

COVID-19 Resource Desk

#150 | 4.2.2023 to 4.8.2023

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New Research

*note, **PREPRINTS** have not undergone formal peer review

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

Clinical Syndrome

1. **A Comprehensive Review of COVID-19-Associated Endocrine Manifestations.** Khan S, et al.

South Med J. 2023 Apr;116(4):350-354. doi: 10.14423/SMJ.0000000000001542.

<https://doi.org/10.14423/smj.0000000000001542>

This review aimed to identify and discuss the endocrine complications of COVID-19. This primary focus is on presenting thyroid disorders or newly diagnosed diabetes mellitus (DM). Thyroid dysfunction with subacute thyroiditis, Graves' disease, and hypothyroidism caused by primary autoimmune thyroiditis has been reported. Pancreatic damage leads to type 1 DM because of the autoimmune nature of the disease and type 2 DM because of postinflammatory insulin resistance. Because follow-up data on COVID-19 on the endocrine glands are limited, long-term investigations are needed to assess specific effects.

Epidemiology & Public Health

2. **Association between any underlying health condition and COVID-19-associated hospitalization by age group, Washington State, 2020-2021: a retrospective cohort study.**

McConnell KH, et al. *BMC Infect Dis.* 2023 Mar 30;23(1):193. doi: 10.1186/s12879-023-08146-7.

<https://bmcinfectdis.biomedcentral.com/articles/10.1186/s12879-023-08146-7>

Individuals with UHCs are at significantly increased risk of COVID-19-associated hospitalization regardless of age. Our findings support the prevention of severe COVID-19 in adults with UHCs in all age groups and in older adults aged 65 + years as ongoing local public health priorities.

3. **Surveillance of SARS-CoV-2 at the Huanan Seafood Market.** Liu WJ et al. *Nature.* 2023 Apr 5.

doi: 10.1038/s41586-023-06043-2. <https://www.nature.com/articles/s41586-023-06043-2>

SARS-CoV-2, the causative agent of COVID-19, emerged in December 2019. Its origins remain uncertain. It has been reported that a number of the early human cases had a history of contact with the Huanan Seafood Market. Here we present the results of surveillance for SARS-CoV-2 within the market. From January 1st 2020, after closure of the market, 923 samples were collected from the environment. From 18th January, 457 samples were collected from 18 species of animals, comprising of unsold contents of refrigerators and freezers, swabs from stray animals, and the contents of a fish tank. Using RT-qPCR, SARS-CoV-2 was detected in 73 environmental samples, but none of the animal

samples. Three live viruses were successfully isolated. The viruses from the market shared nucleotide identity of 99.99% to 100% with the human isolate HCoV-19/Wuhan/IVDC-HB-01/2019. SARS-CoV-2 lineage A (8782T and 28144C) was found in an environmental sample. RNA-seq analysis of SARS-CoV-2 positive and negative environmental samples showed an abundance of different vertebrate genera at the market. In summary, this study provides information about the distribution and prevalence of SARS-CoV-2 in the Huanan Seafood Market during the early stages of the COVID-19 outbreak.

4. **Risk of Death in Patients Hospitalized for COVID-19 vs Seasonal Influenza in Fall-Winter 2022-2023.** Xie Y, Choi T, Al-Aly Z. *JAMA*. 2023 Apr 6. doi: 10.1001/jama.2023.5348.
<https://jamanetwork.com/journals/jama/fullarticle/2803749>

Plain Language Summary: This study uses data from the US Department of Veterans Affairs to assess whether SARS-CoV-2 remains associated with higher risk of death compared with seasonal influenza in fall-winter 2022-2023.

Survivorship & Rehabilitation

5. **Prevalence and Characteristics Associated With Post-COVID-19 Condition Among Nonhospitalized Adolescents and Young Adults.** Selvakumar J et al. *JAMA Netw Open*. 2023 Mar 1;6(3):e235763. doi: 10.1001/jamanetworkopen.2023.5763.
<https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2802893>

The persistent symptoms and disability that characterize PCC are associated with factors other than SARS-CoV-2 infection, including psychosocial factors. This finding raises questions about the utility of the World Health Organization case definition and has implications for the planning of health care services as well as for further research on PCC.

6. **Definition of Post-COVID-19 Condition Among Published Research Studies.** Chaichana U, et al. *JAMA Netw Open*. 2023 Apr 3;6(4):e235856. doi: 10.1001/jamanetworkopen.2023.5856.
<https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2803125>

Plain Language Summary: This cross-sectional study examines the differing definitions of a post-COVID-19 condition among published studies.

7. **Two-year physical, mental and cognitive outcomes among intensive care unit survivors treated for COVID-19.** MONITOR-IC research group. *Intensive Care Med*. 2023 Apr 5. doi: 10.1007/s00134-023-07038-3. <https://link.springer.com/article/10.1007/s00134-023-07038-3>

Critical illness can cause new or worsened physical, mental and cognitive symptoms following intensive care unit (ICU) treatment, known as post-intensive care syndrome (PICS), which can persist for years [1]. ICU patients treated for coronavirus disease 2019 (COVID-19) frequently experience symptoms of PICS 1 year after ICU treatment; however, their long-term outcomes beyond the first year are largely unknown [2]. We therefore conducted a 2-years follow-up study to further guide ICU (after) care.

Therapeutics

- 8. Antiviral effect of azvudine and nirmatrelvir-ritonavir among hospitalized patients with COVID-19.** Gao Y, et al. *J Infect.* 2023 Mar 30:S0163-4453(23)00192-5. doi: 10.1016/j.jinf.2023.03.023. [https://www.journalofinfection.com/article/S0163-4453\(23\)00192-5/fulltext](https://www.journalofinfection.com/article/S0163-4453(23)00192-5/fulltext)

Unlike the wealth of available data for nirmatrelvir-ritonavir,⁵ there is limited information published regarding the clinical use of azvudine, as well as the absence of head-to-head trial for antiviral agents, there is a need to understand antiviral effect of available agents in practice, we thus make a comparison of viral load dynamics among hospitalized patients with COVID-19 who received nirmatrelvir-ritonavir or azvudine.

- 9. Your outpatient has COVID-19: what are their treatment options in the current SARS-CoV-2 variant climate?** Werbel WA, et al. *Clin Infect Dis.* 2023 Mar 31:ciad178. doi: 10.1093/cid/ciad178. <https://academic.oup.com/cid/advance-article/doi/10.1093/cid/ciad178/7097790>

Mutations accumulated by novel SARS-CoV-2 Omicron sublineages contribute to evasion of previously effective monoclonal antibodies for treatment or prevention of COVID-19. Other authorized or approved antiviral drugs such as nirmatrelvir/ritonavir, remdesivir, and molnupiravir are, however, predicted to maintain activity against these sublineages and are key tools to reduce severe COVID-19 outcomes in vulnerable populations. A stepwise approach may be taken to target the appropriate antiviral drug to the appropriate patient, beginning with identifying whether a patient is at high risk for hospitalization or other complications of COVID-19. Among higher-risk individuals, patient profile (including factors such as age, organ function, and comedications) and antiviral drug access inform suitable antiviral drug selection. When applied in targeted fashion, these therapies serve as a complement to vital ongoing non-pharmaceutical interventions and vaccination strategies that reduce morbidity and maximize protection against COVID-19.

- 10. Evolving Real-World Effectiveness of Monoclonal Antibodies for Treatment of COVID-19 : A Cohort Study.** Kip KE et al. *Ann Intern Med.* 2023 Apr 4. doi: 10.7326/M22-1286. <https://www.acpjournals.org/doi/10.7326/M22-1286>

Early mAb treatment among outpatients with COVID-19 is associated with lower risk for hospitalization or death for various mAb products and SARS-CoV-2 variants.
PRIMARY FUNDING SOURCE: None.

Vaccines / Immunology

- 11. SARS-CoV-2 neutralising antibodies after bivalent versus monovalent booster.** Wang Q, et al. *Lancet Infect Dis.* 2023 Mar 29:S1473-3099(23)00181-0. doi: 10.1016/S1473-3099(23)00181-0. [https://www.thelancet.com/journals/laninf/article/PIIS1473-3099\(23\)00181-0/fulltext](https://www.thelancet.com/journals/laninf/article/PIIS1473-3099(23)00181-0/fulltext)

The SARS-CoV-2 omicron lineage (B.1.1.529) continues to proliferate and evolve, leading to subvariants adept at evading antibody responses.¹ Bivalent mRNA vaccines expressing both the omicron BA.5 spike and the ancestral D614G spike were introduced in August, 2022 with the goal of boosting waning antibody titres and broadening coverage against emerging SARS-CoV-2 lineages.² However, in early

2023, we and others reported that peak serum neutralising antibody (NAb) titres against SARS-CoV-2 variants following a bivalent vaccine booster were similar to peak titres following a monovalent booster.^{3, 4} Whether these antibody responses would diverge over time remains unknown.

- 12. COVID-19 Vaccination is Associated with Reduced Outpatient Antibiotic Prescribing In Older Adults with Confirmed SARS-CoV-2: A Population Wide Cohort Study.** MacFadden DR et al. *Clin Infect Dis*. 2023 Mar 31;ciad190. doi: 10.1093/cid/ciad190.
<https://academic.oup.com/cid/advance-article/doi/10.1093/cid/ciad190/7097498>

Antibiotic prescribing was high and with little or no decline following SARS-CoV-2 diagnosis, though was reduced in COVID-19 vaccinated individuals, highlighting the importance of vaccination and antibiotic stewardship in older adults with COVID-19.

- 13. COVID-19 Vaccine Effectiveness Against Omicron Infection and Hospitalization.** Piché-Renaud PP et al. *Pediatrics*. 2023 Apr 1;151(4):e2022059513. doi: 10.1542/peds.2022-059513.
<https://publications.aap.org/pediatrics/article/151/4/e2022059513/190808/COVID-19-Vaccine-Effectiveness-Against-Omicron>

In children aged 5 to 11 years, 2 doses of BNT162b2 provide moderate protection against symptomatic Omicron infection within 4 months of vaccination and good protection against severe outcomes. Protection wanes more rapidly for infection than severe outcomes. Overall, longer dosing intervals confer higher protection against symptomatic infection, however protection decreases and becomes similar to shorter dosing interval starting 90 days after vaccination.

- 14. Myocarditis or Pericarditis Events After BNT162b2 Vaccination in Individuals Aged 12 to 17 Years in Ontario, Canada.** Buchan S et al. *JAMA Pediatr*. 2023 Apr 1;177(4):410-418. doi: 10.1001/jamapediatrics.2022.6166.
<https://jamanetwork.com/journals/jamapediatrics/fullarticle/2801804>

Results of this cohort study suggest that there was variation in the reported incidence of myocarditis or pericarditis after BNT162b2 vaccine among adolescent age groups. However, the risk of these events after vaccination remains very rare and should be considered in relation to the benefits of COVID-19 vaccination.

Women & Children

- 15. Vaccine effectiveness against hospitalization among adolescent and pediatric SARS-CoV-2 cases between May 2021 and January 2022 in Ontario, Canada: A retrospective cohort study.** Simmons AE, et al. *PLoS One*. 2023 Mar 31;18(3):e0283715. doi: 10.1371/journal.pone.0283715. eCollection 2023.
<https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0283715>

Despite immune evasion by SARS-CoV-2 variants, vaccination continues to be associated with a lower likelihood of hospitalization among adolescent and pediatric Omicron (B.1.1.529) SARS-CoV-2 cases, even when the vaccines do not prevent infection. Continued efforts are needed to increase vaccine uptake among adolescent and pediatric populations.

- 16. Codetections of Other Respiratory Viruses Among Children Hospitalized With COVID-19.** Agathis NT et al. *Pediatrics*. 2023 Feb 1;151(2):e2022059037. doi: 10.1542/peds.2022-059037. <https://publications.aap.org/pediatrics/article/151/2/e2022059037/190475/Codetections-of-Other-Respiratory-Viruses-Among>

Respiratory virus codetections, including RSV and rhinovirus/enterovirus, may increase illness severity among children <5 yo hospitalized with SARS-CoV-2 infection.

- 17. Maternal and Newborn Hospital Outcomes of Perinatal SARS-CoV-2 Infection: A National Registry.** Hudak ML et al. *Pediatrics*. 2023 Feb 1;151(2):e2022059595. doi: 10.1542/peds.2022-059595. <https://publications.aap.org/pediatrics/article/151/2/e2022059595/190431/Maternal-and-Newborn-Hospital-Outcomes-of>

Early in the pandemic, SARS-CoV-2 infection was acquired by newborns at variable rates and without apparent short-term effects. During a period that preceded widespread availability of vaccines, we observed higher than expected numbers of preterm births and maternal in-hospital deaths.

- 18. Effectiveness of BNT162b2 after extending the primary series dosing interval in children and adolescents aged 5-17.** Lai FTT, et al. *Nat Commun*. 2023 Apr 3;14(1):1845. doi: 10.1038/s41467-023-37556-z. <https://www.nature.com/articles/s41467-023-37556-z>

Extended intervals between the first and second doses of mRNA Covid-19 vaccines may reduce the risk of myocarditis in children and adolescents. However, vaccine effectiveness after this extension remains unclear. To examine this potential variable effectiveness, we conducted a population-based nested case-control study of children and adolescents aged 5-17 years who had received two doses of BNT162b2 in Hong Kong. From January 1 to August 15, 2022, 5396 Covid-19 cases and 202 Covid-19 related hospitalizations were identified and matched with 21,577 and 808 controls, respectively. For vaccine recipients with extended intervals [≥ 28 days, adjusted odds ratio 0.718, 95% Confidence Interval: 0.619, 0.833] there was a 29.2%-reduced risk of Covid-19 infection compared to those with regular intervals (21-27 days). If the threshold was set at eight weeks, the risk reduction was estimated at 43.5% (aOR 0.565, 95% CI: 0.456, 0.700). In conclusion, longer dosing intervals for children and adolescents should be considered.

- 19. Estimated Effectiveness of Postpartum Maternal Messenger RNA COVID-19 Vaccination Against Delta and Omicron SARS-CoV-2 Infection and Hospitalization in Infants Younger Than 6 Months.** Jorgensen SCJ, et al. *JAMA Pediatr*. 2023 Apr 1;177(4):427-430. doi: 10.1001/jamapediatrics.2022.6134. <https://jamanetwork.com/journals/jamapediatrics/fullarticle/2801807>

Plain Language Summary: This case-control study estimates the effectiveness of maternal postpartum messenger RNA (mRNA) COVID-19 vaccination against Delta and Omicron SARS-CoV-2 infection and hospitalization in infants younger than 6 months.

GUIDELINES & CONSENSUS STATEMENTS

[Guidance for Cardiopulmonary Resuscitation of Children With Suspected or Confirmed COVID-19.](#) *Pediatrics*. 2023 Apr 1;151(4):e2023061453. doi: 10.1542/peds.2023-061453.

FDA / CDC / NIH / WHO Updates

[CDC and FDA Identify Preliminary COVID-19 Vaccine Safety Signal for Persons Aged 65 Years and Older](#)

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