Providence

COVID-19 Resource Desk

#69 | 8.15.21 to 8.21.21

Prepared by System Library Services Retraction Watch

New Research

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

COVID-19 related publications by Providence caregivers – see Digital Commons

Clinical Syndrome

1. **Gustatory and olfactory dysfunctions in hospitalised patients with COVID-19 pneumonia: a prospective study.** Inciarte A et al. *BMJ Open*. 2021 Aug 17;11(8):e040775. doi: 10.1136/bmjopen-2020-040775. https://bmjopen.bmj.com/content/11/8/e040775
The prevalence of gustatory and olfactory dysfunctions in COVID-19 pneumonia was much higher than in self-report. Presence of gustatory and olfactory dysfunctions was not a predictor of clinical outcomes.

Epidemiology & Public Health

2. **Serial intervals in SARS-CoV-2 B.1.617.2 variant cases.** CMMID COVID-19 working group. *Lancet*. 2021 Aug 10:S0140-6736(21)01697-4. doi: 10.1016/S0140-6736(21)01697-4. https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(21)01697-4/fulltext
The SARS-CoV-2 lineage B.1.617.2, also known as the delta variant, was declared a variant of concern by WHO on the basis of preliminary evidence suggesting faster spread relative to other circulating variants. However, the epidemiological factors contributing to this difference remain unclear. In particular, an increase in observed growth rate of COVID-19 cases could be the result of a shorter generation interval (ie, the delay from one infection to the next) or an increase in the effective reproduction number, R, of an infected individual (ie, the average number of secondary cases generated by an infectious individual), or both. Whereas a shorter generation interval would increase the speed but not the number of individual-level transmissions, a larger value of R would require both faster and wider coverage of outbreak control measures such as vaccination or physical distancing to suppress transmission.

3. **New COVID-19 Cases and Hospitalizations among Adults, by Vaccination Status — New York, May 3–July 25, 2021.** Rosenberg ES, et al. *MMWR Morb Mortal Wkly Rep*. ePub: 18 August 2021. DOI: http://dx.doi.org/10.15585/mmwr.mm7034e1
During May 3–July 25, 2021, the overall age-adjusted vaccine effectiveness against hospitalization in New York was relatively stable (91.9%–95.3%). The overall age-adjusted vaccine effectiveness against infection for all New York adults declined from 91.7% to 79.8%.

These findings support the implementation of multicomponent approach to controlling the pandemic, centered on vaccination, as well as other prevention strategies such as masking and physical distancing.

4. **Association of Antineoplastic Therapy with Decreased SARS-CoV-2 Infection Rates in Patients with Cancer.** Foote MB, et al. *JAMA Oncol.* 2021 Aug 19. doi: 10.1001/jamaoncol.2021.3585. https://jamanetwork.com/journals/jamaoncology/articlepdf/2783284/jamaoncology_foote_2021_br_210013_1629317271.9466.pdf
In this cohort study, in silico analysis of drug-associated gene expression signatures identified potential ACE2-lowering antineoplastic compounds, including mTOR/PI3K inhibitors and antimetabolites. Patients who received these compounds exhibited statistically significantly lower rates of SARS-CoV-2 infection compared with patients given other antineoplastics.

Healthcare Delivery & Healthcare Workers

5. **Interventions for the well-being of healthcare workers during a pandemic or other crisis: scoping review.** Cairns P et al. *BMJ Open.* 2021 Aug 17;11(8):e047498. doi: 10.1136/bmjopen-2020-047498. https://bmjopen.bmj.com/content/11/8/e047498
There are no high-quality, theory-based interventions for the well-being of healthcare workers during a pandemic or other crisis. Given that previous pandemics have been shown to have a negative effect on healthcare workers well-being, it is imperative this shortcoming is addressed. This scoping review highlights the need for high-quality, theory-based and evidence-based interventions for the well-being of healthcare workers during a pandemic.

Prognosis

6. **Diabetes Increases Severe COVID-19 Outcomes Primarily in Younger Adults.** Diedisheim M et al. *J Clin Endocrinol Metab*. 2021 Aug 18;106(9):e3364-e3368. doi: 10.1210/clinem/dgab393. https://academic.oup.com/jcem/article/106/9/e3364/6290431
Diabetes should be considered as an independent risk factor for the severity of COVID-19 in young adults more so than in older adults, especially for individuals younger than 70 years.

Survivorship & Rehabilitation

7. **Twelve-month systemic consequences of COVID-19 in patients discharged from hospital: a prospective cohort study in Wuhan, China.** Liu T et al. *Clin Infect Dis.* 2021 Aug 14:ciab703. doi: 10.1093/cid/ciab703. https://academic.oup.com/cid/advance-article/doi/10.1093/cid/ciab703/6352408
Physiological, laboratory, radiological or electrocardiogram abnormalities, particularly those related to renal, cardiovascular, liver functions are common in patients who recovered from COVID-19 up to 12months post-discharge.

8. **Cardiac Pathology 6 Months after Hospitalization for COVID-19 and Association with the Acute Disease Severity: Cardiac MRI 6 months after COVID-19.** Myhre PL et al. *Am Heart J.*

2021 Aug 13:S0002-8703(21)00197-6. doi: 10.1016/j.ahj.2021.08.001. https://www.sciencedirect.com/science/article/pii/S0002870321001976
CMR pathology 6 months after moderate-to-severe COVID-19 was present in 21% of patients and did not correlate with severity of the disease. Cardiovascular biomarkers during COVID-19 were higher in patients with CMR pathology, but with no significant association after adjusting for confounders.

9. **COVID-19 and the effects on pulmonary function following infection: A retrospective analysis.** Lewis KL, et al. *EClinicalMedicine*. 2021 Aug 13:101079. doi: 10.1016/j.eclinm.2021.101079. Online ahead of print. https://www.thelancet.com/journals/eclinm/article/PIIS2589-5370(21)00359-X/fulltext
This study showed that there is no difference in pulmonary function as measured by PFT before and after COVID-19 infection in non-critically ill classified patients. There could be a relationship with certain underlying lung diseases (interstitial lung disease and cystic fibrosis) and decreased lung function following infection. This information should aid clinicians in their interpretation of pulmonary function tests obtained following COVID-19 infection.

Therapeutics

10. **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 Aug 19:151697. doi: 10.1172/JCI151697. http://www.jci.org/articles/view/151697/files/pdf
Among high-risk patients with mild to moderate COVID-19, treatment with bamlanivimab was associated with a statistically significant lower rate of hospitalization compared with usual care.

11. **Inhaled budesonide for COVID-19 in people at high risk of complications in the community in the UK (PRINCIPLE): a randomised, controlled, open-label, adaptive platform trial.** Yu LM et al. *Lancet.* 2021 Aug 10:S0140-6736(21)01744-X. doi: 10.1016/S0140-6736(21)01744-X. https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(21)01744-X/fulltext
Inhaled budesonide improves time to recovery, with a chance of also reducing hospital admissions or deaths (although our results did not meet the superiority threshold), in people with COVID-19 in the community who are at higher risk of complications.

12. **Use of Hydroxychloroquine, Remdesivir, and Dexamethasone Among Adults Hospitalized With COVID-19 in the United States: A Retrospective Cohort Study.** Mehta HB et al. *Ann Intern Med.* 2021 Aug 17. doi: 10.7326/M21-0857. https://www.acpjournals.org/doi/10.7326/M21-0857
Dexamethasone, an evidence-based treatment of COVID-19, may be underused among persons who are mechanically ventilated. The use of remdesivir and dexamethasone varied across health systems, suggesting variation in patient case mix, drug access, treatment protocols, and quality of care.

13. **Effect of Oral Azithromycin vs Placebo on COVID-19 Symptoms in Outpatients with SARS-CoV-2 Infection: A Randomized Clinical Trial.** Oldenburg CE et al. *JAMA.* 2021 Aug 10;326(6):490-

498. doi: 10.1001/jama.2021.11517.
https://jamanetwork.com/journals/jama/fullarticle/2782166
Among outpatients with SARS-CoV-2 infection, treatment with a single dose of azithromycin compared with placebo did not result in greater likelihood of being symptom free at day 14. These findings do not support the routine use of azithromycin for outpatient SARS-CoV-2 infection.

14. **Early Convalescent Plasma for High-Risk Outpatients with Covid-19.** Korley FK et al. *N Engl J Med.* 2021 Aug 18. doi: 10.1056/NEJMoa2103784.
https://www.nejm.org/doi/full/10.1056/NEJMoa2103784
The administration of Covid-19 convalescent plasma to high-risk outpatients within 1 week after the onset of symptoms of Covid-19 did not prevent disease progression.

Transmission / Infection Control

15. **Evaluating and Contextualizing the Efficacy of Portable HEPA Filtration Units in Small Exam Rooms.** Pirkle S, et al. *Am J Infect Control.* 2021 Aug 11:S0196-6553(21)00519-8. doi: 10.1016/j.ajic.2021.08.003. https://www.ajicjournal.org/article/S0196-6553(21)00519-8/fulltext
As an adjunct infection control intervention, portable HEPA filtration units can make outpatient exam rooms safer for patients and staff by decreasing cumulative airborne particles. Percent decrease was calculated post powder actuation at the 6-minute and 12-minute mark. There was a statistically significant decrease in smaller particles at the 6-minute and 12-minute mark when the HEPA filtration units were used.

Vaccines / Immunology

16. **Sustained Effectiveness of Pfizer-BioNTech and Moderna Vaccines Against COVID-19 Associated Hospitalizations Among Adults — United States, March–July 2021.** Tenforde MW, et al. *MMWR Morb Mortal Wkly Rep*. ePub: 18 August 2021. DOI: http://dx.doi.org/10.15585/mmwr.mm7034e2
COVID-19 mRNA vaccines provide strong protection against severe COVID-19; however, the duration of protection is uncertain. Among 1,129 patients who received 2 doses of a mRNA vaccine, no decline in vaccine effectiveness against COVID-19 hospitalization was observed over 24 weeks. Vaccine effectiveness was 86% 2–12 weeks after vaccination and 84% at 13–24 weeks. Vaccine effectiveness was sustained among groups at risk for severe COVID-1mRNA vaccine effectiveness against COVID-19–associated hospitalizations was sustained over 24 weeks; ongoing monitoring is needed as new SARS-CoV-2 variants emerge. To reduce hospitalization, all eligible persons should be offered COVID-19 vaccination.

17. **Effectiveness of Pfizer-BioNTech and Moderna Vaccines in Preventing SARS-CoV-2 Infection Among Nursing Home Residents Before and During Widespread Circulation of the SARS-CoV-2 B.1.617.2 (Delta) Variant — National Healthcare Safety Network, March 1–August 1, 2021.**

Nanduri S, et al. *MMWR Morb Mortal Wkly Rep.* ePub: 18 August 2021. DOI: http://dx.doi.org/10.15585/mmwr.mm7034e3
Early observational studies among nursing home residents showed mRNA vaccines to be 53% to 92% effective against SARS-CoV-2 infection. Two doses of mRNA vaccines were 74.7% effective against infection among nursing home residents early in the vaccination program (March–May 2021). During June–July 2021, when B.1.617.2 (Delta) variant circulation predominated, effectiveness declined significantly to 53.1%. Multicomponent COVID-19 prevention strategies, including vaccination of nursing home staff members, residents, and visitors, are critical. An additional dose of COVID-19 vaccine might be considered for nursing home and long-term care facility residents to optimize a protective immune response.

18. **Safety, reactogenicity, and immunogenicity of homologous and heterologous prime-boost immunisation with ChAdOx1 nCoV-19 and BNT162b2: a prospective cohort study.** Hillus D et al. *Lancet Respir Med.* 2021 Aug 12:S2213-2600(21)00357-X. doi: 10.1016/S2213-2600(21)00357-X. https://www.thelancet.com/journals/lanres/article/PIIS2213-2600(21)00357-X/fulltext
The heterologous ChAdOx1 nCov-19-BNT162b2 immunisation with 10-12-week interval, recommended in Germany, is well tolerated and improves immunogenicity compared with homologous ChAdOx1 nCov-19 vaccination with 10-12-week interval and BNT162b2 vaccination with 3-week interval. Heterologous prime-boost immunisation strategies for COVID-19 might be generally applicable.

19. **Antibody responses after a single dose of ChAdOx1 nCoV-19 vaccine in healthcare workers previously infected with SARS-CoV-2.** Havervall S et al. *EBioMedicine.* 2021 Aug 11;70:103523. doi: 10.1016/j.ebiom.2021.103523.
https://www.thelancet.com/journals/ebiom/article/PIIS2352-3964(21)00316-9/fulltext
Our data support that a single dose ChAdOx1 nCoV-19 vaccine that is administered up to at least 11 months post SARS-CoV-2 infection serves as an effective immune booster. This provides a possible rationale for a single-dose vaccine regimen.

20. **Association of Vaccine Type and Prior SARS-CoV-2 Infection with Symptoms and Antibody Measurements Following Vaccination among Health Care Workers.** Debes AK, et al. *JAMA Intern Med.* 2021 Aug 16. doi: 10.1001/jamainternmed.2021.4580.
https://jamanetwork.com/journals/jamainternalmedicine/fullarticle/2782821
Spike IgG antibody measurements were higher in HWs who received the Moderna vaccine, had prior SARS-CoV-2 infection, and reported clinically significant reactions. The role of higher antibody levels in preventing COVID-19 and providing lasting immunity remains unknown, however. Overall, the findings suggest that regardless of vaccine reactions or prior SARS-CoV-2 infection, either spike mRNA vaccine will provide a robust spike antibody response.

21. **Immunogenicity of single vaccination with BNT162b2 or ChAdOx1 nCoV-19 at 5-6 weeks post vaccine in participants aged 80 years or older: an exploratory analysis.** Parry H et al. *Lancet Healthy Longev.* 2021 Aug 12. doi: 10.1016/S2666-7568(21)00169-0.
https://www.thelancet.com/journals/lanhl/article/PIIS2666-7568(21)00169-0/fulltext

Single doses of either BNT162b2 or ChAdOx1 nCoV-19 in older people induces humoral immunity in most participants, and is markedly enhanced by previous infection. Cellular responses were weaker, but showed enhancement after the ChAdOx1 nCoV-19 vaccine at the 5-6 week timepoint.

22. **Examining the potential benefits of the influenza vaccine against SARS-CoV-2: A retrospective cohort analysis of 74,754 patients.** Taghioff SM, et al. *PLoS One*. 2021 Aug 3;16(8):e0255541. doi: 10.1371/journal.pone.0255541. eCollection 2021. https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0255541
Our analysis outlines the potential protective effect of influenza vaccination in SARS-CoV-2-positive patients against adverse outcomes within 30, 60, 90, and 120 days of a positive diagnosis. Significant findings favoring influenza vaccination mitigating the risks of sepsis, stroke, deep vein thrombosis (DVT), emergency department (ED) & Intensive Care Unit (ICU) admissions suggest a potential protective effect that could benefit populations without readily available access to SARS-CoV-2 vaccination. Thus further investigation with future prospective studies is warranted.

23. **Protective humoral and cellular immune responses to SARS-CoV-2 persist up to 1 year after recovery.** Feng C et al. *Nat Commun.* 2021 Aug 17;12(1):4984. doi: 10.1038/s41467-021-25312-0. https://www.nature.com/articles/s41467-021-25312-0
Here, we report the kinetics of the SARS-CoV-2 specific immune response in 204 individuals up to 1-year after recovery from COVID-19. RBD-IgG and full-length spike-IgG concentrations and serum neutralizing capacity decreases during the first 6-months, but is maintained stably up to 1-year after hospital discharge. Even individuals who had generated high IgG levels during early convalescent stages had IgG levels that had decreased to a similar level one year later. Notably, the RBD-IgG level positively correlates with serum neutralizing capacity, suggesting the representative role of RBD-IgG in predicting serum protection. Moreover, viral-specific cellular immune protection, including spike and nucleoprotein specific, persisted between 6 months and 12 months. Altogether, our study supports the persistence of viral-specific protective immunity over 1 year.

24. **Two doses of SARS-CoV-2 vaccination induce robust immune responses to emerging SARS-CoV-2 variants of concern.** Skelly DT et al. *Nat Commun.* 2021 Aug 17;12(1):5061. doi: 10.1038/s41467-021-25167-5. https://www.nature.com/articles/s41467-021-25167-5
Here we analyse antibodies and T cells of a recently vaccinated, UK cohort, alongside those recovering from natural infection in early 2020. We show that neutralization of the VOC compared to a reference isolate of the original circulating lineage, B, is reduced: more profoundly against B.1.351 than for B.1.1.7, and in responses to infection or a single dose of vaccine than to a second dose of vaccine. Importantly, high magnitude T cell responses are generated after two vaccine doses, with the majority of the T cell response directed against epitopes that are conserved between the prototype isolate B and the VOC. Vaccination is required to generate high potency immune responses to protect against these and other emergent variants.

25. **Bell's palsy following vaccination with mRNA (BNT162b2) and inactivated (CoronaVac) SARS-CoV-2 vaccines: a case series and nested case-control study.** Wan EYF, et al. *Lancet Infect Dis.* 2021 Aug 16:S1473-3099(21)00451-5. doi: 10.1016/S1473-3099(21)00451-5. http://www.thelancet.com/article/S1473309921004515/pdf
Our findings suggest an overall increased risk of Bell's palsy after CoronaVac vaccination. However, the beneficial and protective effects of the inactivated COVID-19 vaccine far outweigh the risk of this generally self-limiting adverse event. Additional studies are needed in other regions to confirm our findings.

Women & Children

26. **Association of Age and Pediatric Household Transmission of SARS-CoV-2 Infection.** Paul LA, et al. *JAMA Pediatr.* 2021 Aug 16. doi: 10.1001/jamapediatrics.2021.2770. https://jamanetwork.com/journals/jamapediatrics/fullarticle/2783022
This study suggests that younger children may be more likely to transmit SARS-CoV-2 infection compared with older children, and the highest odds of transmission was observed for children aged 0 to 3 years. Differential infectivity of pediatric age groups has implications for infection prevention within households, as well as schools/childcare, to minimize risk of household secondary transmission. Additional population-based studies are required to establish the risk of transmission by younger pediatric index cases.

27. **Characterization and Outcomes of Hospitalized Children with Coronavirus Disease 2019: A Report from a Multicenter, Viral Infection and Respiratory Illness Universal Study (Coronavirus Disease 2019) Registry.** Bhalala US et al. *Crit Care Med.* 2021 Aug 16. doi: 10.1097/CCM.0000000000005232. https://journals.lww.com/ccmjournal/abstract/9000/characterization_and_outcomes_of_hospitalized.95119.aspx
In this observational, multicenter registry of children with coronavirus disease 2019, ICU admission was common. Older age, fever, multisystem inflammatory syndrome in children, and seizure disorder were independently associated with ICU admission, and mortality was lower among children than mortality reported in adults.

28. **Deaths in Children and Adolescents Associated With COVID-19 and MIS-C in the United States.** McCormick DW et al. *Pediatrics*. 2021 Aug 12:e2021052273. doi: 10.1542/peds.2021-052273. https://pediatrics.aappublications.org/content/early/2021/08/11/peds.2021-052273
SARS-CoV-2-associated deaths among persons <21 years of age during February–July 2020 occurred predominantly among Black (non-Hispanic) and Hispanic persons, males, and older adolescents of all races/ethnicities. The most commonly reported underlying conditions were obesity, asthma, and developmental disorders. Decedents with COVID-19 disease were more likely than those with MIS-C to have underlying medical conditions.

29. **Upper respiratory tract SARS-CoV-2 RNA loads in symptomatic and asymptomatic children and adults.** Costa R et al. *Clin Microbiol Infect.* 2021 Aug 9:S1198-743X(21)00438-9. doi:

10.1016/j.cmi.2021.08.001. https://www.clinicalmicrobiologyandinfection.com/article/S1198-743X(21)00438-9/fulltext
Based on viral load data at the time of diagnosis, our results suggested that SARS-CoV-2 infected children, with or without COVID-19, may display NP viral loads of comparable magnitude to that found in their adult counterparts; however, children may have shorter viral shedding as compared to adults.

30. **Characteristics and Outcomes of Women with COVID-19 Giving Birth at US Academic Centers during the COVID-19 Pandemic.** Chinn J, et al. *JAMA Netw Open*. 2021 Aug 2;4(8):e2120456. doi: 10.1001/jamanetworkopen.2021.20456.
https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2782978
This retrospective cohort study found that women with COVID-19 giving birth had higher rates of mortality, intubation, ICU admission, and preterm birth than women without COVID-19.

31. **Incidence, Clinical Characteristics, and Risk Factors of SARS-CoV-2 Infection among Pregnant Individuals in the United States.** Dawood FS, et al. *Clin Infect Dis.* 2021 Aug 19:ciab713. doi: 10.1093/cid/ciab713. https://academic.oup.com/cid/advance-article/doi/10.1093/cid/ciab713/6354856
Among 1098 pregnant individuals followed for a mean of 10 weeks, nine percent (99/1098) had SARS-CoV-2 infections during the study. The median symptom duration was 10 days. Pregnant individuals had a 1% risk of SARS-CoV-2 infection per week.

FDA / CDC / NIH / WHO Updates

CDC / FDA - Joint Statement from HHS Public Health and Medical Experts on COVID-19 Booster Shots, August 18, 2021

NIH - The COVID-19 Treatment Guidelines Panel's Statement on the Emergency Use Authorization of Casirivimab Plus Imdevimab as Post-Exposure Prophylaxis for SARS-CoV-2 Infection, August 17, 2021

Commentary / Press Releases

Covid-19: Cases in children rise sharply in US as doctors call for vaccine approval. Tanne JH. *BMJ*. 2021 Aug 16;374:n2030. doi: 10.1136/bmj.n2030.

Confronting the Delta Variant of SARS-CoV-2, Summer 2021. del Rio C, et al. *JAMA*. August 18, 2021. doi:10.1001/jama.2021.14811

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