

## COVID-19 Resource Desk

#68 | 8.8.2021 to 8.14.2021

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### New Research

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

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

**Retracted Articles - see also [Retraction Watch](#)**

1. [Ivermectin meta-analysis to be retracted, revised, say authors](#) Less than a month after the withdrawal of a widely touted preprint claiming that ivermectin could treat COVID-19, the authors of a meta-analysis that relied heavily on the preprint say they will retract their paper.

### Clinical Syndrome

2. **Incidence, Predictors, and Outcomes of In-Hospital Cardiac Arrest in COVID-19 Patients Admitted to Intensive and Non-Intensive Care Units: Insights from the AHA COVID-19 CVD Registry.** Acharya P et al. *J Am Heart Assoc.* 2021 Aug 11:e021204. doi: 10.1161/JAHA.120.021204. <https://www.ahajournals.org/doi/full/10.1161/JAHA.120.021204>  
Older age, Black race, and Hispanic ethnicity are independent predictors of IHCA in patients with COVID-19. Although the incidence is much lower than in ICU patients, approximately one-quarter of IHCA events in patients with COVID-19 occur in non-ICU settings, with the latter having a substantially lower survival to discharge rate.

### Diagnostics & Screening

3. **Self-testing for the detection of SARS-CoV-2 infection with rapid antigen tests for people with suspected COVID-19 in the community.** Stohr JJM et al. *Clin Microbiol Infect.* 2021 Aug 4:S1198-743X(21)00434-1. doi: 10.1016/j.cmi.2021.07.039. [https://www.clinicalmicrobiologyandinfection.com/article/S1198-743X\(21\)00434-1/fulltext](https://www.clinicalmicrobiologyandinfection.com/article/S1198-743X(21)00434-1/fulltext)  
Self-testing using currently available RDT's has a high specificity and relatively high sensitivity to identify individuals with a high probability of contagiousness.

### Epidemiology & Public Health

4. **Predominance of Delta variant among the COVID-19 vaccinated and unvaccinated individuals, India, May 2021.** *J Infect.* 2021 Aug 5:S0163-4453(21)00387-X. doi: 10.1016/j.jinf.2021.08.006. [https://www.journalofinfection.com/article/S0163-4453\(21\)00387-X/fulltext](https://www.journalofinfection.com/article/S0163-4453(21)00387-X/fulltext)

The study findings indicate that the prevalence of B.1.617.2 was not different between the vaccinated and unvaccinated groups. Delta variant was the dominant circulation strain and one of the primary drivers for the second wave of SARS-CoV-2 in India. This might be the reason for the breakthrough infections observed in the fully vaccinated individuals. However, the proportion of patients progressing to severe illness and mortality was lower in the vaccinated group. B.1.617.2 has the potential to infect both the vaccinated and unvaccinated individuals. However, the progression of illness seems to be prevented with vaccination. Therefore, non-pharmaceutical interventions must continue to slow down the transmission. Additionally, the pace and scale of vaccination has to be increased to mitigate the further waves of the pandemic.

5. **Determining the Incidence of Asymptomatic SARS-CoV-2 among Early Recipients of COVID-19 Vaccines: A Prospective Cohort Study of Healthcare Workers before, during and after Vaccination [DISCOVER-COVID-19].** North CM et al. *Clin Infect Dis.* 2021 Aug 7:ciab643. doi: 10.1093/cid/ciab643. <https://academic.oup.com/cid/advance-article/doi/10.1093/cid/ciab643/6345339>

The impact of COVID19 vaccination on viral characteristics of breakthrough infections is unknown. In this prospective cohort study, incidence of SARS-CoV-2 infection decreased following vaccination. Although asymptomatic positive tests were observed following vaccination, higher cycle thresholds, repeat negative tests and inability to culture virus raises questions about their clinical significance.

6. **Clinical Trends Among U.S. Adults Hospitalized With COVID-19, March to December 2020 : A Cross-Sectional Study.** Garg S et al. *Ann Intern Med.* 2021 Aug 10. doi: 10.7326/M21-1991. <https://www.acpjournals.org/doi/10.7326/M21-1991>

Rates of COVID-19-associated hospitalization, ICU admission, and death were highest in December 2020, corresponding with the third peak of the U.S. pandemic. The frequency of intensive interventions for management of hospitalized patients decreased over time. These data provide a longitudinal assessment of clinical trends among adults hospitalized with COVID-19 before widespread implementation of COVID-19 vaccines.

7. **Asymptomatic SARS-CoV-2 infection: A systematic review and meta-analysis.** Sah P et al. *Proc Natl Acad Sci U S A.* 2021 Aug 24;118(34):e2109229118. doi: 10.1073/pnas.2109229118. <https://www.pnas.org/content/118/34/e2109229118>

By analyzing over 350 studies, we estimate that the percentage of infections that never developed clinical symptoms, and thus were truly asymptomatic, was 35.1%. At the time of testing, 42.8% of cases exhibited no symptoms, a group comprising both asymptomatic and presymptomatic infections. Asymptomaticity was significantly lower among the elderly, at 19.7% compared with children at 46.7%. We also found that cases with comorbidities had significantly lower asymptomaticity compared to cases with no underlying medical conditions. Without proactive policies to detect asymptomatic infections, such as rapid contact tracing, prolonged efforts for pandemic control may be needed even in the presence of vaccination.

8. **Rapid Increase in Circulation of the SARS-CoV-2 B.1.617.2 (Delta) Variant - Mesa County, Colorado, April-June 2021.** Herlihy R et al. *MMWR Morb Mortal Wkly Rep.* 2021 Aug 13;70(32):1084-1087. doi: 10.15585/mmwr.mm7032e2.

<https://www.cdc.gov/mmwr/volumes/70/wr/mm7032e2.htm>

On May 5, 2021, the Colorado Department of Public Health and Environment identified the first five COVID-19 cases caused by the SARS-CoV-2 B.1.617.2 (Delta) variant in Mesa County in western Colorado. All five initial cases were associated with school settings. Through early June, Mesa County experienced a marked increase in the proportion of Delta variant cases identified through sequencing: the 7-day proportion of sequenced specimens identified as B.1.617.2 in Mesa County more than doubled, from 43% for the week ending May 1 to 88% for the week ending June 5. Estimated crude VE against reported symptomatic infection for a 2-week period ending June 5 was 78% for Mesa County and 89% for other Colorado counties.

9. **Potential Implications of SARS-CoV-2 Delta Variant Surges for Rural Areas and Hospitals.** Kadri SS, Simpson SQ. *JAMA.* 2021 Aug 12. doi: 10.1001/jama.2021.13941.

<https://jamanetwork.com/journals/jama/fullarticle/2783233>

The implications of a surge in COVID-19 cases due to the Delta variant of SARS-CoV-2 on rural areas of the US and its health care safety net warrant careful and prompt appraisal. In early July, 2 referral hospitals in Missouri that receive patients from the state's predominantly rural southwestern region experienced a major surge in COVID-19 caseload. In the month since, hospitalization rates have increased sharply in several other states, especially those with largely unvaccinated and rural populations. Whether these increases in COVID-19 hospitalizations portend a 10-, 100-times, or greater hospital surge crisis nationwide will become clearer in the coming weeks. With half the US population fully vaccinated, and assuming the vaccines remain effective for preventing serious disease requiring hospitalization, the nation at large might not encounter another surge with mortality burden of similar magnitude to the third wave. However, the virus has been sufficiently unpredictable to base preparedness on aggregate observations alone.

### Healthcare Delivery & Healthcare Workers

10. **The Impact of COVID-19 on Healthcare-Associated Infections.** Baker MA et al. *Clin Infect Dis.* 2021 Aug 9:ciab688. doi: 10.1093/cid/ciab688. <https://academic.oup.com/cid/advance-article/doi/10.1093/cid/ciab688/6346721>

There were 60% more CLABSI, 43% more CAUTI, and 44% more cases of MRSA bacteremia than expected over 7 months based on predicted HAIs had there not been COVID-19 cases. *Clostridioides difficile* infection was not significantly associated with COVID-19 burden. Microbiology data from 81 of the hospitals corroborated the findings. Notably, rates of hospital-onset bloodstream infections and multidrug resistant organisms, including MRSA, vancomycin-resistant enterococcus and Gram-negative organisms were each significantly associated with COVID-19 surges. Finally, clusters of hospital-onset pathogens increased as the COVID-19 burden increased. COVID-19 surges adversely impact HAI rates and clusters of infections within hospitals, emphasizing the need for balancing COVID-related demands with routine hospital infection prevention.

## Prognosis

11. **Static compliance and driving pressure are associated with ICU mortality in intubated COVID-19 ARDS.** Boscolo A et al. *Crit Care*. 2021 Jul 28;25(1):263. doi: 10.1186/s13054-021-03667-6. <https://ccforum.biomedcentral.com/articles/10.1186/s13054-021-03667-6>  
Crs < 48 ml/cmH<sub>2</sub>O was associated with ICU mortality, while DP was linearly associated with mortality. DP should be kept as low as possible, even in the case of relatively preserved Crs, irrespective of VT/kg IBW, to reduce the risk of death.
12. **Body Mass Index and Mortality in Coronavirus Disease 2019 and Other Diseases: A Cohort Study in 35,506 ICU Patients.** Kooistra EJ, et al. *Crit Care Med*. 2021 Jul 16. doi: 10.1097/CCM.0000000000005216. [https://journals.lww.com/ccmjournal/abstract/9000/body\\_mass\\_index\\_and\\_mortality\\_in\\_coronavirus.95144.aspx](https://journals.lww.com/ccmjournal/abstract/9000/body_mass_index_and_mortality_in_coronavirus.95144.aspx)  
The obesity paradox, which is the inverse association between body mass index and mortality in critically ill patients, is not present in ICU patients with coronavirus disease 2019-related respiratory failure, in contrast to nonsevere acute respiratory syndrome coronavirus 2 viral and bacterial respiratory infections.
13. **Clinical Characteristics and Risk Factors of Respiratory Failure in a Cohort of Young Patients Requiring Hospital Admission with SARS-CoV2 Infection in Spain: Results of the Multicenter SEMI-COVID-19 Registry.** Díaz-Simón R et al. *J Gen Intern Med*. 2021 Aug 11:1-8. doi: 10.1007/s11606-021-07066-z. <https://link.springer.com/article/10.1007/s11606-021-07066-z>  
Young patients with COVID-19 requiring hospital admission showed a notable incidence of respiratory failure. Obesity, SAHS, alcohol abuse, and certain laboratory parameters were independently associated with the development of this complication. Patients who suffered respiratory failure had a higher mortality and a higher incidence of major cardiac events, venous thrombosis, and hospital stay.

## Therapeutics

14. **Association of intensity of ventilation with 28-day mortality in COVID-19 patients with acute respiratory failure: insights from the PROVENT-COVID study.** Schuijt MTU et al. *Crit Care*. 2021 Aug 6;25(1):283. doi: 10.1186/s13054-021-03710-6. <https://ccforum.biomedcentral.com/articles/10.1186/s13054-021-03710-6>  
In this cohort of critically ill invasively ventilated COVID-19 patients with acute respiratory failure, we show an independent association of MP, but not  $\Delta P$  with 28-day mortality. MP could serve as one prognostic biomarker in addition to  $\Delta P$  in these patients. Efforts aiming at limiting both  $\Delta P$  and MP could translate in a better outcome.
15. **Dexamethasone and tocilizumab treatment considerably reduces the value of C-reactive protein and procalcitonin to detect secondary bacterial infections in COVID-19 patients.**

Kooistra EJ et al. *Crit Care*. 2021 Aug 5;25(1):281. doi: 10.1186/s13054-021-03717-z.

<https://ccforum.biomedcentral.com/articles/10.1186/s13054-021-03717-z>

Cessation of dexamethasone in critically ill COVID-19 patients results in a rebound increase in PCT and CRP levels unrelated to the occurrence of secondary bacterial infections. Furthermore, immunomodulatory treatment with dexamethasone and tocilizumab considerably reduces the value of PCT and CRP for detection of secondary infections in COVID-19 patients.

16. **Noninvasive respiratory support outside the intensive care unit for acute respiratory failure related to coronavirus-19 disease: a systematic review and meta-analysis.** Cammarota G et al. *Crit Care*. 2021 Jul 30;25(1):268. doi: 10.1186/s13054-021-03697-0.

<https://ccforum.biomedcentral.com/articles/10.1186/s13054-021-03697-0>

Seventeen investigations (14 peer-reviewed and 3 pre-prints) were included with a low risk of bias and a high heterogeneity, for a total of 3377 patients. The overall intra-hospital mortality of patients receiving NIRS outside the ICU was 36%. 26% of the patients failed NIRS and required intubation, with an intra-hospital mortality rising to 45%. 23% of the patients received DNI orders with an intra-hospital mortality of 72%. Oxygenation on admission was the main source of between-study heterogeneity. During COVID-19 outbreak, delivering NIRS outside the ICU revealed as a feasible strategy to cope with the massive demand of ventilatory assistance.

17. **Remdesivir for the prevention of invasive mechanical ventilation or death in COVID-19 - A post-hoc analysis of the Adaptive COVID-19 Treatment Trial-1 Cohort Data.** Paules CI et al. *Clin Infect Dis*. 2021 Aug 11:ciab695. doi:

10.1093/cid/ciab695. <https://academic.oup.com/cid/advance-article/doi/10.1093/cid/ciab695/6348134>

This post-hoc analysis of The Adaptive COVID-19 Treatment Trial-1 shows a treatment effect of remdesivir on progression to invasive mechanical ventilation (IMV) or death. Additionally, we create a risk profile that better predicts progression than baseline oxygen requirement alone. The highest risk group derives the greatest treatment effect from RDV.

18. **Incidence, clinical presentation, relapses and outcome of SARS-CoV-2 infection in patients treated with anti-CD20 monoclonal antibodies.** Calderón-Parra J et al. *Clin Infect Dis*. 2021 Aug 12:ciab700. doi: 10.1093/cid/ciab700. <https://academic.oup.com/cid/advance-article/doi/10.1093/cid/ciab700/6348942>

Patients infected with SARS-CoV-2 during the 6 months after anti-CD20 administration had a worse outcome and a higher mortality rate. The duration of infectivity may be longer. Relapses of COVID-19 occurred in more than 15% and were associated with viral replication. Once the infection is resolved, it is safe to restart treatment with anti-CD20.

## Transmission / Infection Control

19. **Viral Load of SARS-CoV-2 in Respiratory Aerosols Emitted by COVID-19 Patients while Breathing, Talking, and Singing.** Coleman KK et al. *Clin Infect Dis*. 2021 Aug 6:ciab691. doi:

10.1093/cid/ciab691. <https://academic.oup.com/cid/advance-article/doi/10.1093/cid/ciab691/6343417>

Fine aerosols produced by talking and singing contain more SARS-CoV-2 copies than coarse aerosols and may play a significant role in SARS-CoV-2 transmission. Exposure to fine aerosols, especially indoors, should be mitigated. Isolating viable SARS-CoV-2 from respiratory aerosol samples remains challenging, and whether this can be more easily accomplished for emerging SARS-CoV-2 variants is an urgent enquiry necessitating larger-scale studies.

## Vaccines / Immunology

### 20. **Use of COVID-19 Vaccines after Reports of Adverse Events among Adult Recipients of Janssen (Johnson & Johnson) and mRNA COVID-19 Vaccines (Pfizer-BioNTech and Moderna): Update from the Advisory Committee on Immunization Practices - United States, July 2021.**

Rosenblum HG et al. *MMWR Morb Mortal Wkly Rep.* 2021 Aug 13;70(32):1094-1099. doi:

10.15585/mmwr.mm7032e4. <https://www.cdc.gov/mmwr/volumes/70/wr/mm7032e4.htm>

As of July 22, 2021, 187 million persons in the United States had received at least 1 dose of COVID-19 vaccine; close monitoring of safety surveillance has demonstrated that serious adverse events after COVID-19 vaccination are rare. Three medical conditions have been reported in temporal association with receipt of COVID-19 vaccines. Two of these (thrombosis with thrombocytopenia syndrome [TTS], a rare syndrome characterized by venous or arterial thrombosis and thrombocytopenia, and Guillain-Barré syndrome [GBS], a rare autoimmune neurologic disorder characterized by ascending weakness and paralysis) have been reported after Janssen COVID-19 vaccination. One (myocarditis, cardiac inflammation) has been reported after Pfizer-BioNTech COVID-19 vaccination or Moderna COVID-19 vaccination, particularly after the second dose; these were reviewed together and will hereafter be referred to as mRNA COVID-19 vaccination. ACIP has met three times to review the data associated with these reports of serious adverse events and has comprehensively assessed the benefits and risks associated with receipt of these vaccines. During the most recent meeting in July 2021, ACIP determined that, overall, the benefits of COVID-19 vaccination in preventing COVID-19 morbidity and mortality outweigh the risks for these rare serious adverse events in adults aged  $\geq 18$  years; this balance of benefits and risks varied by age and sex. ACIP continues to recommend COVID-19 vaccination in all persons aged  $\geq 12$  years. CDC and FDA continue to closely monitor reports of serious adverse events and will present any additional data to ACIP for consideration. Information regarding risks and how they vary by age and sex and type of vaccine should be disseminated to providers, vaccine recipients, and the public.

### 21. **Reduced Risk of Reinfection with SARS-CoV-2 After COVID-19 Vaccination - Kentucky, May-June 2021.** Cavanaugh AM, et al. *MMWR Morb Mortal Wkly Rep.* 2021 Aug 13;70(32):1081-1083. doi: 10.15585/mmwr.mm7032e1.

<https://www.cdc.gov/mmwr/volumes/70/wr/mm7032e1.htm>

This report details the findings of a case-control evaluation of the association between vaccination and SARS-CoV-2 reinfection in Kentucky during May-June 2021 among persons previously infected with SARS-CoV-2 in 2020. Kentucky residents who were not vaccinated had 2.34 times the odds of reinfection compared with those who were fully vaccinated. These findings suggest that among persons with previous SARS-CoV-2 infection, full vaccination provides additional protection against reinfection. To reduce their risk of infection, all eligible

persons should be offered vaccination, even if they have been previously infected with SARS-CoV-2.

22. **Effectiveness of COVID-19 Vaccines in Preventing Hospitalization among Adults Aged ≥65 Years - COVID-NET, 13 States, February-April 2021.** Moline HL et al. *MMWR Morb Mortal Wkly Rep.* 2021 Aug 13;70(32):1088-1093. doi: 10.15585/mmwr.mm7032e3.

<https://www.cdc.gov/mmwr/volumes/70/wr/mm7032e3.htm>

Among adults aged 65-74 years, effectiveness of full vaccination in preventing COVID-19-associated hospitalization was 96% for Pfizer-BioNTech, 96% for Moderna, and 84% for Janssen vaccine products. Effectiveness of full vaccination in preventing COVID-19-associated hospitalization among adults aged ≥75 years was 91% for Pfizer-BioNTech, 96% for Moderna, and 85% for Janssen vaccine products. COVID-19 vaccines currently authorized in the United States are highly effective in preventing COVID-19-associated hospitalizations in older adults. In light of real-world data demonstrating high effectiveness of COVID-19 vaccines among older adults, efforts to increase vaccination coverage in this age group are critical to reducing the risk for COVID-19-related hospitalization.

23. **Seven-month kinetics of SARS-CoV-2 antibodies and role of pre-existing antibodies to human coronaviruses.** Ortega N et al. *Nat Commun.* 2021 Aug 6;12(1):4740. doi: 10.1038/s41467-021-24979-9. <https://www.nature.com/articles/s41467-021-24979-9>

Unraveling the long-term kinetics of antibodies to SARS-CoV-2 and the individual characteristics influencing it, including the impact of pre-existing antibodies to human coronaviruses causing common cold, is essential to understand protective immunity to COVID-19 and devise effective surveillance strategies. In a cohort of health care workers followed up to 7 months, seroprevalence increases over time from 13.5% (month 0) and 15.6% (month 1) to 16.4% (month 6). Levels of antibodies, including those with neutralizing capacity, are stable over time, except IgG to nucleocapsid antigen and IgM levels that wane. After the peak response, anti-spike antibody levels increase from ~150 days post-symptom onset in all individuals (73% for IgG), in the absence of any evidence of re-exposure. IgG and IgA to HCoV are significantly higher in asymptomatic than symptomatic seropositive individuals. Thus, pre-existing cross-reactive HCoVs antibodies could have a protective effect against SARS-CoV-2 infection and COVID-19 disease.

24. **Effectiveness of SARS-CoV-2 mRNA Vaccines for Preventing Covid-19 Hospitalizations in the United States.** Tenforde MW et al. *Clin Infect Dis.* 2021 Aug 6:ciab687. doi:

10.1093/cid/ciab687. <https://academic.oup.com/cid/advance-article/doi/10.1093/cid/ciab687/6343399>

Among 1212 participants, including 593 cases and 619 controls, median age was 58 years, 22.8% were Black, 13.9% were Hispanic, and 21.0% had immunosuppression. Full vaccination had been received by 8.2% of cases and 36.4% of controls. Overall vaccine effectiveness was 87.1%. Vaccine effectiveness was similar for Pfizer-BioNTech and Moderna vaccines, and highest in adults aged 18-49 years. Among 45 patients with vaccine-breakthrough Covid hospitalizations, 44 (97.8%) were ≥50 years old and 20 (44.4%) had immunosuppression. Vaccine effectiveness was lower among patients with immunosuppression (62.9%) than

without immunosuppression (91.3%). During March-May 2021, SARS-CoV-2 mRNA vaccines were highly effective for preventing Covid-19 hospitalizations among US adults. SARS-CoV-2 vaccination was beneficial for patients with immunosuppression, but effectiveness was lower in the immunosuppressed population.

25. **SARS-CoV-2 Antibody Responses in Infection-Naive or Previously Infected Individuals after 1 and 2 Doses of the BNT162b2 Vaccine.** Anderson M, et al. *JAMA Netw Open*. 2021 Aug 2;4(8):e2119741. doi: 10.1001/jamanetworkopen.2021.19741.

<https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2782762>

We observed higher SARS-CoV-2 antibody levels in previously infected individuals after 1 dose of BNT162b2 compared with infection-naive individuals after 2 doses. Importantly, in previously infected individuals with positive SARS-CoV-2 spike IgG levels, the second dose did not significantly increase IgG levels compared with the first dose, suggesting that 1 dose may be acceptable in this group. However, it is important to note that a positive PCR diagnosis alone was not enough to discount the need for a second vaccine dose. In 4 participants who reported a positive PCR, but did not develop S-protein antibodies, the response to the first vaccine dose was more similar to that of the infection-naive group. Furthermore, these results highlight that even in previously infected individuals, baseline serological testing should be performed prior to deciding whether to forego a second vaccine dose.

26. **Decreased neutralization of the Eta SARS-CoV-2 variant by sera of previously infected and uninfected vaccinated individuals.** *J Infect*. 2021 Aug 6:S0163-4453(21)00388-1. doi: 10.1016/j.jinf.2021.08.005. [https://www.journalofinfection.com/article/S0163-4453\(21\)00388-1/pdf](https://www.journalofinfection.com/article/S0163-4453(21)00388-1/pdf)

We measured the serum neutralizing antibody (NtAb) response to Eta variant, as well as to other viral variants, in a cohort of health care workers (HCWs) including both previously infected (n=15) and uninfected individuals (n=15) vaccinated with two doses of the BNT162b2 COVID-19 mRNA vaccine. Overall, in our small cohort of previously infected or uninfected vaccinated-HCWs it appears that crossneutralization among different viral variants remains substantial, following natural or artificial immunization with the wild type lineage. However, neutralization of Eta variant is significantly reduced with respect to other variants.

27. **Antibody response in individuals infected with SARS-CoV-2 early after the first dose of the BNT162b2 mRNA vaccine: SARS-CoV-2 infection early after the first vaccine dose.** Gobbi F, et al. *J Infect*. 2021 Aug 6:S0163-4453(21)00390-X. doi: 10.1016/j.jinf.2021.08.008.

[https://www.journalofinfection.com/article/S0163-4453\(21\)00390-X/fulltext](https://www.journalofinfection.com/article/S0163-4453(21)00390-X/fulltext)

This study demonstrated that the titers of SARS-CoV-2 RBD-binding IgG and neutralizing antibodies induced by vaccination with BNT162b2 were significantly higher in HCWs infected with SARS-CoV-2  $\leq 14$  days after the first vaccine dose than in naïve subjects, but significantly lower than in HCWs infected before vaccination. In addition, the relatively high levels of RBD-binding IgG and neutralizing antibodies in HCWs infected after vaccination were similar to those achieved after natural infection. This level of immunity probably confers protection against symptomatic SARS-CoV-2 infection and disease, according with data from the literature which showed that the levels of neutralizing antibodies detected in convalescent serum prevent



severe infection. However, as the minimum level of antibodies associated with protection has not been defined, a cautionary approach is preferable. Thus, while recommending a single dose for individuals who were infected months before vaccination, the same approach might not be appropriate for those who are diagnosed with the infection soon after the first dose of vaccine, especially in the context of the emergence and spread of variants of concern which escape antibody neutralization

28. **Cerebral venous thrombosis after vaccination against COVID-19 in the UK: a multicentre cohort study.** Perry RJ et al. *Lancet*. 2021 Aug 6:S0140-6736(21)01608-1. doi: 10.1016/S0140-6736(21)01608-1. [https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(21\)01608-1/fulltext](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(21)01608-1/fulltext)  
Cerebral venous thrombosis is more severe in the context of VITT. Non-heparin anticoagulants and immunoglobulin treatment might improve outcomes of VITT-associated cerebral venous thrombosis. Since existing criteria excluded some patients with otherwise typical VITT-associated cerebral venous thrombosis, we propose new diagnostic criteria that are more appropriate.
29. **Safety and immunogenicity of heterologous versus homologous prime-boost schedules with an adenoviral vectored and mRNA COVID-19 vaccine (Com-COV): a single-blind, randomised, non-inferiority trial.** Liu X et al. *Lancet*. 2021 Aug 6:S0140-6736(21)01694-9. doi: 10.1016/S0140-6736(21)01694-9. [https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(21\)01694-9/fulltext](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(21)01694-9/fulltext)  
Despite the BNT/ChAd regimen not meeting non-inferiority criteria, the SARS-CoV-2 anti-spike IgG concentrations of both heterologous schedules were higher than that of a licensed vaccine schedule (ChAd/ChAd) with proven efficacy against COVID-19 disease and hospitalisation. Along with the higher immunogenicity of ChAd/BNT compared with ChAd/ChAd, these data support flexibility in the use of heterologous prime-boost vaccination using ChAd and BNT COVID-19 vaccines.
30. **Frequency of Thrombocytopenia and Platelet Factor 4/Heparin Antibodies in Patients with Cerebral Venous Sinus Thrombosis Prior to the COVID-19 Pandemic.** Sánchez van Kammen M et al. *JAMA*. 2021 Jul 27;326(4):332-338. doi: 10.1001/jama.2021.9889. <https://jamanetwork.com/journals/jama/fullarticle/2781791>  
In patients with cerebral venous sinus thrombosis prior to the COVID-19 pandemic, baseline thrombocytopenia was uncommon, and heparin-induced thrombocytopenia and platelet factor 4/heparin antibodies were rare. These findings may inform investigations of the possible association between the ChAdOx1 nCoV-19 and Ad26.COV2.S COVID-19 vaccines and cerebral venous sinus thrombosis with thrombocytopenia.
31. **Clinical Characteristics and Pharmacological Management of COVID-19 Vaccine-Induced Immune Thrombotic Thrombocytopenia with Cerebral Venous Sinus Thrombosis: A Review.** Rizk JG, et al. *JAMA Cardiol*. 2021 Aug 10. doi: 10.1001/jamacardio.2021.3444. <https://jamanetwork.com/journals/jamacardiology/fullarticle/2783051>

Adverse events like VITT, while uncommon, have been described despite vaccination remaining the most essential component in the fight against the COVID-19 pandemic. While it seems logical to consider the use of types of vaccines (eg, mRNA-based administration) in individuals at high risk, treatment should consist of therapeutic anticoagulation mostly with nonheparin products and IVIG.

32. **Evaluation of mRNA-1273 SARS-CoV-2 Vaccine in Adolescents.** Ali K et al. *N Engl J Med.* 2021 Aug 11. doi: 10.1056/NEJMoa2109522.  
<https://www.nejm.org/doi/full/10.1056/NEJMoa2109522>  
The mRNA-1273 vaccine had an acceptable safety profile in adolescents. The immune response was similar to that in young adults, and the vaccine was efficacious in preventing Covid-19. (Funded by Moderna and the Biomedical Advanced Research and Development Authority; Teen COVE ClinicalTrials.gov number, NCT04649151.).
33. **Clinical Features of Vaccine-Induced Immune Thrombocytopenia and Thrombosis.** Pavord S et al. *N Engl J Med.* 2021 Aug 11. doi: 10.1056/NEJMoa2109908.  
<https://www.nejm.org/doi/full/10.1056/NEJMoa2109908>  
Among 294 patients who were evaluated, we identified 170 definite and 50 probable cases of VITT. All the patients had received the first dose of ChAdOx1 nCoV-19 vaccine and presented 5 to 48 days (median, 14) after vaccination. The age range was 18 to 79 years (median, 48), with no sex preponderance and no identifiable medical risk factors. Overall mortality was 22%. The high mortality associated with VITT was highest among patients with a low platelet count and intracranial hemorrhage. Treatment remains uncertain, but identification of prognostic markers may help guide effective management.

### Women & Children

34. **SPECIAL REPORT: A standardized definition of placental infection by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), a consensus statement from the National Institutes of Health/Eunice Kennedy Shriver National Institute of Child Health and Human Development (NIH/NICHD) SARS-CoV-2 placental infection workshop.** Roberts DJ et al. *Am J Obstet Gynecol.* 2021 Aug 5:S0002-9378(21)00832-2. doi: 10.1016/j.ajog.2021.07.029.  
[https://www.ajog.org/article/S0002-9378\(21\)00832-2/fulltext](https://www.ajog.org/article/S0002-9378(21)00832-2/fulltext)  
Pregnant individuals infected with SARS-CoV-2 have higher rates of ICU admission, oxygen requirement, need for mechanical ventilation and death than non-pregnant individuals. Increased COVID-19 disease severity may be associated with increased risk for viremia and placental infection. Maternal SARS-CoV-2 infection is also associated with pregnancy complications such as preeclampsia and preterm birth that can be either placentally-mediated or reflected in the placenta. Maternal viremia followed by placental infection may lead to maternal-fetal transmission (vertical), which affects 1-3% of exposed newborns. However, there is no agreed-upon or standard definition of placental infection. NIH/NICHD convened a group of experts to propose a working definition of placental infection to inform ongoing studies of SARS-CoV-2 during pregnancy. Experts recommended that placental infection be defined using techniques that allow virus detection and localization in placental tissue by one or more of the

following methods: in-situ hybridization with anti-sense probe and/or a sense probe. If the above methods are not possible, RT-PCR detection and/or quantification of viral RNA in placental homogenates, or electron microscopy are alternative approaches. Manuscripts reporting placental infection should describe the sampling method, method of preservation of tissue, and detection technique. Recommendations were made for the handling of the placenta, examination, and sampling, as well as the use of validated reagents and sample protocols.

35. **Illness duration and symptom profile in symptomatic UK school-aged children tested for SARS-CoV-2.** Molteni E et al. *Lancet Child Adolesc Health*. 2021 Aug 3:S2352-4642(21)00198-X. doi: 10.1016/S2352-4642(21)00198-X.

[https://www.thelancet.com/journals/lanchi/article/PIIS2352-4642\(21\)00198-X/fulltext](https://www.thelancet.com/journals/lanchi/article/PIIS2352-4642(21)00198-X/fulltext)

Although COVID-19 in children is usually of short duration with low symptom burden, some children with COVID-19 experience prolonged illness duration. Reassuringly, symptom burden in these children did not increase with time, and most recovered by day 56. Some children who tested negative for SARS-CoV-2 also had persistent and burdensome illness. A holistic approach for all children with persistent illness during the pandemic is appropriate.

36. **Quantification of Specific Antibodies Against SARS-CoV-2 in Breast Milk of Lactating Women Vaccinated With an mRNA Vaccine.** Esteve-Palau E et al. *JAMA Netw Open*. 2021 Aug 2;4(8):e2120575. doi: 10.1001/jamanetworkopen.2021.20575.

<https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2782982>

Our results suggest that breast milk from women vaccinated with the novel mRNA-based Pfizer-BioNTech vaccine contains specific anti-SARS-CoV-2 IgG(S1) antibodies. Furthermore, we found that after the second dose, breast milk IgG(S1) levels increased and were positively associated with corresponding serum levels.

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## GUIDELINES & CONSENSUS STATEMENTS

[Perioperative Coronavirus Vaccination - Timing and Implications: A Guidance Document.](#) STS Workforce on Critical Care. *Ann Thorac Surg*. 2021 Aug 6:S0003-4975(21)01377-1. doi: 10.1016/j.athoracsur.2021.07.016.

[Statement of Strong Medical Consensus for Vaccination of Pregnant Individuals Against COVID-19,](#) August 9, 2021 Joint Statement: American College of Obstetricians and Gynecologists | American Academy of Family Physicians | American Academy of PAs | American Academy of Pediatrics | American Association of Nurse Practitioners | American College of Nurse-Midwives | American College of Osteopathic Obstetricians & Gynecologists | American College of Physicians | American Pharmacists Association | Association of Women's Health, Obstetric and Neonatal Nurses | Infectious Diseases Society of America | Infectious Diseases Society for Obstetrics and Gynecology | National Association of Nurse Practitioners in Women's Health | National Foundation for Infectious Diseases | National Hispanic Medical Association | North American Society for Pediatric and Adolescent Gynecology | Society for Maternal-Fetal Medicine, et al.

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## FDA / CDC / NIH / WHO Updates

CDC – [COVID-19 Vaccines While Pregnant or Breastfeeding](#), updated August 11, 2021

[FDA Authorizes Additional Vaccine Dose for Immunocompromised People](#), August 12, 2021

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## Commentary

[Evidence and Precaution for Legal Health Interventions: Learning From the COVID-19 Pandemic.](#)

Bretthauer M, et al. *Ann Intern Med.* 2021 Aug 10. doi: 10.7326/M21-2839. \

[Potential COVID-19 Endgame Scenarios: Eradication, Elimination, Cohabitation, or Conflagration?](#)

Kofman A, et al. *JAMA.* 2021 Jul 27;326(4):303-304. doi: 10.1001/jama.2021.11042.

[IL-6 Receptor Antagonist Therapy for Patients Hospitalized for COVID-19: Who, When, and How?](#)

Matthay MA, et al. *JAMA.* 2021 Aug 10;326(6):483-485. doi: 10.1001/jama.2021.11121.

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