

The Newfoundland & Labrador Centre for Applied Health Research (NLCAHR) sends this COVID-19 e-bulletin to 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 You will find all NLCAHR e-bulletins and COVID-19 Quick Response Reports [online here](#).

CLINICAL PRESENTATION & BIOLOGY

Masks4Canada: [The T-cells are not alright - an interview with Dr. Anthony Leonardi, T-cell researcher](#) (February 20, 2022)

"In the first installment of a series by Masks4Canada, we explore reasons why the pandemic did not end with the first two doses of vaccine. Dr. Anthony Leonardi is a T-cell researcher and has been outspoken about relying too much on vaccines to end the pandemic." [LINK](#)

See also:

- Cell: [T cell reactivity to the SARS-CoV-2 Omicron variant is preserved in most but not all individuals](#) (March 17, 2022)
- WSWS: [Immunologist Dr. Anthony Leonardi speaks on Long COVID and the dangers posed by SARS-CoV-2](#) (November 10, 2021)

Journal of Translational Medicine: [Paradoxical sex-specific patterns of autoantibody response to SARS-CoV-2 infection](#) (December 30, 2021)

"This comprehensive study of AABs to a wide array of antigens found that male sex carries the risk of diverse autoimmune activation following symptomatic COVID-19 illness, whereas female sex carries risk for a distinct profile of autoimmune activation following asymptomatic SARS-CoV-2 exposure. Importantly, both sets of sex-specific AAB reactivity patterns were found to persist up to 6 months following associated symptomatology." [LINK](#)

medRxiv: [Risk of SARS-CoV-2 reinfection 18 months after primary infection: population-level observational study](#) (February 19, 2022)

"In this retrospective cohort analysis of the entire population of an Italian Region, we followed 1,293,941 subjects from the beginning of the pandemic to the current scenario of Omicron predominance (up to mid-January 2022). After an average of 334 days, we recorded 260 reinfections among 84,907 previously infected subjects (overall rate: 0.31%), two hospitalizations (2.4 x100,000), and one death. Importantly, the incidence of reinfection did not vary substantially over time: after 18-22 months from the primary infection, the reinfection rate was still 0.32%, suggesting that protection conferred by natural immunity may last beyond 12 months. The risk of reinfection was significantly higher among the unvaccinated subjects, and during the Omicron wave." [LINK](#)

Public Library of Science ONE: [Pre-infection 25-hydroxyvitamin D3 levels and association with severity of COVID-19 illness](#) (February 3, 2022)

"This study contributes to a continually evolving body of evidence that suggests a patient's history of vitamin D deficiency is a predictive risk factor associated with poorer COVID-19 clinical disease course and mortality." [LINK](#)

Al Jazeera: [How COVID can lead to other health conditions](#) (February 16, 2022)

"A major new study led by a team of researchers from the US Centers for Disease Control and Prevention (CDC) has highlighted three new conditions that can emerge one to five months after testing positive for COVID-19. They found new diagnoses of shortness of breath, heart rate abnormalities, and Type 2 diabetes were more common in those who tested positive for COVID-19 and were hospitalized, than those who tested negative throughout." [LINK](#)

See also:

- JAMA Network Open: [Prevalence of Select New Symptoms and Conditions Among Persons Aged Younger Than 20 Years and 20 Years or Older at 31 to 150 Days After Testing Positive or Negative for SARS-CoV-2](#) (February 4, 2022)

BioMed Central Medicine: [Long COVID 12 months after discharge: persistent symptoms in patients hospitalized due to COVID-19 and patients hospitalized due to other causes—a multicentre cohort study](#) (February 23, 2022)

"Long-term-specific sequelae or persistent symptoms (SPS) after hospitalization due to COVID-19 are not known. The aim of this study was to explore the presence of SPS 12 months after discharge in survivors hospitalized due to COVID-19 and compare it with survivors hospitalized due to other causes. There was a similar frequency of long-term SPS after discharge at 12 months, regardless of the cause of admission (COVID-19 or other causes). Nevertheless, some symptoms that were found to be more associated with COVID-19, such as memory loss or anxiety, merit further investigation. These results should guide future follow-up of COVID-19 patients after hospital discharge." [LINK](#)

See also:

- Frontiers in Medicine: [Assessment of Sequelae of COVID-19 Nearly 1 Year After Diagnosis](#) (November 23, 2021)

European Heart Journal: [Long COVID: post-acute sequelae of COVID-19 with a cardiovascular focus](#) (February 18, 2022)

"In this review, we discuss the definition of long COVID and its epidemiology, with an emphasis on cardiopulmonary symptoms. We further review the pathophysiological mechanisms underlying acute and chronic CV injury, the range of post-acute CV sequelae, and impact of COVID-19 on multiorgan health. We propose a possible model for referral of post-COVID-19 patients to cardiac services and discuss future directions including research priorities and clinical trials that are currently underway to evaluate the efficacy of treatment strategies for long COVID and associated CV sequelae." [LINK](#)

Journal of the American Medical Association: [Association of SARS-CoV-2 Infection with Serious Maternal Morbidity and Mortality from Obstetric Complications](#) (February 7, 2022)

"In this retrospective cohort study that included 14 104 patients, a composite outcome of maternal death or serious morbidity related to hypertensive disorders of pregnancy, postpartum hemorrhage, or infection other than SARS-CoV-2 occurred significantly more frequently in individuals with SARS-CoV-2 infection compared with individuals without SARS-CoV-2 infection (13.4% vs 9.2%, respectively). Among pregnant and postpartum individuals, SARS-CoV-2 infection was associated with increased risk of a composite outcome of maternal mortality or serious morbidity from obstetric complications." [LINK](#)

Journal of the American Medical Association: [COVID-19 Linked With Increased Incidence of Youth Diabetes](#) (February 22, 2022)

"Although people with diabetes have a higher risk of developing severe COVID-19, growing evidence shows that COVID-19 may contribute to new-onset diabetes. Previous studies have found that on average, 14% of adults hospitalized with COVID-19 have new diabetes onset. Patients with COVID-19 were 166% more likely to receive a new diabetes diagnosis than were age- and sex-matched patients without COVID-19. Those with COVID-19 also were 116% more likely to be newly diagnosed with diabetes than similar patients who had an acute respiratory infection before the pandemic began." [LINK](#)

See also:

- CDC Morbidity and Mortality Weekly Report: [Risk for Newly Diagnosed Diabetes >30 Days After SARS-CoV-2 Infection Among Persons Aged <18 Years — United States, March 1, 2020–June 28, 2021](#) (January 14, 2022)

Journal of The American Medical Association Pediatric: [Severity of Hospitalizations from SARS-CoV-2 vs Influenza and Respiratory Syncytial Virus Infection in Children Aged 5 to 11 Years in 11 US States](#) (February 21, 2022)

"This cross-sectional study revealed that during the winter of 2020-2021, for children aged 5 to 11 years, there was 1 multisystem inflammatory syndrome (MIS-C) hospitalization for every COVID-19 hospitalization. This finding suggests that MIS-C may not be as rare of a COVID-19 sequela as previously thought. Other long-term COVID-19 complications may also be of concern for children aged 5 to 11 years. Although rarer than influenza infection, the extreme severity of MIS-C made the total economic and health burden of COVID-19 infection combined with MIS-C just as high as that of past influenza outbreaks." [LINK](#)

medRxiv: [Persisting pulmonary dysfunction in pediatric post-acute Covid-19](#) (February 22, 2022)

"The frequency and extent of persistent sequelae in children and adolescents after infection with SARS-CoV-2 still needs to be comprehensively determined. In this cross-sectional clinical trial, we used non-invasive, label-free morphologic and free-breathing phase-resolved functional low-field magnetic resonance imaging (LF-MRI) to identify pulmonary changes in children and adolescents from 5 to <18 years after previously PCR-confirmed SARS-CoV-2 infection. While morphological pathologies were less frequent in children, functional LF-MRI visualized widespread ventilation, perfusion and combined ventilation/perfusion defects compared to healthy controls. The loss of functional lung parenchyma was more pronounced in long COVID recovered patients. While pulmonary dysfunction was persistent even month after primary infection, LF-MRI demonstrated high capability to visualize and detect these changes in children and adolescents. (Clinicaltrials.org ID NCT04990531)" [LINK](#)

HEALTH EQUITY AND ETHICS

Nature: [Pandemics disable people — the history lesson that policymakers ignore](#) (February 16, 2022)

"Two years in, the debilitating tail of the pandemic has revealed itself in the form of tens of millions of people living with long COVID. It is high time to ask whether attitudes to disability will change as a result. Will society grasp that the body can be altered for a long period — even permanently — by infectious disease, just as it seems to have accepted that the body politic will never be the same again? And will it make the necessary accommodations?" [LINK](#)

BioMed Central Health Services Research: [Towards digital health equity - a qualitative study of the challenges experienced by vulnerable groups in using digital health services in the COVID-19 era](#)

(February 12, 2022)

“The COVID-19 pandemic has given an unprecedented boost to already increased digital health services, which can place many vulnerable groups at risk of digital exclusion. To improve the likelihood of achieving digital health equity, it is necessary to identify and address the elements that may prevent vulnerable groups from benefiting from digital health services. This study examined the challenges experienced by vulnerable groups in using digital health services during the COVID-19 pandemic. Several development needs in the implementation of digital health services were identified that could improve equal access to and benefits gained from digital services in the future. While digital health services are increasing, traditional face-to-face services will still need to be offered alongside the digital ones to ensure equal access to services.” [LINK](#)

Journal of Medical Internet Research: [The Impact of COVID-19 Confinement on Cognition and Mental Health and Technology Use Among Socially Vulnerable Older People: Retrospective Cohort Study](#)

(February 22, 2022)

“This study aims to explore the impact of the COVID-19 outbreak on cognition in older adults with mild cognitive impairment or dementia as the main outcome and the quality of life, perceived health status, and depression as secondary outcomes and to analyze the association of living alone and a change in living arrangements with those outcomes and other variables related with the use of technology and health services. Likewise, this study aims to analyze the association of high and low technophilia with those variables, to explore the access and use of health care and social support services, and, finally, to explore the informative-, cognitive-, entertainment-, and socialization-related uses of information and communications technologies (ICTs) during the COVID-19 outbreak. Our findings show that the first months of the outbreak did not significantly impact the cognition, quality of life, perceived health status, and depression of our study population when making comparisons with baseline assessments prior to the outbreak. Living alone and low technophilia require further research to establish whether they are risk factors of mental health problems during lockdowns in vulnerable populations. Moreover, although ICTs have proven to be useful for informative-, cognitive-, entertainment-, and socialization-related uses during the pandemic, more evidence is needed to support these interventions.” [LINK](#)

Journal of American College Health: [Student mental health during the COVID-19 pandemic: Are international students more affected](#) (February 14, 2022)

“The psychological well-being of students may be especially affected by the COVID-19 pandemic; international students can lack local support systems and represent a higher risk subgroup. The aim of the present study was to assess mental health outcomes (depressive symptoms, suicidal ideation, anxiety, PTSD, alcohol (ab)use, insomnia, loneliness and academic stress) during the COVID-19 pandemic in two cohorts of university students with self-reported stress and/or mood problems (March 2020 and March 2021). We compared mental health outcomes (i) between a cohort of students assessed in March 2020 (i.e., the early “acute” stage of the COVID-19 pandemic) and another cohort examined 12 months later (March 2021 i.e., the “chronic” stage of the pandemic). More depressive symptoms, academic stress, and loneliness were reported in 2021. International students reported more depressive symptoms, suicidal ideation, anxiety, PTSD, academic stress, and loneliness. The main effect of cohort was not moderated by student status. International students had worse mental health outcomes overall, but were not affected more by the COVID-19 pandemic than domestic students.” [LINK](#)

Pediatrics: [Priorities for Safer In-Person School for Children with Medical Complexity during COVID-19](#) (February 24, 2022)

“The goal of our work is to increase CMC school attendance while minimizing COVID-19 transmission. The objective of this study was to establish consensus priorities elicited from and prioritized by stakeholders across

Wisconsin to support in-person school attendance for CMC during the COVID-19 pandemic. Complementing scientific experts, we engaged the entire school community, including families, teachers, and staff along with clinicians, public health officials, and policymakers in a transparent and systematic priority-setting process. These priorities provide a blueprint for family and school decision-making and resource deployment for the 2021-2022 school year and beyond.” [LINK](#)

British Medical Journal: [COVID-19 vaccines: a look at the ethics of the clinical research involving children](#) (February 10, 2022)

“The principal aim of this article is to analyze critically the process of clinical research on COVID-19 vaccines involving children, highlighting the ethical concerns that arise, including the need to stratify the results from older adolescents separately for analysis before proceeding, if further research is warranted, in descending age order. The development of COVID-19 vaccines is examined, with a special look at the participation of children throughout their clinical development, including a review of the clinical trials registered in three international databases. We also offer some additional considerations about the inclusion of minors in vaccination plans. Finally, we conclude with some recommendations, with particular emphasis on the following ethical duties: research in children should be carried out only once the relevant research in adults has previously been conducted; issues that concern children’s needs and rights should be specifically addressed; and, therefore, the highest standards of ethical and scientific quality should be met.” [LINK](#)

Health Policy and Technology: [A vicious cycle of health \(in\) equity: Migrant inclusion in light of COVID-19](#) (February 18, 2022)

“Whilst mass vaccination is suggested as an important means to contain COVID-19 pandemic, vaccination policies across many countries have systematically excluded some groups of population, especially migrants. This study aims to document the impact of diversified vaccination strategies as a preventative and control measure for the health and safety of the wider population within a country. We find that achieving migrants’ health and vaccination equity is not without challenges, and a failure to address those multiplicity of concerns may result in a vicious cycle for the vulnerable population at the fringes of our economy. Migrants continue to face extenuating circumstances with higher risks to their health and safety, when they are excluded or disadvantaged in vaccination policies. The more inclusive and proactive the governments are in consideration of diversity of migrant populations, the better they can manage the pandemic, which leads to overall societal benefit of ensuring public health. Equity-based policies can mitigate disparities in access to vaccination and healthcare, thereby reducing the spread of COVID-19 in the community.” [LINK](#)

Canadian Medical Association Journal Open: [Pregnant people’s responses to the COVID-19 pandemic: a mixed-methods, descriptive study](#) (February 22, 2022)

“Given the extent of the COVID-19 pandemic and uncertainty around the timing of its containment, understanding the experiences and responses of the perinatal population is essential for planning responsive maternity care both during and after the pandemic. The aim of this study was to explore the experiences of pregnant people and their responses to the COVID-19 pandemic, and to identify how health care providers can support this population. We found that the impact of the COVID-19 pandemic on the pregnant population has been substantial. The findings of this mixed-methods study can be used to help plan informed and evidence-based health care interventions to mitigate adverse effects and support mothers and families.” [LINK](#)

Bioethics: [Digital surveillance in a pandemic response: What bioethics ought to learn from Indigenous perspectives](#) (February 18, 2022)

“Our paper interrogates the ethics of digital pandemic surveillance from Indigenous perspectives. The COVID-19 pandemic has shown that Indigenous peoples are among the communities most negatively affected by pandemic infectious disease spread. Similarly to other racialized subpopulations, Indigenous people have faced strikingly high

mortality rates from COVID-19 owing to structural marginalization and related comorbidities, and these high rates have been exacerbated by past and present colonial dominance. At the same time, digital pandemic surveillance technologies, which have been promoted as effective tools for mitigating a pandemic, carry risks for Indigenous subpopulations that warrant an urgent and thorough investigation. Building on decolonial scholarship and debates about Indigenous data sovereignty, we argue that should Indigenous communities wish to implement digital pandemic surveillance, then they must have ownership over these technologies, including agency over their own health data, how data are collected and stored, and who will have access to the data. Ideally, these tools should be designed by Indigenous peoples themselves to ensure compatibility with Indigenous cultures, ethics and languages and the protection of Indigenous lives, health and wellbeing.” [LINK](#)

BioMed Central Nursing: [Staff experience of a Canadian long-term care home during a COVID-19 outbreak: a qualitative study](#) (February 21, 2022)

“COVID-19 has significant impact on long-term care (LTC) residents and staff. The purpose of this paper is to report the data gathered during a COVID-19 outbreak in a Canadian LTC home regarding staff experiences, challenges, and needs, to offer lessons learned and implications. Four main themes were identified: We are Proud, We Felt Anxious, We Grew Closer to Residents and Staff Members, and The Vaccines Help. This research details the resilience that characterizes staff in LTC, while highlighting the emotional toll of the pandemic, particularly during an outbreak. LTC staff in this study found innovative ways to connect and support residents and this resulted in stronger connections and relationships. Leadership and organizational support are pivotal for supporting team resilience to manage crisis and adapt positively in times of COVID-19 pandemic, especially during the period of outbreak.” [LINK](#)

Journal of Translational Medicine: [The relationship between frailty, nutritional status, co-morbidity, CT-body composition and systemic inflammation in patients with COVID-19](#) (February 21, 2022)

“Frailty, determined by the Canadian Study of Health and Aging–Clinical Frailty Scale (CFS), is strongly associated with clinical outcomes including mortality in patients with COVID-19. However, the relationship between frailty and other recognized prognostic factors including age, nutritional status, obesity, sarcopenia and systemic inflammation is poorly understood. Therefore, the aim of this study was to examine the relationship between frailty and other prognostic domains, in patients admitted with COVID-19. Frailty was independently associated with age, co-morbidity, and systemic inflammation. The basis of the relationship between frailty and clinical outcomes in COVID-19 requires further study.” [LINK](#)

American Journal of Epidemiology: [Factors Associated with Willingness to Receive a COVID-19 Vaccine among 23,819 Adults Aged 50 years and Older: An Analysis of the Canadian Longitudinal Study on Aging](#) (February 15, 2022)

“Our comprehensive assessment of COVID-19 vaccine willingness among older adults in Canada, a prioritized group due to risk of severe COVID-19 outcomes, provides a roadmap for conducting outreach to increase uptake, which is urgently needed.” [LINK](#)

Canadian Journal of Nursing Research: [Nurses’ Experiences of their Ethical Responsibilities during Coronavirus Outbreaks: A Scoping Review](#) (February 15, 2022)

“Globally, nurses have experienced changes to the moral conditions of their work during coronavirus outbreaks. To identify the challenges and sources of support in nurses’ efforts to meet their ethical responsibilities during SARS, MERS, and COVID-19 outbreaks a scoping review design was chosen. Three themes were identified related challenges in meeting ethical responsibilities: 1) substandard care, 2) impeded relationships, 3) organizational and system responses and six themes relating to sources of support: 1) team and supervisor relationships, 2) organizational change leading to improved patient care, 3) speaking out, 4) finding meaning, 5) responses by

patients and the public, 6) self-care strategies. Our review revealed how substandard care and public health measures resulted in nurses not being fully able to meet their ethical responsibilities of care. These included the visitation policies that impeded the support of patients by nurses and families, particularly with respect to face-to-face relationships. Organizational and system responses to the evolving outbreaks, such as inadequate staffing, also contributed to these challenges. Supportive relationships with colleagues and supervisors, however, were very beneficial, along with positive responses from patients and the public” [LINK](#)

Global Public Health: [Unresolved COVID Controversies: ‘Normal science’ and potential non-scientific influences](#) (February 15, 2022)

“This paper describes and discusses the main controversies in the production of COVID biomedical knowledge and derived control measures, to establish if alternative positions are also legitimate from a ‘normal science’ perspective (rather than comparing them for superiority); explores potential non-scientific explanations of the alleged exclusion of certain views; and analyzes ethical issues implied. The operation of non-scientific factors in scientific and regulatory processes (e.g. various forms of subtle corruption) has been documented in the past; the intervention of such influences in the mishandling of controversies (i.e. on early management, non-pharmacological prevention and vaccination) cannot be ruled out and deserves further investigation. Some of these controversies, increasingly visible in the public domain, also involve ethical challenges that need urgent attention. Polarization, censorship and dogma are foreign to true science and must be left behind.” [LINK](#)

HEALTH SYSTEM ADMINISTRATION

In the Bubble with Andy Slavitt (Podcast): [The Country That Decided the Pandemic Is Over \(with Kristian Andersen\)](#) (February, 2022)

“Andy enlists Scripps Research immunologist and Danish expat Kristian Andersen to understand why Denmark lifted all their COVID restrictions — despite leading the world in per capita infections — and what we in the U.S. can learn from that. Plus, how BA.2 compares to BA.1 with regard to transmissibility, severity, and immune evasiveness and what Kristian thinks we need to do to minimize the risk of future variants.” [LINK](#)

See also:

- SAGE: [Covid-19 Medium-Term Scenarios – February 2022](#) (February 11, 2022)
- Scientific American: [Discovery of New HIV Variant Sends Warning for COVID Pandemic](#) (February 17, 2022)

Journal of Advanced Nursing: [The prevalence of mental health conditions in healthcare workers during and after a pandemic: Systematic review and meta-analysis](#) (February 12, 2022)

“This review aims to explore the prevalence and incidence rates of mental health conditions in healthcare workers during and after a pandemic outbreak and which factors influence rates. Mental disorders affect healthcare workers during and after infectious disease pandemics, with higher proportions experiencing symptoms. This review provides prevalence estimates of mental health conditions during and after a pandemic which could be used to inform service staffing impact and formulation of preventative strategies, by identifying clinical populations who may be at high risk of developing mental health symptoms and conditions.” [LINK](#)

Public Library of Science ONE: [The impact of the COVID-19 pandemic on the mental health of medical staff considering the interplay of pandemic burden and psychosocial resources—A rapid systematic review](#) (February 22, 2022)

“In times of the global corona pandemic health care workers (HCWs) fight the disease at the frontline of healthcare services and are confronted with an exacerbated load of pandemic burden. Psychosocial resources are thought to

buffer adverse effects of pandemic stressors on mental health. This rapid review summarizes evidence on the specific interplay of pandemic burden and psychosocial resources with regard to the mental health of HCWs during the COVID-19 pandemic. The goal was to derive potential starting points for supportive interventions. Our results indicate that several psychosocial resources may play an important role in buffering adverse effects of pandemic burden on the mental health of HCWs in the context of the COVID-19 pandemic. Nevertheless, causal interpretations of mentioned associations are inadequate due to the overall low study quality and the dominance of cross-sectional study designs. Prospective longitudinal studies are required to elucidate the missing links.” [LINK](#)

Globalization and Health: [Implementation of initiatives designed to improve healthcare worker health and wellbeing during the COVID-19 pandemic: comparative case studies from 13 healthcare provider organizations globally](#) (February 22, 2022)

“Healthcare workers are at a disproportionate risk of contracting COVID-19. The physical and mental repercussions of such risk have an impact on the wellbeing of healthcare workers around the world. Healthcare workers are the foundation of all well-functioning health systems capable of responding to the ongoing pandemic; initiatives to address and reduce such risk are critical. Since the onset of the pandemic healthcare organizations have embarked on the implementation of a range of initiatives designed to improve healthcare worker health and wellbeing. Common themes emerge globally in exploring the enablers and barriers to implementing initiatives to improve healthcare workers health and wellbeing through the COVID-19 pandemic. Consideration of the themes outlined in the paper by healthcare organizations could help influence the design and deployment of future initiatives ahead of implementation.” [LINK](#)

SPOR Evidence Alliance: [Care Models for Long COVID: A Living Systematic Review](#) (December 4, 2021)

“We identified 7 ongoing Canadian care models and patient partners shared their lived experience and perspectives, contextualizing what is known. Canadian care models differed in areas such as training of healthcare professionals, integration of multiple sites, and coverage of large geographical territories. Models leveraged nurse practitioners and general internal medicine specialists to bridge complex care needs across multiple specialties. Patients brought up concerns about fragmentation of care, inequitable access, and privatization of rehabilitation. They stressed the necessity for rapid, continued access to the latest evidence in practice to prevent harms and the important role of the family physician in care coordination.” [LINK](#)

See also:

- BMJ: [Early identification of patients admitted to hospital for covid-19 at risk of clinical deterioration: model development and multisite external validation study](#) (February 17, 2022)

COVID-END: [What is the best-available synthesized evidence in relation to addressing key issues related to care for older adults during the COVID-19 pandemic?](#) (February 16, 2022)

“The evidence documents focus on topics related to crisis management and renewal in the long-term care sector (two living reviews, one full systematic review, two rapid reviews and four other documents), related crises in other sectors (one full systematic review) and social isolation (one full systematic review and one rapid review). Three of these documents addressed multiple topics from the list above with two being relevant to long-term care crisis management and technology use and one focusing on social isolation and technology use.” [LINK](#)

COVID-END: [What measures and approaches can protect the most vulnerable in hospitals \(e.g., cancer chemotherapy patients\) when outbreaks of Omicron in hospital are becoming more common?](#) (January 6, 2022)

“To inform plans to protect the most vulnerable in hospital during outbreaks of Omicron, we identified evidence, as well as experiences from three countries (Denmark, South Africa and the

United Kingdom) that are currently most affected by Omicron, and from all Canadian provinces and territories.”
[Appendices available here. LINK](#)

See also:

- The Lancet: [The first WHO global survey on infection prevention and control in health-care facilities](#) (February 21, 2022)

BioMed Central Primary Care: [Perceptions on barriers, facilitators, and recommendations related to mental health service delivery during the COVID-19 pandemic in Quebec, Canada: a qualitative descriptive study](#) (February 21, 2022)

“There was an increase in self-reported mental health needs during the COVID-19 pandemic in Canada, with research showing reduced access to mental health services in comparison to pre-pandemic levels. This paper explores 1) barriers and facilitating factors associated with mental health service delivery via primary care settings during the first two pandemic waves in Quebec, Canada, and 2) recommendations to addressing these barriers. To our knowledge, this is the first study to explore barriers and facilitating factors to mental health service delivery during the pandemic in Quebec, Canada. Some barriers identified were caused by the pandemic, such as the relocation of staff to non-mental health services and mental health service interruption. Offering services virtually seemed to facilitate mental health service delivery only for certain population groups. Recommendations related to building and strengthening human and technological capacity during the pandemic can inform mental health practices and policies to improve mental health service delivery in primary care settings and access to mental health services via access points.” [LINK](#)

INFECTION PREVENTION AND CONTROL

National Collaborating Centre for Environmental Health: [COVID-19 and indoor air: Risk mitigating measures and future-proofing](#) (June 16, 2021)

“The COVID-19 pandemic has increased the demand for research on how respiratory viral pathogens spread in indoor spaces, and evidence for the control measures and interventions that can be used to mitigate transmission. This has also prompted a re-examination of the indoor environment more widely, with a focus on how to improve and maintain healthy indoor air quality while mitigating against the risks of pathogens circulating in the community. Future-proofing is needed to mitigate against the emergence of new variants of the SARS-CoV-2 virus, and the potential for endemic COVID-19, as well as future pathogens.” [LINK](#)

Slate: [Why One-Way Masking Isn't a Very Good Public Health Solution](#) (February 15, 2022)

“One-way masking” basically means you can wear a mask even if everyone else isn't. The thinking goes that good, high-quality masks like KN95s and N95s filter so well against other people's germs that there is no need for everyone to wear a mask again. For those who are immunocompromised, disabled, or otherwise high-risk, the high-quality mask is protective enough (along with vaccines) to keep the threat of infection at bay in high-risk environments, even where others are bare-faced...The strategy sounds like a way to keep everyone happy and healthy, free to make their own personal choice about whether to mask up. Unfortunately, the idea of one-way masking is better in theory than in practice.” [LINK](#)

See also:

- NY Times: [Protecting the Vulnerable](#) (February 14, 2022)
- PLOS ONE: [Comparing the fit of N95, KN95, surgical, and cloth face masks and assessing the accuracy of fit checking](#) (January 22, 2021)

- PNAS: [An upper bound on one-to-one exposure to infectious human respiratory particles](#) (December 7, 2021)
- Washington Post: [Opinion: In this next phase of the pandemic, beware of the extremes](#) (February 8, 2022)

The New Republic: [What Do Masks Do to Kids?](#) (February 7, 2022)

“The problem is, so far there is no evidence to support these claims [of some kind of damage to children’s development]. I talked to several speech therapists, developmental psychologists, and pediatricians, and no one has seen evidence for delayed or changed development in children because of masks. Masks probably aren’t the culprit when it comes to changes in children’s mental health, either.” [LINK](#)

See also:

- CDC: [Potential Adverse Health Effects of Mask Wearing](#) (December 6, 2021)

JAMA Network Open: [Feasibility of Specimen Self-collection in Young Children Undergoing SARS-CoV-2 Surveillance for In-Person Learning](#) (February 17, 2022)

“Mastery of self-collected lower nasal swabs is possible for children 5 years and older. Testing duration can be condensed once students gain proficiency in testing procedures. Scalability for larger schools is possible if consideration is given to the resource-intensive nature of the testing and the setting’s weather patterns.” [LINK](#)

Nature Scientific Reports: [A new threshold reveals the uncertainty about the effect of school opening on diffusion of Covid-19](#) (February 22, 2022)

“We find that in all cases, the in-school transmission rates only affect the overall course of the pandemic above a certain context dependent threshold. We provide rigorous proofs and computations of the threshold through linearization. We then confirm our theoretical findings through simulations and the review of data-driven studies that exhibit an often-unnoticed phase transition.” [LINK](#)

Nature Human Behaviour: [Rethinking routine airline testing during COVID-19](#) (February 21, 2022)

“Challenges nevertheless persist. False negatives are — despite high test frequency — still possible should testing occur (1) in close succession or (2) too far apart. An infected traveler who lacks sufficient viral load is likely to test negative before arrival. However, this individual will also (incorrectly) test negative after arrival if the tests are administered too close together to allow enough time for a measurable increase in viral load. Inordinately large spacing between successive tests yields similar results. Test frequency matters, but so too does when tests are administered.” [LINK](#)

Nature (Scientific Reports): [Did border closures slow SARS-CoV-2?](#) (February 1, 2022)

“We tested whether [border closures] were helpful in reducing spread by using matching techniques on our hand-coded COVID Border Accountability Project (COBAP) Team database of international closures, converted to a time-series cross-sectional data format. We controlled for national-level internal movement restrictions (domestic lockdowns) using the Oxford COVID-19 Government Response Tracker (OxCGRT) time-series data. We found no evidence in favor of international border closures, whereas we found a strong association between national-level lockdowns and a reduced spread of SARS-CoV-2 cases.” [LINK](#)

TREATMENT

Cell: [Respiratory mucosal delivery of next-generation COVID-19 vaccine provides robust protection against both ancestral and variant strains of SARSCoV-2](#) (February 8, 2022)

"The authors show that single-dose intranasal immunization, particularly with chimpanzee Ad-vectored vaccine, is superior to intramuscular immunization in induction of the tripartite protective immunity consisting of local and systemic antibody responses, mucosal tissue-resident memory T cells and mucosal trained innate immunity. They further show that intranasal immunization provides protection against both the ancestral SARS-CoV-2 and two VOC, B.1.1.7 and B.1.351." [LINK](#)

BioRxiv: [Cannabidiol Inhibits SARS-CoV-2 Replication and Promotes the Host Innate Immune Response](#) (March 10, 2021)

"A cohort of human patients previously taking CBD had significantly lower SARSCoV-2 infection incidence of up to an order of magnitude relative to matched pairs or the general population. This study highlights CBD, and its active metabolite, 7-OH-CBD, as potential preventative agents and therapeutic treatments for SARS-CoV-2 at early stages of infection." [LINK](#)

Gut Microbes: [Probiotic improves symptomatic and viral clearance in Covid19 outpatients: a randomized, quadruple-blinded, placebo-controlled trial](#) (January 11, 2022)

"Probiotic supplementation was well-tolerated and reduced nasopharyngeal viral load, lung infiltrates and duration of both digestive and non-digestive symptoms, compared to placebo. No significant compositional changes were detected in fecal microbiota between probiotic and placebo, but probiotic supplementation significantly increased specific IgM and IgG against Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV2) compared to placebo. It is thus hypothesized this probiotic primarily acts by interacting with the host's immune system rather than changing colonic microbiota composition." [LINK](#)

New England Journal of Medicine: [Oral Nirmatrelvir for High-Risk, Nonhospitalized Adults with Covid-19](#) (February 16, 2022)

"Treatment of symptomatic Covid-19 with nirmatrelvir plus ritonavir resulted in a risk of progression to severe Covid-19 that was 89% lower than the risk with placebo, without evident safety concerns." [LINK](#)

UK Health Security Agency: [The effectiveness of vaccination against long COVID: A rapid evidence briefing](#) (February 2022)

"There is evidence that vaccinated people who are subsequently infected with COVID-19 are less likely to report symptoms of long COVID than unvaccinated people, in the short term (4 weeks after infection), medium term (12 to 20 weeks after infection) and long term (6 months after infection). This is in addition to any benefit of vaccination in preventing COVID-19 infection. There is also evidence that unvaccinated people with long COVID who were subsequently vaccinated had, on average, reduced long COVID symptoms (though some people reported worsened symptoms after vaccination). Additionally, there was evidence that unvaccinated people with long COVID who were subsequently vaccinated reported fewer long COVID symptoms than those who remained unvaccinated." [LINK](#)

CBC: [Canada recommends waiting 3 months after COVID-19 infection before booster amid mixed messages, lack of tests](#) (February 4, 2022)

"For vaccinated individuals aged 12 and up who are eligible for a third dose, the recommendations suggest waiting three months after the onset of symptoms, or following a positive test for anyone who was asymptomatic — while also being at least six months out from a second dose. Those who experienced SARS-CoV-2 infection before starting or completing their primary COVID-19 vaccine series may receive their next dose eight weeks after symptoms started or after testing positive, according to the guidelines." [LINK](#)

CDC Morbidity and Mortality Weekly Report: [Waning 2-Dose and 3-Dose Effectiveness of mRNA Vaccines against COVID-19–Associated Emergency Department and Urgent Care Encounters and Hospitalizations among Adults during Periods of Delta and Omicron Variant Predominance — VISION Network, 10 States, Aug](#) (February 18, 2022)

"Vaccine effectiveness (VE) against COVID-19–associated emergency department/urgent care (ED/UC) visits and hospitalizations was higher after the third dose than after the second dose but waned with time since vaccination. During the Omicron-predominant period, VE against COVID-19–associated ED/UC visits and hospitalizations was 87% and 91%, respectively, during the 2 months after a third dose and decreased to 66% and 78% by the fourth month after a third dose. Protection against hospitalizations exceeded that against ED/UC visits." [LINK](#)

CDC Morbidity and Mortality Weekly Report: [Effectiveness of Maternal Vaccination with mRNA COVID-19 Vaccine during Pregnancy against COVID-19–Associated Hospitalization in Infants Aged <6 Months — 17 States, July 2021–January 2022](#) (February 17, 2022)

"Effectiveness of maternal completion of a 2-dose primary mRNA COVID-19 vaccination series during pregnancy against COVID-19 hospitalization among infants aged <6 months was 61% (95% CI = 31% to 78%). Effectiveness of completion of the primary COVID-19 vaccine series early and later in pregnancy was 32% (95% CI = –43% to 68%) and 80% (95% CI = 55% to 91%), respectively." [LINK](#)

Stat News: [Why Covid-19 vaccines are a freaking miracle](#) (February 14, 2022)

"Despite the amazing progress that has been made in vaccinating the world against COVID, it's hard to get people to crow about it. The failure to hit targets for distribution of vaccine to low-income countries and the inadequate levels of vaccine uptake in some countries — including the United States — have people focusing on what hasn't been achieved, not what has." [LINK](#)

MENTAL HEALTH & WELLNESS

Public Health Agency of Canada: [At-a-glance – Self-rated mental health, community belonging, life satisfaction and perceived change in mental health among adults during the second and third waves of the COVID-19 pandemic in Canada](#) (February 16, 2022)

"Findings from the 2020 Survey on COVID-19 and Mental Health (SCMH) suggested that the positive mental health of adults in Canada was lower during the second wave of the pandemic (fall 2020) than in 2019. With 2021 SCMH data from winter/spring 2021, we find in the current study that average life satisfaction and the prevalence of high self-rated mental health, high community belonging and perceptions of stable/improved mental health were even lower during the third wave of the pandemic as compared to the second wave in the overall adult population and in most sociodemographic groups." [LINK](#)

Nature Scientific Reports: [The effects of the COVID-19 pandemic on neuropsychiatric symptoms in dementia and carer mental health: an international multicentre study](#) (February 14, 2022)

"We aimed to assess the impact of COVID-19 and related restrictions on both carers and people living with dementia across the world. People with dementia experienced worsened neuropsychiatric symptoms since the outbreak of COVID-19, most commonly, depression, apathy, delusions, anxiety, irritability, and agitation. Regression analyses revealed that limited understanding of the COVID-19 situation and not living with the carer was associated with worsened neuropsychiatric symptoms. Carers also reported a decline in their own mental health, increased stress and reduced social networks as a result of COVID-19 and related restrictions. Regression analyses revealed uncertainty about the future and loneliness were associated with worsened carer mental health." [LINK](#)

See also:

- The Journals of Gerontology: Series B: [Levels of depression and anxiety among informal caregivers during the COVID-19 pandemic: A study based on the Canadian Longitudinal Study on Aging](#) (February 12, 2022)

Nature Scientific Reports: [Effect of single session receptive music therapy on anxiety and vital parameters in hospitalized Covid-19 patients: a randomized controlled trial](#) (February 24, 2022)

"Results show the feasibility of introducing music therapy as a supporting complementary/non-pharmacological intervention on site in Covid-19 patients. A single session of music therapy improves O2Sat and can significantly reduce anxiety." [LINK](#)

European Child & Adolescent Psychiatry: [Happier during lockdown: a descriptive analysis of self-reported wellbeing in 17,000 UK school students during Covid-19 lockdown](#) (February 17, 2022)

"Relatively little research has focused on children and young people (CYP) whose mental health and wellbeing improved during Covid-19 lockdown measures. We aimed to (1) determine the proportion of CYP who self-reported improvement in their mental wellbeing during the first Covid-19 lockdown and (2) describe the characteristics of this group in relation to their peers. Compared with peers who reported no change or deterioration, a higher proportion of CYP with improved mental wellbeing reported improved relationships with friends and family, less loneliness and exclusion, reduced bullying, better management of school tasks, and more sleep and exercise during lockdown. In conclusion, a sizeable minority of CYP reported improved mental wellbeing during lockdown." [LINK](#)

European Child & Adolescent Psychiatry: [A longitudinal study of mental health in at-risk adolescents before and during the COVID-19 pandemic](#) (February 17, 2022)

"Although cross-sectional studies have shown that the COVID-19 pandemic has negatively affected the mental health of adolescents, the effect of the pandemic on adolescents with pre-pandemic symptoms is unclear. We, therefore, tested the hypothesis that adolescents had increased emotional and behavioral problems during the lockdowns imposed during the pandemic. Throughout the pandemic, the majority of the participating adolescents reported having emotional and behavioral symptoms that were within the normal range. Moreover, the mean symptom scores for all six outcomes decreased significantly among adolescents with high clinical severity prior to the pandemic. In contrast to our original hypothesis, the effects of the COVID-19 pandemic may not necessarily be detrimental, at least among a specific subgroup of adolescents with pre-existing mental health problems. Moreover, our finding that most adolescents in this at-risk sample did not report experiencing clinically relevant symptoms during the pandemic reflects their resilience during the pandemic." [LINK](#)

Psychiatry Research: [Age differences in the association between loneliness and anxiety symptoms during the COVID-19 pandemic](#) (February 13, 2022)

“The objective of this study was to examine whether the association between loneliness and anxiety differed by age and/or gender during the pandemic. We analyzed data from a multi-wave national online survey of Canadians aged 18+ years from May 2020 to March 2021 (n = 7,021). Age significantly moderated the association between loneliness and anxiety symptoms while gender did not. Loneliness was associated with anxiety symptoms for all age groups, but the association was not as strong among those aged 70+ years compared to other age groups. Evidence-based loneliness interventions that target younger adults are needed to mitigate the mental health effects of infectious disease events such as COVID-19.” [LINK](#)

Current Psychology: [Factors contributing to adolescents’ COVID-19-related loneliness, distress, and worries](#) (February 13, 2022)

“As the world continues to face uncertainty due to COVID-19, there is concern for adolescent wellbeing as they attempt to cope with changes to their education and social interactions. Considering the trade-offs between physical distancing and virtual education versus in-person instruction may be particularly pertinent to understanding adolescent loneliness and worries surrounding COVID-19 and their academics. Despite the quick and dramatic change to one’s education, adolescents were relatively unaffected by the type of instruction they had recently received. Instead, perceived social support and their attitudes toward COVID-19 were more strongly related to their wellbeing.” [LINK](#)

The British Medical Journal: [Risks of mental health outcomes in people with covid-19: cohort study](#) (February 16, 2022)

“The objective of this study was to estimate the risks of incident mental health disorders in survivors of the acute phase of covid-19. The participants included a cohort comprising 153 848 people who survived the first 30 days of SARS-CoV-2 infection, and two control groups: a contemporary group (n=5 637 840) with no evidence of SARS-CoV-2, and a historical control group (n=5 859 251) that predated the covid-19 pandemic. The findings suggest that people who survive the acute phase of covid-19 are at increased risk of an array of incident mental health disorders. Tackling mental health disorders among survivors of covid-19 should be a priority.” [LINK](#)

Journal of Clinical Investigation Insight: [Long-term follow-up of dynamic brain changes in patients recovered from COVID-19 without neurological manifestations](#) (February 22, 2022)

“After the initial surge in COVID-19 cases, large numbers of patients were discharged from a hospital without assessment of recovery. Now, an increasing number of patients report post acute neurological sequelae, known as “long COVID” — even those without specific neurological manifestations in the acute phase. Our study provides objective neuroimaging evidence for the coexistence of recoverable and long-term unrecovered changes in 10-month effects of COVID-19 on the brain. The remaining potential abnormalities still deserve public attention, which is critically important for a better understanding of “long COVID” and early clinical guidance toward complete recovery.” [LINK](#)

Nature Scientific Reports: [Comparison of mental health outcomes in seropositive and seronegative adolescents during the COVID19 pandemic](#) (February 10, 2022)

“Post-COVID19 complications such as pediatric inflammatory multisystem syndrome (PIMS) and Long-COVID19 move increasingly into focus, potentially causing more harm in young adolescents than the acute infection. To better understand the symptoms of long-term mental health outcomes in adolescents and distinguish infection-associated symptoms from pandemic-associated symptoms, we conducted a 12 question Long-COVID19 survey. The lack of differences comparing the reported symptoms between seropositive and seronegative students

suggests that Long-COVID19 might be less common than previously thought and emphasizes on the impact of pandemic-associated symptoms regarding the well-being and mental health of young adolescents.” [LINK](#)

Therapeutic Advances in Chronic Disease: [Neurological manifestations of long-COVID syndrome: a narrative review](#) (February 17, 2022)

“In this narrative review, we sought to present a comprehensive overview of our current understanding of clinical features, risk factors, and pathophysiological processes of neurological ‘long-COVID’ sequelae. Moreover, we propose diagnostic and therapeutic algorithms that may aid in the prompt recognition and management of underlying causes of neurological symptoms that persist beyond the resolution of acute COVID-19. Furthermore, as causal treatments for ‘long-COVID’ are currently unavailable, we propose therapeutic approaches for symptom-oriented management of neurological ‘long-COVID’ symptoms. In addition, we emphasize that collaborative research initiatives are urgently needed to expedite the development of preventive and therapeutic strategies for neurological ‘long-COVID’ sequelae.” [LINK](#)

Journal of Infection: [Determinants of persistence of symptoms and impact on physical and mental wellbeing in Long COVID: A prospective cohort study](#) (February 9, 2022)

“Residual symptoms can be detected for several months after COVID-19. To better understand the predictors and impact of symptom persistence we analyzed a prospective cohort of COVID-19 patients. Patients with advanced age, ICU stay and multiple symptoms at onset were more likely to suffer from long-term symptoms, which had a negative impact on both physical and mental wellbeing. This study contributes to identify the target populations and Long COVID consequences for planning long-term recovery interventions.” [LINK](#)

See also:

- Journal of Medical Internet Research: [The Impact of Long COVID-19 on Mental Health: Observational 6-Month Follow-Up Study](#) (February 24, 2022)

Brain, Behavior, and Immunity: [The pandemic brain: Neuroinflammation in non-infected individuals during the COVID-19 pandemic](#) (February 19, 2022)

“We compared fifty-seven ‘Pre-Pandemic’ and fifteen ‘Pandemic’ datasets from individuals originally enrolled as control subjects for various completed, or ongoing, research studies available in our records, with a confirmed negative test for SARS-CoV-2 antibodies. We used a combination of multimodal molecular brain imaging (simultaneous positron emission tomography / magnetic resonance spectroscopy), behavioral measurements, imaging transcriptomics and serum testing to uncover links between pandemic-related stressors and neuroinflammation. This work implicates neuroimmune activation as a possible mechanism underlying the non-virally-mediated symptoms experienced by many during the COVID-19 pandemic. Future studies will be needed to corroborate and further interpret these preliminary findings.” [LINK](#)

Food Quality and Preference: [Changes in food behavior during the first lockdown of COVID-19 pandemic: A multi-country study about changes in eating habits, motivations, and food-related behaviors](#) (February 10, 2022)

“An international research team was constituted to develop a study involving different countries about eating motivations, dietary habits and behaviors related with food intake, acquisition, and preparation. This study presents results of an online survey, carried out during the first lockdown, in 2020, assessing food-related behavior and how people perceived them to change, comparatively to the period preceding the COVID-19 outbreak. Understanding the main changes and their underlying motivations in a time of unprecedented crisis is of major importance, as it provides the scientific support that allows one to anticipate the implications for the future of the global food and nutrition system and, consequently, to take the appropriate action.” [LINK](#)

Journal of Affective Disorders: [Stressful events induce long-term gut microbiota dysbiosis and associated post-traumatic stress symptoms in healthcare workers fighting against COVID-19](#) (February 12, 2022)

“The microbiota-gut-brain axis is a key pathway perturbed by prolonged stressors to produce brain and behavioral disorders. Frontline healthcare workers (FHWs) fighting against COVID-19 typically experience stressful event sequences and manifest some mental symptoms; however, the role of gut microbiota in such stress-induced mental problems remains unclear. We investigated the association between the psychological stress of FHW and gut microbiota. Stressful events induced significant depression, anxiety, and stress in FHWs and disrupted the gut microbiome; gut dysbiosis persisted for at least half a year. Different microbes followed discrete trajectories during the half-year of follow-up. The stressful event sequences of fighting against COVID-19 induce characteristic longitudinal changes in gut microbiota, which underlies dynamic mental state changes.” [LINK](#)

Journal of Medical Internet Research: [The Impact of Long COVID-19 on Mental Health: Observational 6-Month Follow-Up Study](#) (February 24, 2022)

“The psychological impact of COVID-19 can be substantial. However, knowledge about long-term psychological outcomes in patients with COVID-19 is scarce. In this longitudinal, observational study, we aimed to reveal symptoms of posttraumatic stress disorder (PTSD) and symptoms of anxiety and depression up to 6 months after the onset of COVID-19–related symptoms in patients with confirmed COVID-19 and persistent complaints. To demonstrate the impact in nonhospitalized patients, we further aimed to compare these outcomes between nonhospitalized and hospitalized patients. A substantial percentage of patients with confirmed COVID-19 and persistent complaints reported symptoms of PTSD, anxiety, or depression 3 and 6 months after the onset of COVID-19–related symptoms. The prevalence rates of symptoms of PTSD, anxiety, and depression were comparable between hospitalized and nonhospitalized patients and merely improved over time. Health care professionals need to be aware of these psychological complications and intervene on time in post-COVID-19 patients with persistent complaints.” [LINK](#)

Journal of Affective Disorders Reports: [Mental health outcomes of adults hospitalized for COVID-19: A systematic review](#) (February 10, 2022)

“Patients hospitalized for COVID-19 may be at high risk of mental health (MH) disorders. This systematic review assesses MH outcomes among adults during and after hospitalization for COVID-19 and ascertains MH care utilization and resource needs. While many patients experience MH symptoms after hospitalization for COVID-19, most do not go on to develop a new MH disorder. Future studies should report whether participants have preexisting MH disorders and compare patients hospitalized for COVID-19 to patients hospitalized for other causes.” [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 February of 2022.

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.

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