

COVID-19 Resource Desk

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New Research

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COVID-19 related publications by Providence caregivers – see [Digital Commons](#)

Clinical Syndrome

1. **COVID-19 Symptoms and Duration of Rapid Antigen Test Positivity at a Community Testing and Surveillance Site During Pre-Delta, Delta, and Omicron BA.1 Periods.** Marquez C et al. *JAMA Netw Open.* 2022 Oct 3;5(10):e2235844. doi: 10.1001/jamanetworkopen.2022.35844. <https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2797070>

In this cross-sectional study, COVID-19 upper respiratory tract symptoms were more commonly reported during the Omicron BA.1 period than during the pre-Delta and Delta periods, with differences by vaccination status. Rapid antigen test positivity remained high 5 days after symptom onset, supporting guidelines requiring a negative test to inform the length of the isolation period.

Diagnostics & Screening

2. **Comparison of Rapid Antigen Tests' Performance Between Delta and Omicron Variants of SARS-CoV-2 : A Secondary Analysis From a Serial Home Self-testing Study.** Soni A et al. *Ann Intern Med.* 2022 Oct 11. doi: 10.7326/M22-0760. Online ahead of print. <https://www.acpjournals.org/doi/10.7326/M22-0760>

The performance of Ag-RDTs in persons infected with the SARS-CoV-2 Omicron variant is not inferior to that in persons with Delta infections. Serial testing improved the sensitivity of Ag-RDTs for both variants. The performance of rapid antigen testing varies on the basis of duration of RT-PCR positivity. PRIMARY FUNDING SOURCE: National Heart, Lung, and Blood Institute of the National Institutes of Health.

Prognosis

3. **Prognostic factors associated with mortality among patients receiving venovenous extracorporeal membrane oxygenation for COVID-19: a systematic review and meta-analysis.** Tran A et al. *Lancet Respir Med.* 2022 Oct 10:S2213-2600(22)00296-X. doi: 10.1016/S2213-2600(22)00296-X. Online ahead of print. [https://www.thelancet.com/journals/lanres/article/PIIS2213-2600\(22\)00296-X/fulltext](https://www.thelancet.com/journals/lanres/article/PIIS2213-2600(22)00296-X/fulltext)

The prognostic factors identified highlight the importance of patient selection, the effect of injurious lung ventilation, and the potential opportunity for greater centralisation and collaboration in the use of

ECMO for the treatment of COVID-19-associated ARDS. These factors should be carefully considered as part of a risk stratification framework when evaluating a patient for potential treatment with venovenous ECMO.

FUNDING: None.

Survivorship & Rehabilitation

4. **Chronic neuropsychiatric sequelae of SARS-CoV-2: Protocol and methods from the Alzheimer's Association Global Consortium.** Stella Panos, David Merrill [Providence authors]. *Alzheimers Dement (N Y)*. 2022 Sep 22;8(1):e12348. doi: 10.1002/trc2.12348. <https://doi.org/10.1002/trc2.12348>

The following review describes what is known so far in terms of molecular and epidemiological links among COVID-19, the brain, neurological symptoms, and AD and related dementias.

5. **Estimated Global Proportions of Individuals with Persistent Fatigue, Cognitive, and Respiratory Symptom Clusters Following Symptomatic COVID-19 in 2020 and 2021.** Global Burden of Disease Long COVID Collaborators et al. *JAMA*. 2022 Oct 10. doi: 10.1001/jama.2022.18931. Online ahead of print. <https://jamanetwork.com/journals/jama/fullarticle/2797443>

This study presents modeled estimates of the proportion of individuals with at least 1 of 3 self-reported Long COVID symptom clusters (persistent fatigue with bodily pain or mood swings; cognitive problems; or ongoing respiratory problems) 3 months after symptomatic SARS-CoV-2 infection.

6. **Outcomes among confirmed cases and a matched comparison group in the Long-COVID in Scotland study.** Hastie CE, Lowe DJ, McAuley A et al. *Nat Commun*. 13, 5663 (2022). <https://doi.org/10.1038/s41467-022-33415-5> <https://www.nature.com/articles/s41467-022-33415-5>

With increasing numbers infected by SARS-CoV-2, understanding long-COVID is essential to inform health and social care support. A Scottish population cohort of 33,281 laboratory-confirmed SARS-CoV-2 infections and 62,957 never-infected individuals were followed-up via 6, 12 and 18-month questionnaires and linkage to hospitalization and death records. Of the 31,486 symptomatic infections, 1,856 (6%) had not recovered and 13,350 (42%) only partially. No recovery was associated with hospitalized infection, age, female sex, deprivation, respiratory disease, depression and multimorbidity. Previous symptomatic infection was associated with poorer quality of life, impairment across all daily activities and 24 persistent symptoms including breathlessness (OR 3.43, 95% CI 3.29–3.58), palpitations (OR 2.51, OR 2.36–2.66), chest pain (OR 2.09, 95% CI 1.96–2.23), and confusion (OR 2.92, 95% CI 2.78–3.07). Asymptomatic infection was not associated with adverse outcomes. Vaccination was associated with reduced risk of seven symptoms. Here we describe the nature of long-COVID and the factors associated with it.

7. **Post-acute sequelae of covid-19 six to 12 months after infection: population based study.** Peter RS et al. *BMJ*. 2022 Oct 13;379:e071050. doi: 10.1136/bmj-2022-071050. <https://www.bmj.com/content/379/bmj-2022-071050>

Despite the limitation of a low response rate and possible selection and recall biases, this study suggests a considerable burden of self-reported post-acute symptom clusters and possible sequelae, notably fatigue and neurocognitive impairment, six to 12 months after acute SARS-CoV-2 infection, even among young and middle aged adults after mild infection, with a substantial impact on general health and working capacity.

TRIAL REGISTRATION: German registry of clinical studies DRKS 00027012.

Therapeutics

8. **WHO's Therapeutics and COVID-19 Living Guideline on mAbs needs to be reassessed.** Wu MY et al. *Lancet*. 2022 Oct 6:S0140-6736(22)01938-9. doi: 10.1016/S0140-6736(22)01938-9. Online ahead of print.

[https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(22\)01938-9/fulltext](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(22)01938-9/fulltext)

This guidance requires an urgent reassessment. Based on analysis of both the existing literature and data presented here, mAbs neutralise circulating variants and remain the best treatment option for many vulnerable patients, offering a high benefit-to-risk ratio.

9. **Real-world effectiveness of molnupiravir and nirmatrelvir plus ritonavir against mortality, hospitalisation, and in-hospital outcomes among community-dwelling, ambulatory patients with confirmed SARS-CoV-2 infection during the omicron wave in Hong Kong: an observational study.** Wong CKH, Au ICH, Lau KTK, Lau EHY, Cowling BJ, Leung GM. *Lancet*. 2022 Oct 8;400(10359):1213-1222. doi: 10.1016/S0140-6736(22)01586-0.

<https://www.sciencedirect.com/science/article/pii/S0140673622015860>

During Hong Kong's wave of SARS-CoV-2 omicron subvariant BA.2.2, among non-hospitalised patients with COVID-19, early initiation of novel oral antivirals was associated with reduced risks of mortality and in-hospital disease progression. Nirmatrelvir plus ritonavir use was additionally associated with a reduced risk of hospitalisation.

FUNDING: Health and Medical Research Fund, Health Bureau, Government of Hong Kong Special Administrative Region, China.

10. **Avdoralimab (Anti-C5aR1 mAb) Versus Placebo in Patients With Severe COVID-19: Results From a Randomized Controlled Trial (FOR COVID Elimination [FORCE]).** Carvelli J et al. *Crit Care Med*. 2022 Oct 11. doi: 10.1097/CCM.0000000000005683. Online ahead of print.

https://journals.lww.com/ccmjournal/Fulltext/9900/Avdoralimab_Anti_C5aR1_mAb_Versus_Placebo_in.51.aspx

In this randomized trial in hospitalized patients with severe COVID-19 pneumonia, avdoralimab did not significantly improve clinical status at days 14 and 28 (funded by Innate Pharma, ClinicalTrials.gov number, NCT04371367).

11. **Non-invasive advanced respiratory support in end-of-life care and symptom management: systematic review.** Wenzel D, Bleazard L, Pepper CJ, Wilson E, Faull C. *BMJ Support Palliat Care*. 2022 Oct 13:spcare-2022-003905. doi: 10.1136/spcare-2022-003905. Online ahead of print.

<https://spcare.bmj.com/content/early/2022/10/13/spcare-2022-003905>

NARS represents a complex interplay of hope, symptom control, unnaturally prolonged death and treatment burden. The literature captures the breadth of these issues, but further, detailed, research is required in almost every aspect of practice around end-of-life care and NARS-especially how to manage symptoms at the end of life.

12. **Colchicine and the combination of rivaroxaban and aspirin in patients hospitalised with COVID-19 (ACT): an open-label, factorial, randomised, controlled trial.** Eikelboom JW et al. *Lancet Respir Med.* 2022 Oct 10:S2213-2600(22)00298-3. doi: 10.1016/S2213-2600(22)00298-3. Online ahead of print.
[https://www.thelancet.com/journals/lanres/article/PIIS2213-2600\(22\)00298-3/fulltext](https://www.thelancet.com/journals/lanres/article/PIIS2213-2600(22)00298-3/fulltext)

Among patients hospitalised with COVID-19, neither colchicine nor the combination of rivaroxaban and aspirin prevent disease progression or death.

FUNDING: Canadian Institutes for Health Research, Bayer, Population Health Research Institute, Hamilton Health Sciences Research Institute, ThistleDown Foundation.

TRANSLATIONS: For the Portuguese, Russian and Spanish translations of the abstract see Supplementary Materials section.

13. **Colchicine and aspirin in community patients with COVID-19 (ACT): an open-label, factorial, randomised, controlled trial.** Eikelboom JW et al. *Lancet Respir Med.* 2022 Oct 10:S2213-2600(22)00299-5. doi: 10.1016/S2213-2600(22)00299-5. Online ahead of print.
[https://www.thelancet.com/journals/lanres/article/PIIS2213-2600\(22\)00299-5/fulltext](https://www.thelancet.com/journals/lanres/article/PIIS2213-2600(22)00299-5/fulltext)

The results provide no support for the use of colchicine or aspirin to prevent disease progression or death in outpatients with COVID-19.

FUNDING: Canadian Institutes for Health Research, Bayer, Population Health Research Institute, Hamilton Health Sciences Research Institute, and ThistleDown Foundation.

TRANSLATIONS: For the Portuguese, Russian and Spanish translations of the abstract see Supplementary Materials section.

14. **Randomized Phase 3 Trial of Ruxolitinib for COVID-19-Associated Acute Respiratory Distress Syndrome.** Rein L et al. *Crit Care Med.* 2022 Oct 13. doi: 10.1097/CCM.0000000000005682. Online ahead of print.

https://journals.lww.com/ccmjournal/Fulltext/9900/Randomized_Phase_3_Trial_of_Ruxolitinib_for.53.aspx

The observed reduction in 28-day mortality rate between ruxolitinib and placebo in mechanically ventilated patients with COVID-19-associated acute respiratory distress syndrome was not statistically significant; however, the trial was underpowered owing to early termination.

Transmission / Infection Control

15. **Prevention of covid-19 and other acute respiratory infections with cod liver oil supplementation, a low dose vitamin D supplement: quadruple blinded, randomised placebo controlled trial.** Brunvoll SH et al. *BMJ.* 2022 Sep 7;378:e071245. doi: 10.1136/bmj-2022-071245. <https://www.bmj.com/content/378/bmj-2022-071245>

Supplementation with cod liver oil in the winter did not reduce the incidence of SARS-CoV-2 infection, serious covid-19, or other acute respiratory infections compared with placebo.

TRIAL REGISTRATION: ClinicalTrials.gov NCT04609423.

16. Effect of a test-and-treat approach to vitamin D supplementation on risk of all cause acute respiratory tract infection and covid-19: phase 3 randomised controlled trial (CORONAVIT).

Jolliffe DA et al. *BMJ*. 2022 Sep 7;378:e071230. doi: 10.1136/bmj-2022-071230.

<https://www.bmj.com/content/378/bmj-2022-071230>

Among people aged 16 years and older with a high baseline prevalence of suboptimal vitamin D status, implementation of a population level test-and-treat approach to vitamin D supplementation was not associated with a reduction in risk of all cause acute respiratory tract infection or covid-19.

TRIAL REGISTRATION: ClinicalTrials.gov NCT04579640.

17. Daily use of lateral flow devices by contacts of confirmed COVID-19 cases to enable exemption from isolation compared with standard self-isolation to reduce onward transmission of SARS-CoV-2 in England: a randomised, controlled, non-inferiority trial. Love NK et al. *Lancet Respir Med*. 2022 Oct 10:S2213-2600(22)00267-3. doi: 10.1016/S2213-2600(22)00267-3. Online ahead of print.

[https://www.thelancet.com/journals/lanres/article/PIIS2213-2600\(22\)00267-3/fulltext](https://www.thelancet.com/journals/lanres/article/PIIS2213-2600(22)00267-3/fulltext)

DCT with 24 h exemption from self-isolation for essential activities appears to be non-inferior to self-isolation. This study, which provided evidence for the UK Government's daily lateral flow testing policy for vaccinated contacts of COVID-19 cases, indicated that daily testing with LFDs could allow individuals to reduce the risk of onward transmission while minimising the adverse effects of self-isolation.

Although contacts in England are no longer required to isolate, the findings will be relevant for future policy decisions around COVID-19 or other communicable infections.

FUNDING: UK Government Department of Health and Social Care.

Vaccines / Immunology

18. Safety and Efficacy of the NVX-CoV2373 COVID-19 Vaccine at Completion of the Placebo-Controlled Phase of a Randomized Controlled Trial. Heath PT et al. *Clin Infect Dis*. 2022 Oct 10:ciac803. doi: 10.1093/cid/ciac803. Online ahead of print.

<https://academic.oup.com/cid/advance-article/doi/10.1093/cid/ciac803/6754597>

A two-dose regimen of NVX-CoV2373 conferred a high level of ongoing protection against asymptomatic, symptomatic, and severe COVID-19 through >6 months postvaccination. A gradual decrease of protection suggests that a booster dose may be indicated.

19. Effectiveness and durability of BNT162b2 vaccine against hospital and emergency department admissions due to SARS-CoV-2 omicron sub-lineages BA.1 and BA.2 in a large health system in the USA: a test-negative, case-control study. Tartof SY, Slezak JM, Puzniak L, Hong V, Frankland TB, Xie F, Ackerson BK, Valluri SR, Jodar L, McLaughlin JM. *Lancet Respir Med*. 2022 Oct 7:S2213-2600(22)00354-X. doi: 10.1016/S2213-2600(22)00354-X. Online ahead of print.

<https://www.sciencedirect.com/science/article/pii/S221326002200354X>

Two doses of BNT162b2 provided only partial protection against BA.1-related and BA.2-related hospital and emergency department admission, which underscores the need for booster doses against omicron. Although three doses offered high levels of protection ($\geq 70\%$) against hospitalisation, variant-adapted vaccines are probably needed to improve protection against less severe endpoints, like emergency department admission, especially for BA.2.

FUNDING: Pfizer.

20. Effectiveness of mRNA COVID-19 Vaccine Boosters Against Infection, Hospitalization, and Death: A Target Trial Emulation in the Omicron (B.1.1.529) Variant Era. Ioannou GN et al. *Ann Intern Med.* 2022 Oct 11. doi: 10.7326/M22-1856. Online ahead of print.

<https://www.acpjournals.org/doi/10.7326/M22-1856>

Booster mRNA vaccination was highly effective in preventing death and moderately effective in preventing infection and hospitalization for up to 4 months after administration in the Omicron era. Increased uptake of booster vaccination, which is currently suboptimal, should be pursued to limit the morbidity and mortality of SARS-CoV-2 infection, especially in persons with high comorbidity burden.

PRIMARY FUNDING SOURCE: U.S. Department of Veterans Affairs.

21. Vaccine effectiveness of primary series and booster doses against covid-19 associated hospital admissions in the United States: living test negative design study. Adams K et al. *BMJ.* 2022 Oct 11;379:e072065. doi: 10.1136/bmj-2022-072065.

<https://www.bmj.com/content/379/bmj-2022-072065>

During the first six months of 2022 in the US, booster doses of a covid-19 vaccine provided additional benefit beyond a primary vaccine series alone for preventing hospital admissions with omicron related covid-19.

READERS' NOTE: This article is a living test negative design study that will be updated to reflect emerging evidence. Updates may occur for up to two years from the date of original publication.

22. Imprinting and Protection against Repeat Reinfection with SARS-CoV-2. Chemaitelly H et al. *N Engl J Med.* 2022 Oct 12. doi: 10.1056/NEJMc2211055. Online ahead of print.

<https://www.nejm.org/doi/10.1056/NEJMc2211055>

More than 2 years into the coronavirus disease 2019 (Covid-19) pandemic, the global population carries heterogeneous immune histories derived from various exposures to infection, viral variants, and vaccination.¹ Evidence at the level of binding and neutralizing antibodies and B-cell and T-cell immunity suggests that a history of infection with severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) can have a negative effect on subsequent protective immunity.¹ In particular, the immune response to B.1.1.529 (omicron) subvariants could be compromised by differential immune imprinting in persons who have had a previous infection with the original virus or the B.1.1.7 (alpha) variant.¹

Women & Children

23. Pregnancy outcomes after SARS-CoV-2 infection in periods dominated by delta and omicron variants in Scotland: a population-based cohort study. Stock SJ et al. *Lancet Respir Med.* 2022 Oct 7:S2213-2600(22)00360-5. doi: 10.1016/S2213-2600(22)00360-5. Online ahead of print.

<https://www.sciencedirect.com/science/article/pii/S2213260022003605>

Pregnant women infected with SARS-CoV-2 were substantially less likely to have a preterm birth or maternal critical care admission during the omicron-dominant period than during the delta-dominant period.

FUNDING: Wellcome Trust, Tommy's charity, Medical Research Council, UK Research and Innovation, Health Data Research UK, National Core Studies-Data and Connectivity, Public Health Scotland, Scottish Government Health and Social Care, Scottish Government Chief Scientist Office, National Research Scotland.

FDA / CDC / NIH / WHO Updates

[Coronavirus \(COVID-19\) Update: FDA Authorizes Moderna and Pfizer-BioNTech Bivalent COVID-19 Vaccines for Use as a Booster Dose in Younger Age Groups](#)

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