

## COVID-19 Resource Desk

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### New Research

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

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

### Epidemiology & Public Health

1. **Differential patterns by area-level social determinants of health in COVID-19 related mortality and non-COVID-19 mortality: a population-based study of 11.8 million people in Ontario, Canada.** Wang L, Calzavara A, Baral S, Smylie J, Chan AK, Sander B, Austin PC, Kwong JC, Mishra S. *Clin Infect Dis*. 2022 Oct 28:ciac850. doi: 10.1093/cid/ciac850. Online ahead of print.  
<https://academic.oup.com/cid/advance-article/doi/10.1093/cid/ciac850/6776118>

Area-level SDOH are associated with COVID-19-related mortality after accounting for demographic and clinical factors. COVID-19 has reversed patterns of lower non-COVID-19 mortality among racially-minoritised groups vs. their counterparts. Pandemic responses should include strategies (e.g., 'hotspot' and risk-group tailored vaccination) to address disproportionate risks and inequitable reach of, and access to, preventive interventions associated with SDOH.

### Prognosis

2. **Interplay of Immunosuppression and Immunotherapy Among Patients With Cancer and COVID-19.** Bakouny Z et al. *JAMA Oncol*. 2022 Nov 3. doi: 10.1001/jamaoncol.2022.5357. Online ahead of print.  
<https://jamanetwork.com/journals/jamaoncology/fullarticle/2797979>

This cohort study found that in patients with cancer and COVID-19, administration of systemic anticancer therapies, especially IO, in the context of baseline immunosuppression was associated with severe clinical outcomes and the development of cytokine storm.

### Survivorship & Rehabilitation

3. **Complexity and Challenges of the Clinical Diagnosis and Management of Long COVID.** O'Hare AM et al. *JAMA Netw Open*. 2022 Nov 1;5(11):e2240332. doi: 10.1001/jamanetworkopen.2022.40332.  
<https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2798146>

This qualitative study of documentation in the VA EHR highlights the complexity of diagnosing long COVID in clinical settings and the challenges of caring for patients who have or are suspected of having this condition.

## Therapeutics

- 4. The effect of cilgavimab and neutralisation by vaccine-induced antibodies in emerging SARS-CoV-2 BA.4 and BA.5 sublineages.** Arora P et al. *Lancet Infect Dis.* 2022 Oct 31:S1473-3099(22)00693-4. doi: 10.1016/S1473-3099(22)00693-4. Online ahead of print.  
<https://www.sciencedirect.com/science/article/pii/S1473309922006934>

Since the first detection of the SARS-CoV-2 omicron variant (B.1.1.529 and sublineages) in November 2021 in South Africa, Botswana, and Hong Kong, several omicron sublineages have evolved. Some of these sublineages, including BA.2.75, BA.4, and BA.5, have shown augmented resistance against antibody-mediated neutralisation.

- 4. One-year follow-up of the CAPSID randomized trial for high-dose convalescent plasma in severe COVID-19 patients.** Körper S et al. *J Clin Invest.* 2022 Nov 3:e163657. doi: 10.1172/JCI163657. Online ahead of print.  
<https://www.jci.org/articles/view/163657>

The trial demonstrated a trend towards better outcome in the CCP group without reaching statistical significance. A pre-defined subgroup analysis showed a significant better outcome (long-term survival; time to discharge from ICU and time to hospital discharge) among those who received a higher amount of neutralizing antibodies compared to the control group. A substantial long-term disease burden remains after severe COVID-19.

TRIAL REGISTRATION: EudraCT number 2020-001310-38 FUNDING. Bundesministerium für Gesundheit (German Federal Ministry of Health): ZMVI1-2520COR802/ZMI1-2521COR802.

## Vaccines / Immunology

- 5. Adverse Events Following Immunization with mRNA and Viral Vector Vaccines in Individuals with Previous SARS-CoV-2 Infection from the Canadian National Vaccine Safety Network.** Bettinger JA et al. *Clin Infect Dis.* 2022 Oct 31:ciac852. doi: 10.1093/cid/ciac852. Online ahead of print.  
<https://academic.oup.com/cid/advance-article/doi/10.1093/cid/ciac852/6780916>

Adults with moderate or severe previous SARS-CoV-2 infection were more likely to have a health event sufficient to impact routine activities or require medical assessment in the week following each vaccine doses.

- 6. Diagnostic Accuracy of Vaccine and Vaccine Excipient Testing in the Setting of Allergic Reactions to COVID-19 Vaccines: A Systematic Review and Meta-analysis.** Greenhawt M et al. *Allergy.* 2022 Nov 2. doi: 10.1111/all.15571. Online ahead of print.  
<https://onlinelibrary.wiley.com/doi/10.1111/all.15571>

ST has low sensitivity but high specificity in predicting all-severity repeat immediate allergic reactions to the same agent, among persons with 1st dose immediate allergic reactions to mRNA COVID-19 vaccines. mRNA COVID-19 vaccine or excipient ST has limited risk assessment utility.

7. **MULTI-PARAMETRIC PREDICTION MODELS FOR COVID-19 VACCINE SELECTION: RESULTS OF A COMPARATIVE POPULATION-BASED COHORT STUDY.** Sieghart D et al. *Clin Infect Dis*. 2022 Nov 4:ciac840. doi: 10.1093/cid/ciac840. Online ahead of print.  
<https://academic.oup.com/cid/advance-article/doi/10.1093/cid/ciac840/6795267>

Our study revealed population-based evidence of vaccine-dependent effects of age and time since full immunization on humoral immune response. Findings underline the importance of an individualized vaccine selection, especially in elderly individuals.

8. **Resistance of SARS-CoV-2 omicron subvariant BA.4.6 to antibody neutralisation.** Wang Q et al. *Lancet Infect Dis*. 2022 Oct 31:S1473-3099(22)00694-6. doi: 10.1016/S1473-3099(22)00694-6. Online ahead of print.  
<https://www.sciencedirect.com/science/article/pii/S1473309922006946>

We aimed to characterise viral receptor affinities and antibody evasion properties of the newly emerging subvariants of BA.4/5.

9. **Safety Monitoring of Bivalent COVID-19 mRNA Vaccine Booster Doses Among Persons Aged ≥12 Years - United States, August 31-October 23, 2022.** Hause AM, Marquez P, Zhang B, Myers TR, Gee J, Su JR, Blanc PG, Thomas A, Thompson D, Shimabukuro TT, Shay DK. *MMWR Morb Mortal Wkly Rep*. 2022 Nov 4;71(44):1401-1406. doi: 10.15585/mmwr.mm7144a3.  
[https://www.cdc.gov/mmwr/volumes/71/wr/mm7144a3.htm?s\\_cid=mm7144a3\\_w](https://www.cdc.gov/mmwr/volumes/71/wr/mm7144a3.htm?s_cid=mm7144a3_w)

During August 31-October 23, 2022, approximately 14.4 million persons aged ≥12 years received a bivalent Pfizer-BioNTech booster dose, and 8.2 million adults aged ≥18 years received a bivalent Moderna booster dose.†† Among the 211,959 registrants aged ≥12 years who reported receiving a bivalent booster dose to v-safe, injection site and systemic reactions were frequently reported in the week after vaccination (60.8% and 54.8%, respectively); fewer than 1% of v-safe registrants reported receiving medical care. VAERS received 5,542 reports of adverse events after bivalent booster vaccination among persons aged ≥12 years; 95.5% of reports were nonserious and 4.5% were serious events. Health care providers and patients can be reassured that adverse events reported after a bivalent booster dose are consistent with those reported after monovalent doses. Health impacts after COVID-19 vaccination are less frequent and less severe than those associated with COVID-19 illness (2).

## Women & Children

10. **The impact of maternal SARS-CoV-2 infection and COVID-19 vaccination on maternal-fetal outcomes.** Piekos SN, Price ND, Hood L, Hadlock JJ. [Providence authors]. *Reprod Toxicol*. 2022 Oct 22:S0890-6238(22)00153-8. doi: 10.1016/j.reprotox.2022.10.003.  
<https://doi.org/10.1016/j.reprotox.2022.10.003>

Here, we provide an epidemiological overview about what is known about the effects of maternal SARS-CoV-2 infection and COVID-19 vaccination on maternal-fetal outcomes, and identify gaps in knowledge. Pregnant people are at increased risk for severe COVID-19, and maternal SARS-CoV-2 infection increases the risk of negative maternal-fetal outcomes. Despite this elevated risk, there have been high rates of vaccine hesitancy, heightened by the initial lack of safety and efficacy data for COVID-19 vaccination in pregnancy. In response, retrospective cohort studies were performed to examine the impact of COVID-19 vaccination during pregnancy. Here, we report the vaccine's efficacy

during pregnancy and its impact on maternal-fetal outcomes, as well as an overview of initial studies on booster shots in pregnancy. We found that pregnant people are at risk for more severe COVID-19 outcomes, maternal SARS-CoV-2 infection is associated with worse birth outcomes, COVID-19 vaccine hesitancy remains prevalent in the pregnant population, and COVID-19 vaccination and boosters promote better maternal-fetal outcomes. The results should help reduce vaccine hesitancy by alleviating concerns about the safety and efficacy of administering the COVID-19 vaccine during pregnancy. Overall, this review provides an introduction to COVID-19 during pregnancy. It is expected to help consolidate current knowledge, accelerate research of COVID-19 during pregnancy and inform clinical, policy, and research decisions regarding COVID-19 vaccination in pregnant people.

11. **COVID-19 Pandemic and Infant Neurodevelopmental Impairment: A Systematic Review and Meta-analysis.** Hessami K et al. *JAMA Netw Open.* 2022 Oct 3;5(10):e2238941. doi: 10.1001/jamanetworkopen.2022.38941.

<https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2797911>

In this systematic review and meta-analysis examining the association between COVID-19 pandemic and the risk of NDI, findings suggest that overall neurodevelopment in the first year of life was not changed by either being born or raised during the SARS-CoV-2 pandemic or by gestational exposure to SARS-CoV-2. Interestingly, the first year of life during the COVID-19 pandemic, regardless of maternal infection, was significantly associated with the risk of communication delay among the offspring.

12. **Six-Month Outcomes of Infants Born to People With SARS-CoV-2 in Pregnancy.** Gosdin L et al. *Pediatrics.* 2022 Nov 1:e2022059009. doi: 10.1542/peds.2022-059009. Online ahead of print. <https://publications.aap.org/pediatrics/article/doi/10.1542/peds.2022-059009/189811/Six-Month-Outcomes-of-Infants-Born-to-People-With>

CONCLUSIONS: Results are reassuring, with low incidences of most health outcomes examined. Incidence of infant SARS-CoV-2, breastmilk feeding initiation, and all-cause mortality differed by timing of maternal infection. Strategies to prevent infections and support pregnant people with coronavirus disease 2019 may improve infant outcomes.

13. **Covid-19 Vaccine Protection among Children and Adolescents in Qatar.** Chemaitelly H et al. *N Engl J Med.* 2022 Nov 2. doi: 10.1056/NEJMoa2210058. Online ahead of print.

<https://www.nejm.org/doi/10.1056/NEJMoa2210058>

Vaccination in children was associated with modest, rapidly waning protection against omicron infection. Vaccination in adolescents was associated with stronger, more durable protection, perhaps because of the larger antigen dose. (Funded by Weill Cornell Medicine-Qatar and others.).

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