

*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 & BIOLOGY

**Nature:** [How the Delta variant achieves its ultrafast spread](#) (July 21, 2021)

"People who had recovered from COVID-19, including those no longer reporting symptoms, exhibited significant cognitive deficits versus controls when controlling for age, gender, education level, income, racial-ethnic group, pre-existing medical disorders, tiredness, depression and anxiety. The deficits were of substantial effect size for people who had been hospitalised (N = 192), but also for non-hospitalised cases who had biological confirmation of COVID-19 infection (N = 326). Analysing markers of premorbid intelligence did not support these differences being present prior to infection. Finer grained analysis of performance across sub-tests supported the hypothesis that COVID-19 has a multi-domain impact on human cognition." [LINK](#)

- **Related news:** [CDC document warns Delta variant appears to spread as easily as chickenpox and cause more severe infection](#) (CNN). "Vaccines prevent more than 90% of severe disease, but may be less effective at preventing infection or transmission," it reads. "Therefore, more breakthrough and more community spread despite vaccination." It says vaccines reduce the risk of severe disease or death 10-fold and reduce the risk of infection three-fold."
- **Related news:** [Why the delta variant is spreading COVID-19 so quickly — and what that means for Canada](#) (CBC). "The highly contagious variant, which was first discovered in India in late 2020, has spread around the world and now accounts for the majority of cases in Canada and various other countries"

**bioRxiv:** [SARS-CoV-2 Lambda variant exhibits higher infectivity and immune resistance](#) (July 28, 2021)

"In this study, we demonstrated that three mutations, the RSYLTGPD246-253N, L452Q and F490S mutations, respectively confer resistance to the vaccine-induced antiviral immunity. Additionally, the T76I and L452Q mutations contribute to enhanced viral infectivity. Our data suggest that there are at least two virological features on the Lambda variant: increasing viral infectivity (by the T76I and L452Q mutations) and exhibiting resistance to antiviral immunity (by the RSYLTGPD246-253N, L452Q and F490S mutations)." [LINK](#)

- **Related news:** ["Delta infections among vaccinated likely contagious; Lambda variant shows vaccine resistance in lab"](#) (Reuters)

**Infection:** [Long COVID, a comprehensive systematic scoping review](#) (July 28, 2021)

“Our focus here is to synthesize what is known from literature about the persistent COVID-19, its signs and symptoms, its pathophysiology, and the current management recommendations. We also wish to highlight the gaps in our knowledge regarding ‘long COVID’ syndrome.” [LINK](#)

**Journal of the Royal Society of Medicine:** [Symptoms, complications and management of long COVID: a review](#) (July 15, 2021)

“Patients with ‘long COVID’ experience a wide range of physical and mental/psychological symptoms. Pooled prevalence data showed the 10 most prevalent reported symptoms were fatigue, shortness of breath, muscle pain, joint pain, headache, cough, chest pain, altered smell, altered taste and diarrhoea. Other common symptoms were cognitive impairment, memory loss, anxiety and sleep disorders. Beyond symptoms and complications, people with long COVID often reported impaired quality of life, mental health and employment issues. These individuals may require multidisciplinary care involving the long-term monitoring of symptoms, to identify potential complications, physical rehabilitation, mental health and social services support. Resilient healthcare systems are needed to ensure efficient and effective responses to future health challenges.” [LINK](#)

**E-Clinical Medicine:** [Cognitive deficits in people who have recovered from COVID-19](#) (July 22, 2021)

“People who had recovered from COVID-19, including those no longer reporting symptoms, exhibited significant cognitive deficits versus controls when controlling for age, gender, education level, income, racial-ethnic group, pre-existing medical disorders, tiredness, depression and anxiety. The deficits were of substantial effect size for people who had been hospitalised (N = 192), but also for non-hospitalised cases who had biological confirmation of COVID-19 infection (N = 326). Analysing markers of premorbid intelligence did not support these differences being present prior to infection. Finer grained analysis of performance across sub-tests supported the hypothesis that COVID-19 has a multi-domain impact on human cognition.” [LINK](#)

**Deutsche Welle:** [COVID: Hidden long-term harm from undetected cases](#) (July 16, 2021)

“A German [study](#) says 40% of people infected with COVID don't know it. And long COVID symptoms may go unidentified. DW spoke to study author, Philipp Will.” [LINK](#)

## HEALTH EQUITY AND ETHICS (VULNERABLE GROUPS)

**Vaccine:** [Enablers and barriers to COVID-19 vaccine uptake: An international study of perceptions and intentions](#) (July 23, 2021)

“The development of COVID-19 vaccines is occurring at unprecedented speeds, but require high coverage rates to be successful. This research examines individuals’ psychological beliefs that may act as enablers and barriers to vaccination intentions. Using the health beliefs model as a guide to our conceptual framework, we explore factors influencing vaccine hesitancy and health beliefs regarding risks and severity of the disease, along with individual variables such as income, age, religion, altruism, and collectivism.” [LINK](#)

**STAT News:** [Covid-19 kept families and caregivers out of hospitals. Some doctors think that shouldn't happen again](#) (July 20, 2021)

“Even as most businesses in the U.S. have been removing Covid mask mandates and social distancing policies, one major exception continues to be hospitals, which have been more cautious in lifting restrictions. At the start of the pandemic, in the face of a new virus and the many unknowns that came with it, hospitals rushed to implement rules to keep patients as well as hospital staff safe, including barring visitors from entering altogether. Now, with the nature of the pandemic changing in the U.S. and increasing vaccination rates among the general population, patients and many physicians say the more restrictive ongoing limits, like only allowing one visitor, are no longer justified and may actually be harming patients’ mental health and leading to worse outcomes.” [LINK](#)

**Dementia:** [Resilience and supporting people living with dementia during the time of COVID-19; A qualitative study](#) (August 4, 2021)

"The aim of this study was to explore the different resilience factors reported by people living with dementia and their unpaid carers, in response to sudden changes in care support and lifestyle during the COVID-19 pandemic. Based on current supporting evidence, this research will consider systemic, social and individual contextual factors of resilience, whilst discounting theories of individuals' personality traits. As part of this research, the development of a new model of resilience was planned, which considers resilience in the face of both dementia and COVID-19 challenges. The rationale for this study is to broaden our understanding of resilience within this cohort and to identify factors that may aid future support planning." [LINK](#)

## HEALTH SYSTEM ADMINISTRATION

**Public Health Ontario:** [COVID-19 Delta: Risk Assessment and Implications for Public Health Measures](#) (July 22, 2021)

"The herd immunity threshold for Delta is higher than for Alpha. Essentially, everyone who is eligible for COVID-19 vaccination and can be vaccinated should receive 2 doses. This has important implications for vaccination program targets in Ontario. Public Health Agency of Canada modelling recommends very high two-dose coverage for full reopening, such as increasing vaccination coverage target to at least 83% of the population that is  $\geq 12$  years of age; thus, a high (90%) vaccination coverage target is recommended. Based on projected approvals for vaccines for those  $< 12$  years old by approximately September 2021, 34 planning should start for rapid roll-out of vaccine in younger age groups in the fall to increase overall coverage in the population before winter." [LINK](#)

**PLOS ONE:** [Impact of essential workers in the context of social distancing for epidemic control](#) (August 04, 2021)

"We find in all three models that essential workers are at substantially elevated risk of infection compared to the rest of the population, as has been documented, and that increasing the numbers of essential workers necessitates the imposition of more stringent controls on contacts among the rest of the population to manage the pandemic. Importantly, however, different archetypes of essential workers differ in both their individual probability of infection and impact on the broader pandemic dynamics, highlighting the need to understand and target intervention for the specific risks faced by different groups of essential workers. These findings, especially in light of the massive human costs of the current COVID-19 pandemic, indicate that contingency plans for future epidemics should account for the impacts of essential workers on disease spread." [LINK](#)

**JAMA:** [Variation of National and International Guidelines on Respiratory Protection for Health Care Professionals During the COVID-19 Pandemic](#) (Aug 04, 2021)

"In this systematic review, we observed 4 strategies regarding the use of respirators: (1) systematic: recommended for care of COVID-19 patients, as in German guidelines; (2) flexible: recommended with use of MFs in the absence of available respirators, as in US and ECDC guidelines; (3) unit based, as in UK guidelines; and (4) recommended exclusively during AGPs, as in French and WHO guidelines. These discrepancies may reflect controversies related to SARS-CoV-2 transmission routes." [LINK](#)

**Journal of Hospital Infection:** [Health care-associated infection impact with bioaerosol treatment and COVID-19 mitigation measures](#) (July 22, 2021)

"The addition of air-disinfection technology and COVID-19 mitigation measures reduced airborne ultrafine particles, altered hospital bioburden, and reduced health care-associated infections from 11.9 to 6.6 (per 1,000 patient days) and from 6.6 to 1.0 (per 1,000 patient days) respectively ( $P < 0.0001$ ,  $R^2 = 0.86$ ). No single technology, tool, or procedure will eliminate health care-associated infections but the addition of a ubiquitous facility-wide engineering solution at limited expense and with no alteration in patient, visitor, or staff traffic or work flow patterns reduced infections by 45%." [LINK](#)

**PLOS ONE: [Burden of post-COVID-19 syndrome and implications for healthcare service planning: A population-based cohort study](#)** (July 12, 2021)

"In this population-based cohort study, we found that one in four people had not fully recovered within six to eight months after SARS-CoV-2 infection. More than half of the participants in our study reported symptoms of fatigue. One fourth suffered from some degree of dyspnea or had symptoms of depression. Overall, more than two thirds had not recovered or experienced fatigue, dyspnea or depression at the time of follow-up, with only partial overlap between these outcomes. While not all of these outcomes are necessarily attributable to COVID-19, our study showed that an important proportion of infected individuals may develop post-COVID-19 syndrome and that a wide range of healthcare services may be required to support their needs." [LINK](#)

## INFECTION PREVENTION AND CONTROL

**Centers for Disease Control and Prevention: [Guidance for Implementing COVID-19 Prevention Strategies in the Context of Varying Community Transmission Levels and Vaccination Coverage](#)** (July 27, 2021)

"Given the spread of the highly transmissible Delta variant, local decision-makers should assess the following factors to inform the need for layered prevention strategies across a range of settings: level of SARS-CoV-2 community transmission, health system capacity, vaccination coverage, capacity for early detection of increases in COVID-19 cases, and populations at risk for severe outcomes from COVID-19." [LINK](#)

**Royal Academy of Engineering: [Improved ventilation essential to safe use of buildings and public spaces, say leading engineers](#)** (July 16, 2021)

"In a report commissioned by the Government Chief Scientific Adviser, Sir Patrick Vallance, leading engineers say the importance of ventilation is too often neglected, and that the Covid-19 crisis has revealed flaws in the way in which we design, manage and operate buildings. Unless they are addressed, these could disrupt management of this and future pandemics, impose high financial and health costs on society and constrain our ability to address other challenges such as climate change." [LINK](#)

**Intelligencer: [The U.K.'s Delta Surge Is Collapsing. Will Ours?](#)** (August 01, 2021)

"The second is that, in those countries with roughly comparable vaccination rates to the U.S., the surge has already peaked and begun a rapid decline, suggesting that such a turn here is possible — or even quite likely — within a few weeks. In the U.K., the Delta surge began in mid-May and peaked in mid-July; in the Netherlands, it began at the beginning of July and has already peaked. If the U.S. followed the British trajectory, our Delta surge, which began about a month ago, would peak by September 1; if it followed the Dutch course, even sooner, perhaps even imminently." [LINK](#)

## TREATMENT

**CBC: [Canada was an outlier on mixing COVID-19 vaccines, but more countries now following suit](#)** (July 29, 2021)

"Canada became an outlier in the global fight against COVID-19 by allowing residents to mix various coronavirus vaccines. But while the approach, in place for more than a month, has been controversial — prompting concern among some Canadians, and preventing people from travelling abroad to certain destinations — it's now increasingly being explored by other countries. Bahrain, Bhutan, Indonesia, Italy, Thailand, the United Arab Emirates, Uruguay and Vietnam are among those now exploring or actively pursuing mixed-dosing strategies." [LINK](#)

**JAMA:** [Study Suggests Lasting Immunity After COVID-19, With a Big Boost From Vaccination](#) (August 4, 2021)

“After an infection with SARS-CoV-2, most people—even those with mild infections—appear to have some protection against the virus for at least a year, a recent follow-up [study](#) of recovered patients published in Nature suggests. What’s more, this and other research demonstrates that vaccinating these individuals substantially enhances their immune response and confers strong resistance against variants of concern, including the B.1.617.2 (delta) variant.” [LINK](#)

**Haaretz:** [In a World First, Bennett Announces Third COVID Jab Campaign for Israelis Over 60](#) (July 29, 2021)

“Prime Minister Naftali Bennett announced on Thursday a world-first vaccination drive to inoculate people over 60 with a third COVID vaccine dose, starting Sunday.” [LINK](#)

**JAMA:** [Myocarditis and Pericarditis After Vaccination for COVID-19](#) (August 4, 2021)

“Two distinct self-limited syndromes, myocarditis and pericarditis, were observed after COVID-19 vaccination. Myocarditis developed rapidly in younger patients, mostly after the second vaccination. Pericarditis affected older patients later, after either the first or second dose.” [LINK](#)

**Cochrane Library:** [Ivermectin for preventing and treating COVID-19](#) (July 29, 2021)

“Based on the current very low- to low-certainty evidence, we are uncertain about the efficacy and safety of ivermectin used to treat or prevent COVID-19. The completed studies are small and few are considered high quality. Several studies are underway that may produce clearer answers in review updates. Overall, the reliable evidence available does not support the use ivermectin for treatment or prevention of COVID-19 outside of well-designed randomized trials.” [LINK](#)

**Scientific Reports:** [Repeated cross-sectional analysis of hydroxychloroquine deimplementation in the AHA COVID-19 CVD Registry](#) (July 23, 2021)

“The rate and hospital-level uniformity in deimplementation of this ineffective therapy for COVID-19 reflects a rapid response to evolving clinical information and further study may offer strategies to inform deimplementation of ineffective clinical care.” [LINK](#)

## MENTAL HEALTH & WELLNESS

**Prehospital and Disaster Medicine:** [Effects of the COVID-19 Pandemic on the Intimate Partner Violence and Sexual Function: A Systematic Review](#) (July 27, 2021)

“The present study was to investigate the relationship between the COVID-19 pandemic with sexual function and intimate partner violence as a systematic review of the world.” [LINK](#)

**British Medical Journal Supportive & Palliative Care:** [Anxiety during the COVID-19 pandemic in hospital staff: systematic review plus meta-analysis](#) (July 26, 2021)

“This study was conducted to systematically review the existing literature examining the prevalence of anxiety among hospital staff and identifying the contributing factors to address the complications of this disorder and develop effective programmes for reducing the complications of this mental health problem.” [LINK](#)

**Brain, Behavior, and Immunity:** [Psychiatric and neuropsychiatric sequelae of COVID-19 – a systematic review](#) (July 30, 2021)

“In the current systematic review, the aim was to provide an overview of the current evidence of psychiatric complications in long-COVID after primary symptoms of acute COVID-19 have ceased. Furthermore, we aimed to identify risk factors and molecular mechanisms which could give rise to psychiatric symptoms.” [LINK](#)

**Current Obesity Reports:** [Social Isolation and Loneliness During the COVID-19 Pandemic: Impact on Weight](#) (July 23, 2021)

“This narrative review will examine the existing literature on the relationships between social isolation, loneliness, mental health, and weight as they relate to the COVID-19 pandemic.” [LINK](#)

**BioMed Central Family Practice:** [Management of COVID-19 ICU-survivors in primary care: - a narrative review](#) (July 24, 2021)

“An interdisciplinary authorship team participated in a narrative literature review to identify key issues in managing COVID-19 ICU-survivors in primary care. The aim of this perspective paper is to synthesize important literature to understand and manage sequelae of critical illness due to COVID-19 in the primary care setting.” [LINK](#)

**European Child & Adolescent Psychiatry:** [Child and family factors associated with child mental health and well-being during COVID-19](#) (July 24, 2021)

“The current multi-informant study of mothers and children aged 9–11 aimed to identify the strongest predictors of child COVID-19 anxiety, depression, and happiness, while leveraging pre-pandemic data to control for pre-existing mental health and well-being. It is critical to study mental health and well-being in middle childhood as this developmental period is marked by a significant increase in mental health disorder symptoms, and once increases in mental health are observed, children can be at risk for more sustained mental health struggles across adolescence and adulthood.” [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 August 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:**

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