Providence

COVID-19 Resource Desk

#10 | 6.24.2020 to 7.1.2020

Prepared by System Library Services

New Research

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

Retracted Articles - see also Retraction Watch

Basic Science / Virology / Pre-clinical

1. **The Brighton collaboration standardized template for collection of key information for benefit-risk assessment of nucleic acid (RNA and DNA) vaccines.** Kim D, Robertson JS, Excler JL, et al. *Vaccine*. 2020 Jun 19:S0264-410X(20)30789-1. doi: 10.1016/j.vaccine.2020.06.017. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7304391/
   Findings: Nucleic acid (DNA and RNA) vaccines are among the most advanced vaccines for COVID-19 under development. The Brighton Collaboration Viral Vector Vaccines Safety Working Group (V3SWG) has prepared a standardized template to describe the key considerations for the benefit-risk assessment of nucleic acid vaccines. This will facilitate the assessment by key stakeholders of potential safety issues and understanding of overall benefit-risk. The structured assessment provided by the template can also help improve communication and public acceptance of licensed nucleic acid vaccines.

Clinical Syndrome

2. **Neurological and neuropsychiatric complications of COVID-19 in 153 patients: a UK-wide surveillance study.** Varatharaj A, et al. *Lancet Psychiatry* 2020 Jun 25. doi: https://doi.org/10.1016/S2215-0366(20)30287-X
   https://www.thelancet.com/journals/lanpsy/article/PIIS2215-0366(20)30287-X/fulltext
   Findings: To our knowledge, this is the first nationwide, cross-specialty surveillance study of acute neurological and psychiatric complications of COVID-19. Altered mental status was the second most common presentation, comprising encephalopathy or encephalitis and primary psychiatric diagnoses, often occurring in younger patients. This study provides valuable and timely data that are urgently needed by clinicians, researchers, and funders to inform immediate steps in COVID-19 neuroscience research and health policy.

3. **Clinical Characteristics and Outcomes in Patients with Coronavirus Disease 2019 and Multiple Sclerosis.** Louapre C, Collongues N, Stankoff B, et al. *JAMA Neurol*. 2020 Jun 26. doi: 10.1001/jamaneurol.2020.2581.
   https://jamanetwork.com/journals/jamaneurology/fullarticle/2767776

Findings: A total of 347 patients (mean age, 44.6 [12.8] years, 249 women; mean disease duration, 13.5 [10.0] years) were analyzed. In this cohort study of 347 patients with MS, risk factors for severe forms of COVID-19 were neurological disability, age, and obesity, but no association was found between disease-modifying therapies exposure and COVID-19 severity. The identification of these risk factors should provide the rationale for an individual strategy regarding clinical management of patients with MS during the COVID-19 pandemic.

4. **Is the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) present intraperitoneally in patients with coronavirus disease 2019 (COVID-19) infection undergoing emergency operations?** Seeliger B, Philouze G, Benotmane I, et al. *Surgery*. 2020 Jun 5:S0039-6060(20)30332-9. doi: 10.1016/j.surg.2020.05.033.
https://www.surgjournal.com/article/S0039-6060(20)30332-9/pdf
Findings: In five patients, the sample quantity was sufficient for RT- PCR analysis. The peritoneal samples were obtained both at the beginning and at the end of the operation in three patients and only at the beginning in two patients. Intraperitoneal SARS-CoV-2 infection was not detectable on RT-PCR in any of these patients. Despite the observation of no intraperitoneal viral RNA in these 5 patients, caution is required to mitigate any potential infection of the operating room team. Currently, no evidence points to a decrease in protective measures whether performing laparoscopy or open abdominal surgery.

5. **Death, discharge and arrhythmias among patients with COVID-19 and cardiac injury.** Si D, Du B, Ni L, et al. *CMAJ*. 2020 Jun 24:cmaj.200879. doi: 10.1503/cmaj.200879.
https://www.cmaj.ca/content/early/2020/06/24/cmaj.200879
Findings: Among 1284 patients with severe COVID-19, 1159 had a cTnI level measured on admission to hospital, of whom 170 (14.7%) had results that showed cardiac injury. We found that mortality was markedly higher in patients with cardiac injury (71.2% v. 6.6%, $p < 0.001$). We determined that initial cTnI and peak cTnI level during illness were associated with poor survival. Peak cTnI was also associated with the need for invasive ventilation. We found arrhythmias in 44 of the 170 patients with cardiac injury (25.9%), including 6 patients with ventricular tachycardia or fibrillation, all of whom died. We determined that patients who received QT-prolonging drugs had longer QTc intervals than those who did not receive them, but such treatment was not independently associated with mortality. We found that in patients with COVID-19 and cardiac injury, initial and peak cTnI levels were associated with poor survival, and peak cTnI was a predictor of need for invasive ventilation. Patients with COVID-19 warrant assessment for cardiac injury and monitoring, especially if therapy that can prolong repolarization is started.

6. **Characterization of the Inflammatory Response to Severe COVID-19 Illness.** McElvaney OJ, McEvoy N, McElvaney OF,et al. *Am J Respir Crit Care Med*. 2020 Jun 25. doi: 10.1164/rccm.202005-1583OC. https://www.atsjournals.org/doi/pdf/10.1164/rccm.202005-1583OC
Findings: The COVID-19 cytokinemia is distinct from that of other types of pneumonia leading to organ failure and ICU need. Neutrophils undergo immunometabolic reprogramming in severe COVID-19 illness. Cytokine ratios may predict outcomes in this population.

7. **Evaluation of Chilblains as a Manifestation of the COVID-19 Pandemic.** Herman A, Peeters C, Verroken A, et al. *JAMA Dermatol.* 2020 Jun 25. doi: 10.1001/jamadermatol.2020.2368. https://jamanetwork.com/journals/jamadermatology/fullarticle/2767774
   Findings:: Chilblains appeared not to be directly associated with COVID-19 in this case series. Lifestyle changes associated with community containment and lockdown measures are a possible explanation for these lesions.
   See also: Assessment of Acute Acral Lesions in a Case Series of Children and Adolescents During the COVID-19 Pandemic. Roca-Ginés J, Torres-Navarro I, Sánchez-Arráez J, et al. *JAMA Dermatol.* 2020 Jun 25. doi: 10.1001/jamadermatol.2020.2340.

Diagnostics & Screening

8. **Covid-19 Antibody Testing – Is There Value Beyond the Result?** Ashton M, Patel SJ, Patwardhan V, et al. *NEJM Catalyst* June 25, 2020. https://catalyst.nejm.org/doi/full/10.1056/CAT.20.0310
   Findings: Despite a low prevalence of Covid-19 cases in the state, over 3,000 Hawai`i Pacific Health employees obtained an antibody test, citing "curiosity" as the reason. We speculate that the survey and antibody testing provided employees a chance to make sense of an uncertain situation, offering a step towards acceptance and meaning. It's important to keep in mind that during a pandemic setting—when we all need to be functioning and thinking our best—the effects of uncertainty impair our performance.

9. **Simulation of Pool Testing to Identify Patients with Coronavirus Disease 2019 under Conditions of Limited Test Availability.** Cherif A, Grobe N, Wang X, Kotanko P. *JAMA Netw Open.* 2020;3(6):e2013075. doi:10.1001/jamanetworkopen.2020.13075 https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2767513
   Findings: Pool testing strategies build on testing a pooled sample from several patients: if the results from the pool test are negative, all patients in the pooled sample are declared not to have COVID-19; if the results of the pool are positive, each patient sample is tested individually. The pooled testing strategy is appealing, particularly when test availability is limited. However, any test sensitivity less than 100% bears the risk of a false-negative result for the entire pool. To support informed decision-making regarding the implementation of pool testing for COVID-19, we have developed a probabilistic model to estimate the risk of false negatives considering 3 determining factors: COVID-19 prevalence, test sensitivity, and patient pool size.

10. **Large-scale implementation of pooled RNA extraction and RT-PCR for SARS-CoV-2 detection.** Ben-Ami R, Klochendler A, Seidel M, et al. *Clin Microbiol Infect*. 2020 Jun 22:S1198-743X(20)30349-9. doi: 10.1016/j.cmi.2020.06.009. https://www.sciencedirect.com/science/article/pii/S1198743X20303499
    Findings: We demonstrated pooling strategies that increase testing throughput while maintaining high sensitivity. A comparison of 184 samples tested individually and in pools of 8 samples, showed that test results were not significantly affected. Implementing the 8-sample Dorfman pooling to test 26,576 samples from asymptomatic individuals, we identified 31

(0.12%) SARS-CoV-2 positive samples, achieving a 7.3-fold increase in throughput. Pooling approaches for SARS-CoV-2 testing allow a drastic increase in throughput while maintaining clinical sensitivity. We report the successful large-scale pooled screening of asymptomatic populations.

11. **The COVID-19 Serology Studies Workshop: Recommendations and Challenges.** Lerner, A.M., Eisinger, R.W., Lowy, D.R., et al. *Immunity* (2020), doi: https://doi.org/10.1016/j.immuni.2020.06.012
https://www.cell.com/action/showPdf?pii=S1074-7613%2820%2930267-3
Findings: The development, validation and appropriate application of serological assays to detect antibodies to SARS-CoV-2 are essential to determining seroprevalence of this virus in the United States and globally and in guiding government leadership and the private sector on back-to-work policies. An interagency working group of the U.S. Department of Health and Human Services convened a virtual workshop to identify knowledge gaps and key outstanding scientific issues and to develop strategies to fill them. Key outcomes of the Workshop included recommendations for: 1) advancing serology assays as a tool to better understand SARS-CoV-2 infection; and 2) conducting crucial serology field studies to advance an understanding of immunity to SARS-CoV-2 leading to protection and duration of protection, including the correlation between serological test results and risk of reinfection.

12. **Saliva-Based Molecular Testing for SARS-CoV-2 that Bypasses RNA Extraction.** Ranoa DR, Holland RL, Alnaji FG, et al. *BioRxiv*. PREPRINT. doi: https://doi.org/10.1101/2020.06.18.159434
Findings: Here we describe a saliva-based testing method that bypasses the need for RNA isolation/purification. In experiments with inactivated SARS-CoV-2 virus spiked into saliva, this method has a limit of detection of 500-1000 viral particles per mL, rivalling the standard NP swab method, and initial studies also show excellent performance with 100 clinical samples. This saliva-based process is operationally simple, utilizes readily available materials, and can be easily implemented by existing testing sites, thus allowing for high-throughput, rapid, and repeat testing of large populations.

13. **Antibody tests for identification of current and past infection with SARS-CoV-2.** Deeks JJ, Dinnes J, Takwoingi Y, Cochrane COVID-19 Diagnostic Test Accuracy Group, et al. *Cochrane Database Syst Rev*. 2020 Jun 25;6:CD013652. doi: 10.1002/14651858.CD013652.
https://www.cochranelibrary.com/cdsr/doi/10.1002/14651858.CD013652/full
Findings: The sensitivity of antibody tests is too low in the first week since symptom onset to have a primary role for the diagnosis of COVID-19, but they may still have a role complementing other testing in individuals presenting later, when RT-PCR tests are negative, or are not done. Antibody tests are likely to have a useful role for detecting previous SARS-CoV-2 infection if used 15 or more days after the onset of symptoms. However, the duration of antibody rises is currently unknown, and we found very little data beyond 35 days post-symptom onset. We are therefore uncertain about the utility of these tests for seroprevalence surveys for public health management purposes. Concerns about high risk of bias and applicability make it likely that the accuracy of tests when used in clinical care will be lower than reported in the included studies. Sensitivity has mainly been evaluated in hospitalised patients, so it is unclear whether the tests

are able to detect lower antibody levels likely seen with milder and asymptomatic COVID-19 disease. The design, execution and reporting of studies of the accuracy of COVID-19 tests requires considerable improvement. Studies must report data on sensitivity disaggregated by time since onset of symptoms. COVID-19-positive cases who are RT-PCR-negative should be included as well as those confirmed RT-PCR, in accordance with the WHO and China National Health Commission of the People's Republic of China (CDC) case definitions. We were only able to obtain data from a small proportion of available tests, and action is needed to ensure that all results of test evaluations are available in the public domain to prevent selective reporting. This is a fast-moving field and we plan ongoing updates of this living systematic review.

14. **Antibody Responses to SARS-CoV-2 at 8 Weeks Postinfection in Asymptomatic Patients.** Choe PG, Kang CK, Suh HJ, et al. *Emerg Infect Dis*. 2020 Jun 24;26(10). doi: 10.3201/eid2610.202211. https://wwwnc.cdc.gov/eid/article/26/10/20-2211_article
Findings: We compared levels of severe acute respiratory syndrome coronavirus 2 neutralizing antibodies in recovery plasma from 7 completely asymptomatic coronavirus disease patients with those in symptomatic patients in South Korea. We found that serologic diagnostic testing was positive for 71% (5/7) of completely asymptomatic patients, but neutralizing antibody response occurred in all 7 patients.

15. **Post discharge positive re-tests in COVID-19: common but clinically non-significant.** Abdullah MS, Chong PL, Asli R, et al. *Infect Dis (Lond)*. 2020 Jun 24:1-3. doi: 10.1080/23744235.2020.1780309.

16. **The role of initial chest X-ray in triaging patients with suspected COVID-19 during the pandemic.** Kim HW, Capaccione KM, Li G, et al. *Emerg Radiol.* 2020 Jun 22:1-5. doi: 10.1007/s10140-020-01808-y. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7306559/
Findings: Initial chest X-ray is a useful tool for triaging those subjects who might have poor outcomes with suspected COVID-19 infection and benefit most from hospitalization.

17. **Diagnostic accuracy of the FebriDx host response point-of-care test in patients hospitalised with suspected COVID-19.** Clark TW, Brendish NJ, Poole S, et al. *J Infect*. 2020 Jun 21:S0163-4453(20)30432-1. doi: 10.1016/j.jinf.2020.06.051.
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7306108/
Findings: FebriDx was performed on 251 patients and gave a valid result in 248. 118 of 248 (48%) were PCR positive for COVID-19. FebriDx results were available after 10 minutes compared with 1.7 (1.6 to 2.1) hours with point-of-care PCR testing and 23.4 (17.2 to 31.1) hours with laboratory PCR testing. Sensitivity of FebriDx for the identification of COVID-19 was 93% (110/118; 95% CI 87 to 97%) and specificity was 86% (112/130; 95%CI 79 to 92%). Positive and negative likelihood ratios were 6.73 (95%CI 4.37 to 10.37) and 0.08 (95%CI 0.04 to 0.15) respectively. In the multivariate model age, sex and other clinical features did not contribute significantly to the effect of the FebriDx result in distinguishing patients with and without COVID-19. During the first wave of the pandemic, FebriDx had high accuracy for the identification of COVID-19 in hospitalised adults and could be deployed as a front door triage tool.

18. **COVID-19 symptoms predictive of healthcare workers' SARS-CoV-2 PCR results.** Lan FY, Filler R, Mathew S, et al. *PLoS One*. 2020 Jun 26;15(6):e0235460. doi: 10.1371/journal.pone.0235460. https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0235460
Findings: Symptom and temperature reports are useful screening tools for predicting SARS-CoV-2 assay results in HCWs. Anosmia/ageusia, fever, and myalgia were the strongest independent predictors of positive assays. The absence of symptoms or symptoms limited to nasal congestion/sore throat were associated with negative assays.

19. **Sensitivity of nasopharyngeal swabs and saliva for the detection of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2).** Jamal AJ, Mozafarihashjin M, Coomes E, et al. *Clin Infect Dis.* 2020 Jun 25:ciaa848. doi: 10.1093/cid/ciaa848.
https://academic.oup.com/cid/article/doi/10.1093/cid/ciaa848/5862658
Findings: We enrolled 91 consecutive in-patients with COVID-19 at six hospitals in Toronto, Canada, and tested one nasopharyngeal swab/saliva sample pair from each patient using real-time reverse transcriptase polymerase chain reaction for SARS-CoV-2. Sensitivity was 89% for nasopharyngeal swabs and 72% for saliva (p=0.02); difference in sensitivity was greatest for sample pairs collected later in illness.

Epidemiology & Public Health

20. **Mortality, Admissions, and Patient Census at SNFs in 3 US Cities during the COVID-19 Pandemic.** Barnett ML, Hu L, Martin T, et al. *JAMA*. June 24, 2020. doi:10.1001/jama.2020.11642 https://jamanetwork.com/journals/jama/fullarticle/2767750
Findings: The study sample consisted of 189 SNFs in Cleveland, Detroit and NYC. From March-May 2020, there was a spike in overall mortality among residents at SNFs in Detroit and New York City, which were 2 cities with substantial COVID-19 burden, and a lower increase in mortality in Cleveland, which was a city with fewer COVID-19 cases. Regardless of mortality, admissions and patient census decreased in all 3 cities. These results suggest that SNFs experienced substantial clinical challenges during the COVID-19 pandemic. Mortality increased quickly, raising concerns about the capacity of SNFs to respond to outbreaks.

21. **Using influenza surveillance networks to estimate state-specific prevalence of SARS-CoV-2 in the United States.** Silverman JD, Hupert N, Washburne AD. *Sci Transl Med*. 2020 Jun 22:eabc1126. doi: 10.1126/scitranslmed.abc1126.
https://stm.sciencemag.org/content/early/2020/06/22/scitranslmed.abc1126
Findings: We show how influenza-like illness (ILI) outpatient surveillance data can be used to estimate the prevalence of SARS-CoV-2. We found a surge of non-influenza ILI above the seasonal average in March 2020 and showed that this surge correlated with COVID-19 case counts across states. If 1/3 of patients infected with SARS-CoV-2 in the US sought care, this ILI surge would have corresponded to more than 8.7 million new SARS-CoV-2 infections across the US during the three-week period from March 8 to March 28, 2020. Combining excess ILI counts with the date of onset of community transmission in the US, we also show that the early epidemic in the US was unlikely to have been doubling slower than every 4 days. Together

these results suggest a conceptual model for the COVID-19 epidemic in the US characterized by rapid spread across the US with over 80% infected patients remaining undetected. We emphasize the importance of testing these findings with seroprevalence data and discuss the broader potential to use syndromic surveillance for early detection and understanding of emerging infectious diseases.

22. **Seroprevalence of Antibodies to SARS-CoV-2 in Six Sites in the United States, March 23-May 3, 2020.** Havers FP, CDC COVID-19 Response Team, et al. m*edRxiv* PREPRINT. June 26, 2020 doi: https://doi.org/10.1101/2020.06.25.20140384
Findings: What proportion of persons in six U.S. sites had detectable antibodies to SARS-CoV-2, March 23-May 3, 2020? We tested 11,933 residual clinical specimens. We estimate that from 1.1% of persons in the Puget Sound to 6.9% in New York City (collected March 23-April 1) had detectable antibodies. Estimates ranged from 1.9% in south Florida to 4.9% in Connecticut with specimens collected during intervals from April 6-May 3. Six to 24 times more infections were estimated per site with seroprevalence than with case report data. For most sites, evidence suggests >10 times more SARS-CoV-2 infections occurred than reported cases.

23. **Incidence and Severity of COVID-19 in HIV-Positive Persons Receiving Antiretroviral Therapy: A Cohort Study.** Del Amo J, Polo R, Moreno S, et al. *Ann Intern Med.* 2020 Jun 26. doi: 10.7326/M20-3689. https://www.acpjournals.org/doi/10.7326/M20-3689
Findings: HIV-positive patients receiving TDF/FTC have a lower risk for COVID-19 and related hospitalization than those receiving other therapies. These findings warrant further investigation in HIV preexposure prophylaxis studies and randomized trials in persons without HIV.

24. **Estimation of SARS-CoV-2 infection fatality rate by real-time antibody screening of blood donors.** Erikstrup C, Hother CE, Pedersen OBV, et al. *Clin Infect Dis*. 2020 Jun 25:ciaa849. doi: 10.1093/cid/ciaa849. https://academic.oup.com/cid/article/doi/10.1093/cid/ciaa849/5862661
Findings: 20,640 blood donors were tested and a combined adjusted seroprevalence of 1.9% (CI: 0.8-2.3) was calculated. The seroprevalence differed across areas. Using available data on fatalities and population numbers a combined IFR in patients younger than 70 is estimated at 89 per 100,000 (CI: 72-211) infections. The IFR was estimated to be slightly lower than previously reported from other countries not using seroprevalence data. The IFR is likely several fold lower than the current estimate. We have initiated real-time nationwide anti-SARS-CoV-2 seroprevalence surveying of blood donations as a tool in monitoring the epidemic.

25. **Association between State-Level Income Inequality and COVID-19 Cases and Mortality in the USA.** Oronce CIA, Scannell CA, Kawachi I, Tsugawa Y. *J Gen Intern Med*. 2020 Jun 24:1-3. doi: 10.1007/s11606-020-05971-3. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7313247/
Findings: In recent weeks, the unequal impact of COVID-19 across communities has become glaringly apparent. Data from New York and Chicago indicate that African American and Hispanic people experience disproportionately higher rates of COVID-19 infection and mortality.1, 2 Inequality may compound these disparities further through economic segregation, decreased social mobility, and lower access to medical care.3 Given that low-

income individuals are more likely to be in essential occupations with a high exposure risk and have less access to healthcare, income inequality may exacerbate the impact of the COVID-19 outbreak.

Healthcare Delivery & Healthcare Workers

26. **Bereavement Care in the Wake of COVID-19: Offering Condolences and Referrals.** Lichtenthal WG, Roberts KE, Prigerson HG. *Ann Intern Med* 2020 Jun 23. doi: https://doi.org/10.7326/M20-2526. https://www.acpjournals.org/doi/10.7326/M20-2526
Findings: Front-line physicians are uniquely positioned to provide critically needed psychosocial support to bereaved family members. Regardless of medical specialty, physicians are now caring for more dying patients than ever before and, concomitantly, are tasked with talking to a deceased patient's family members. Many well-intentioned but weary and emotionally depleted physicians search for the words to say and wonder how to know when a bereaved family member is at risk and when they should refer them to a mental health professional.

27. **Telehealth in Response to the Covid-19 Pandemic: Implications for Rural Health Disparities.** Hirko KA, Kerver JM, Ford S, et al. *J Am Med Inform Assoc.* 2020 Jun 26:ocaa156. doi: 10.1093/jamia/ocaa156.
https://academic.oup.com/jamia/article/doi/10.1093/jamia/ocaa156/5863253
Findings: The COVID-19 pandemic and accompanying social distancing measures have hastened the implementation of telehealth programs in hospital systems around the globe. Here, we provide specific examples of telehealth efforts that have been implemented in a large rural healthcare system in response to the pandemic, and further describe how the massive shift to telehealth and reliance on virtual connections in these times of social isolation may impact rural health disparities for those without access to necessary broadband to deploy digital technologies. Finally, we provide recommendations for researchers and policy makers to ensure that telehealth initiatives do not amplify existing health disparities experienced by those living in rural communities.

28. **Compassionate Communication and End-of-Life Care for Critically Ill Patients with SARS-CoV-2 Infection.** Estella Á. *J Clin Ethics*. 2020 Summer;31(2):191-193.
http://www.clinicalethics.com/2020312191.pdf
Findings: Public health strategies recommend isolating patients with SARS-CoV-2 infection. But compassionate care in the intensive care unit (ICU) is an ethical obligation of modern medicine that cannot be justified by the risk of infection or the lack of personal protective equipment. This article describes the experiences of clinicians in ICUs in the south of Spain promoted by the Andalusian Society of Intensive Care SAMIUC, in the hope it will serve to improve the conditions in which these patients die, and to help their families who suffer when they cannot say good-bye to their loved ones. In the south of Spain, healthcare professionals use daily videoconferencing to improve communication between clinicians, patients, and their relatives who cannot visit them in the ICU. This close communication allows families to see their loved ones and extends communication between healthcare professionals, patients, and their

relatives. To allow family members to accompany patients at the end of life, it is possible to adapt public health rules to the epidemic situation.

Prognosis

29. **Determinants of COVID-19 disease severity in patients with cancer.** Robilotti EV, Babady NE, Kamboj M. June 24, 2020. *Nat Med.* https://doi.org/10.1038/s41591-020-0979-0
Findings: From 10 March to 7 April 2020, 423 cases of symptomatic COVID-19 were diagnosed at Memorial Sloan Kettering Cancer Center (from a total of 2,035 patients with cancer tested). Of these, 40% were hospitalized for COVID-19, 20% developed severe respiratory illness (including 9% who required mechanical ventilation) and 12% died within 30 d. Age older than 65 years and treatment with immune checkpoint inhibitors were predictors for hospitalization and severe disease, whereas receipt of chemotherapy and major surgery were not. Overall, COVID-19 in patients with cancer is marked by substantial rates of hospitalization and severe outcomes.

30. **Novel use of home pulse oximetry monitoring in COVID-19 patients discharged from the emergency department identifies need for hospitalization.** Shah S et al. *Acad Emerg Med* 2020 Jun 17. (https://doi.org/10.1111/ACEM.14053)
https://onlinelibrary.wiley.com/doi/abs/10.1111/acem.14053
Findings: This study found that home pulse oximetry monitoring identifies need for hospitalization in initially non-severe COVID-19 patients when a cut off of SpO2 92% is used. Half of patients who ended up hospitalized had SpO2 <92% without worsening symptoms. Home SpO2 monitoring also reduces unnecessary ED revisits.

31. **Outcomes of novel coronavirus disease 2019 (COVID-19) infection in 107 patients with cancer from Wuhan, China.** Zhang H, Wang L, Chen Y, et al. *Cancer*. 2020 Jun 23. doi: 10.1002/cncr.33042. https://acsjournals.onlinelibrary.wiley.com/doi/full/10.1002/cncr.33042
Findings: The results of the current study demonstrated that >50.0% of infected patients with cancer are susceptible to severe COVID-19. This risk is aggravated by simultaneous anticancer treatment and portends for a worse survival, despite treatment for COVID-19.

32. **Laboratory tests and outcome for patients with COVID-19: A systematic review and meta-analysis.** Alnor A, Sandberg MB, Gils C, Vinholt PJ. *J Appl Lab Med*. 2020 Jun 23:jfaa098. doi: 10.1093/jalm/jfaa098.
https://academic.oup.com/jalm/article/doi/10.1093/jalm/jfaa098/5861535
Findings: 45 studies were included, of which 21 publications were used for the meta-analysis. Studies were heterogeneous but had low risk of bias and applicability concern in terms of patient selection and reference standard. Severe disease was associated with higher white blood cell count, neutrophil count, C-reactive protein, lactate dehydrogenase, D-dimer, and aspartate aminotransferase, all $p < 0.001$. Furthermore, low lymphocyte count, platelet count, and haemoglobin, all $p < 0.001$, were also associated with severe disease. In conclusion, several routine laboratory tests are associated with disease severity in COVID-19.

33. **Persistent Viral Presence Determines the Clinical Course of the Disease in COVID-19.** Chang D, Zhao P, Zhang DW, et al. *J Allergy Clin Immunol Pract*. 2020 Jun 20:S2213-2198(20)30614-0. doi: 10.1016/j.jaip.2020.06.015.
https://www.sciencedirect.com/science/article/pii/S2213219820306140?dgcid=rss_sd_all
Findings: Our data show that patients with persistent viral presence (>16 days) have more severe disease outcomes including extensive lung involvement and requirement of respiratory support. Two patients who died of COVID-19 were virus-positive at the time of their death. Four patients demonstrated virus-positive status on the follow-up tests and these patient samples were sent to viral culture facility where virus culture could not be established. These data suggest that viral persistence is the key determining factor of the disease severity. Therapies that may impair the viral clearance may impair the host recovery from the COVID-19.

34. **In-Hospital Use of Statins Is Associated with a Reduced Risk of Mortality among Individuals with COVID-19.** Zhang XJ, Qin JJ, Cheng X, et al. *Cell Metab.* 2020 Jun 24:S1550-4131(20)30316-8. doi: 10.1016/j.cmet.2020.06.015.
https://www.sciencedirect.com/science/article/pii/S1550413120303168
Findings: We performed a retrospective study on 13,981 patients with COVID-19 in Hubei Province, China, among which 1,219 received statins. Based on a mixed-effect Cox model after propensity score-matching, we found that the risk for 28-day all-cause mortality was 5.2% and 9.4% in the matched statin and non-statin groups, respectively, with an adjusted hazard ratio of 0.58. The statin use-associated lower risk of mortality was also observed in the Cox time-varying model and marginal structural model analysis. These results give support for the completion of ongoing prospective studies and randomized controlled trials involving statin treatment for COVID-19, which are needed to further validate the utility of this class of drugs to combat the mortality of this pandemic.

35. **Impact of Chronic Liver Disease on Outcomes of Hospitalized Patients with COVID-19: A Multicenter United States Experience.** Hashemi N, Viveiros K, Redd WD, et al. *Liver Int*. 2020 Jun 25. doi: 10.1111/liv.14583. https://onlinelibrary.wiley.com/doi/abs/10.1111/liv.14583
Findings: Liver injury has been described with COVID-19, and early reports suggested 2-11% of patients had chronic liver disease (CLD). In this multi-center retrospective study, we evaluated hospitalized adults with laboratory-confirmed COVID-19 and the impact of CLD on relevant clinical outcomes. Of 363 patients included, 19% had CLD, including 15.2% with NAFLD. Patients with CLD had longer length of stay. After controlling for age, gender, obesity, cardiac diseases, hypertension, hyperlipidemia, diabetes, and pulmonary disorders, CLD and NAFLD were independently associated with ICU admission and mechanical ventilation. Presence of cirrhosis was an independent predictor of mortality. Overall, nearly one-fifth of hospitalized COVID-19 patients had CLD, which was associated with more critical illness. Future studies are needed to identify interventions to improve clinical outcomes.

36. **Diabetes increases the mortality of patients with COVID-19: a meta-analysis.** Wu ZH, Tang Y, Cheng Q. *Acta Diabetol.* 2020 Jun 24:1-6. doi: 10.1007/s00592-020-01546-0.
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7311595/

Findings: Our meta-analysis showed that diabetes increases the mortality of patients with COVID-19. These results indicated the disturbance of blood glucose in the COVID-19 patients. More importantly, this meta-analysis grades the reliability of evidence for further basic and clinical research into the diabetes dysfunction in COVID-19 patients.

Therapeutics

37. **Effect of Dexamethasone in Hospitalized Patients with COVID-19 – Preliminary Report.** RECOVERY Trial Collaborative Group. *medRxiv* PREPRINT. June 22, 2020. doi: https://doi.org/10.1101/2020.06.22.20137273
Findings: In patients hospitalized with COVID-19, dexamethasone reduced 28-day mortality among those receiving invasive mechanical ventilation or oxygen at randomization. However, no benefit was demonstrated in hospitalized COVID-19 patients who were not receiving respiratory support and the results are consistent with possible harm in this group.

38. **Effect of Colchicine vs Standard Care on Cardiac and Inflammatory Biomarkers and Clinical Outcomes in Patients Hospitalized with Coronavirus Disease 2019: The GRECCO-19 Randomized Clinical Trial.** Deftereos SG, Giannopoulos G, Vrachatis DA, et al. *JAMA Netw Open*. 2020;3(6):e2013136. doi:10.1001/jamanetworkopen.2020.13136
https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2767593
Findings: In this randomized clinical trial of 105 patients, the rate of the primary clinical end point (clinical deterioration) was higher in the control group than in the colchicine group, and the time to clinical deterioration was shorter in the control group than in the colchicine arm. No difference was observed in the primary biochemical end point (high-sensitivity troponin concentration), but patients in the colchicine group had a smaller increase in dimerized plasma fragment D compared with patients in the control group. The hypothesis-generating findings of this study suggest a role for colchicine in the treatment of patients with coronavirus disease 2019.

39. **Tocilizumab in patients with severe COVID-19: a retrospective cohort study.** Guaraldi G et al. *Lancet* 2020 Jun 24. doi: https://doi.org/10.1016/S2665-9913(20)30173-9
https://www.thelancet.com/journals/lanrhe/article/PIIS2665-9913(20)30173-9/fulltext
Findings: Of 1351 patients admitted, 544 (40%) had severe COVID-19 pneumonia and were included in the study. 57 (16%) of 365 patients in the standard care group needed mechanical ventilation, compared with 33 (18%) of 179 patients treated with tocilizumab (p=0·41; 16 [18%] of 88 patients treated intravenously and 17 [19%] of 91 patients treated subcutaneously). 73 (20%) patients in the standard care group died, compared with 13 (7%; p<0·0001) patients treated with tocilizumab (six [7%] treated intravenously and seven [8%] treated subcutaneously). After adjustment for sex, age, recruiting centre, duration of symptoms, and SOFA score, tocilizumab treatment was associated with a reduced risk of invasive mechanical ventilation or death (adjusted hazard ratio 0·61, 95% CI 0·40–0·92; p=0·020). 24 (13%) of 179 patients treated with tocilizumab were diagnosed with new infections, versus 14 (4%) of 365 patients treated with standard of care alone (p<0·0001). Treatment with tocilizumab, whether

administered intravenously or subcutaneously, might reduce the risk of invasive mechanical ventilation or death in patients with severe COVID-19 pneumonia.

40. **Compassionate Use of Tocilizumab for Treatment of SARS-CoV-2 Pneumonia.** Jordan SC, Zakowski P, Tran HP, et al. *Clin Infect Dis*. 2020 Jun 23:ciaa812. doi: 10.1093/cid/ciaa812. https://academic.oup.com/cid/article/doi/10.1093/cid/ciaa812/5861638
Findings: Compared to published reports on the morbidity and mortality associated with SARS-CoV-2, tocilizumab appears to offer benefits in reducing inflammation, oxygen requirements, vasopressor support, and mortality. The rationale for tocilizumab treatment is supported by detection of IL-6 in pathogenic levels in all patients. Additional doses of tocilizumab may be needed for those showing slow declines in CRP. Proof of efficacy awaits randomized, placebo-controlled clinical trials.

41. **Improved Clinical Symptoms and Mortality on Severe/Critical COVID-19 Patients Utilizing Convalescent Plasma Transfusion.** Xia X, Li K, Wu L, et al. *Blood*. 2020 Jun 23:blood.2020007079. doi: 10.1182/blood.2020007079. https://ashpublications.org/blood/article/doi/10.1182/blood.2020007079/461103/Improved-Clinical-Symptoms-and-Mortality-on-Severe
Findings: We analyzed the clinical, laboratory, and radiologic characteristics of 1,568 patients from a single center, in which 138 patients received ABO-compatible CPT. The median time from the first symptom to CPT was 45 days. 2.2% and 4.1% of cases died in the CPT group and in the standard-treatment group, respectively. 2.4% and 5.1% of patients in the CPT and the standard-treatment group have been admitted to ICU eventually. 70% of the patients who had severe respiratory symptoms got improved and removed oxygen supports within 7 days after CPT. The viral loads and C-reactive protein (CRP) concentration significantly decreased ($P<0.001$), and the percentage of lymphocytes increased ($P=0.006$), 76.8% of cases received radiological improvements within 14 days after CPT. Patients with a higher percentage of lymphocytes and a lower percentage of neutrophils and CRP concentration respond better to CPT ($P<0.05$). Notably, for the patients who received CPT within 7 weeks after symptom onset, the median time from CPT to clinical improvements was approximately 10 days. But the time to clinical improvements was significantly prolonged for patients who received CPT later than 7 weeks after onset. Our study will provide important information for the clinical practice in COVID-19 treatment, as well as provide real-world observations and clinical data for the development of monoclonal antibodies.

42. **Impact of Glucocorticoid Treatment in SARS-COV-2 Infection Mortality: A Retrospective Controlled Cohort Study.** Fernández Cruz A, Ruiz-Antorán B, Muñoz Gómez A,et al. *Antimicrob Agents Chemother*. 2020 Jun 22:AAC.01168-20. doi: 10.1128/AAC.01168-20. https://aac.asm.org/content/early/2020/06/16/AAC.01168-20
Findings: Our results show that survival of patients with SARS-CoV2 pneumonia is higher in patients treated with glucocorticoids than in those not treated. In-hospital mortality was not different between initial regimens of 1 mg/kg/day of methylprednisolone and glucocorticoid pulses.

43. **Inhalational volatile-based sedation for COVID-19 pneumonia and ARDS.** Jerath A, Ferguson ND, Cuthbertson B. *Intensive Care Med.* 2020 Jun 25:1-4. doi: 10.1007/s00134-020-06154-8. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7315695/
Findings: Hospitals worldwide are experiencing a shortage in essential intravenous sedative medications. This is attributable to high number and high sedative needs of COVID-19 critical care patients with disruption of drug supply chains. Inhaled volatile anesthetic agents are an abundant resource and readily implementable solution for providing ICU sedation. Inhaled volatile agents may also provide important pulmonary benefits for COVID-19 patients with ARDS that could improve gas exchange and reduce time spent on a ventilator. We review the use of volatile agents, and provide a technical overview and algorithm for administering inhaled volatile-based sedation in ICUs.

Transmission / Infection Control

44. **Asymptomatic COVID-19 Patients Can Contaminate Their Surroundings: An Environment Sampling Study.** Wei L, Lin J, Duan X, Huang W, Lu X, Zhou J, Zong Z. *mSphere* Jun 2020, 5 (3) e00442-20; DOI: 10.1128/mSphere.00442-20 https://msphere.asm.org/content/5/3/e00442-20
Findings: The contamination of patients' surroundings by SARS-CoV-2 remains understudied. We sampled the surroundings and the air of six negative-pressure non-intensive care unit (non-ICU) rooms in a designated isolation ward in Chengdu, China, that were occupied by 13 laboratory-confirmed coronavirus disease 2019 (COVID-19) patients who had returned from overseas travel, including 2 asymptomatic patients. A total of 44 of 112 (39.3%) surface samples were positive for SARS-CoV-2 as detected by real-time PCR, suggesting extensive contamination, although all of the air samples were negative. In particular, in a single room occupied by an asymptomatic patient, four sites were SARS-CoV-2 positive, highlighting that asymptomatic COVID-19 patients do contaminate their surroundings and impose risks for others with close contact. Placement of COVID-19 patients in rooms with negative pressure may bring a false feeling of safety, and the importance of rigorous environment cleaning should be emphasized.

45. **Microwave-Generated Steam Decontamination of N95 Respirators Utilizing Universally Accessible Materials**. Zulauf KE, Green AB, Nguyen Ba AN, et al. *mBio*. DOI: 10.1128/mBio.00997-20 https://mbio.asm.org/content/11/3/e00997-20
Findings: Researchers have devised a way to decontaminate N95 respirators using household supplies: glass containers, mesh from produce bags, a rubber band, and a microwave. Not only did their microwave-steaming method decontaminate respirators after one 3-minute treatment, but the respirators' fit and function were maintained after 20 decontamination cycles. Metal within the masks did not spark during treatment. The researchers write, "This method provides a valuable means of effective decontamination and reuse of N95 respirators by frontline providers facing urgent need."

46. **Prolonged Infectivity of SARS-CoV-2 in Fomites.** Pastorino B, Touret F, Gilles M, de Lamballerie X, Charrel RN. *Emerg Infect Dis*. 2020 Jun 24;26(9). doi: 10.3201/eid2609.201788. https://wwwnc.cdc.gov/eid/article/26/9/20-1788_article

Findings: We spotted severe acute respiratory syndrome coronavirus 2 on polystyrene plastic, aluminum, and glass for 96 hours with and without bovine serum albumin (3 g/L). The presence of proteins noticeably prolonged infectivity.

47. **Masks for Prevention of Respiratory Virus Infections, Including SARS-CoV-2, in Health Care and Community Settings: A Living Rapid Review.** Chou R, Dana T, Jungbauer R, et al. *Ann Intern Med*. 2020 Jun 24. doi: 10.7326/M20-3213. https://www.acpjournals.org/doi/10.7326/M20-3213
Findings: 39 studies (18 randomized controlled trials and 21 observational studies; 33 867 participants) were included. No study evaluated reuse or extended use of N95 masks. Evidence on SARS-CoV-2 was limited to 2 observational studies with serious limitations. Community mask use was possibly associated with decreased risk for SARS-CoV-1 infection in observational studies. In high- or moderate-risk health care settings, observational studies found that risk for infection with SARS-CoV-1 and Middle East respiratory syndrome coronavirus probably decreased with mask use versus nonuse and possibly decreased with N95 versus surgical mask use. Randomized trials in community settings found possibly no difference between N95 versus surgical masks and probably no difference between surgical versus no mask in risk for influenza or influenza-like illness, but compliance was low. In health care settings, N95 and surgical masks were probably associated with similar risks for influenza-like illness and laboratory-confirmed viral infection; clinical respiratory illness had inconsistency. Bothersome symptoms were common. CONCLUSION: Evidence on mask effectiveness for respiratory infection prevention is stronger in health care than community settings. N95 respirators might reduce SARS-CoV-1 risk versus surgical masks in health care settings, but applicability to SARS-CoV-2 is uncertain.

48. **Retrospective, multicenter study on the impact of baricitinib in COVID-19 moderate pneumonia.** Cantini F, Niccoli L, Nannini C, et al. *J Infect.* 2020 Jun 24:S0163-4453(20)30433-3. doi: 10.1016/j.jinf.2020.06.052. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7313480/
Findings: Baricitinib, an anti-JAK1/JAK2, reduces cytokine release and SARS-Co-V2 entry. In a retrospective multicenter study baricitinib reduces COVID-19 mortality rate. Baricitinib reduces Intensive Care Unit admissions of COVID-19 pneumonia. Baricitinb reduces SARS-CoV-2 viral burden detected by nasopharyngeal swab. Baricitinib used for 2 weeks was not associated with serious adverse events.

49. **Novel coronavirus 2019 transmission risk in educational settings.** Yung CF, Kam KQ, Nadua KD, et al. *Clin Infect Dis*. 2020 Jun 25:ciaa794. doi: 10.1093/cid/ciaa794. https://academic.oup.com/cid/article/doi/10.1093/cid/ciaa794/5862649
Findings: Transmission risk of SARS-CoV-2 in schools is unknown. Our investigations especially in pre-schools could not detect SARS-CoV-2 transmission despite screening of symptomatic and asymptomatic children. The data suggests that children are not the primary drivers of SARS-CoV-2 transmission in schools and could help inform exit strategies for lifting of lockdowns.

50. **Characterizing super-spreading events and age-specific infectivity of COVID-19 transmission in Georgia, USA.** Lau MSY, Grenfell B, Nelson K, et al. *medRxiv* PREPRINT. June 22, 2020 doi: https://doi.org/10.1101/2020.06.20.20130476

Findings: We analyze reported cases from surveillance data, between March and early May 2020, in five urban and rural counties in the State of Georgia USA. The overall median reproductive number was 2.88 before the state-wide shelter-in-place order issued in early April, and the effective reproductive number was reduced to below 1 about two weeks by the order. Super-spreading appears to be widespread across space and time, and it may have a particularly important role in driving the outbreak in the rural area and increasing importance towards later stages of outbreaks in both urban and rural settings. Overall, about 2% of cases may have directly infected 20% of all infections. We estimate that the infected children and younger adults (<60 years old) may be 2.38 times more transmissible than infected elderly (>=60), and the former may be the main driver of super-spreading.

Women & Children

51. **Multisystem Inflammatory Syndrome in U.S. Children and Adolescents.** Feldstein LR et al. NEJM 2020 Jun 29. DOI: 10.1056/NEJMoa2021680
https://www.nejm.org/doi/full/10.1056/NEJMoa2021680
Findings: We report on 186 patients with MIS-C in 26 states. The median age was 8.3 years, 115 patients (62%) were male, 135 (73%) had previously been healthy, 131 (70%) were positive for SARS-CoV-2 by RT-PCR or antibody testing, and 164 (88%) were hospitalized after April 16, 2020. Organ-system involvement included the gastrointestinal system in 171 patients (92%), cardiovascular in 149 (80%), hematologic in 142 (76%), mucocutaneous in 137 (74%), and respiratory in 131 (70%). The median duration of hospitalization was 7 days (interquartile range, 4 to 10); 148 patients (80%) received intensive care, 37 (20%) received mechanical ventilation, 90 (48%) received vasoactive support, and 4 (2%) died. Coronary-artery aneurysms (z scores ≥2.5) were documented in 15 patients (8%), and Kawasaki's disease–like features were documented in 74 (40%). Most patients (171 [92%]) had elevations in at least four biomarkers indicating inflammation. The use of immunomodulating therapies was common: intravenous immune globulin was used in 144 (77%), glucocorticoids in 91 (49%), and interleukin-6 or 1RA inhibitors in 38 (20%). Multisystem inflammatory syndrome in children associated with SARS-CoV-2 led to serious and life-threatening illness in previously healthy children and adolescents.
See also: Multisystem Inflammatory Syndrome in Children in New York State. Dufort EM et al. NEJM 2020 Jun 29. DOI: 10.1056/NEJMoa2021756

52. **Characteristics of Women of Reproductive Age with Laboratory-Confirmed SARS-CoV-2 Infection by Pregnancy Status — United States, January 22–June 7, 2020.** Ellington S, Strid P, Tong VT, et al. *MMWR Morb Mortal Wkly Rep* 2020;69:769–775. DOI:
http://dx.doi.org/10.15585/mmwr.mm6925a1
https://www.cdc.gov/mmwr/volumes/69/wr/mm6925a1.htm
Findings: Hispanic and non-Hispanic black pregnant women appear to be disproportionately affected by SARS-CoV-2 infection during pregnancy. Among reproductive-age women with SARS-CoV-2 infection, pregnancy was associated with hospitalization and increased risk for intensive care unit admission, and receipt of mechanical ventilation, but not with death.

53. **Putting It All Together: Clinical Considerations in the Care of Critically Ill Obstetric Patients with COVID-19.** Oxford-Horrey C, Savage M, Prabhu M, et al. *Am J Perinatol.* 2020 Jun 23. doi: 10.1055/s-0040-1713121. https://www.thieme-connect.com/products/ejournals/pdf/10.1055/s-0040-1713121.pdf
Findings: When caring for severely ill obstetric patients with COVID-19, one must be well versed in the complications that may need to be managed including, but not limited to adult respiratory distress syndrome with need for mechanical ventilation, approach to refractory hypoxemia, hemodynamic shock, and multiorgan system failure.. Prone positioning can be done safely in gravid patients but requires key areas of support to avoid abdominal compression. For the critically ill obstetric patient with COVID-19, the focus should be on supportive care as a bridge to recovery rather than delivery as a solution to recovery.

54. **Clinical Presentation and Outcomes of Pregnant Women with COVID-19: A Systematic Review and Meta-Analysis.** Matar R, Alrahmani L, Monzer N, et al. *Clin Infect Dis.* 2020 Jun 23:ciaa828. doi: 10.1093/cid/ciaa828.
https://academic.oup.com/cid/article/doi/10.1093/cid/ciaa828/5861636
Findings: Twenty-four studies (136 women) were included. Most common symptoms were fever (62.9%) and cough (36.8%). Laboratory findings included elevated C-Reactive Protein (57%) and lymphocytopenia (50%). Ground-glass opacity was the most common radiological finding (81.7%). Preterm birth rate was 37.7% and cesarean delivery rate was 76%. There was one maternal death. There were two fetal COVID-19 cases. The clinical picture in pregnant women with COVID-19 did not differ from the non-pregnant population, however, the rate of preterm birth and cesarean delivery are considerably higher than international averages.

55. **Spectrum of Imaging Findings on Chest Radiographs, US, CT, and MRI Images in Multisystem Inflammatory Syndrome in Children (MIS-C) Associated with COVID-19.** Hameed S, Elbaaly H, Reid CEL, et al. *Radiology.* Jun 25 2020 https://doi.org/10.1148/radiol.2020202543 https://pubs.rsna.org/doi/10.1148/radiol.2020202543
Findings: This case series examines the spectrum of imaging findings on chest radiographs, US, CT, and MRI images in 35 children admitted to a tertiary pediatric hospital in April-May 2020 with a post COVID-19 inflammatory condition known as MIS-C. The constellation of findings includes airway inflammation and rapid development of pulmonary edema on thoracic imaging, coronary artery aneurysms, and extensive right iliac fossa inflammatory changes on abdominal imaging. Awareness of this emerging condition and the expected multi-organ imaging findings will aid radiologists in the assessment of these complex cases.

56. **Incidence of SARS-CoV-2 vertical transmission: a meta-analysis.** Goh XL, Low YF, Ng CH, Amin Z, Ng YPM. *Arch Dis Child Fetal Neonatal Ed*. 2020 Jun 25:fetalneonatal-2020-319791. doi: 10.1136/archdischild-2020-319791.
https://fn.bmj.com/content/fetalneonatal/early/2020/06/25/archdischild-2020-319791.full.pdf
Findings: Seventeen studies (two studies in Chinese language) were included. Four hundred and two COVID-19-positive mothers delivered 405 newborns, of which 330 newborns underwent early RT-PCR tests. Nine of 330 newborns tested positive for SARS-CoV-2. The average pooled

incidence of vertical transmission was 16 per 1000 newborns. Therefore, current evidence shows that the risk of vertical transmission of SARS-CoV-2 is low.

57. **Neurological manifestations of pediatric multi-system inflammatory syndrome potentially associated with COVID-19.** Schupper AJ, Yaeger KA, Morgenstern PF. *Childs Nerv Syst*. 2020 Jun 25:1-2. doi: 10.1007/s00381-020-04755-8.
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7314616/
Findings: There has been significant media attention and a New York City Health Alert surrounding "Pediatric Multi-System Inflammatory Syndrome Potentially Associated with COVID-19." As of May 18, 2020, there were 145 suspected cases of this syndrome in New York City. While this disease has been outlined as having components shock and similarities to Kawasaki disease, associated neurologic manifestations have not been described. We have encountered several children with this condition and highlight two with major neurological complications.

PRESS RELEASE

MIT Press and UC Berkeley Launch Rapid Reviews: COVID-19 - A new peer-reviewed overlay journal to combat misinformation in COVID-19 PREPRINT research

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GUIDELINES & CONSENSUS STATEMENTS

Infectious Diseases Society of America Guidelines on the Treatment and Management of Patients with COVID-19. UPDATE (6/25/20): Recommendations on corticosteroids have been revised.

ARIA-EAACI statement on Asthma and COVID-19 (June 2, 2020). Bousquet J et al. *Allergy*. 2020 Jun 26. doi: 10.1111/all.14471. https://onlinelibrary.wiley.com/doi/10.1111/all.14471

Multidisciplinary guidance to manage comatose patients with severe COVID-19. Waldman GJ, Thakur KT, Der Nigoghossian C, et al. *Ann Neurol.* 2020 Jun 25. doi: 10.1002/ana.25830.
https://onlinelibrary.wiley.com/doi/10.1002/ana.25830

FDA / CDC / NIH/ WHO Updates

CDC - Updated List of People at Increased Risk for Severe COVID-19

FDA - Important Information about the Use of Serological (Antibody) Tests for COVID-19

FDA - Development and Licensure of Vaccines to Prevent COVID-19 - Guidance for Industry

WHO - Infection prevention and control during health care when coronavirus disease (COVID-19) is suspected or confirmed

WHO - Smoking and COVID-19

Commentary

A Proposed Lottery System to Allocate Scarce COVID-19 Medications: Promoting Fairness and Generating Knowledge. White, DB, Angus DC. *JAMA*. June 24, 2020. doi:10.1001/jama.2020.11464

Why covid-19 antibody tests are not the game changer the UK government claims. Armstrong S. *BMJ* 2020; 369 :m2469 doi: https://doi.org/10.1136/bmj.m2469

Ensuring Uptake of Vaccines Against SARS-CoV-2. Mello MM. *N Engl J Med.* 2020 Jun 26. doi: 10.1056/NEJMp2020926.

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