

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

Harvard T.H. Chan School of Public Health: [Understanding Long COVID: The Unseen Public Health Crisis](#) (January 13, 2022)

"Long COVID now affects millions around the globe—yet we still barely understand this emerging condition. Its devastating and lasting symptoms prevent people from working, socializing, and carrying on with their day-to-day lives; for some, the effects are completely debilitating. And like so many chronic-disease sufferers before them, COVID long-haulers face ambivalence and even outright distrust from the very health systems responsible for their care. We need to raise awareness and better understand this disease in order to head off the next public health crisis. Join us for a riveting discussion that will bring together clinicians, researchers, policy experts, and long COVID patients to better grasp the significant impact of this new syndrome and what we must all do about it—now." [LINK](#)

See also:

- Research Square: [SARS-CoV-2 infection and persistence throughout the human body and brain](#) (December 29, 2021)

Public Library of Science ONE: [Post-acute sequelae of COVID-19 in a non-hospitalized cohort: Results from the Arizona CoVHORT](#) (October 2, 2021)

"Among non-hospitalized lab confirmed COVID-19 positive participants, 68.7% experienced at least one symptom 30 days or longer past test-date. For individuals with ≥ 60 days follow-up, the prevalence of PASC was 73%. The most common symptoms were fatigue (37.5%), shortness of breath (37.5%), brain fog (30.8%), and stress/anxiety (30.8%)." [LINK](#)

See also:

- Alzheimer's and Dementia: [Comparison of serum neurodegenerative biomarkers among hospitalized COVID-19 patients versus non-COVID subjects with normal cognition, mild cognitive impairment, or Alzheimer's dementia](#) (January 13, 2022)
- E-Clinical Medicine: [Cognitive deficits in people who have recovered from COVID-19](#) (July 22, 2021)
- Nature: [COVID and the brain: researchers zero in on how damage occurs](#) (July 7, 2021)

Andrology: [Testicular pathology in fatal COVID-19: A descriptive autopsy study](#) (July 1, 2021)

"The COVID-19-associated testicular lesion revealed a combination of orchitis, vascular changes, basal membrane thickening, Leydig and Sertoli cell scarcity, and reduced spermatogenesis associated with SARS-CoV-2 local infection that may impair hormonal function and fertility in men." [LINK](#)

MedRxiv: [Risk of Cardiovascular Events after COVID-19: a double-cohort study](#) (December 29, 2021)

"Either symptomatic or asymptomatic SARS-CoV-2 infection is associated with increased risk of late cardiovascular outcomes and has causal effect on all-cause mortality in a late post-COVID-19 period." [LINK](#)

See also:

- Chest Journal: [Persistent Exertional Intolerance after COVID-19. Insights From Invasive Cardiopulmonary Exercise Testing](#) (January 1, 2022)

Cell: [Complement activation induces excessive T cell cytotoxicity in severe COVID-19](#) (December 27, 2021)

Highlights:

Severe COVID-19 is marked by activated, highly cytotoxic CD16+ T cells. Immune complex-mediated degranulation of CD16+ T cells causes endothelial cell injury. C3a-rich environment in severe COVID-19 promotes differentiation of CD16+ T cells. Activated CD16+ T cells and complement proteins are associated with fatal outcome." [LINK](#)

Nature Immunology: [Immunological dysfunction persists for 8 months following initial mild-to-moderate SARS-CoV-2 infection](#) (January 13, 2022)

"Here, we studied individuals with LC compared to age- and gender-matched recovered individuals without LC, unexposed donors and individuals infected with other coronaviruses. Patients with LC had highly activated innate immune cells, [lacked naive T and B cells](#) and showed elevated expression of type I IFN (IFN- β) and type III IFN (IFN- λ 1) that remained persistently high at 8 months after infection" [LINK](#)

See also:

- Frontiers in Immunology: [Akt-Fas to Quell Aberrant T Cell Differentiation and Apoptosis in COVID-19](#) (December 21, 2020)
- Journal of Evidence-Based Medicine. [Naïve T cells may be key to the low mortality of children with COVID-19](#) (January 12, 2022)

University of Glasgow: [The hyper-transmissible SARS-CoV-2 Omicron variant exhibits significant antigenic change, vaccine escape and a switch in cell entry mechanism](#) (2021)

"The Omicron variant represents a major change in biological function and antigenicity of SARS-CoV-2 virus. In this study, the authors demonstrate substantial immune escape of this variant with clear evidence of vaccine failure in dual vaccinated individuals and partial restoration of immunity following a third booster dose of mRNA vaccine. In addition, the authors demonstrate a shift in the SARS-CoV-2 entry pathway from cell surface fusion, triggered by TMPRSS2, to cathepsin-dependent fusion within the endosome. This fundamental biological shift may affect the pathogenesis and severity of disease and requires further evaluation in population-based studies." [LINK](#)

CBC: [How Omicron spreads so fast is the question of the moment. New research is pointing to the answer](#) (December 16, 2021)

"[New research](#) from a team in Hong Kong offers a clue to why the Omicron coronavirus variant is spreading so astonishingly fast around the world: it may be multiplying 70 times quicker than earlier strains within our lower airways. The researchers found that, just 24 hours after infection, Omicron multiplies 70 times faster than either the Delta variant or the original SARS-CoV-2 virus within tissue samples of human bronchi — the two large tubes that carry air from your windpipe to your lungs." [LINK](#)

The EMBO Journal: [SARS-CoV-2 Alpha, Beta, and Delta variants display enhanced Spike-mediated syncytia formation](#) (December 15, 2021)

"Alpha and Beta replicated similarly to D614G strain in Vero, Caco-2, Calu-3, and primary airway cells. However, Alpha and Beta formed larger and more numerous syncytia. Variant spike proteins displayed higher ACE2 affinity compared with D614G. Alpha, Beta, and D614G fusion was similarly inhibited by interferon-induced transmembrane proteins (IFITMs). Individual mutations present in Alpha and Beta spikes modified fusogenicity, binding to ACE2 or recognition by monoclonal antibodies. The authors further show that Delta spike also triggers faster fusion relative to D614G. Thus, SARS-CoV-2 emerging variants display enhanced syncytia formation." [LINK](#)

Scientific American: [‘Flurona’ Is a Great Example of How Misinformation Blooms](#) (January 6, 2022)

"A [meta-analysis of studies](#) reported from the last Northern Hemisphere flu season showed that in people with COVID-19, about 0.8 percent also had flu; in the U.S., this was about 0.4 percent. So, while it's not the most common co-infection, people can get both viruses at the same time. The small numbers reported in this paper did not suggest any alarming severity of co-infections nor increased mortality." [LINK](#)

HEALTH EQUITY AND ETHICS

Archives of Physical Medicine and Rehabilitation: [Addressing the Shadow Pandemic: COVID-19 Related Impacts, Barriers, Needs, and Priorities to Healthcare and Support for Women Survivors of Intimate Partner Violence and Brain Injury](#) (January 7, 2022)

"Intimate partner violence (IPV) affects one in three women and has intensified during the COVID-19 pandemic. Although most injuries are to the head, face, and neck, the intersection of IPV and traumatic brain injury (TBI) remains largely unrecognized. This paper reports on COVID-19-related impacts, barriers, needs, and priorities to healthcare and support services for women survivors of IPV-TBI." [LINK](#)

Reproductive Health: [Reproductive justice in the time of COVID-19: a systematic review of the indirect impacts of COVID-19 on sexual and reproductive health](#) (December 20, 2021)

"Despite gendered dimensions of COVID-19 becoming increasingly apparent, the impact of COVID-19 and other respiratory epidemics on women and girls' sexual and reproductive health (SRH) have yet to be synthesized. This review uses a reproductive justice framework to systematically review empirical evidence of the indirect impacts of respiratory epidemics on SRH." [LINK](#)

Nature: [COVID vaccines safely protect pregnant people: the data are in](#) (January 12, 2022)

"But the data are now solid. They show that the risks of COVID-19 during pregnancy — including maternal death, stillbirth and premature delivery — far outweigh the risks of being vaccinated. And yet, according to data from the US Centers for Disease Control and Prevention (CDC), only around 40% of pregnant people in the United States had been vaccinated against COVID-19 by 1 January 2022 (see 'Slow uptake'). The numbers are similarly low across the globe — causing sick pregnant people to turn up at hospitals, and health-care workers to struggle to find solutions." [LINK](#)

Italian Journal of Pediatrics: [Reasons in favour of universal vaccination campaign against COVID-19 in the pediatric population](#) (January 10, 2022)

"Despite the growing evidence of the extreme efficacy of COVID-19 vaccines in adults and the elderly, the administration of the same prophylactic measures to pediatric subjects is debated by some parents and by a number of researchers. The aim of this manuscript is to explain the reasons for overcoming hesitancy towards

COVID-19 vaccination in children and adolescents and to highlight the importance of universal COVID-19 vaccination in the pediatric population.” [LINK](#)

Psychiatry Research: [Widening mental health and substance use inequities among sexual and gender minority populations: Findings from a repeated cross-sectional monitoring survey during the COVID-19 pandemic in Canada](#) (December 6, 2021)

“This paper examines the mental health and substance use impacts of the COVID-19 pandemic among sexual and gender minority (SGM) populations as compared to non-SGM populations, and identifies risk factors for mental health and substance use impacts among SGM groups.” [LINK](#)

Journal of Epidemiology & Community Health: [Prevention of COVID-19 among populations experiencing multiple social exclusions](#) (January 10, 2022)

"People experiencing multiple levels of exclusion related to homelessness, drug use, sex work, migration and their intersection can be particularly vulnerable to infection and morbidity with SARS-CoV-2 and will be less likely to benefit from population-wide prevention approaches such as contact tracing and mass vaccination... Below, we consider existing evidence on ‘what works’ in vaccine provision and contact tracing among socially excluded populations, as well as learning from the response so far including the provision of emergency accommodation and vaccine delivery. We set out strategies for interventions and priority research questions, emphasizing the importance of co-production in research and service delivery, to prevent ongoing transmission of SARS-CoV-2 and future infectious disease outbreaks." [LINK](#)

International Journal of Equity in Health: [Difficulties accessing health care services during the COVID-19 pandemic in Canada: examining the intersectionality between immigrant status and visible minority status](#) (December 16, 2021)

“Difficulties accessing health care services can result in delaying in seeking and obtaining treatment. Although these difficulties are disproportionately experienced among vulnerable groups, we know very little about how the intersectionality of realities experienced by immigrants and visible minorities can impact their access to health care services since the pandemic. Using Statistics Canada’s Crowdsourcing Data: Impacts of COVID-19 on Canadians—Experiences of Discrimination, we combine two variables (i.e., immigrant status and visible minority status) to create a new variable called visible minority immigrant status. This multiplicative approach is commonly used in intersectionality research, which allows us to explore disadvantages experienced by minorities with multiplicative identities.” [LINK](#)

Tropical Medicine and Health: [Global impact of vaccine nationalism during COVID-19 pandemic](#) (December 29, 2021)

“As desperate as the COVID-19 pandemic, vaccine nationalism is already setting a foundation for itself and is considered socially and economically counterproductive. Vaccine equity is not just a theoretical slogan, and it protects people worldwide from new vaccine-resistant variants. Understanding and anticipating the consequences is vital, and creating a global solution approach to avoid them. This article evaluates the common issues previously faced and the plausible ones during this pandemic. A few recommendations are made to warn and accentuate the reality of this dire matter.” [LINK](#)

The Lancet: [COVID-19 vaccine strategies must focus on severe disease and global equity](#) (December 16, 2021)

“In September, 2020, the WHO Prioritization Roadmap for COVID-19 vaccines gave priority to prevention of severe disease and the highest risk groups. In July, 2021, the revised Roadmap noted that despite the progressive emergence of SARS-CoV-2 variants of concern, defined as mutations conferring increased infectivity, virulence, or

relative capacity for immunological escape, vaccine effectiveness against severe disease had been retained. At the end of 2021, global differences in the inter-related variables of population seropositivity and vaccine coverage have widened, and omicron has been declared the fifth variant of concern. Omicron was detected in Africa, where successive waves of SARS-CoV-2 have resulted in prevalence of past infection higher than 80% in some regions and despite greatly increased global vaccine supplies, the average coverage that can be achieved there in 2021 is estimated to be only 17%. In 2022, we argue that COVID-19 vaccine strategies must remain focused on severe disease, and that global equity in achieving high adult coverage (i.e., for those aged 18 years and older) of at least one dose is key to minimizing severe COVID-19." [LINK](#)

The Guardian: [COVID hospitalizations among US children soar as schools under pressure](#) (January 5, 2022)

"COVID-19 hospitalizations among children in the US are soaring, fueled by the Omicron variant and the holidays, and adding pressure to already-strained health systems and schools. An average of 672 children were being hospitalized every day in the U.S., as of 2 January - more than double the average just a week before. And the rate is rapidly increasing." [LINK](#)

Journal of General Internal Medicine: [The Impact of COVID-19 on Routine Medical Care and Cancer Screening](#) (January 10, 2022)

"To plan for medical care as restrictions ease, it is important to understand the developing level of unmet need for clinical care, trends over time, and patient characteristics associated with cancelled or postponed medical appointments and cancer screening. We surveyed cross-sectional national samples at four time points in 2020 to examine missed medical care and cancer screening in the setting of COVID-19." [LINK](#)

HEALTH SYSTEM ADMINISTRATION

Journal of American Medical Association: [A National Strategy for the "New Normal" of Life With COVID](#) (January 6, 2022)

"It is imperative for public health, economic, and social functioning that US leaders establish and communicate specific goals for COVID-19 management, benchmarks for the imposition or relaxation of public health restrictions, investments and reforms needed to prepare for future SARS-CoV-2 variants and other novel viruses, and clear strategies to accomplish all of this." [LINK](#)

See also:

- Associated Press: [How Will Pandemic End? Omicron Clouds Forecasts for Endgame](#) (January 3, 2022)
- Harvard T.H. Chan School of Public Health: [What will it be like when COVID-19 becomes endemic?](#) (August 11, 2021)
- Journal of the American Medical Association: [A National Strategy for COVID-19 Testing, Surveillance, and Mitigation Strategies](#) (January 6, 2022)

British Medical Journal: [Post-acute COVID-19 in primary care](#) (December 29, 2021)

"Post-COVID syndrome needs better characterization to help inform the appropriate targeting of healthcare. The evolving pandemic and emergence of new variants have increased the socioeconomic liabilities of both patients and communities, adding further complexity to this illness and stretching already challenged healthcare systems. In addition, the effect on the societal psyche of an unprecedented infodemic about adverse outcomes from SARS-CoV-2 infection remains unknown. Long COVID is perhaps the first illness to be defined by patients through social media." [LINK](#)

British Medical Journal: [GP consultation rates for sequelae after acute COVID-19 in patients managed in the community or hospital in the UK: population based study](#) (December 29, 2021)

"We found that patients with COVID-19 admitted to hospital and those managed in the community had higher GP consultation rates for most symptoms and diseases, received more prescriptions, and were more likely to use healthcare resources after COVID-19 than in the 12 months before infection, although the rates in the two groups differed. For example, although the rates for primary care consultations for symptoms such as fatigue, breathlessness, and palpitations were similar between the two groups, patients in the community were more likely to consult their GP because of loss of taste and smell and muscle pain; patients admitted to hospital were more likely to report ongoing problems related to nausea and delirium." [LINK](#)

British Medical Journal: [Delivering outpatient virtual clinics during the COVID-19 pandemic: early evaluation of clinicians' experiences](#) (January 7, 2022)

"The long-term place of [virtual clinics] VCs as a substitute for F2F is unclear. Rapid demands of the pandemic meant that appointments were simply converted to telephone or video, as opposed to developing a model of VCs that integrated with existing pathways. As we recalibrate services, it is important to understand the factors which will determine the optimum setting for the individual patient. While evidence reporting clinical outcomes of VCs is continually emerging, there is, as yet, little exploring the risks that virtual clinics introduce. These include, but are not limited to, safeguarding concerns, exacerbation of the digital divide and accessibility of healthcare, adverse outcomes for patients who would otherwise have been physically examined and lengthening of patient pathways." [LINK](#)

Scientific American: [A Tsunami of Disability Is Coming as a Result of 'Long COVID'](#) (July 6, 2021)

"It is understandable that we don't yet have all the issues related to COVID-associated disability figured out; we haven't fully grasped all the implications of this pernicious (and still somewhat mysterious) malady. After all, since early 2020, we've been struggling to address the immediate crisis and how to deal with the new problems that arise day by day. But the time has come to proactively plan for what will certainly be the enormous new impact that long-haul COVID will have on our disability programs." [LINK](#)

See also:

- Reuters: [Long COVID could become Finland's largest chronic disease, warns minister](#) (January 7, 2022)

Malaysian Journal of Medical Sciences: [Responding to the Essential Sexual and Reproductive Health Needs for Women During the COVID-19 Pandemic: A Literature Review](#) (December 22, 2021)

"Essential reproductive healthcare services for women during the COVID-19 pandemic were divided into six categories including access to contraception, safe abortion and post-abortion care, sexual health and sexually transmitted disease (STD) prevention, cervical cancer screening and prevention, maternity services and also addressing violence against women and girls. These essential needs should be considered as a priority by governments as well as public and private stakeholders. It seems that the implementation of the shifted strategies, active participation of public and private stakeholders, consideration of human rights and ethical issues, ensuring access to vulnerable populations, regular contact with individuals and the increased cooperation of individuals for responding to the SRH needs during the COVID-19 outbreak, are necessary." [LINK](#)

STAT News: [Omicron magnifies the distress in the health care labor system](#) (January 7, 2022)

"When we interview an ICU nurse, doctor, or other medical professional, we begin by asking: "How have things been lately?" The answers vary, but there are common themes of groundlessness, exhaustion, and invisibility. Workers sometimes, but not always, call it burnout, and use this term in different ways. They may echo public accounts of health care workers describing themselves as charred wood. But just as often they describe the uncertain work environments that lead to these feelings. ICU workers describe both themselves and their

workplaces as being in distress. Some believe that burnout narratives let institutions off the hook too easily and, in a cruel twist, render invisible workers' needs for better compensation." [LINK](#)

INFECTION PREVENTION AND CONTROL

Canadian Medical Association Journal News: [What's the evidence for fining the unvaccinated?](#)

(January 14, 2022)

"If you're unvaccinated because you don't trust the government or you don't trust the pharmaceutical industry, it's unlikely that [penalties] will have an influence on your decision," explained Ève Dubé, a medical anthropologist working at the Institut national de santé publique du Québec. "When you push too hard on people that have important distrust issues, you run the risk of a backfire effect, making them even more strongly opposed to vaccination." [LINK](#)

See also:

- BMC Public Health: [Vaccine hesitancy: evidence from an adverse events following immunization database, and the role of cognitive biases](#) (September 16, 2021)
- International Journal of Infectious Diseases: [Increasing vaccine acceptance using evidence-based approaches and policies: Insights from research on behavioural and social determinants presented at the 7th Annual Vaccine Acceptance Meeting](#) (April, 2021)
- MacLean's: [Changing the minds of the vaccine hesitant requires actually listening to them](#) (June 28, 2021)
- McMaster Rapid Improvement Support and Exchange: [COVID-19 Rapid Evidence Profile #24 \(Vaccine Hesitancy\)](#) (November 17, 2020)
- Organisation for Economic Co-operation and Development (OECD): [Enhancing public trust in COVID-19 vaccination: The role of governments](#) (May 10, 2021)
- Public Health Agency of Canada: [Addressing vaccine hesitancy in the context of COVID-19: A primer for health care providers](#) (May 7, 2021)
- Public Library of Science ONE: [COVID-19 and vaccine hesitancy: A longitudinal study](#) (April 16, 2021)

STAT News: [Study raises doubts about rapid COVID tests' reliability in early days after infection](#)

(January 5, 2022)

"The study looks at 30 people from settings including Broadway theaters and offices in New York and San Francisco. On days 0 and 1 following a positive PCR test, all of the antigen tests used produced false-negative results, even though in 28 of the 30 cases, levels of virus detected by the PCR test were high enough to infect other people. In four cases, researchers were able to confirm that infected people transmitted the virus to others during the period before they had a positive result on the rapid antigen test... Despite its small size, the results in the study are remarkably consistent. Not a single rapid antigen test detected the virus until nearly two days after the initial positive PCR result." [LINK](#)

See also:

- Original research in MedRxiv: [Discordant SARS-CoV-2 PCR and Rapid Antigen Test Results When Infectious: A December 2021 Occupational Case Series](#) (January 5, 2022)
- NY Times: [Emerging Data Raise Questions about Antigen Tests and Nasal Swabs](#) (January 5, 2022)

World News Era: [Business scents opportunity for use of COVID sniffer dogs in UK](#) (January 5, 2021)

"Schools, hospitals and businesses in Britain are considering the use of COVID sniffer dogs as a novel way to detect the virus alongside more conventional testing methods. A UK study published in May this year by an academic

consortium found that canines have a better record at picking up the presence of COVID-19 in people than lateral flow tests, with a level of accuracy not far behind “gold standard” PCR tests." [LINK](#)

See also:

- Original research in the London School of Hygiene and Tropical Medicine: [Using trained dogs and organic semi-conducting sensors to identify asymptomatic and mild SARS-CoV-2 infections](#) (2021)

Centers for Disease Control and Prevention: [Airborne Transmission of SARS-CoV-2 Delta Variant within Tightly Monitored Isolation Facility, New Zealand \(Aotearoa\)](#) (December 29, 2021)

"In New Zealand, international arrivals are quarantined and undergo [SARS CoV-2] screening; those who test positive are transferred to a managed isolation facility (MIF). Solo traveler A and person E from a 5-person travel group (BCDEF) tested positive. After transfer to the MIF, person A and group BCDEF occupied rooms >2 meters apart across a corridor. Persons B, C, and D subsequently tested positive; viral sequences matched A and were distinct from E. The MIF was the only shared location of persons A and B, C, and D, and they had no direct contact. Security camera footage revealed 4 brief episodes of simultaneous door opening during person A's infectious period. This public health investigation demonstrates transmission from A to B, C, and D while in the MIF, with airborne transmission the most plausible explanation. These findings are of global importance for coronavirus disease public health interventions and infection control practices." [LINK](#)

National Collaborating Centre for Environmental Health (NCCEH): [Air cleaning technologies for indoor spaces during the COVID-19 pandemic](#) (December 10, 2021)

"The COVID-19 pandemic has presented public health with many challenges including how best to reduce transmission of SARS-CoV-2 in indoor spaces, where most transmission events occur. Layering of multiple mitigation measures is recommended and one of the most widely recommended engineering controls is increased ventilation. Many spaces may be hard to ventilate with no existing mechanical ventilation or opening windows, leading some building users and managers to consider technologies such as standalone or portable air cleaners and purifiers to support risk mitigation indoors. But how do air cleaning technologies work? Can they reduce transmission risks? What are the potential risks and additional considerations for anyone using them?" [LINK](#)

See also:

- Johns Hopkins Center for Health Security: [School Ventilation: A Vital Tool to Reduce COVID-19 Spread](#) (May 30, 2021)
- Max Planck Institute: [Ventilation made easy](#) (updated November 29, 2021)
- NCCEH: [Role of ventilation in influencing COVID-19 transmission risk](#) (July 29, 2020)

Nature Scientific Reports: [Predicting airborne coronavirus inactivation by far-UVC in populated rooms using a high-fidelity coupled radiation-CFD model](#) (November 12, 2021)

"There are increased risks of contracting COVID-19 in hospitals and long-term care facilities, particularly for vulnerable groups. In these environments aerosolised coronavirus released through breathing increases the chance of spreading the disease. To reduce aerosol transmissions, the use of low dose far-UVC lighting to disinfect in-room air has been proposed. Unlike typical UVC, which has been used to kill microorganisms for decades but is carcinogenic and cataractogenic, recent evidence has shown that far-UVC is safe to use around humans [...] The model shows that disinfection rates are increased by a further 50-85% when using far-UVC within currently recommended exposure levels compared to the room's ventilation alone. With these magnitudes of reduction, far-UVC lighting could be employed to mitigate SARS-CoV-2 transmission before the onset of future waves" [LINK](#)

American Chemical Society: [Advances in Facemasks during the COVID-19 Pandemic Era](#) (May 17, 2021)

"This study reveals that masks play two important roles. First, they prevent gas cloud formation during sneezing and coughing, which minimizes rapid turbulent jets of aerosol toward individuals or the environment. Second, the layer present in the mask filters the aerosol and prevents it from entering the nasopharyngeal region. However,

repeated breathing makes the mask a virus collector due to exposure to contaminated droplets. The warm and humid conditions inside the mask during respiration can accelerate the penetration of the virus and its spread on the inner side. Hence, the efficiency of the mask in preventing aerosols from entering the respiratory system depends on the type of mask, i.e., the material used to prevent the entry of particles, the fit of the mask and the percentage of air leakage, and the mask-wearing technique." [LINK](#)

See also:

- Proceedings of the National Academy of Science (PNAS): [An evidence review of face masks against COVID-19](#) (January 26, 2021)
- Centres for Disease Control (CDC): [CDC - Science Brief: Community Use of Masks to Control the Spread of SARS-CoV-2](#) (December 6, 2021)
- Journal of Emergency Medicine: [N95 Respirator Cleaning And Reuse Methods Proposed By The Inventor Of The N95 Mask Material](#) (April 10, 2020)
- Seattle Times: [Here's the difference between N95 and KN95 masks, and how to spot a fake](#) (January 13, 2022)

TREATMENT

CBC: [If you got Omicron post-vaccination, medical experts advise not to rush out for a booster shot](#) (January 13, 2022)

"There's no magic number, but the science behind how our immune system works means you might want to wait weeks or even months after an Omicron infection to reap the benefits of a booster shot... "I think it's a better idea to wait several months before getting boosted because then the boost will be more effective... It'll have a stronger effect again because the memory cells will be much more fully developed and the antibody levels will be down."" [LINK](#)

New England Journal of Medicine: [Third BNT162b2 Vaccination Neutralization of SARS-CoV-2 Omicron Infection](#) (December 29, 2021)

"The authors found low neutralization efficiency with two doses of the BNT162b2 vaccine against the wild-type virus and the delta variant, assessed more than 5 months after receipt of the second dose, and no neutralization efficiency against the omicron variant. The importance of a third vaccine dose is clear, owing to the higher neutralization efficiency (by a factor of 100) against the omicron variant after the third dose than after the second dose; however, even with three vaccine doses, neutralization against the omicron variant was lower (by a factor of 4) than that against the delta variant. The durability of the effect of the third dose of vaccine against COVID-19 is yet to be determined." [LINK](#)

Eurosurveillance: [Impact of booster vaccination on the control of COVID-19 Delta wave in the context of waning immunity: application to France in the winter 2021/22](#) (January 6, 2022)

"Europe has experienced a large COVID-19 wave caused by the Delta variant in winter 2021/22. Using mathematical models applied to Metropolitan France, we find that boosters administered to ≥ 65 , ≥ 50 or ≥ 18 year-olds may reduce the hospitalization peak by 25%, 36% and 43% respectively, with a delay of 5 months between second and third dose. A 10% reduction in transmission rates might further reduce it by 41%, indicating that even small increases in protective behaviours may be critical to mitigate the wave." [LINK](#)

The New York Times: [When Three Shots Are Not Enough](#) (January 5, 2022)

"People with compromised immune systems are getting unapproved fourth or fifth COVID-19 shots, despite uncertainty about their safety or effectiveness." [LINK](#)

New England Journal of Medicine: [Effectiveness of BNT162b2 Vaccine against Critical COVID-19 in Adolescents](#) (January 12, 2022)

"In this real-world evaluation of the effectiveness of the BNT162b2 mRNA vaccine in adolescents between 12 and 18 years of age in the United States, when the delta variant was predominant, the authors found that the vaccine was highly effective against COVID-19 hospitalization and critical illness, including among patients with underlying risk factors for severe illness. Vaccination averted nearly all life-threatening COVID-19 illness in this age group."

[LINK](#)

Nature: [Immunomodulatory agents for COVID-19 treatment: possible mechanism of action and immunopathology features](#) (January 11, 2022)

"Although vaccines can be successful in immunizing individuals against COVID-19, they seem to be not suitable for hospitalized patients with severe and critical conditions. The application of immunomodulatory drugs has been considered to reduce the mortality rate in COVID-19 patients. In the present review article, the mechanism of action for several pivotal immunomodulatory and immunosuppressant agents pertaining to different drug groups was examined and discussed. More studies and extensive trials are warranted to ensure the extent of effectiveness or ineffectiveness of these medications." [LINK](#)

MENTAL HEALTH & WELLNESS

Public Library of Science One: [The impact of pandemic-related worry on cognitive functioning and risk-taking](#) (November 18, 2021)

"Here, we sought to quantify the effects of experienced fear and worry, engendered by the COVID-19 pandemic, on both cognitive abilities—speed of information processing, task-set shifting, and proactive control—as well as economic risk-taking. Overall, these results elucidate the cognitive consequences of a large-scale, unpredictable, and uncontrollable stressor, which may in turn play an important role in individuals' understanding of, and adherence to safety directives both in the current crisis and future public health emergencies." [LINK](#)

Child Abuse & Neglect: [One year into COVID-19: What have we learned about child maltreatment reports and child protective service responses?](#) (December 31, 2021)

"The current study is part of a larger initiative using an international platform to examine child maltreatment (CM) reports and child protective serviced (CPS) responses in various countries around the globe. The results are presented through a contextual informational analysis that takes into account each region's characteristics and the ways the pandemic impacted the region. The current study contributes to the development of knowledge on the ways that COVID-19 and the associated public health responses have impacted CM reports and CPS responses."

[LINK](#)

Infant Mental Health Journal: [When the Bough Breaks: A systematic review and meta-analysis of mental health symptoms in mothers of young children during the COVID-19 pandemic](#) (December 28, 2021)

"Parents have experienced considerable challenges and stress during the COVID-19 pandemic, which may impact their well-being. This meta-analysis sought to identify: (1) the prevalence of depression and anxiety in parents of young children (<age 5) during the COVID-19 pandemic, and (2) sociodemographic (e.g., parent age, being racially minoritized) and methodological moderators (e.g., study quality) that explain heterogeneity among studies." [LINK](#)

Journal of Affective Disorders: [COVID-19 news consumption and distress in young people: A systematic review](#) (January 3, 2022)

“This review, therefore, aims to synthesise the findings of previous research on the relationship between COVID-19 related news and mental health outcomes in young people. Based on reviewer feedback, a meta-analysis was also conducted to estimate the mental health outcomes of COVID-19 observed in relation to pre-COVID norms. The conclusions drawn will help inform the development of strategies to support the mental health of young people who have been negatively affected by the pandemic.” [LINK](#)

Public Health: [Perceived changes in lifestyle behaviours and in mental health and wellbeing of elementary school children during the first COVID-19 lockdown in Canada](#) (October 20, 2021)

“The closure of schools to prevent the spread of COVID-19 prompted concerns of deteriorating lifestyle behaviours, mental health, and wellbeing of children, particularly those in socioeconomically disadvantaged settings. We assessed changes in lifestyle behaviours (physical activity, screen time, eating habits and bed/wake-up times), mental health and wellbeing during the first lockdown in Spring 2020 as perceived by school children from disadvantaged settings, and examined determinants of these changes.” [LINK](#)

Child Psychiatry & Human Development: [Mental Health Impact of COVID-19 among Children and College Students: A Systematic Review](#) (January 11, 2022)

“The COVID-19 pandemic led to a worldwide lockdown and school closures, which have placed a substantial mental health burden on children and college students. Through a systematic search of the literature on PubMed and Collabovid of studies published January 2020–July 2021, our findings of five studies on children and 16 studies on college students found that both groups reported feeling more anxious, depressed, fatigued, and distressed than prior to the pandemic. Several risk factors such as living in rural areas, low family socioeconomic status, and being a family member or friend to a healthcare worker were strongly associated with worse mental health outcomes. As schools and researchers discuss future strategies on how to combine on-site teaching with online courses, our results indicate the importance of considering social contacts in students’ mental health to support students at higher risk of social isolation during the COVID-19 pandemic.” [LINK](#)

Urban Forestry & Urban Greening: [Spatial statistical analysis of the relationship between self-reported mental health during the COVID-19 lockdown and closeness to green infrastructure](#) (December 30, 2021)

“This study aimed at proving a research hypothesis whereby living close to Green Infrastructure (GI) during the confinement period was beneficial for mental health. To this end, La Palma (Canary Islands) and Zaragoza (Peninsular Spain) were taken as case studies, since both locations distributed a questionnaire to address citizenry’s self-reported mental health under strict lockdown conditions.” [LINK](#)

Internet Interventions: [Effects of an internet-based self-help intervention for psychological distress due to COVID-19: Results of a randomized controlled trial](#) (December 18, 2021)

“The COVID-19 pandemic and its far-reaching impact on physical and mental health generate high demand and, accordingly, a great need for treatment opportunities that promote well-being and manage psychological distress. Internet-based interventions are particularly suitable for this purpose. They are easily scalable, readily accessible, and the online format allows for adherence to social distancing. For this reason, we developed an internet-based self-help intervention called ROCO to address psychological distress due to the COVID-19 pandemic. This randomized controlled trial aimed to examine the efficacy of the ROCO intervention.” [LINK](#)

Marine Policy: [The impact of the COVID-19 pandemic on seafarers' mental health and chronic fatigue: Beneficial effects of onboard peer support, external support and Internet access](#) (January 6, 2022)

"This study examines the impact of the COVID-19 pandemic on seafarers' mental health and chronic fatigue and analyzes the role of onboard peer support, external support and Internet quality as mitigating factors. To test our hypotheses, we use structural equation modeling to analyze survey responses from 622 seafarers on international commercial vessels." [LINK](#)

Institute for New Economic Thinking: [Warning: COVID-Fueled Mental Health Crisis Will Be a Costly Second Pandemic](#) (November 30, 2021)

"It's time to prioritize mental well-being to avoid far-reaching economic and social consequences. Devastating conditions like major depression, bipolar disorder, schizophrenia, and obsessive-compulsive disorder are among the leading causes of disability in established market economies, according to Johns Hopkins Medicine. In the U.S., more than one in four adults was suffering from a diagnosable mental disorder even before the pandemic. For too long, cost and access barriers to mental health care have caused incalculable suffering. COVID has now blown the lid off a crisis building for decades. So why isn't there a plan to deal with it?" [LINK](#)

BioMed Central Psychiatry: [The new frontline: exploring the links between moral distress, moral resilience and mental health in healthcare workers during the COVID-19 pandemic](#) (January 6, 2022)

"Global health crises, such as the COVID-19 pandemic, confront healthcare workers (HCW) with increased exposure to potentially morally distressing events. The pandemic has provided an opportunity to explore the links between moral distress, moral resilience, and emergence of mental health symptoms in HCWs." [LINK](#)

Age and Health Research: [Retrospective feelings of loneliness during the COVID-19 pandemic among residents of long-term care facilities](#) (January 7, 2022)

"This study investigated subjective loneliness among 70+ seniors living in long-term care facilities (LTCFs) in Switzerland. As there have already been differences in feelings of loneliness between residents of LTCFs and community-dwelling older people before the pandemic, a retrospective question form was used to obtain a balanced answer from the respondents and an understanding of how the pandemic changed their individual feelings of loneliness in the LTCFs. The loneliness data from this study were also compared with those from other surveys of older people living at home. This study also aimed to determine the association between loneliness experienced and various independent variables to gain a better understanding of the indicators of loneliness during the pandemic period in older adults living in LTCFs." [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 December 2021 and January 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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