

COVID-19 Resource Desk

#140 | to 1.22.2023 to 1.29.2023

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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. **Cardiologic Manifestations in Omicron-Type Versus Wild-Type COVID-19: A Systematic Echocardiographic Study.** Ghantous E et al. *J Am Heart Assoc.* 2023 Jan 25:e027188. doi: 10.1161/JAHA.122.027188. <https://www.ahajournals.org/doi/10.1161/JAHA.122.027188>

In patients with Omicron, RV function is impaired to a lower extent compared with the wild-type variant, possibly related to the attenuated pulmonary parenchymal and/or vascular disease. LV systolic and diastolic abnormalities are as common as in the wild-type variant but were usually recorded before acute infection and probably reflect background cardiac morbidity. Numerous LV and RV abnormalities are associated with adverse outcome in patients with Omicron.

Epidemiology & Public Health

2. **Analysis of mRNA COVID-19 Vaccine Uptake Among Immunocompromised Individuals in a Large US Health System.** Tartof SY et al. *JAMA Netw Open.* 2023 Jan 3;6(1):e2251833. doi: 10.1001/jamanetworkopen.2022.51833. <https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2800691>

These findings suggest that adherence to CDC mRNA monovalent COVID-19 booster dose recommendations among immunocompromised individuals was low. Given the increased risk for severe COVID-19 in this vulnerable population and the well-established additional protection afforded by booster doses, targeted and tailored efforts to ensure that immunocompromised individuals remain up to date with COVID-19 booster dose recommendations are warranted.

Healthcare Delivery & Healthcare Workers

3. **Development of Moral Injury in ICU Professionals During the COVID-19 Pandemic: A Prospective Serial Interview Study.** Kok N. *Crit Care Med.* 2023 Feb 1;51(2):231-240. doi: 10.1097/CCM.0000000000005766.

https://journals.lww.com/ccmjournal/Fulltext/2023/02000/Development_of_Moral_Injury_in_ICU_Professionals.6.aspx

ICU professionals exhibit symptoms of moral injury such as feelings of betrayal, detachment, self-alienation, and disorientation. Healthcare organizations and ICU professionals themselves should be cognizant that these feelings may indicate that professionals might have developed moral injury or that it may yet develop in the future. Awareness should be raised about moral injury and should be followed up by asking morally injured professionals what they need, so as to not risk offering unwanted help.

- 4. Effect of Ward-Based High-Flow Nasal Cannula (HFNC) Oxygen Therapy on Critical Care Utilization During the COVID-19 Pandemic: A Retrospective Cohort Analysis.** Silverstein WK. *J Gen Intern Med.* 2023 Jan 20. doi: 10.1007/s11606-022-07949-9.
<https://link.springer.com/article/10.1007/s11606-022-07949-9>

With appropriate training and resources, treatment of COVID-19 patients with HFNC on GIM wards appears to be a feasible strategy to increase critical care capacity.

- 5. Hydroxychloroquine for pre-exposure prophylaxis of COVID-19 in health care workers: A randomized, multicenter, placebo-controlled trial (HERO-HCQ).** Naggie S et al. *Int J Infect Dis.* 2023 Jan 19:S1201-9712(23)00019-X. doi: 10.1016/j.ijid.2023.01.019.
[https://www.ijidonline.com/article/S1201-9712\(23\)00019-X/fulltext](https://www.ijidonline.com/article/S1201-9712(23)00019-X/fulltext)

Oral HCQ taken as prescribed appeared safe in the HCW. No significant clinical benefits were observed. The study was not powered to detect a small but potentially important reduction in infection. TRIAL REGISTRATION: NCT04334148.

- 6. Boarding in US Academic Emergency Departments During the COVID-19 Pandemic.** Kilaru AS. *Ann Emerg Med.* 2023 Jan 19:S0196-0644(22)01328-2. doi: 10.1016/j.annemergmed.2022.12.004. [https://www.annemergmed.com/article/S0196-0644\(22\)01328-2/fulltext](https://www.annemergmed.com/article/S0196-0644(22)01328-2/fulltext)

A sustained and considerable increase in boarding observed in selected US academic EDs during later phases of the COVID-19 pandemic may reflect ongoing stresses to the health care system, with potential consequences for patient outcomes as well as clinician well-being.

- 7. Risk Factors for Reinfection with SARS-CoV-2 Omicron Variant among Previously Infected Frontline Workers.** Ellingson KD et al. *Emerg Infect Dis.* 2023 Jan 26;29(3). doi: 10.3201/eid2903.221314. https://wwwnc.cdc.gov/eid/article/29/3/22-1314_article

In a cohort of essential workers in the United States previously infected with SARS-CoV-2, risk factors for reinfection included being unvaccinated, infrequent mask use, time since first infection, and being non-Hispanic Black. Protecting workers from reinfection requires a multipronged approach including up-to-date vaccination, mask use as recommended, and reduction in underlying health disparities.

- 8. Trends in Outpatient Visits and Hospital and Intensive Care Unit Admissions of Adults With COVID-19 in an Integrated US Health Care System, March 2020 to January 2022.** Myers LC. *JAMA Netw Open.* 2023 Jan 3;6(1):e2253269. doi: 10.1001/jamanetworkopen.2022.53269.
<https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2800841>

Plain Language Summary: This cohort study of patients at a single integrated health system examines trends in COVID-19–related treatment location and mortality.

Prognosis

- 9. Prognostic factors for favorable outcomes after veno-venous extracorporeal membrane oxygenation in critical care patients with COVID-19.** Kieninger B et al. *PLoS One*. 2023 Jan 20;18(1):e0280502. doi: 10.1371/journal.pone.0280502. eCollection 2023.

<https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0280502>

The most important parameters for predicting outcome were patient age and platelet count, which differed significantly between survivors and non-survivors (age: 52.6±8.1 vs. 57.4±10.1 years, $p < 0.001$; platelet count before VV ECMO: 321.3±132.2 vs. 262.0±121.0 /nL, $p = 0.006$; average on day 10: 199.2±88.0 vs. 147.1±57.9 /nL, $p = 0.002$). A linear regression model derived from parameters collected before the start of VV ECMO only included age and platelet count. Patients were divided into two groups by using receiver operating characteristics (ROC) analysis: group 1: 78% of patients, mortality 26%; group 2: 22% of patients, mortality 75%. A second linear regression model included average blood pH, minimum paO₂, and average pump flow on day 10 of VV ECMO in addition to age and platelet count. The ROC curve resulted in two cut-off values and thus in three groups: group 1: 25% of patients, mortality 93%; group 2: 45% of patients, mortality 31%; group 3: 30% of patients, mortality 0%.

Survivorship & Rehabilitation

- 10. Long-term respiratory follow-up of ICU hospitalized COVID-19 patients: Prospective cohort study.** Ribeiro Carvalho CR et al. *PLoS One*. 2023 Jan 20;18(1):e0280567. doi: 10.1371/journal.pone.0280567. eCollection 2023.

<https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0280567>

ICU hospitalization due to COVID-19 led to respiratory system alterations six-twelve months after hospital admission. Male sex and critical disease acute phase, characterized by a longer ICU and IMV period, and need for tracheostomy and vasoactive drugs, were risk factors for severe CT lesions six-twelve months after hospital admission.

Therapeutics

- 11. Characteristics and outcomes of US Veterans at least 65 years of age at high risk of severe SARS-CoV-2 infection with or without receipt of oral antiviral agents.** Gentry CA. *J Infect*. 2023 Jan 23:S0163-4453(23)00023-3. doi: 10.1016/j.jinf.2023.01.018.

[https://www.journalofinfection.com/article/S0163-4453\(23\)00023-3/fulltext](https://www.journalofinfection.com/article/S0163-4453(23)00023-3/fulltext)

Our findings support the use of molnupiravir or nirmatrelvir/ritonavir in patients 65 years of age and older. Patients with higher medication caution and contraindication burdens to nirmatrelvir/ritonavir are selected for molnupiravir therapy, which in the absence of a prospective head-to-head trial, may limit any efforts to compare the effectiveness of the two drugs.

- 12. Effect of continuing the use of renin-angiotensin system inhibitors on mortality in patients hospitalized for coronavirus disease 2019: a systematic review, meta-analysis, and meta-**

regression analysis. Liu Q. *BMC Infect Dis.* 2023 Jan 24;23(1):53. doi: 10.1186/s12879-023-07994-7. <https://bmcinfectdis.biomedcentral.com/articles/10.1186/s12879-023-07994-7>

Previous ACEI/ARB treatment could be continued since it was associated with lower hospital deaths, ICU admission, and IMV in patients with COVID-19, although the benefits of continuing use were mainly shown in observational studies. More evidence from multicenter RCTs are still needed to increase the robustness of the data. Trial registration PROSPERO (CRD42022341169). Registered 27 June 2022.

Vaccines / Immunology

13. **Spotlight on vaccine-induced thrombosis and thrombocytopenia (VITT).** Cines DB, Greinacher A. *Blood.* 2023 Jan 20;blood.2022017696. doi: 10.1182/blood.2022017696. <https://ashpublications.org/blood/article/doi/10.1182/blood.2022017696/494209/Spotlight-on-vaccine-induced-thrombosis-and>

Within the first months of the Covid-19 vaccination campaign, previously healthy recipients were identified who developed severe thrombosis (often cerebral and/or splanchnic vasculature) and thrombocytopenia typically after adenoviralvector-based vaccination. Similarities between this syndrome, vaccine-induced thrombocytopenia and thrombosis (VITT), and heparin-induced thrombocytopenia, prompted recognition of the role of anti-platelet factor 4 (PF4) antibodies and management strategies based on intravenous immunoglobulin and non-heparin anticoagulants, which improved outcome. We update current understanding of VITT and potential involvement of anti-PF4 antibodies in thrombotic disorders.

14. **Immune correlates analysis of the PREVENT-19 COVID-19 vaccine efficacy clinical trial.** Fong Y et al. *Nat Commun.* 2023 Jan 19;14(1):331. doi: 10.1038/s41467-022-35768-3. <https://www.nature.com/articles/s41467-022-35768-3>

In the PREVENT-19 phase 3 trial of the NVX-CoV2373 vaccine (NCT04611802), anti-spike binding IgG concentration (spike IgG), anti-RBD binding IgG concentration (RBD IgG), and pseudovirus 50% neutralizing antibody titer (nAb ID50) measured two weeks post-dose two are assessed as correlates of risk and as correlates of protection against COVID-19. Analyses are conducted in the U.S. cohort of baseline SARS-CoV-2 negative per-protocol participants using a case-cohort design that measures the markers from all 12 vaccine recipient breakthrough COVID-19 cases starting 7 days post antibody measurement and from 639 vaccine recipient non-cases. All markers are inversely associated with COVID-19 risk and directly associated with vaccine efficacy. In vaccine recipients with nAb ID50 titers of 50, 100, and 7230 international units (IU50)/ml, vaccine efficacy estimates are 75.7% (49.8%, 93.2%), 81.7% (66.3%, 93.2%), and 96.8% (88.3%, 99.3%). The results support potential cross-vaccine platform applications of these markers for guiding decisions about vaccine approval and use.

15. **SARS-CoV-2 Antibody Responses to the Ancestral SARS-CoV-2 Strain and Omicron BA.1 and BA.4/BA.5 Variants in Nursing Home Residents After Receipt of Bivalent COVID-19 Vaccine - Ohio and Rhode Island, September-November 2022.** Canaday DH et al. *MMWR Morb Mortal Wkly Rep.* 2023 Jan 27;72(4):100-106. doi: 10.15585/mmwr.mm7204a4. https://www.cdc.gov/mmwr/volumes/72/wr/mm7204a4.htm?s_cid=mm7204a4_w

Introduction of monovalent COVID-19 mRNA vaccines in late 2020 helped to mitigate disproportionate COVID-19-related morbidity and mortality in U.S. nursing homes; however, reduced effectiveness of monovalent vaccines during the period of Omicron variant predominance led to recommendations for booster doses with bivalent COVID-19 mRNA vaccines that include an Omicron BA.4/BA.5 spike protein component to broaden immune response and improve vaccine effectiveness against circulating Omicron variants. Recent studies suggest that bivalent booster doses provide substantial additional protection against SARS-CoV-2 infection and severe COVID-19-associated disease among immunocompetent adults who previously received only monovalent vaccines). The immunologic response after receipt of bivalent boosters among nursing home residents, who often mount poor immunologic responses to vaccines, remains unknown. Serial testing of anti-spike protein antibody binding and neutralizing antibody titers in serum collected from 233 long-stay nursing home residents from the time of their primary vaccination series and including any subsequent booster doses, including the bivalent vaccine, was performed. The bivalent COVID-19 mRNA vaccine substantially increased anti-spike and neutralizing antibody titers against Omicron sublineages, including BA.1 and BA.4/BA.5, irrespective of previous SARS-CoV-2 infection or previous receipt of 1 or 2 booster doses. These data, in combination with evidence of low uptake of bivalent booster vaccination among residents and staff members in nursing homes, support the recommendation that nursing home residents and staff members receive a bivalent COVID-19 booster dose to reduce associated morbidity and mortality.

Women & Children

16. **Assessment of Efficacy and Safety of mRNA COVID-19 Vaccines in Children Aged 5 to 11 Years: A Systematic Review and Meta-analysis.** Watanabe A. *JAMA Pediatr.* 2023 Jan 23. doi: 10.1001/jamapediatrics.2022.6243.

<https://jamanetwork.com/journals/jamapediatrics/fullarticle/2800743>

In this systematic review and meta-analysis, COVID-19 mRNA vaccines among children aged 5 to 11 years were associated with measures of efficacy in preventing SARS-CoV-2 infection and severe COVID-19-related illnesses. While most children developed local AEs, severe AEs were rare, and most of AEs resolved within several days. These data provide evidence for future recommendations.

GUIDELINES & CONSENSUS STATEMENTS

[The Infectious Diseases Society of America Guidelines on the Diagnosis of COVID-19: Antigen Testing.](#) Hayden MK et al. *Clin Infect Dis.* 2023 Jan 26:ciad032. doi: 10.1093/cid/ciad032.

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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