



2019-nCoV Literature Situation Report (Lit Rep)

May 24, 2021

The scientific literature on COVID-19 is rapidly evolving and these articles were selected for review based on their relevance to Washington State decision making around COVID-19 response efforts. Included in these Lit Reps are some manuscripts that have been made available online as pre-prints but have not yet undergone peer review. Please be aware of this when reviewing articles included in the Lit Reps.

Key Takeaways

- ▣ **A population-based cohort study among pregnant people in England (n = 342,080) screened for SARS-CoV-2 at the time of delivery hospitalization found risk of fetal death (aOR = 2.2), preterm birth (aOR = 2.2), preeclampsia/eclampsia (aOR = 1.6), and emergency Cesarean delivery (aOR = 1.6) were all significantly higher among SARS-CoV-2 positive individuals. [More](#)**
- ▣ **An analysis of excess mortality in the US during the first six months of the COVID-19 pandemic (March – August 2020) found higher-than-expected deaths due to drug overdoses (n = 10,443 excess deaths), homicides (n = 2,014), and unintentional injuries (n = 7,497), and lower-than-expected numbers of suicides (n = 2,432 fewer deaths). [More](#)**
- ▣ **Chlamydia and gonorrhea screening in the US during the COVID-19 pandemic was at its lowest during April 2020, with decreases of 59% among female and 63% among male patients relative to baseline levels. Between March and June 2020, 27,659 (26%) cases of chlamydia and 5,577 (17%) cases of gonorrhea were potentially missed. [More](#)**

Transmission

- *[Pre-print, not peer-reviewed]* A report of SARS-CoV-2 mitigation practices and infection rates in schools in Florida, New York, and Massachusetts during the 2020-2021 school year found higher infection rates among students attending schools with lower in-person density, but no association with rates among staff. The authors suggest these results could be attributed to a protective effect of in-school time if students and teachers engage in higher-risk activities outside of school. Better ventilation was associated with lower infection rates in Florida, but not New York. Rates of infection declined in all locations in the spring, likely due to vaccination of teachers.
Oster et al. (May 21, 2021). COVID-19 Mitigation Practices and COVID-19 Rates in Schools Report on Data from Florida New York and Massachusetts. Pre-print downloaded May 24 from <https://doi.org/10.1101/2021.05.19.21257467>
- SARS-CoV-2 B.1.1.7 and B.1.351 variants were found to have 2- and 4.6-times higher binding affinity, respectively, for the human ACE2 receptor than the wildtype virus. The authors suggest that this may explain some of the observed increased transmissibility of these variants.

Ramanathan et al. (May 2021). SARS-CoV-2 B.1.1.7 and B.1.351 Spike Variants Bind Human ACE2 with Increased Affinity. *The Lancet Infectious Diseases*.

[https://doi.org/10.1016/S1473-3099\(21\)00262-0](https://doi.org/10.1016/S1473-3099(21)00262-0)

Testing and Treatment

- [Pre-print, not peer-reviewed] A systematic review (n = 83 studies) of the diagnostic accuracy of SARS-CoV-2 rapid antigen lateral flow testing (RALFT) compared to RT-qPCR among symptomatic and asymptomatic individuals found the overall sensitivity for RALFT was 75%, and the sensitivity was higher among symptomatic individuals. Viral load was the most important factor for test sensitivity, but other factors, such as specimen storage and anatomical collection type, also affected performance. RALFT and RT-qPCR testing were both highly sensitive compared to viral culture.

Parvu et al. (May 22, 2021). *Clinical and Experimental Factors That Affect the Reported Performance Characteristics of Rapid Testing for SARS-CoV-2*. Pre-print downloaded May 24 from

<https://doi.org/10.1101/2021.05.20.21257181>

Vaccines and Immunity

- [Pre-print, not peer-reviewed] A report using data from publications, reports, and press releases concluded that the average efficacy of the Pfizer-BioNTech, Moderna, Johnson & Johnson/Janssen, Oxford-AstraZeneca, Sputnik, Novavax, Sinovac, and Sinopharm vaccines was about 85% against any disease with infection. Vaccine efficacy was >80% for all vaccines included except for Sinovac (51%, 95% CI 36-62%). The average efficacy against severe disease, hospitalization or death was nearly 100%, and the average efficacy against infection, regardless of symptoms, was 84%. Additionally, the report found that the average vaccine efficacy against secondary transmission was 54%. Average efficacy against the different SARS-CoV-2 variants was 86% for B.1.1.7, 61% for B.1.1.28 or P1, and 56% for B.1.351.

Shapiro et al. (May 21, 2021). *Efficacy Estimates for Various COVID-19 Vaccines What We Know from the Literature and Reports*. Pre-print downloaded May 24 from

<https://doi.org/10.1101/2021.05.20.21257461>

- Among healthcare workers (HCW) who had previously been infected with SARS-CoV-2 and had mild or no symptoms (n = 41), one dose of the Pfizer-BioNTech vaccine resulted in higher levels of neutralizing antibody titers than those found in HCW who had received two doses of the vaccine (n = 16) but had never been infected.

Vicenti et al. (May 2021). *Single-Dose BNT162b2 mRNA COVID-19 Vaccine Significantly Boosts Neutralizing Antibody Response in Health Care Workers Recovering from Asymptomatic or Mild Natural SARS-CoV-2 Infection*. *International Journal of Infectious Diseases*.

<https://doi.org/10.1016/j.ijid.2021.05.033>

- Among 21 patients with myeloproliferative neoplasms (MPN), conditions in which the body overproduces blood cells, one dose of the Pfizer-BioNTech vaccine resulted in a positive anti-S IgG ELISA among 76% (n = 16) of patients, neutralizing antibodies in 86% (n = 18) of patients, and a memory T cell response in 80% of patients following vaccination, indicating response rates similar to those observed among the general population. The authors highlight the need for other studies to assess responses after a second dose, as well as after immunization with the other available SARS-CoV-2 vaccines.

Harrington et al. (May 22, 2021). Single Dose of BNT162b2 mRNA Vaccine against SARS-CoV-2 Induces High Frequency of Neutralising Antibody and Polyfunctional T-Cell Responses in Patients with Myeloproliferative Neoplasms. *Leukemia*. <https://doi.org/10.1038/s41375-021-01300-7>

Clinical Characteristics and Health Care Setting

- A population-based cohort study of pregnant persons in England (n = 342,080) in the context of universal screening for SARS-CoV-2 at delivery hospitalization found that SARS-CoV-2 infection was more common among those who were younger, of non-white ethnicity, pregnant for the first time, resided in the most deprived areas, or had comorbid conditions. Risk of fetal death (aOR = 2.2), preterm birth (aOR = 2.2), preeclampsia/eclampsia (aOR = 1.6), and emergency Cesarean delivery (aOR = 1.6) were all significantly higher among pregnant individuals infected with SARS-CoV-2. The observed increase in adverse fetal outcomes was attributed to increased risk of preterm birth.

GUROL-URGANCI et al. (May 2021). Maternal and Perinatal Outcomes of Pregnant Women with SARS-CoV-2 Infection at the Time of Birth in England: National Cohort Study. *American Journal of Obstetrics and Gynecology*. <https://doi.org/10.1016/j.ajog.2021.05.016>

Mental Health and Personal Impact

- A meta-analysis (n = 54 studies, 308,596 participants) of suicide behaviors from populations in five geopolitical regions found evidence to suggest that the rates of suicidal ideation (10.8%), suicide attempts (4.7%), and self-harm (9.6%) were elevated during the COVID-19 pandemic compared to prior years. People who were younger or female tended to experience more suicidal ideation during the pandemic.

Dubé et al. (July 2021). Suicide Behaviors during the COVID-19 Pandemic: A Meta-Analysis of 54 Studies. *Psychiatry Research*. <https://doi.org/10.1016/j.psychres.2021.113998>

Modeling and Prediction

- [Pre-print, not peer-reviewed] A modeling study that accounted for under detection of infection, seasonality, concurrent use of non-pharmaceutical interventions, and mass vaccination, found that the B.1.1.7 variant was 47% more transmissible but infrequently escaped immunity from prior wild-type infection; B.1.351 was 32% more transmissible and had 61% immune escape; and P.1 was 43% more transmissible and had 53% immune escape. The model suggested that B.1.351 and P.1 could become dominant strains and lead to increased infections.

Yang and Shaman. (May 21, 2021). Epidemiological Characteristics of Three SARS-CoV-2 Variants of Concern and Implications for Future COVID-19 Pandemic Outcomes. Pre-print downloaded May 24 from <https://doi.org/10.1101/2021.05.19.21257476>

Public Health Policy and Practice

- Childhood immunization rates in Texas declined by 47% between 2019 and 2020 among 5-month-olds, along with a 58% decline among 16-month-olds. Small decreases (5%) occurred among 24-month-olds, and there was no decline in vaccines received at birth (i.e., Hepatitis B). Decreases tended to be larger in rural than urban counties. The authors note that these lower rates occurred in conjunction with increases in state vaccine exemptions over the last five years.

Nuzhath et al. (Apr 2021). *Childhood Immunization during the COVID-19 Pandemic in Texas. Vaccine.* <https://doi.org/10.1016/j.vaccine.2021.04.050>

- [Pre-print, not peer-reviewed] A rapid review of the B.1.1.7, B.1.351, and P.1 SARS-CoV-2 variants (n=37 studies and 21 guidance documents) found evidence for potential increased risks of hospitalization and death associated with the B.1.1.7 variant. While six studies in the review found higher mortality risk associated with B.1.1.7, ranging from 15-67%, three found no differences. The authors found that non-pharmaceutical interventions, such as physical distancing and contact-tracing, were key components of public health responses in addition to vaccination plans.

Curran et al. (May 22, 2021). *Public Health and Health Systems Impacts of SARS-CoV-2 Variants of Concern A Rapid Scoping Review. Pre-print downloaded May 24 from* <https://doi.org/10.1101/2021.05.20.21257517>

- An analysis of excess mortality in the US during the first six months of the COVID-19 pandemic (March – August 2020) found higher-than-expected deaths due to drug overdoses (n = 10,443 excess deaths), homicides (n = 2,014), and unintentional injuries (n = 7,497), and lower-than-expected numbers of suicides (n = 2,432 fewer deaths). Drug overdoses accounted for 13% of non-COVID-19 excess mortality, homicides represented 2%, and unintentional injuries accounted for 9% of non-COVID-19 excess mortality. No significant change in motor vehicle crash deaths was observed. Expected mortality was calculated with seasonally-adjusted models using data from January 2015 to February 2020.

Faust et al. (May 21, 2021). *Mortality From Drug Overdoses, Homicides, Unintentional Injuries, Motor Vehicle Crashes, and Suicides During the Pandemic, March-August 2020. JAMA.* <https://doi.org/10.1001/jama.2021.8012>

- Chlamydia and gonorrhea testing in the US during the COVID-19 pandemic were at their lowest during April 2020, with decreases of 59% among female and 63% among male patients relative to baseline levels. Declines in testing were strongly associated with increases in weekly positivity rates for chlamydia ($R^2=0.96$) and gonorrhea ($R^2=0.85$). The study estimates that between March and June 2020, 27,659 (26%) cases of chlamydia and 5,577 (17%) cases of gonorrhea were potentially missed, based on historical trends.

Pinto et al. (May 2021). *Impact of the COVID-19 Pandemic on Chlamydia and Gonorrhea Screening in the U.S. American Journal of Preventive Medicine.* <https://doi.org/10.1016/j.amepre.2021.03.009>

Other Resources and Commentaries

- [COVID-19 and Global Mental Health](#) – The Lancet Psychiatry (June)
- [Emergence of SARS-CoV-2 Variants of Concern in the Pediatric Population of the United States](#) – MedRxiv (May 24)
- [Usability, Inclusivity, and Content Evaluation of COVID-19 Contact Tracing Apps in the United States](#) – Journal of the American Medical Informatics Association (May 22)
- [Using Preprints in Evidence Synthesis: Commentary on Experience during the COVID-19 Pandemic](#) – Journal of Clinical Epidemiology (May)

- [Ongoing and Future COVID-19 Vaccine Clinical Trials: Challenges and Opportunities](#) – The Lancet Infectious Diseases (May)
- [Daily Briefing: A New Coronavirus Might Be from Dogs](#) – Nature (May 20)
- – International Journal of Infectious Diseases (May)
- [Make It Personal to Beat Vaccine Hesitancy](#) – Nature Reviews Microbiology (May 20)
- [Scientists Zero in on Long-Sought Marker of COVID-Vaccine Efficacy](#) – Nature (May)
- [Using Health Services Research to Address the Unique Challenges of the COVID-19 Pandemic](#) – JAMA Surgery (May 21)
- [Development of Leading First-Generation Vaccines against SARS-CoV-2](#) – Microbes and Infection (May)
- [‘It’s a Minefield’: COVID Vaccine Safety Poses Unique Communication Challenge](#) – Nature (May 21)
- [Influenza Virus and SARS-CoV-2 Vaccines](#) – Journal of Immunology (May)
- [What Chikungunya Teaches Us about COVID-19](#) – The Lancet. Infectious Diseases (May)
- [Family Planning in COVID-19 Times: Access for All](#) – The Lancet. Global Health (June)
- [Exploring the Social Impacts of the COVID-19 Pandemic on People Living with HIV \(PLHIV\): A Scoping Review](#) – AIDS and Behavior (May)
- [Covid-19: UK Cases of Variant from India Rise by 160% in a Week](#) – BMJ (May)

Report prepared by the UW Alliance for Pandemic Preparedness and Global Health Security and the START Center in collaboration with and on behalf of WA DOH COVID-19 Incident Management Team