

COVID-19 Resource Desk

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Prepared by [System Library Services](#)

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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. Frequency of Neurologic Manifestations in COVID-19: A Systematic Review and Meta-analysis.** Misra S et al. *Neurology*. 2021 Oct 11:10.1212/WNL.0000000000012930. doi: 10.1212/WNL.0000000000012930.
<https://n.neurology.org/content/early/2021/10/11/WNL.0000000000012930.long>
Up to one-third of COVID-19 patients analysed in this review experienced at least one neurological manifestation. One in 50 patients experienced stroke. In those over 60, more than one-third had acute confusion/delirium; the presence of neurological manifestations in this group was associated with near doubling of mortality. Results must be interpreted keeping in view the limitations of observational studies and associated bias.
- 2. Autoimmune Encephalitis Post-SARS-CoV-2 Infection: Case Frequency, Findings, and Outcomes.** Sanchez CV, et al. *Neurology*. 2021 Oct 11:10.1212/WNL.0000000000012931. doi: 10.1212/WNL.0000000000012931.
<https://n.neurology.org/content/early/2021/10/11/WNL.0000000000012931.long>
We encountered occasional cases of AE in our 2020 COVID-19 experience. Consistent with sporadic reports and small case series during the COVID-19 pandemic, and prior experience of postinfectious AE, our cases had diverse clinical presentations and were neural IgG and CSF viral particle negative. Application of diagnostic criteria assists in differentiation of AE from toxic-metabolic causes arising in the setting of systemic infection.

Diagnostics & Screening

- 3. Evaluation of the clinical and analytical performance of the Seegene allplex™ SARS-CoV-2 variants I assay for the detection of variants of concern (VOC) and variants of interests (VOI).** Caza M, et al. *J Clin Virol*. 2021 Oct 2;144:104996. doi: 10.1016/j.jcv.2021.104996.
<https://www.sciencedirect.com/science/article/abs/pii/S1386653221002638>
The clinical study revealed sensitivity of 100% and specificity of 100% for HV69/70 deletion, sensitivity of 100% and specificity of 100% for N501Y, and sensitivity of 100% and specificity of 98.10% for E484K mutation. Analytical performance demonstrated stability and reproducibility over 7 days, and LOD was calculated at 698 cp/mL for NP swab specimens, and 968 cp/mL for

SG specimens. The Allplex™ SARS-CoV-2 Variants I assay is acceptable for clinical use for the detection of variant of concern and variant of interest.

Epidemiology & Public Health

4. **Association between Risk of COVID-19 Infection in Nonimmune Individuals and COVID-19 Immunity in Their Family Members.** Nordström P, et al. *JAMA Intern Med.* 2021 Oct 11. doi: 10.1001/jamainternmed.2021.5814. <https://jamanetwork.com/journals/jamainternalmedicine/fullarticle/2785141>
In this cohort study, family members without immunity had a 45% to 97% lower risk of contracting COVID-19 as the number of immune family members increased. Vaccination is a key strategy for decreasing the transmission of the virus within families.
5. **Household Transmission of Severe Acute Respiratory Syndrome Coronavirus-2 in the United States.** Lewis NM et al. *Clin Infect Dis.* 2021 Oct 5;73(7):1805-1813. doi: 10.1093/cid/ciaa1166. <https://academic.oup.com/cid/article/73/7/e1805/5893024>
We found substantial evidence of secondary infections among household contacts. People with COVID-19, particularly those with immunocompromising conditions or those with household contacts with diabetes, should take care to promptly self-isolate to prevent household transmission.
6. **Coronavirus Disease 2019 (COVID-19) Infections among Healthcare Workers, Los Angeles County, February-May 2020.** Hartmann S, et al. *Clin Infect Dis.* 2021 Oct 5;73(7):e1850-e1854. doi: 10.1093/cid/ciaa1200. <https://academic.oup.com/cid/article/73/7/e1850/5893141>
As of 31 May, over 3 months into the pandemic, nearly 5500 positive HCWs were reported to LAC DPH, representing 9.6% of all cases. Cases reported working in 27 different setting types, including outpatient medical offices, correctional facilities, emergency medical services, and so forth, with the highest proportion from long-term care facilities (46.6%) and hospitals (27.7%). Case patients included both clinical and nonclinical roles, with nearly half (49.4%) of positive HCWs being nurses. Over two-thirds of HCWs (68.6%) worked at some point during their infectious period, and nearly half (47.9%) reported a known exposure to a positive patient and/or coworker within their facility. Overall, compared to all LAC cases, HCWs reported lower rates of hospitalization (5.3% vs 12.2%) and death (0.7% vs 4.3%) from COVID-19. There are many factors that increase HCWs risk of infection, including high-risk work environment, limited supply of personal protective equipment, and even pressure to help and work during a pandemic. In response to these data, LAC DPH created resources and provided guidance for healthcare facilities to best protect their patients and staff during the COVID-19 pandemic.
7. **Statewide Interventions and Coronavirus Disease 2019 Mortality in the United States: An Observational Study.** Yehya N, et al. *Clin Infect Dis.* 2021 Oct 5;73(7):e1863-e1869. doi: 10.1093/cid/ciaa923. <https://academic.oup.com/cid/article/73/7/e1863/5868545>
Later statewide emergency declarations and school closure were associated with higher Covid-19 mortality. Each day of delay increased mortality risk 5 to 6%.

8. **Changes in COVID-19 Vaccine Intent from April/May to June/July 2021.** Szilagyi PG, et al. *JAMA*. 2021 Oct 13. doi: 10.1001/jama.2021.18761.
<https://jamanetwork.com/journals/jama/fullarticle/2785290>

To optimize outreach and education, understanding the degree to which an individual's intent to vaccinate changes over time and assessing factors that relate to rising vaccine likelihood are critical.² For example, whether individuals who are initially "unsure" or "unlikely" will eventually be vaccinated is unknown. Most studies of vaccine intent are cross-sectional³ and cannot assess these changes. Using data from a nationally representative longitudinal study of adults in the US,⁴ we assessed individual-level change in vaccine intent and uptake between April 2021 and July 2021 and characteristics of individuals who reported an increase in vaccine likelihood or uptake.

Healthcare Delivery & Healthcare Workers

9. **Restricted visitation policies in acute care settings during the COVID-19 pandemic: a scoping review.** Moss SJ et al. *Crit Care*. 2021 Sep 25;25(1):347. doi: 10.1186/s13054-021-03763-7.
<https://ccforum.biomedcentral.com/articles/10.1186/s13054-021-03763-7>

Patients, families, and healthcare professionals were impacted by restricted visitation policies in acute care settings during COVID-19. The consequences of this approach on patients and families are understudied and warrant evaluation of approaches to mitigate their impact. Future pandemic policy development should include the perspectives of patients, families, and healthcare professionals.

Survivorship & Rehabilitation

10. **Physical, cognitive, and mental health impacts of COVID-19 after hospitalisation (PHOSP-COVID): a UK multicentre, prospective cohort study.** Evans RA et al. *Lancet Respir Med*. 2021 Oct 7:S2213-2600(21)00383-0. doi: 10.1016/S2213-2600(21)00383-0.

[https://www.thelancet.com/journals/lanres/article/PIIS2213-2600\(21\)00383-0/fulltext](https://www.thelancet.com/journals/lanres/article/PIIS2213-2600(21)00383-0/fulltext)

We identified factors related to not recovering after hospital admission with COVID-19 at 6 months after discharge (eg, female sex, middle age, two or more comorbidities, and more acute severe illness), and four different recovery phenotypes. The severity of physical and mental health impairments were closely related, whereas cognitive health impairments were independent. In clinical care, a proactive approach is needed across the acute severity spectrum, with interdisciplinary working, wide access to COVID-19 holistic clinical services, and the potential to stratify care.

11. **Short-term and Long-term Rates of Postacute Sequelae of SARS-CoV-2 Infection: A Systematic Review.** Groff D, et al. *JAMA Netw Open*. 2021 Oct 1;4(10):e2128568. doi: 10.1001/jamanetworkopen.2021.28568.

<https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2784918>

In this systematic review, more than half of COVID-19 survivors experienced PASC 6 months after recovery. The most common PASC involved functional mobility impairments, pulmonary abnormalities, and mental health disorders. These long-term PASC effects occur on a scale that

could overwhelm existing health care capacity, particularly in low- and middle-income countries.

Therapeutics

- 12. Real-world Assessment of 2,879 COVID-19 Patients Treated with Monoclonal Antibody Therapy: A Propensity Score-Matched Cohort Study.** Cooper MH, et al. *Open Forum Infectious Diseases*, 2021; ofab512, <https://doi.org/10.1093/ofid/ofab512>
A total of 2,879 infused patients and matched controls were included in the analysis, including 1,718 patients infused with bamlanivimab, 346 patients infused with bamlanivimab-etesevimab, and 815 patients infused with casirivimab-imdevimab. Hospital admission and mortality rates were significantly decreased overall in mAb-infused patients relative to matched controls. Among the infused cohort, those who received casirivimab-imdevimab had significantly decreased rate of admission relative to the other two mAbs groups. Treatment with bamlanivimab, bamlanivimab-etesevimab, or casirivimab-imdevimab significantly decreased the number of patients who progressed to severe COVID-19 disease and required hospitalization.
- 13. Effect of Antithrombotic Therapy on Clinical Outcomes in Outpatients with Clinically Stable Symptomatic COVID-19: The ACTIV-4B Randomized Clinical Trial.** Connors JM et al. *JAMA*. 2021 Oct 11. doi: 10.1001/jama.2021.17272.
<https://jamanetwork.com/journals/jama/fullarticle/2785218>
Among symptomatic clinically stable outpatients with COVID-19, treatment with aspirin or apixaban compared with placebo did not reduce the rate of a composite clinical outcome. However, the study was terminated after enrollment of 9% of participants because of an event rate lower than anticipated.
- 14. Extracorporeal membrane oxygenation for COVID-19: evolving outcomes from the international Extracorporeal Life Support Organization Registry.** Barbaro RP, et al. *Lancet*. 2021 Oct 2;398(10307):1230-1238. doi: 10.1016/S0140-6736(21)01960-7. Epub 2021 Sep 29.
<https://www.sciencedirect.com/science/article/pii/S0140673621019607>
Mortality after ECMO for patients with COVID-19 worsened during 2020. These findings inform the role of ECMO in COVID-19 for patients, clinicians, and policy makers.
- 15. In-hospital use of ACE inhibitors/angiotensin receptor blockers associates with COVID-19 outcomes in African American patients.** Li S et al. *J Clin Invest*. 2021 Oct 1;131(19):e151418. doi: 10.1172/JCI151418. <https://www.jci.org/articles/view/151418>
In-hospital use of ARB was associated with a significant reduction in in-hospital mortality among COVID-19-positive African American patients.
- 16. Intravenous bamlanivimab use associates with reduced hospitalization in high-risk patients with mild to moderate COVID-19.** Ganesh R et al. *J Clin Invest*. 2021 Oct 1;131(19):e151697. doi: 10.1172/JCI151697. <https://www.jci.org/articles/view/151697>

Among high-risk patients with mild to moderate COVID-19, treatment with bamlanivimab was associated with a statistically significant lower rate of hospitalization, ICU admission, and mortality compared with usual care.

17. **Subcutaneous REGEN-COV Antibody Combination to Prevent Covid-19.** O'Brien MP et al. *N Engl J Med.* 2021 Sep 23;385(13):1184-1195. doi: 10.1056/NEJMoa2109682. Update of *medRxiv.* 2021 Jun 17; <https://www.nejm.org/doi/10.1056/NEJMoa2109682> Subcutaneous REGEN-COV prevented symptomatic Covid-19 and asymptomatic SARS-CoV-2 infection in previously uninfected household contacts of infected persons. Among the participants who became infected, REGEN-COV reduced the duration of symptomatic disease and the duration of a high viral load. (Funded by Regeneron Pharmaceuticals and others; ClinicalTrials.gov number, NCT04452318.).
18. **Administration of Monoclonal Antibody for COVID-19 in Patient Homes.** Malani AN, et al. *JAMA Netw Open.* 2021;4(10):e2129388. doi:10.1001/jamanetworkopen.2021.29388 <https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2784998> The approach for MAB administration has varied and is often facility specific. Strategies used have included administration in outpatient infusion centers and EDs. During the recent spring surge of 2021, the Michigan Department of Human and Health Services reported that up to 30% of patients testing positive for COVID-19 may qualify for MAB and provided a goal that at least 50% of qualifying patients receive MAB. Descriptions of novel approaches to promote MAB administration are needed. One strategy implemented by our health system is partnership with community integrated paramedics (CIP) to promote home MAB administration. This cohort study describes our experience and how this strategy may factor into associated outcomes.

Vaccines / Immunology

19. **Effectiveness of COVID-19 vaccines against SARS-CoV-2 infection with the Delta (B.1.617.2) variant: second interim results of a living systematic review and meta-analysis, 1 January to 25 August 2021.** Harder T, et al. *Eurosurveillance.* 26(41) 14/Oct/2021 <https://www.eurosurveillance.org/content/10.2807/1560-7917.ES.2021.26.41.2100920> These second interim results of our living systematic review show that COVID-19 vaccines approved in the EU have a moderate to high effectiveness against mild to moderate forms of SARS-CoV-2 infections caused by the Delta variant, while VE against severe disease and hospitalisation was high to very high. Statistical heterogeneity was low in meta-analysis of the severe outcomes, further supporting a well-maintained effectiveness against these endpoints under Delta variant dominance.
20. **Rapid measurement of SARS-CoV-2 spike T cells in whole blood from vaccinated and naturally infected individuals.** Tan AT et al. *J Clin Invest.* 2021 Sep 1;131(17):e152379. doi: 10.1172/JCI152379. <https://www.jci.org/articles/view/152379> Defining the correlates of protection necessary to manage the COVID-19 pandemic requires the analysis of both antibody and T cell parameters, but the complexity of traditional tests limits

virus-specific T cell measurements. We tested the sensitivity and performance of a simple and rapid SARS-CoV-2 spike protein-specific T cell test based on the stimulation of whole blood with peptides covering the SARS-CoV-2 spike protein, followed by cytokine (IFN- γ , IL-2) measurement in different cohorts including BNT162b2-vaccinated individuals (n = 112), convalescent asymptomatic and symptomatic COVID-19 patients (n = 130), and SARS-CoV-1-convalescent individuals (n = 12). The sensitivity of this rapid test is comparable to that of traditional methods of T cell analysis (ELISPOT, activation-induced marker). Using this test, we observed a similar mean magnitude of T cell responses between the vaccinees and SARS-CoV-2 convalescents 3 months after vaccination or virus priming. However, a wide heterogeneity of the magnitude of spike-specific T cell responses characterized the individual responses, irrespective of the time of analysis. The magnitude of these spike-specific T cell responses cannot be predicted from the neutralizing antibody levels. Hence, both humoral and cellular spike-specific immunity should be tested after vaccination to define the correlates of protection necessary to evaluate current vaccine strategies.

21. **Clinical and Genomic Characterization of SARS CoV-2 infections in mRNA Vaccinated Health Care Personnel in New York City.** Robilotti EV et al. *Clin Infect Dis*. 2021 Oct 13:ciab886. doi: 10.1093/cid/ciab886. <https://academic.oup.com/cid/advance-article/doi/10.1093/cid/ciab886/6396142>

Findings show high VE among HCP in NYC in the pre-Delta phase, with moderate decline in VE post-Delta emergence. SARS CoV-2 clades were similarly distributed among vaccinated and unvaccinated infected HCP without apparent clustering during the pre-Delta period of diverse clade circulation. Strong vaccine protection against hospitalization was maintained through the entire study period.

22. **Heterologous SARS-CoV-2 Booster Vaccinations: Preliminary Report.** Atmar RL et al. *MedRxiv PREPRINT* 2021.10.10.21264827; doi: <https://doi.org/10.1101/2021.10.10.21264827>
Homologous and heterologous booster vaccinations were well-tolerated and immunogenic in adults who completed a primary Covid-19 vaccine regimen at least 12 weeks earlier.

Women & Children

23. **COVID-19-Associated Orphanhood and Caregiver Death in the United States.** Hillis SD et al. *Pediatrics*. 2021 Oct 7:e2021053760. doi: 10.1542/peds.2021-053760. <https://pediatrics.aappublications.org/content/pediatrics/early/2021/10/06/peds.2021-053760.full.pdf>

We found substantial disparities in distributions of COVID-19-associated death of parents and caregivers across racial and ethnic groups. Children losing caregivers to COVID-19 need care and safe, stable, and nurturing families with economic support, quality childcare and evidence-based parenting support programs. There is an urgent need to mount an evidence-based comprehensive response focused on those children at greatest risk, in the states most affected.

24. **Maternal Outcomes After Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) Infection in Vaccinated Compared with Unvaccinated Pregnant Patients.** Morgan JA, et al.

Obstet Gynecol. 2021 Oct 13. doi: 10.1097/AOG.0000000000004621.

https://journals.lww.com/greenjournal/Fulltext/9900/Maternal_Outcomes_After_Severe_Acute_Respiratory.320.aspx

Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) vaccination is associated with lower odds of severe or critical coronavirus disease 2019 (COVID-19) or COVID-19 of any severity in pregnant patients during the Delta-predominant fourth SARS-CoV-2 surge.

25. **Virologic features of SARS-CoV-2 infection in children.** Yonker LM, et al. *Journal of Infectious Diseases* 2021;, jia509, <https://doi.org/10.1093/infdis/jia509>

Symptomatic and asymptomatic children can carry high quantities of live, replicating SARS-CoV-2, creating a potential reservoir for transmission and evolution of genetic variants. As guidance around social distancing and masking evolves following vaccine uptake in older populations, a clear understanding of SARS-CoV-2 infection dynamics in children is critical for rational development of public health policies and vaccination strategies to mitigate the impact of COVID-19.

FDA / CDC / NIH / WHO Updates

CDC - [Science Brief: Evidence Used to Update the List of Underlying Medical Conditions Associated with Higher Risk for Severe COVID-19](#)

FDA Briefing Document: [EUA amendment request for a booster dose of the Moderna COVID-19 Vaccine](#)

NIH – Covid Treatment Guidelines, [Updated COVID-19 Treatment Guidelines Panel’s Statement on the Prioritization of Anti-SARS-CoV-2 Monoclonal Antibodies for the Treatment or Prevention of SARS-CoV-2 Infection When There Are Logistical or Supply Constraints.](#) Oct 7, 2021

Commentary & News

[Merck and Ridgeback’s Investigational Oral Antiviral Molnupiravir Reduced the Risk of Hospitalization or Death by Approximately 50 Percent Compared to Placebo for Patients with Mild or Moderate COVID-19 in Positive Interim Analysis of Phase 3 Study](#)

[Merck and Ridgeback Announce Submission of Emergency Use Authorization Application to the U.S. FDA for Molnupiravir, an Investigational Oral Antiviral Medicine, for the Treatment of Mild-to-Moderate COVID-19 in At Risk Adults](#)

[An F.D.A. panel recommends J.&J. boosters at least two months after the first shot.](#)

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