



2019-nCoV Literature

Situation Report (Lit

Rep)

January 28, 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

- **Recipients of the 2-dose regimen of the Pfizer vaccine (n=20) had similar neutralizing titers against SARS-CoV-2 viruses engineered to contain key spike protein mutations from B.1.1.7 variant (1.4-fold) and B.1.351 variant (0.8-fold) compared to neutralizing geometric mean titers (GMTs) against wild-type SARS-CoV-2.** [More](#)
- **A cohort of pregnant patients with SARS-CoV-2 infection (n=240) had a 3.5-fold higher hospitalization rate and 13.6-fold higher case fatality rate, compared to similarly-aged females and males with SARS-CoV-2 infection in Washington State.** [More](#)
- **In a randomized, double-blinded, placebo-controlled trial (n=4,159), the anti-inflammatory medication colchicine lowered the odds of hospitalization by 25% over 30 days among high-risk participants with COVID-19 who were not yet hospitalized.** [More](#)
- **45% of respondents in a nationally representative online survey of 1,315 US adults conducted in June 2020 indicated support for immunity privileges. Support did not vary significantly across COVID-19 risk factors, though support was lower among women, Hispanics, and non-Black minority group members.** [More](#)

Transmission

- Despite a high SARS-CoV-2 seroprevalence of 76% among blood donors in Manaus, Brazil by October 2020, the area experienced a sudden rise in COVID-19 hospitalizations from 552 in December 2020 to 3,431 in January 2021. The authors suggest possible explanations for the resurgence in this setting where seroprevalence was higher than common estimates of the herd immunity threshold, including overestimating seroprevalence, waning immunity, introduction of new variants capable of escaping prior infection, and circulation of variants with higher inherent transmissibility.
Sabino et al. (Jan 27, 2021). Resurgence of COVID-19 in Manaus, Brazil, despite High Seroprevalence. The Lancet. [https://doi.org/10.1016/S0140-6736\(21\)00183-5](https://doi.org/10.1016/S0140-6736(21)00183-5)
- Using publicly available SARS-CoV-2 sequencing data and COVID-19 surveillance data collected from August to December 2020 in the UK, Zhao et al. reconstructed the variant-specific instantaneous reproduction number, R_t , and estimated that the variant containing the N501Y mutation is 52% more transmissible than the wild-type virus.

Zhao et al. (Jan 28, 2021). Quantifying the Transmission Advantage Associated with N501Y Substitution of SARS-CoV-2 in the United Kingdom: An Early Data-Driven Analysis. *Journal of Travel Medicine*. <https://doi.org/10.1093/jtm/taab011>

Testing and Treatment

- A systematic review and meta-analysis of studies examining alternative sample types for testing (n=46) found that nasal swab (NS), saliva samples, and oropharyngeal (OP) swabs consistently captured lower percent positives than nasopharyngeal (NP) swabs, though performance of OP and NS combined was similar to NP. The percent agreement between most alternative sample types and NP were low, with OP/NS having the highest agreement.

Lee et al. (Jan 27, 2021). Performance of Saliva, Oropharyngeal Swabs, and Nasal Swabs for SARS-CoV-2 Molecular Detection: A Systematic Review and Meta-Analysis. *Journal of Clinical Microbiology*. <https://doi.org/10.1128/JCM.02881-20>

- [Pre-print, not peer-reviewed] In a randomized, double-blinded, placebo-controlled trial (n=4,159), the anti-inflammatory medication colchicine reduced the rate of COVID-19-associated hospitalization or death among high-risk participants with COVID-19 who were not yet hospitalized. Participants who received colchicine for 30 days experienced 25% lower odds of hospitalization (95% CI 0.57-0.99), but not statistically significant lower odds for mechanical ventilation (OR=0.5, 95% CI 0.23-1.07), and death (OR=0.56, 95% CI 0.19-1.66) compared to those who received placebo. Serious adverse events were less frequent in the colchicine group (4.9% vs 6.3%), though diarrhea was more likely (13.7% vs 7.3%).

Tardif et al. (Jan 27, 2021). Efficacy of Colchicine in Non-Hospitalized Patients with COVID-19. Pre-print downloaded Jan 28 from <https://doi.org/10.1101/2021.01.26.21250494>

Vaccines and Immunity

- [Pre-print, not peer-reviewed] A nationally representative online survey of 1,315 US adults conducted in June 2020 found that 45% of respondents supported some form of immunity privileges. Among the forms, private certificates were favored over government-issued immunity passports (48% vs 43%). Respondents were more likely to justify immunity privileges for high-risk jobs or to attend large recreational events than for returning to work. Support did not vary significantly across COVID-19 risk factors such as age, chronic disease, or employment type. Women, Hispanics, and members of non-Black minority groups were less supportive of immunity privileges.

Hall et al. (Jan 27, 2021). U.S. Public Views about COVID-19 "Immunity Passports." Pre-print downloaded Jan 28 from <https://doi.org/10.1101/2021.01.26.21250184>

- [Pre-print, not peer-reviewed] Sera from recipients who completed the 2-dose regimen of the Pfizer vaccine BNT162b2 (n=20) had similar neutralizing geometric mean titers (GMTs) against SARS-CoV-2 viruses engineered to contain key spike protein mutations from variants emerging from the UK (B.1.1.7) and South Africa (B.1.351) compared to GMTs against the wild-type virus. Compared to the GMTs against the wild-type virus, GMTs against viruses with the N501Y mutation (present in both variants) and the key B.1.1.7 mutations ($\Delta 69/70$ +N501Y+D614G) were 1.46- and 1.41-fold higher, respectively. In contrast, GMTs against the key B.1.351 mutations (E484K+N501Y+D614G) were 19% lower than wild-type. The authors note that the engineered viruses do not contain the full set of mutations present in variants B.1.1.7 and B.1.351.

Xie et al. (Jan 27, 2021). Neutralization of Spike 6970 Deletion E484K and N501Y SARS-CoV-2 by BNT162b2 Vaccine-Elicited Sera. Pre-print downloaded Jan 28 from <https://doi.org/10.1101/2021.01.27.427998>

- [Press release, not peer-reviewed] Preliminary results for phase 2/3 trials for the recombinant protein-based COVID-19 vaccine NVX-CoV2373 made by Novavax showed up to 89.3% efficacy in the UK cohort (n= >15,000), where 56 participants in the placebo group developed COVID-19 vs 6 in the vaccine group. Of note, the B.1.1.7 variant was observed in 32 of the COVID-19 cases, yielding an estimate of 85.6% efficacy against the variant.
- Preliminary results from the South Africa cohort (n= >4,400) showed efficacy of 60% in the HIV-negative study population vs. 49.4% in the overall study population, with 29 COVID-19 cases observed in the placebo group vs. 15 in the vaccine group. Among 27 of the 44 cases with sequence data, mutations consistent with the B.1.351 variant were detected in 25 (93%).
- Approximately 1/3 of patients in the South Africa cohort (but not included in the preliminary results) were seropositive at baseline, indicating prior COVID-19 infection.

Novavax. (Jan 28, 2021). Novavax COVID-19 Vaccine Demonstrates 89.3% Efficacy in UK Phase 3 Trial. Press release downloaded Jan 28 from <https://ir.novavax.com/node/15506/pdf>

Clinical Characteristics and Health Care Setting

- Respiratory, physical, and psychological sequelae were common 3-4 months after hospital discharge in an Italian cohort of COVID-19 survivors (n=238, median age = 61 [IQR 50-71]). 113 of 219 patients (52%) had a significant reduction in lung function measured by diffusing lung capacity for carbon monoxide (80% of expected value), and 128 (54%) patients had functional impairment using the Short Physical Performance Battery (SPPB) score. 41 (17%) patients reported posttraumatic stress symptoms.

Bellan et al. (Jan 27, 2021). Respiratory and Psychophysical Sequelae Among Patients With COVID-19 Four Months After Hospital Discharge. *JAMA Network Open*. <https://doi.org/10.1001/jamanetworkopen.2020.36142>

- Among a cohort of 240 pregnant patients with SARS-CoV-2 infection in Washington State, the COVID-19 hospitalization and case fatality rates were 3.5-fold and 13.6-fold higher, respectively, compared to rates among similarly-aged females and males with SARS-CoV-2 infections in Washington State. One in 11 developed severe or critical disease, 1 in 10 were hospitalized for COVID-19. Patients who were hospitalized were slightly older (median 32 vs. 28 years) and more likely to have at least one comorbidity (45.8% vs 17.6%) than those who were not hospitalized. Three maternal deaths from COVID-19 were reported, corresponding to a maternal mortality rate of 1,250 per 100,000 pregnancies and a 1.2% absolute rate difference compared to similarly-aged adults.

Lokken et al. (Jan 26, 2021). Disease Severity, Pregnancy Outcomes and Maternal Deaths among Pregnant Patients with SARS-CoV-2 Infection in Washington State. *American Journal of Obstetrics and Gynecology*. <https://doi.org/10.1016/j.ajog.2020.12.1221>

Mental Health and Personal Impact

- Transgender and gender nonbinary (TGNB) individuals (n=208) from an established longitudinal cohort experienced increased psychological distress due to the COVID-19 pandemic, as expressed by significantly higher raw scores during than pandemic than pre-pandemic on the Global Severity Index (GSI) . Additionally, a significantly higher percentage of respondents met criteria for clinically

significant depressive (41% vs 28%) and anxiety (41% vs 31%) symptoms. After controlling for pre-pandemic GSI, reduced LGBTQ/TGNB support was associated with greater GSI, though interruption/delay in gender-affirming healthcare was not associated with greater GSI.

Kidd et al. (Jan 27, 2021). Understanding the Impact of the COVID-19 Pandemic on the Mental Health of Transgender and Gender Nonbinary Individuals Engaged in a Longitudinal Cohort Study. Journal of Homosexuality. <https://doi.org/10.1080/00918369.2020.1868185>

Public Health Policy and Practice

- A retrospective study of adults hospitalized for COVID-19 in Michigan (n=2038) found that patients from neighborhoods with median income in the lowest vs. highest quartile were more likely to require invasive mechanical ventilation (IMV) (25% vs 16%) and ICU admission (35% vs 20%). The median income of neighborhoods of Black patients was lower than neighborhoods of white patients (\$34,758 vs \$63,317). After adjusting for age, sex, race, and comorbidities, patients whose neighborhoods had a \$10,000 higher median income had 5% and 8% lower odds of requiring IMV or ICU admission.

Quan et al. (Jan 27, 2021). Impact of Race and Socioeconomic Status on Outcomes in Patients Hospitalized with COVID-19. Journal of General Internal Medicine. <https://doi.org/10.1007/s11606-020-06527-1>

Other Resources and Commentaries

- [Response to a Massive SARS-CoV-2 Infection in a Nursing Home Transformed into a Caring Center](#) – Aging Clinical and Experimental Research (Jan 28 2021)
- [Pandemic Buying: Testing a Psychological Model of Over-purchasing and Panic Buying Using Data from the United Kingdom and Republic of Ireland during the Early Phase of the COVID-19 Pandemic](#) – PloS One (Jan 27 2021)
- [Association between COVID-19 Mortality and Population Level Health and Socioeconomic Indicators](#)– MedRxiv (Jan 27 2021)
- [Covid-19 Controversies: The Tocilizumab Chapter](#) – BMJ (Jan 27 2021)
- [The Impact of COVID-19 on College Students from Communities of Color](#) – Journal of American College Health (Jan 27 2021)
- [Viral Co-Infections among SARS-CoV-2-Infected Children and Infected Adult Household Contacts.](#) – European Journal of Pediatrics (Jan 27 2021)
- [Accelerate COVID-19 Vaccine Rollout by Delaying the Second Dose of mRNA Vaccines](#) – Clinical Infectious Diseases (Jan 27 2021)
- [Human Challenge Studies With Wild-Type Severe Acute Respiratory Syndrome Coronavirus 2 Violate Longstanding Codes of Human Subjects Research](#) – Open Forum Infectious Diseases (Dec 28 2020)
- [Pregnancy, Breastfeeding and the SARS-CoV-2 Vaccine: An Ethics-Based Framework for Shared Decision-Making](#) – Canadian Medical Association Journal (Jan 27 2021)

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



Updated 1/28/2021