value add’ that should be developed in parallel to contact tracing apps in order to maximize apps’ benefits and reduce health inequities. We further argue that wearables may make feasible digital contact tracing mandates for entry into public spaces, and that under the right conditions these mandates can be well justified.” [LINK](#)

## HEALTH SYSTEM ADMINISTRATION

**Behavioural, Environmental, Social and Systems Interventions (for pandemic preparedness): [BESSI Collaboration Webinars](#)** (Fall 2020 – Ongoing)

This webinar series addresses research and evidence on behavioural, environmental, social, and systems interventions (BESSI) to reduce COVID-19 transmission, led by a group of world-experts in the field including [Susan Michie](#), [Jeremy Grimshaw](#), [Paul Glasziou](#) and [Mareike Schomerus](#). For more information: [The 7 BESSI Principles](#)

[LINK](#)

**Journal of the American Medical Association: [Using Health Services Research to Address the Unique Challenges of the COVID-19 Pandemic](#) (May 21, 2021)**

"There are numerous opportunities to answer the many questions that remain about how COVID-19 has influenced surgical care. In addition to the important topics of using collaborative outcomes data and studying topics of surgical health inequities and telehealth, researchers can also use health services methods to answer remaining questions critical to the field. For example, by leveraging the natural experiment of the pause in elective surgeries, we can examine the factors associated with effectiveness of surgical vs. nonsurgical treatments on a population health level. In addition, it is also critical that we strive to not only study how the pandemic has affected care and outcomes but also move the field forward by implementing evidence-based interventions to improve health." [LINK](#)

**National Academy of Medicine: [Public Health COVID-19 Impact Assessment: Lessons Learned and Compelling Needs](#) (April 17, 2021)**

"COVID-19 has reaffirmed a call to action, demonstrating the centrality of robust public health systems to the health and wellbeing of society. As the U.S. prepares for the post-pandemic era, it will be imperative for policymakers to not only develop mechanisms to improve preparedness for future public health emergencies, but also to address the chronic neglect of foundational public health capabilities in communities across the country. Priority actions and policy considerations for the public health sector include: 1. Transforming public health funding; 2. Affirming the mandate for public health; 3. Promoting structural alignment across the public health sector; 4. Investing in leadership and workforce development; 5. Modernizing data and IT capabilities; and 6. Supporting partnerships and community engagement." [LINK](#)

**British Medical Journal Open: [Addressing the psychological impact of COVID-19 on healthcare workers: learning from a systematic review of early interventions for frontline responders](#) (May 21, 2021)**

"This review aimed to (1) identify and summarize recent early psychological intervention programs that were administered to prevent or minimize psychological harm in frontline responders, through a systematic review; and (2) assess the potential suitability of implementing these interventions within the healthcare workforce using a healthcare service evaluation framework." [LINK](#)

**The Conversation: [Three lessons the COVID-19 pandemic can teach us about preventing chronic diseases](#) (May 18, 2021)**

"While the pandemic has focused the world's attention on how to prevent infectious disease, many of the lessons learned from COVID-19 prevention can also be applied to chronic disease prevention. Here are three: i. Address the inequities; ii. A one-size-fits-all approach doesn't work; iii. We can (and must) get research into practice faster." [LINK](#)

**The AHS Scientific Advisory Group: [Public Health and Health Systems Impacts of SARS-CoV-2 Variants of Concern \(VOC\)](#) (May 21, 2021)**

"Public health measures in the community as currently practiced may not be as effective for VOC as for the wild-type virus, though it is possible that some of this is due to poor compliance with public health measures given the public fatigue with pandemic-related measures. Increased transmissibility of VOC warrant more stringent measures in jurisdictions with VOC outbreaks, particularly where there is crowding, less than optimal distancing, ventilation and suboptimal PPE practices and careful attention to compliance with public health measures. Ongoing obstacles to vaccination must be addressed, including vaccine hesitancy, and structural barriers such as physical access to vaccination sites." [LINK](#)

**Science Table: [COVID-19 Hospitalizations, ICU Admissions and Deaths Associated with the New Variants of Concern](#) (May 29, 2021)**

"A meta-analysis including the Ontario cohort study and additional cohort studies in the United Kingdom and Denmark showed that people infected with VOCs had a 63% higher risk of hospitalization (RR 1.63, 95% CI 1.44 to

1.83), a doubling of the risk of ICU admission (RR 2.03, 95% CI 1.69 to 2.45), and a 56% higher risk of all-cause death (RR 1.56, 95% CI 1.30 to 1.87). Estimates observed in different studies and regions were completely consistent, and the B.1.1.7 variant was dominant in all three jurisdictions over the study periods." [LINK](#)

## INFECTION PREVENTION AND CONTROL

**Nature:** [Controlling COVID-19 via test-trace-quarantine](#) (May 20, 2021)

"This observational evidence for a diverse range of interventions being required for epidemic control is consistent with our finding that each aspect of the response is roughly equally important: shortfalls in one area (e.g., low rates of testing or mask usage) may be partly offset by high performance in another (e.g., high rates of contact tracing). However, these examples suggest that epidemic control may be only fleeting unless performance is high in all three areas (testing, tracing, and either mask usage or mobility restrictions)." [LINK](#)

**National Collaborating Centre for Environmental Health:** [Indoor CO<sub>2</sub> Sensors for COVID-19 Risk Mitigation: Current Guidance and Limitations](#) (May 18, 2021)

"Throughout the pandemic, building managers and the public have been asked to ventilate their spaces adequately through HVAC adjustments, opening windows, installing local exhaust, etc. Without the assistance of an HVAC professional, it can be very difficult for building occupants to know whether ventilation objectives have been met. CO<sub>2</sub> monitoring is attractive in this sense: monitors are inexpensive and widely available, and they makes indoor air quality visible, which can help to identify poorly ventilated spaces for remediation." [LINK](#)

**Wired:** [The 60-year-old scientific screw-up that helped COVID kill](#) (May 13, 2021)

"The distinction between droplet and airborne transmission has enormous consequences. To combat droplets, a leading precaution is to wash hands frequently with soap and water. To fight infectious aerosols, the air itself is the enemy. In hospitals, that means expensive isolation wards and N-95 masks for all medical staff." [LINK](#)

**Los Angeles Times:** [The evidence is clear — COVID lockdowns saved lives without harming economies](#) (May 19, 2021)

"The published data point to two related conclusions: First, lockdowns played a significant role in reducing infection rates. Second, they had a very modest role in producing economic damage. Conversely, lifting lockdowns has done very little to spur economic resurgence." (See also: [Yes, lockdowns were good](#)) [LINK](#)

**The Globe and Mail:** [Why it's time to stop wiping down groceries and other COVID-19 cleaning measures that don't reduce transmission risk](#) (May 25, 2021)

"Across Canada, individuals and institutions are maintaining the same deep cleaning and product quarantining protocols that came to be expected at the start of the pandemic. But experts say that it's time to move past "hygiene theatre" – or cleaning behaviours that give people a sense of security and protection, but are actually unlikely to reduce the likelihood of COVID-19 transmission." [LINK](#)

## TREATMENT

**Nature:** [‘It’s a minefield’: COVID vaccine safety poses unique communication challenge](#) (May 21, 2021)

"Public health specialists must always strike a careful balance when communicating about vaccine safety, but the enormous scale of the COVID-19 vaccine roll-out means that safety data are evolving fast — so researchers are scrambling to share developments transparently and clearly with the public. And they worry that with the rise of anti-vaccination movements, their messages might be used or interpreted to fuel misinformation campaigns." [LINK](#)

**Nature:** [Mix-and-match COVID vaccines trigger potent immune response](#) (May 19, 2021)

"Preliminary results from a trial of more than 600 people are the first to show the benefits of combining different vaccines. Vaccinating people with both the Oxford–AstraZeneca and Pfizer–BioNTech COVID-19 vaccines produces a potent immune response against the virus SARS-CoV-2, researchers conducting a study in Spain have found. A UK trial of a similar strategy reported safety data last week, and is expected to deliver further findings on immune responses soon." [LINK](#)

**Research Square:** [Ivermectin for Prevention and Treatment of COVID-19 Infection: a Systematic Review and Meta-analysis](#) (May 21, 2021)

"Low to moderate-certainty evidence suggests reductions in COVID-19 deaths and infections may be possible by using Ivermectin. Employing Ivermectin early on may reduce the number of people progressing to severe disease. The apparent safety and low cost suggest that Ivermectin could have an impact on the SARS-CoV-2 pandemic globally." [LINK](#)

**ABC News (Australia):** [World-first COVID-19 antiviral therapy developed in Brisbane and US targets virus in the body](#) (May 17, 2021)

"Key points: 1) Gene-silencing RNA technology is used to destroy the COVID-19 virus genome directly and stops the virus from replicating; 2) The treatment could be available as early as 2023, depending on the next phase of clinical trials; 3) The research has been [published in Molecular Therapy](#)." [LINK](#)

**CBC:** [COVID vaccine made by Canada's Medicago shows promising results in Phase 2 clinical trial](#) (May 18, 2021)

"Canada's first homegrown vaccine for COVID-19 is showing promising antibody results in hundreds of participants in a Phase 2 trial and could be ready for a final authorization request this summer, the drug maker says." [LINK](#)

## MENTAL HEALTH & WELLNESS

**Mental Health Research Canada:** [One-third of Canadians report their mental health is affecting their ability to function, with social and family life being the hardest hit](#) (May 2021)

"Of these Canadians still in school or in the workforce, 8% noted losing school or work days to mental health and 30% noted their productivity is significantly impaired. These are some of the key findings of MHRC's sixth poll in our ongoing series of polls on "Mental Health in Crisis: How COVID-19 Is Impacting Canadians." The poll captures Canadians' perceptions of their levels of anxiety and depression in order to identify and evaluate the factors that influence mental health."

- See also: [Mental Health During COVID-19 Outbreak: Poll #6 –Full Report](#) and
- [Mental Health During COVID-19 Outbreak: Poll #6 –Abridged Report](#)

[LINK](#)

**Children First Canada:** [Kids are in Crisis – Canada's Top Advocates and Experts Unite to Declare #codePINK](#) (May 19, 2021)

"Children's hospitals report 100% increase of mental-health related admissions. Canada's top children's hospitals and advocacy organizations are uniting to declare #codePINK and raise the alarm about the current mental and health crisis facing children and young people across the country." [LINK](#)

**International Journal of Mental Health Nursing:** [COVID-19 and family violence: Is this a perfect storm?](#) (May 18, 2021)

"This paper discusses and provides evidence of disaster-related vulnerability of and violence towards specific groups of people. We argue that the COVID-19 pandemic presents the 'perfect storm' for family violence, where a set of rare circumstances combine, resulting in a significant aggravation of the resulting event." [LINK](#)

**Public Library of Science One: [Supporting families to protect child health: Parenting quality and household needs during the COVID-19 pandemic](#)** (May 24, 2021)

“We provide observational mixed-methods data on sociodemographic- and pandemic-linked household stressors associated with parenting quality for 1.5- to 8-year-old children. We incorporate qualitative data on first-person parent perspectives to understand the unmet needs of caregivers during these unprecedented global events. The goal of this work is to inform next steps in identifying the specific strengths and needs of families during the pandemic and its aftermath to protect children from negative health consequences of pandemic-linked stress.”

[LINK](#)

**Parents United: [#FreshAir Education Pack](#)** (ongoing)

“A principle objective of #FreshAirSchools is to equip school stakeholders with educational material which: 1) describes the importance of #FreshAir in limiting the spread of COVID-19; 2) gives simple advice on creating #FreshAir classrooms; and 3) showcases engaging, accessible and reliable #FreshAir resources, which are publicly available, free of charge.” [LINK](#)

**Scientific Reports: [Global prevalence of mental health issues among the general population during the coronavirus disease-2019 pandemic: a systematic review and meta-analysis](#)** (May 13, 2021)

“We have performed a rigorous systematic review and meta-analysis of all available observational studies to shed light on the effects of the global COVID-19 pandemic on mental health problems among the general population. We aimed to: (1) summarize the prevalence of mental health problems nationally and globally, and (2) describe the prevalence of mental health problems by each WHO region, World Bank income group, and the global index and economic indices responses to the COVID-19 pandemic.” [LINK](#)

**Respiratory Medicine: [Clinical outcomes and quality of life of COVID-19 survivors: A follow-up of 3 months post hospital discharge](#)** (May 12, 2021)

“The primary aims of this study were to assess the impact of COVID-19 on health-related quality of life three months after hospital discharge and to investigate individual characteristics and disease severity markers associated with worsening in health-related quality of life at three months after discharge in adults admitted for COVID-19 to a secondary hospital. Secondarily, we sought to screen for anxiety and depressive symptoms and assess important clinical outcomes (mortality, readmission, dyspnea intensity and need for home oxygen supplementation or dialysis) over this 3-month period follow-up.” [LINK](#)

This **COVID-19 e-bulletin** was prepared by researchers at the Newfoundland & Labrador Centre for Applied Health Research (Kazeem Adefemi, Waseem Abu Ashour, Wendy Lasisi, and Pablo Navarro) to summarize research evidence and grey literature produced by a variety of sources that were accessed online in May of 2021.

Given the rapidly changing nature of the coronavirus pandemic, some of the references included in this e-bulletin may quickly become out-of-date.

We further caution readers that researchers at the Newfoundland & Labrador Centre for Applied Health Research are not experts on infectious diseases and are relaying work produced by others.

This report has been produced quickly and it is not exhaustive, nor have the included studies been critically appraised.

**QUESTIONS/ SUGGESTIONS? CONTACT:**

Newfoundland & Labrador Centre for  
**APPLIED  
HEALTH  
RESEARCH**  
www.nlcahr.mun.ca

**The Newfoundland & Labrador Centre for Applied Health Research**  
95 Bonaventure Avenue, Suite 300  
St. John's, NL A1B 2X5  
[nlcahr@mun.ca](mailto:nlcahr@mun.ca)  
[www.nlcahr.mun.ca](http://www.nlcahr.mun.ca)