

COVID-19 Resource Desk

#26 | 10.14.2020 to 10.20.2020

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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. **Baseline Demographics and Clinical Characteristics Among 3471 US Patients Hospitalized with COVID-19 and Pulmonary Involvement: A Retrospective Study.** Best JH, Krish Patel, John M Pagel, John Pauk, et al. [PSJH authors]. *Adv Ther.* 2020 Oct 12;1-15. doi: 10.1007/s12325-020-01510-y.

Findings: Overall, 3471 US patients hospitalized with COVID-19 and pulmonary involvement were included. The mean age was 63.5 years; 51.2% of patients were female, 55.0% African American, 81.6% from the South, and 16.8% from the Midwest. The most common comorbidities included hypertension (27.7%), diabetes (17.3%), hyperlipidemia (16.3%), and obesity (9.7%). Cough (27.3%) and dyspnea (15.2%) were the most common preadmission pulmonary symptoms. African American patients were younger (62.5 vs. 67.8) with higher mean body mass index (33.66 vs. 30.42) and prevalence of diabetes (19.8% vs. 16.7%) and lower prevalence of chronic obstructive pulmonary disease (5.6% vs. 8.2%) and smoking/tobacco use (28.1% vs. 37.2%) than White patients. Among US patients primarily from the South and Midwest hospitalized with COVID-19 and pulmonary involvement, the most common comorbidities were hypertension, diabetes, hyperlipidemia, and obesity. Differences observed between African American and White patients should be considered in the context of the complex factors underlying racial disparities in COVID-19.

Epidemiology & Public Health

2. **COVID-19 Emergency Sick Leave Has Helped Flatten the Curve in the United States.** Pichler S, Wen K, Ziebarth NR. *Health Affairs.* OCTOBER 15, 2020
<https://doi.org/10.1377/hlthaff.2020.00863>

Findings: This paper tests whether the COVID-19 emergency sick leave provision of the bipartisan Families First Coronavirus Response Act (FFCRA) reduced the spread of the virus. Using a difference-in-differences strategy, we compare pre-post FFCRA changes in newly reported COVID-19 cases in states where workers gained the right to take paid sick leave (treatment group) to states where workers already had access to paid sick leave (control group). We adjust for differences in testing, day-of-the-week reporting, structural state

differences, general virus dynamics, and policies such as stay-at-home orders (SHO). Compared to the control group and relative to the pre-FFCRA period, states that gained access to paid sick leave through FFCRA saw a statistically significant 400 fewer confirmed cases per day. This estimate translates into roughly 1 prevented COVID-19 case per day, per 1300 workers who newly gained the option to take up to two weeks of paid sick leave.

3. **Race, Ethnicity, and Age Trends in Persons Who Died from COVID-19 — United States, May–August 2020.** Gold JA, Rossen LM, Ahmad FB, et al. *MMWR Morb Mortal Wkly Rep.* ePub: 16 October 2020. DOI: <http://dx.doi.org/10.15585/mmwr.mm6942e1>
https://www.cdc.gov/mmwr/volumes/69/wr/mm6942e1.htm?s_cid=mm6942e1_w
Findings: Analysis of 114,411 COVID-19–associated deaths reported to National Vital Statistics System during May–August 2020, found that 51.3% of decedents were non-Hispanic White, 24.2% were Hispanic or Latino, and 18.7% were Black. The percentage of Hispanic decedents increased from 16.3% in May to 26.4% in August.
4. **Trends in COVID-19 Incidence After Implementation of Mitigation Measures — Arizona, January 22–August 7, 2020.** Gallaway MS, Rigler J, Robinson S, et al. *MMWR Morb Mortal Wkly Rep* 2020;69:1460–1463. DOI: <http://dx.doi.org/10.15585/mmwr.mm6940e3>
<https://www.cdc.gov/mmwr/volumes/69/wr/mm6940e3.htm>
Findings: The number of COVID-19 cases in Arizona stabilized and then decreased after sustained implementation and enforcement of statewide and locally enhanced mitigation measures, beginning approximately 2 weeks after implementation and enforcement of mask mandates and enhanced sanitations practices began on June 17; further decreases were observed during July 13–August 7, after statewide limitations and closures of certain services and businesses. Widespread implementation and enforcement of sustained community mitigation measures, including mask wearing, informed by state and local officials’ continual data monitoring and collaboration can help prevent transmission of SARS-CoV-2 and decrease the numbers of COVID-19 cases.
5. **Asymptomatic and Presymptomatic Severe Acute Respiratory Syndrome Coronavirus 2 Infection Rates in a Multistate Sample of Skilled Nursing Facilities.** White EM, Santostefano CM, Feifer RA, et al. *JAMA Intern Med.* October 19, 2020.
doi:10.1001/jamainternmed.2020.5664
<https://jamanetwork.com/journals/jamainternalmedicine/article-abstract/2771816>
Findings: We observed high asymptomatic and presymptomatic SARS-CoV-2 infection rates in a large multistate sample of SNFs, demonstrating the importance of universal testing for identifying and isolating cases. The SNFs located in areas with high SARS-CoV-2 prevalence detected higher numbers of asymptomatic and presymptomatic cases during initial point prevalence surveys, building on emerging evidence that SNF location is an important predictor of outbreaks.
6. **Gender differences in COVID-19 attitudes and behavior: Panel evidence from eight countries.** Galasso V, Pons V, Profeta P, et al. *PNAS* October 15, 2020;

<https://doi.org/10.1073/pnas.2012520117>

<https://www.pnas.org/content/early/2020/10/14/2012520117>

Findings: We use original data from two waves of a survey conducted in March and April 2020 in eight Organisation for Economic Co-operation and Development countries (n = 21,649) to study gender differences in COVID-19–related beliefs and behaviors. We show that women are more likely to perceive COVID-19 as a very serious health problem, to agree with restraining public policy measures, and to comply with them. Gender differences in attitudes and behavior are sizable in all countries. They are accounted for neither by sociodemographic and employment characteristics nor by psychological and behavioral factors. They are only partially mitigated for individuals who cohabit or have direct exposure to the virus. We show that our results are not due to differential social desirability bias. This evidence has important implications for public health policies and communication on COVID-19, which may need to be gender based, and it unveils a domain of gender differences: behavioral changes in response to a new risk.

7. **Reduced prevalence of SARS-CoV-2 infection in ABO blood group O.** Bogetofte Barnkob M, Pottegård A, Støvring H, et al. *Blood Adv.* 2020 Oct 27;4(20):4990-4993. doi: 10.1182/bloodadvances.2020002657.

<https://ashpublications.org/bloodadvances/article/4/20/4990/463793>

Findings: Participants (29% of whom were male) included 473,654 individuals tested for SARS-CoV-2 using real-time polymerase chain reaction (7422 positive and 466,232 negative) and 2,204,742 nontested individuals, accounting for 83.8% of the total Danish population. Hospitalization and death from COVID-19, age, cardiovascular comorbidities, and job status were also collected for confirmed infected cases. ABO blood groups varied significantly between patients and the reference group, with only 38.41% of the patients belonging to blood group O compared with 41.70% in the controls, corresponding to a relative risk of 0.87 for acquiring COVID-19. This study identifies ABO blood group as a risk factor for SARS-CoV-2 infection but not for hospitalization or death from COVID-19.

*see also: **The association of ABO blood group with indices of disease severity and multiorgan dysfunction in COVID-19.** Hoiland RL, Fergusson NA, Mitra AR, et al. *Blood Adv.* 2020 Oct 27;4(20):4981-4989. doi: 10.1182/bloodadvances.2020002623.

8. **COVID-19 and Overall Mortality Inequities in the Surge in Death Rates by Zip Code Characteristics: Massachusetts, January 1 to May 19, 2020.** Krieger N, Waterman PD, Chen JT, et al. *Am J Public Health.* 2020 Oct 15;e1-e3. doi: 10.2105/AJPH.2020.305913.

<https://ajph.aphapublications.org/doi/pdfplus/10.2105/AJPH.2020.305913>

Findings: At the surge peak (week 16, April 15–21), mortality rate ratios (comparing 2020 vs 2015–2019) were 2.2 and 2.7 for the lowest and highest zip code tabulation area poverty categories, respectively, with the 2020 peak mortality rate 1.1 times higher in the highest than the lowest poverty ZCTA. Similarly, rate ratios were significantly elevated for the highest versus lowest quintiles with respect to household crowding, racialized economic segregation, and percentage population of color. The COVID-19 mortality surge exhibited large inequities

Healthcare Delivery & Healthcare Workers

9. **The Impact of High-Flow Nasal Cannula Use on Patient Mortality and the Availability of Mechanical Ventilators in COVID-19.** Gershengorn HB, Hu Y, Chen JT, et al. *Ann Am Thorac Soc.* 2020 Oct 13. doi: 10.1513/AnnalsATS.202007-803OC.

<https://www.atsjournals.org/doi/pdf/10.1513/AnnalsATS.202007-803OC>

Findings: The policy associated with the fewest deaths and the least time without available ventilators combined the use of high-flow nasal cannula for patients not urgently needing ventilators with the use of early mechanical ventilation for these patients when at least 10% ventilator supply was not in use. At the national level, this strategy resulted in 10,000 - 40,000 fewer deaths than if high-flow nasal cannula were not available. Additionally, with moderate national ventilator capacity (30,000-45,000 ventilators), this strategy led to up to 25 (11.8%) fewer days without available ventilators. For a 250-bed hospital with 100 mechanical ventilators, the availability of 13, 20, or 33 high-flow nasal cannulas prevented 81, 102, and 130 deaths, respectively. Use of high-flow nasal cannula coupled with early mechanical ventilation when supply is sufficient results in fewer deaths and greater ventilator availability.

10. **Hydroxychloroquine as pre-exposure prophylaxis for COVID-19 in healthcare workers: a randomized trial.** Rajasingham R, Bangdiwala AS, Nicol MR, et al. *Clinical Infectious Diseases.* 17 October 2020 <https://doi.org/10.1093/cid/ciaa1571> <https://academic.oup.com/cid/advance-article/doi/10.1093/cid/ciaa1571/5929230>

Findings: We enrolled 1483 healthcare workers, of which 79% reported performing aerosol-generating procedures. The incidence of Covid-19 was 0.27 events per person-year with once-weekly and 0.28 events per person-year with twice-weekly hydroxychloroquine compared with 0.38 events per person-year with placebo. Pre-exposure prophylaxis with hydroxychloroquine once or twice weekly did not significantly reduce laboratory-confirmed Covid-19 or Covid-19-compatible illness among healthcare workers.

Laboratory Findings

11. **Multicenter Clinicopathologic Correlation of Kidney Biopsies Performed in COVID-19 Patients Presenting with Acute Kidney Injury or Proteinuria.** Akilesh S, Nast CC, Jeremy Gitomer, et al. [PSJH author]. *Am J Kidney Dis.* 2020 Oct 9;S0272-6386(20)31014-3. doi: 10.1053/j.ajkd.2020.10.001.

Findings: Kidney biopsy data inform us about pathologic processes associated with SARS CoV-2 infection. We conducted a multi-center evaluation of kidney biopsy findings in living patients to identify various kidney disease pathology in patients with COVID-19 and their association with SARS-CoV-2 infection. Cases of even symptomatically mild COVID-19 infection were accompanied by AKI and/or heavy proteinuria that prompted a diagnostic kidney biopsy. While acute tubular injury was seen among the majority of them, uncommon pathology such as collapsing glomerulopathy and acute endothelial injury were detected, and most of these patients progressed to irreversible kidney injury and dialysis.

Prognosis

- 12. Renal impairment and its impact on clinical outcomes in patients who are critically ill with COVID-19: a multicentre observational study.** Gasparini M, Khan S, Patel JM, et al. *Anesthesia* 2020 Oct 16. doi: <https://doi.org/10.1111/anae.15293> <https://associationofanaesthetists-publications.onlinelibrary.wiley.com/doi/10.1111/anae.15293>

Findings: We examined the association between acute and chronic kidney disease with clinical outcomes in 372 patients with coronavirus disease-19 admitted to four regional intensive care units between 10 March 2020 and 31 July 2020. A total of 216 (58%) patients presented with COVID-19 and renal impairment. Acute kidney injury and/or chronic kidney disease was associated with greater in-hospital mortality compared with patients with preserved renal function. Mortality was greatest in patients with renal transplants. Mortality rates increased in patients with worsening renal injury according to the Kidney Disease: Improving Global Outcomes classification. Survivors were less likely to require renal replacement therapy compared with non-survivors. One-fifth of survivors who required renal replacement therapy acutely in intensive care continued to require renal support following discharge.
- 13. Perioperative Morbidity and Mortality of Patients with COVID-19 Who Undergo Urgent and Emergent Surgical Procedures.** Knisely A, Zhou ZN, Wu J, et al. *Ann Surg.* 2020 Oct 14. doi: 10.1097/SLA.0000000000004420. [https://journals.lww.com/annalsofsurgery/Abstract/9000/Perioperative Morbidity and Mortality of Patients.94132.aspx](https://journals.lww.com/annalsofsurgery/Abstract/9000/Perioperative_Morbidity_and_Mortality_of_Patients.94132.aspx)

Findings: We examined patients who underwent urgent and emergent surgery at 2 hospitals in New York City from March 17 to April 15, 2020. Routine, laboratory based COVID-19 screening was instituted on April 1. Among 468 subjects, 36 (7.7%) had confirmed COVID-19. Among those with COVID-19, 55.6% were detected preoperatively and 44.4% postoperatively. Before the routine preoperative COVID-19 laboratory screening, 7.7% of cases were diagnosed preoperatively compared to 65.2% after institution of screening. The perioperative mortality rate was 16.7% in those with COVID-19 compared to 1.4% in COVID-19 negative subjects. Serious complications were identified in 58.3% of COVID-19 subjects versus 6.0% of controls. Cardiac arrest, sepsis/shock, respiratory failure, pneumonia, acute respiratory distress syndrome, and acute kidney injury were more common in those with COVID-19. The intensive care unit admission rate was 36.1% in those with COVID-19 compared to 16.4% of controls.
- 14. Growth Differentiation Factor-15 Provides Prognostic Information Superior to Established Cardiovascular and Inflammatory Biomarkers in Unselected Patients Hospitalized with COVID-19.** Myhre PL, Prebensen C, Strand H, et al. *Circulation.* 2020 Oct 15. doi: 10.1161/CIRCULATIONAHA.120.050360.

Findings: Of the 123 patients enrolled, 35 (28%) reached the primary endpoint; these patients were older, more often had diabetes mellitus, had lower oxygen saturations and higher National Early Warning Score on baseline. Baseline GDF-15 concentrations were elevated in 97 (79%), and higher concentrations were associated with detectable SARS-CoV-2 viremia and hypoxemia. GDF-15 is elevated in the majority of patients hospitalized with COVID-19, and higher concentrations are associated with SARS-CoV-2 viremia, hypoxemia and worse outcome.

The prognostic importance of GDF-15 was additional and superior to established cardiovascular and inflammatory biomarkers.

Survivorship & Rehabilitation

15. **Three-month quality of life in survivors of ARDS due to COVID-19: a preliminary report from a French academic centre.** Valent A, Dudoignon E, Ressaire Q, et al. *Anaesth Crit Care Pain Med*. 2020 Oct 10:S2352-5568(20)30225-3. doi: 10.1016/j.accpm.2020.10.001.

<https://www.clinicalkey.com/#!/content/journal/1-s2.0-S2352556820302253>

Findings: In this preliminary study, all severe COVID-19 survivors had an impaired quality of life at 3 months of follow-up. In addition, up to 80% of these survivors described pain or discomfort in their daily life, and almost half of the patients complained about mental health disturbances and worsened mobility due to muscular weakness and articular pain. Our findings are similar to those reported in studies of follow-up of survivors of ARDS due to other viral infections with high morbi-mortality.

16. **Predictors of functional dependence after COVID-19: A retrospective examination among veterans.** Leigh AE, McCall J, Burke RV, Rome R, Raines AM. *Am J Phys Med Rehabil*. 2020 Oct 12. doi: 10.1097/PHM.0000000000001614.

<https://ovidsp.ovid.com/ovidweb.cgi?T=JS&CSC=Y&NEWS=N&PAGE=fulltext&D=ovft&AN=00002060-900000000-97841&PDF=y>

Findings: Older age, respiratory failure, cardiac conditions, and thromboembolic complications all made a statistically significant contribution to functional dependence at discharge, with thromboembolic complications evincing the strongest association. New diagnosis of thrombosis during COVID-19 hospitalization, a measure of COVID-19 disease severity, was the factor most associated with dependence in ADLs at discharge. Interestingly, pre-existing conditions including hypertension, severe obesity, lung disease, and diabetes did not correlate with dependent functional status at discharge.

Therapeutics

17. **Repurposed antiviral drugs for COVID-19; interim WHO SOLIDARITY trial results.** WHO Solidarity Trial Consortium. *medRxiv PREPRINT*. October 15, 2020 doi:

<https://doi.org/10.1101/2020.10.15.20209817>

Findings: WHO expert groups recommended mortality trials in hospitalized COVID-19 of four repurposed antiviral drugs. Study drugs were Remdesivir, Hydroxychloroquine, Lopinavir (fixed-dose combination with Ritonavir) and Interferon- β 1a (mainly subcutaneous; initially with Lopinavir, later not). COVID-19 inpatients were randomized equally between whichever study drugs were locally available and open control (up to 5 options: 4 active and local standard-of-care). These regimens appeared to have little or no effect on hospitalized COVID-19, as indicated by overall mortality, initiation of ventilation and duration of hospital stay. The mortality findings contain most of the randomized evidence on Remdesivir and Interferon and are consistent with meta-analyses of mortality in all major trials.

18. **The impact of protocol-based high-intensity pharmacological thromboprophylaxis on thrombotic events in critically ill COVID-19 patients.** Atallah B, Sadik ZG, Salem N, et al. *Anaesthesia*. 2020 Oct 12. doi: 10.1111/anae.15300. <https://associationofanaesthetists-publications.onlinelibrary.wiley.com/doi/epdf/10.1111/anae.15300>
Findings: We adopted a patient-tailored thromboprophylaxis protocol based on clinical and laboratory presentations in our institution. We hypothesised that patients who received high-intensity thromboprophylaxis treatment would experience fewer thrombotic events. A retrospective chart review of all adult patients with confirmed SARS-CoV-2 infection admitted to the intensive care unit between 1 March and 29 May 2020 was performed. The primary outcome was a composite of venous and arterial thrombotic events diagnosed during the intensive care unit stay. Of the 182 patients who received thromboprophylaxis, 75 (40%) received high-intensity thromboprophylaxis and 24 (12.8%) were treated with therapeutic anticoagulation. Twenty-one patients (11.2%) experienced 23 thrombotic events (incidence rate of 12.2% (95%CI 7.9-17.8)), including 12 deep venous thromboses, 9 pulmonary emboli and 2 peripheral arterial thromboses. Thirty-one patients (16.5%) experienced haemorrhagic events; among them, 13 were classified as major bleeding according to the International Society on Thrombosis and Haemostasis criteria. Therapeutic anticoagulation, but not the high-intensity thromboprophylaxis regimen, was associated with major bleeding. A proactive approach to the management of thromboembolism in critically ill COVID-19 patients utilising a high-intensity thromboprophylaxis regimen in appropriately selected patients may result in lower thrombotic events without increasing the risk of bleeding.
19. **Blood purification therapy with a hemodiafilter featuring enhanced adsorptive properties for cytokine removal in patients presenting COVID-19: a pilot study.** Villa G, Romagnoli S, De Rosa S, et al. *Crit Care*. 2020 Oct 12;24(1):605. doi: 10.1186/s13054-020-03322-6. <https://ccforum.biomedcentral.com/articles/10.1186/s13054-020-03322-6>
Findings: EBP with heparin-coated hemodiafilter featuring cytokine adsorption properties administered to patients with COVID-19 showed to be feasible and with no adverse events. During the treatment, patients experienced serum IL-6 level reduction, attenuation of systemic inflammation, multiorgan dysfunction improvement, and reduction in expected ICU mortality rate.
20. **Use of Ivermectin is Associated with Lower Mortality in Hospitalized Patients with COVID-19 (ICON study).** Cepelowicz Rajter J, Sherman MS, Fatteh N, et al. *Chest*. 2020 Oct 13;S0012-3692(20)34898-4. doi: 10.1016/j.chest.2020.10.009. [https://journal.chestnet.org/article/S0012-3692\(20\)34898-4/fulltext](https://journal.chestnet.org/article/S0012-3692(20)34898-4/fulltext)
Findings: 280 patients, 173 treated with ivermectin and 107 without ivermectin, were reviewed. Most patients in both groups also received hydroxychloroquine and/or azithromycin. Univariate analysis showed lower mortality in the ivermectin group (15.0% versus 25.2%). Mortality was also lower among ivermectin-treated patients with severe pulmonary involvement (38.8% vs 80.7%). There were no significant differences in extubation rates or length of stay. After multivariate adjustment for confounders and mortality risks, the mortality difference remained significant. 196 patients were included in the propensity-matched cohort.

Mortality was significantly lower in the ivermectin group (13.3% vs 24.5%); an 11.2% absolute risk reduction, with a number needed to treat of 8.9.

21. **Severe COVID-19-related encephalitis can respond to immunotherapy.** Cao A, Rohaut B, Le Guennec L, et al. *Brain*. 2020 Oct 16;awaa337. doi: 10.1093/brain/awaa337. <https://academic.oup.com/brain/advance-article/doi/10.1093/brain/awaa337/5926056>
Findings: Patients were aged between 37 and 77 years with COVID-19-related encephalitis presenting with altered consciousness and were treated by PLEX and corticosteroids. PLEX and corticosteroid responders and non-responders shared similar disease courses. Differences in treatment response may be related to lesion intensity observed on MRI between the two groups. The responders mainly had small deep white matter lesions while non-responders had more diffuse confluent lesions of the deep white matter. Taken together, our findings support the hypothesis that immunotherapy combining PLEX and corticosteroids can be effective in the treatment of severe COVID-19-related encephalitis. The exact pathophysiological mechanism underlying brain injury has not yet been clarified but a host-immune response to SARS-CoV-2 appears to be a plausible hypothesis.
22. **Effect of Tocilizumab vs Standard Care on Clinical Worsening in Patients Hospitalized With COVID-19 Pneumonia: A Randomized Clinical Trial.** Salvarani C, Dolci G, Massari M, et al. *JAMA Intern Med*. October 20, 2020. doi:10.1001/jamainternmed.2020.6615
<https://jamanetwork.com/journals/jamainternalmedicine/fullarticle/2772186?resultClick=1>
Findings: In this randomized clinical trial of 126 patients with a partial pressure of arterial oxygen to fraction of inspired oxygen (Pao₂/Fio₂) ratio between 200 and 300 mm Hg at enrollment, the rate of the primary clinical end point (clinical worsening) was not significantly different between the control group and the tocilizumab group.
*see also: **Effect of Tocilizumab vs Usual Care in Adults Hospitalized With COVID-19 and Moderate or Severe Pneumonia: A Randomized Clinical Trial.** CORIMUNO-19 Collaborative Group *JAMA Intern Med*. October 20, 2020. doi:10.1001/jamainternmed.2020.6820
AND
Association Between Early Treatment with Tocilizumab and Mortality Among Critically Ill Patients With COVID-19. STOP-COVID Investigators. *JAMA Intern Med*. October 20, 2020. doi:10.1001/jamainternmed.2020.6252

Transmission / Infection Control

23. **Genomic evidence for reinfection with SARS-CoV-2: a case study.** Tillett RL, Sevinsky JR, Hartley PD, et al. *Lancet Infect Dis*. 2020 Oct 12;S1473-3099(20)30764-7. doi: 10.1016/S1473-3099(20)30764-7.
Findings: The patient had two positive tests for SARS-CoV-2, the first on April 18, 2020, and the second on June 5, 2020, separated by two negative tests done during follow-up in May, 2020. Genomic analysis of SARS-CoV-2 showed genetically significant differences between each variant associated with each instance of infection. The second infection was symptomatically more severe than the first. Genetic discordance of the two SARS-CoV-2 specimens was greater

than could be accounted for by short-term in vivo evolution. These findings suggest that the patient was infected by SARS-CoV-2 on two separate occasions by a genetically distinct virus. Thus, previous exposure to SARS-CoV-2 might not guarantee total immunity in all cases.

24. **The duration of infectiousness of individuals infected with SARS-CoV-2.** Walsh KA, Spillane S, Comber L, et al. *J Infect.* 2020 Oct 10:S0163-4453(20)30651-4. doi: 10.1016/j.jinf.2020.10.009. [https://www.journalofinfection.com/article/S0163-4453\(20\)30651-4/fulltext](https://www.journalofinfection.com/article/S0163-4453(20)30651-4/fulltext)
Findings: We identified 15 relevant studies, including 13 virus culture and 2 contact tracing studies. COVID-19 patients with mild-to-moderate illness are highly unlikely to be infectious beyond 10 days of symptoms. However, evidence from a limited number of studies indicates that patients with severe-to-critical illness or who are immunocompromised, may shed infectious virus for longer.
25. **Asymptomatic COVID-19 in a rehabilitation facility: evolution of the presence of nasopharyngeal SARS-CoV-2 and serological antibody responses.** Harris BHL, Zuhair M, Di Giovannantonio M, et al. *J Infect Dis.* 2020 Oct 16;jiaa610. doi: 10.1093/infdis/jiaa610. <https://academic.oup.com/jid/advance-article/doi/10.1093/infdis/jiaa610/5924943>
Findings: At the start of the UK COVID-19 epidemic, this rare point prevalence study reveals 1/3 of patients in a London inpatient rehabilitation unit were found to be infected with SARS-CoV-2, but asymptomatic (n=15/45). We report on eight patients in detail, including their clinical stability, the evolution of their nasopharyngeal viral RT-PCR burden and their antibody levels over time revealing the infection dynamics by RT-PCR and serology during the acute phase. Notably, a novel serological test for antibodies against the receptor binding domain of SARS-CoV-2 (anti-RBD) showed 100% of our asymptomatic cohort remained seropositive between 3 to 6 weeks post-diagnosis.

Vaccine

26. **Safety and Immunogenicity of Two RNA-Based Covid-19 Vaccine Candidates.** Walsh EE, Frenck RW, Falsey AR, et al. *NEJM* October 14, 2020 DOI: 10.1056/NEJMoa2027906 <https://www.nejm.org/doi/full/10.1056/NEJMoa2027906?query=TOC>
Findings: A total of 195 participants underwent randomization. In each of 13 groups of 15 participants, 12 participants received vaccine and 3 received placebo. BNT162b2 was associated with a lower incidence and severity of systemic reactions than BNT162b1, particularly in older adults. In both younger and older adults, the two vaccine candidates elicited similar dose-dependent SARS-CoV-2–neutralizing geometric mean titers, which were similar to or higher than the geometric mean titer of a panel of SARS-CoV-2 convalescent serum samples. The safety and immunogenicity data from this U.S. phase 1 trial of two vaccine candidates in younger and older adults, added to earlier interim safety and immunogenicity data regarding BNT162b1 in younger adults from trials in Germany and the United States, support the selection of BNT162b2 for advancement to a pivotal phase 2–3 safety and efficacy evaluation.
27. **Safety and immunogenicity of an inactivated SARS-CoV-2 vaccine, BBIBP-CorV: a randomised, double-blind, placebo-controlled, phase 1/2 trial.** Xia S, Zhang Y, Wang Y, et al. *Lancet Infect*

Dis. 2020 Oct 15:S1473-3099(20)30831-8

[https://www.thelancet.com/journals/laninf/article/PIIS1473-3099\(20\)30831-8/fulltext](https://www.thelancet.com/journals/laninf/article/PIIS1473-3099(20)30831-8/fulltext)

Findings: The inactivated SARS-CoV-2 vaccine, BBIBP-CorV, is safe and well tolerated at all tested doses in two age groups. Humoral responses against SARS-CoV-2 were induced in all vaccine recipients on day 42. Two-dose immunisation with 4 µg vaccine on days 0 and 21 or days 0 and 28 achieved higher neutralising antibody titres than the single 8 µg dose or 4 µg dose on days 0 and 14.

28. **COVID-19 Vaccine: What Physicians Need to Know.** Laine C, Cotton C, Moyer DV. *Ann Intern Med.* 2020 Oct 20. doi: 10.7326/M20-6841. <https://www.acpjournals.org/doi/10.7326/M20-6841>

29. **SARS-CoV-2 immunity: review and applications to phase 3 vaccine candidates.** Poland GA, Ovsyannikova IG, Kennedy RB, et al. *Lancet.* 2020 Oct 13;S0140-6736(20)32137-1. doi: 10.1016/S0140-6736(20)32137-1. [https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(20\)32137-1/fulltext](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(20)32137-1/fulltext)
Findings: Much remains to be learned regarding coronavirus immunity in general and SARS-CoV-2 immunity in particular, including the protective immunity induced by vaccines and the maintenance of immunity against this virus. Furthermore, multiple vaccine types will probably be needed across different populations (eg, immune-immature infants, children, pregnant women, immunocompromised individuals, and immunosenescent individuals aged ≥65 years). In addition to the adaptive immune response, there are some data suggesting that trained innate immunity might also have a role in protection against COVID-19. Multiple clinical trials are examining whether unrelated vaccines, such as the measles, mumps, and rubella vaccine and the Bacillus Calmette–Guérin vaccine, can elicit trained innate immunity and confer protection against COVID-19. It is crucial that research focuses on understanding the genetic drivers of infection and vaccine-induced humoral and cellular immunity to SARS-CoV-2, defining detailed targets of humoral and cellular immune responses at the epitope level, characterising the B-cell receptor and T-cell receptor repertoire elicited by infection or vaccination, and establishing the long-term durability, and maintenance, of protective immunity after infection or vaccination.

Whole Person Care

30. **Palliative Nursing: The Core of COVID-19 Care.** Paice JA, Wholihan D, Dahlin C, et al. *J Hosp Palliat Nurs.* 2020 Oct 12. doi: 10.1097/NJH.0000000000000709. https://journals.lww.com/jhpn/Citation/9000/Palliative_Nursing_The_Core_of_COVID_19_Care.99848.aspx

It is unclear how long the COVID-19 crisis will persist. As virus mitigation strategies and health systems evolve, so do the role and scope of palliative nursing. One thing that does not change is the core and fundamental principle of nursing to improve the living and dying experiences for the seriously ill and their families. Nurses and other professionals are encouraged to visit the ELNEC Support for Nurses During COVID-19 website to obtain additional clinical support tools

related to pain and symptom management, grief and bereavement, communication, end-of-life care, primary palliative care, self-care, and cultural and health equity considerations.

Women & Children

31. **Discriminating MIS-C Requiring Treatment from Common Febrile Conditions in Outpatient Settings.** Carlin RF, Fischer AM, Pitkowsky Z, et al. *J Pediatr.* 2020 Oct 13;S0022-3476(20)31280-4. doi: 10.1016/j.jpeds.2020.10.013. [https://www.jpeds.com/article/S0022-3476\(20\)31280-4/fulltext](https://www.jpeds.com/article/S0022-3476(20)31280-4/fulltext)

Findings: We identified 44 patients with MIS-C between April 16 and June 10, 2020. During the same period 181 pediatric patients were evaluated for febrile illnesses in participating outpatient clinics. MIS-C patients reported higher median Tmax (40 degrees C vs 38.9), and increased frequency of abdominal pain, neck pain, conjunctivitis, oral mucosal irritation, extremity swelling or rash and generalized rash. Patients with MIS-C demonstrated lower absolute lymphocyte and platelet counts and higher C-reactive protein concentrations. Patients treated for MIS-C due to concern for potential cardiac injury show combinations of features distinct from other febrile patients seen in outpatient clinics during the same period.

32. **Myocardial injury associated with coronavirus disease 2019 in pregnancy.** Pachtman Shetty SL, Meirowitz N, Blitz MJ, Gadomski T, Weinberg CR. *Am J Obstet Gynecol.* 2020 Oct 10:S0002-9378(20)31188-1. doi: 10.1016/j.ajog.2020.10.014.

https://www.sciencedirect.com/science/article/pii/S0002937820311881?dgcid=rss_sd_all

Findings: Myocardial injury as demonstrated by abnormal cardiac biomarkers and bradycardia may be common among pregnant women with severe or critical COVID-19. In this study, one-fifth of patients who had troponin levels measured were found to have elevations (one-eighth of the overall study population). Among patients who had brain natriuretic peptide levels measured, 30% were elevated (10% of the overall study population). One third of women had bradycardia. Few studies have evaluated the risk of cardiac injury or arrhythmia among pregnant women with COVID-19. It is also unknown whether there are long-term sequelae that affect maternal health or future pregnancy outcomes. This is an important area of focus for future research.

33. **Coronavirus Disease 2019 (COVID-19) pregnancy outcomes in a racially and ethnically diverse population.** Grechukhina O, Greenberg V, Lundsberg LS, et al. *Am J Obstet Gynecol MFM.* 2020 Oct 7:100246. doi: 10.1016/j.ajogmf.2020.100246.

<https://www.sciencedirect.com/science/article/pii/S2589933320302147>

Findings: Out of 1,567 tested pregnant and postpartum women between 3/1/2020 and 5/11/2020, 9% had a positive SARS-CoV-2 result. Hispanic women were overrepresented in the SARS-CoV-2 positive group (n=61; 43.8%). Additionally, Hispanic ethnicity was associated with higher rate of moderate and severe disease compared to non-Hispanic. Severe disease was diagnosed in 6 cases (4.3%) and there was one maternal death. Obese women were more likely to develop moderate and severe disease than non-obese women. Hypertensive disorders of pregnancy were diagnosed in 22.3% (17/77) of women who delivered after 20 weeks.

34. **Analysis of SARS-CoV-2 vertical transmission during pregnancy.** Fenizia C, Biasin M, Cetin I, et al. *Nat Commun.* 2020 Oct 12;11(1):5128. doi: 10.1038/s41467-020-18933-4.

<https://www.nature.com/articles/s41467-020-18933-4>

Findings: Here, we analysed the viral genome on maternal and newborns nasopharyngeal swabs, vaginal swabs, maternal and umbilical cord plasma, placenta and umbilical cord biopsies, amniotic fluids and milk from 31 mothers with SARS-CoV-2 infection. We detected SARS-CoV-2 genome in one umbilical cord blood and in two at-term placentas, in one vaginal mucosa and in one milk specimen. Furthermore, we report the presence of specific anti-SARS-CoV-2 IgM and IgG antibodies in one umbilical cord blood and in one milk specimen. Finally, in the three documented cases of vertical transmission, SARS-CoV-2 infection was accompanied by a strong inflammatory response. Together, these data support the hypothesis that in utero SARS-CoV-2 vertical transmission, while low, is possible.

35. **Favourable perioperative outcomes for children with SARS-CoV-2.** Nepogodiev D. *Br J Surg.* 2020 Oct 19. doi: 10.1002/bjs.12038.

<https://bjssjournals.onlinelibrary.wiley.com/doi/10.1002/bjs.12038>

Findings: CovidSurg is a multicentre, observational, international cohort study of surgical patients with SARS-CoV-2 infection confirmed within 7 days before or 30 days after surgery. To better understand the surgical risks for children with SARS-CoV-2, we summarized outcomes in children from CovidSurg who had surgery between January 1 and April 30, 2020. Of the 5,388 patients in CovidSurg within this timeframe, 88 were children 16 years of age or younger. Data were contributed by 52 hospitals in 21 countries. 56 (63.6%) patients were boys. Diagnosis of SARS-CoV-2 was preoperative in 48 (56%). Most children underwent emergency surgery (89%). Benign disease was the most frequent indication for surgery (81%) followed by trauma (11%) and cancer (8%). Overall, the 30-day postoperative mortality rate in children was 1.1% (1/88). Pulmonary complications (pneumonia, unexpected postoperative ventilation, and/or acute respiratory distress syndrome) occurred in 13.6% (12/88). The low perioperative morbidity in children compares favourably to the high perioperative risks in adults, who have a pulmonary complication rate of 51.2% and a 30-day postoperative mortality rate of 23.8%, with mortality associated with increasing age.

36. **COVID-19 Transmission in US Child Care Programs.** Gilliam WS, Malik AA, Shafiq M. *Pediatrics.* 2020 Oct 14;e2020031971. doi: 10.1542/peds.2020-031971.

<https://pediatrics.aappublications.org/content/early/2020/10/16/peds.2020-031971.long>

Findings: Central to the debate over school and child care reopening is whether children are efficient COVID-19 transmitters and likely to increase community spread when programs reopen. We compared COVID-19 outcomes in child care providers who continued to provide direct inperson child care during the first three months of the U.S. COVID-19 pandemic versus those who did not. No association was found between exposure to child care and COVID-19 in both unmatched and matched analyses. Within the context of considerable infection mitigation efforts in U.S. child care programs, exposure to child care during the early months of the U.S. pandemic was not associated with elevated risk for COVID-19 transmission to providers. These findings must be interpreted only within the context of background transmission rates and the considerable infection mitigation efforts implemented in child care programs.

GUIDELINES & CONSENSUS STATEMENTS

AAP Clinical Guidance - [Family Presence Policies for Pediatric Inpatient Settings During the COVID-19 Pandemic](#): Guidance on family presence policies developed to support family-centered care for all children and particularly for children with special health care needs, including those with disabilities, medical complexity, and serious illness (10/12/2020).

[Outpatient Management of COVID-19: Rapid Evidence Review](#). *Am Fam Physician*. 2020 Oct 15;102(8):478-486.

[EAN consensus statement for management of patients with neurological diseases during the COVID-19 pandemic](#). EANcore COVID-19 task force. *Eur J Neurol*. 2020 Oct 15. doi: 10.1111/ene.14521.

FDA / CDC / NIH / WHO Updates

CDC - [Interim Guidance: Wearing of face masks while on public conveyances and at stations, ports, and similar transportation hubs](#). Oct 19, 2020.

CDC - [People with Certain Medical Conditions](#). Revisions were made on October 6, 2020 to reflect recent data supporting increased risk of severe illness from the virus that causes COVID-19 among adults with COVID-19 who have obesity or who have overweight.

Commentary & News Releases

[How Workplace COVID-19 Outbreaks Affect Workers of Color](#)

[Is It Lawful and Ethical to Prioritize Racial Minorities for COVID-19 Vaccines?](#)

[Herd Immunity and Implications for SARS-CoV-2 Control](#)

[Scientific consensus on the COVID-19 pandemic: we need to act now](#)

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