

2019-nCoV Literature Situation Report (Lit Rep)

December 17, 2020

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 An interim analysis of the ongoing trial for the antibody cocktail REGN-COV2 among non-hospitalized COVID-19 patients (n=228) found a larger difference in viral loads (mean difference of -0.41 log₁₀ copies per milliliter) among patients in treatment group compared to placebo group.** [More](#)
- **A review of COVID-19 treatment trials in April and July found that a significant number of studies consistently listed pregnancy as an exclusion criterion, despite most treatments being evaluated having no or low safety concerns during pregnancy. Among studies focusing on therapeutic drugs (including remdesivir), 74% (130/176) listed pregnancy as an exclusion criterion.** [More](#)
- **Among COVID-19 survivors who were mechanically ventilated (n=94), nearly half died within 3 months post-discharge. The remaining survivors exhibited a high prevalence of pulmonary sequelae such as diminished total lung capacity and abnormal chest tomography, and high severity scores.** [More](#)
- **A diagnostic accuracy study found that self-collected oropharynx and mid-turbinate (OMPT) and saliva samples had lower SARS-CoV-2 detection rates than healthcare worker-collected OPMT swabs, but performed similarly for samples with low cycle thresholds.** [More](#)

Non-Pharmaceutical Interventions

- Higher monthly household income, more frequent internet use, better adherence to mask use, and being a non-smoker were associated with reported uptake of digital proximity tracing apps in Sweden (n=1,511). In a randomly selected subsample (n=711) with more detailed information, higher levels of trust in government and health authorities were associated with app uptake. Most frequent reasons for not using the app were lack of perceived benefit (36.8%), app incompatible with phone (22.8%), and privacy concerns (22.4%).

von Wyl et al. (Dec 16, 2020). Drivers of Acceptance of COVID-19 Proximity Tracing Apps in Switzerland: A Panel Survey Analysis (Preprint). JMIR Public Health and Surveillance.

<https://doi.org/10.2196/25701>

Transmission

- SARS-CoV-2 RNA was detected on surfaces in the rooms of both symptomatic and asymptomatic SARS-CoV-2 infected patients in a hospital in Shenzhen, China. Among asymptomatic patients, samples from squat toilets showed the highest positivity rate, followed by samples related to mouth or nose contact (e.g. water cup, straw), and then samples from inside masks worn by the patients. A significantly higher proportion of samples were positive from the rooms of patients with higher viral

load among patients who were symptomatic, while a similar but nonsignificant relationship was observed among patients who were asymptomatic. All samples collected from surfaces following disinfection with alcohol or chlorine-containing solutions were negative in both symptomatic and asymptomatic groups.

Yang et al. (Dec 16, 2020). SARS-CoV-2 Detected on Environmental Fomites for Both Asymptomatic and Symptomatic COVID-19 Patients. American Journal of Respiratory and Critical Care Medicine. <https://doi.org/10.1164/rccm.202006-2136LE>

Testing and Treatment

- A diagnostic accuracy study (n=401 patients with confirmed COVID-19 diagnosis) found that self-collected oropharynx and mid-turbinate (OPMT) and saliva samples had lower detection rates (75.1% and 74.3%, respectively) than healthcare worker (HCW)-collected OPMT swabs (82.8%). However, the combination of self-collected OPMT and saliva samples performed similarly (86.5% detection rate). The sensitivity of self-collected samples increased at lower cycle threshold (Ct) values and performed almost at the same level as HCW-collected samples at Ct < 25, suggesting they could be useful tools in high-risk settings.

Tan et al. (Dec 16, 2020). The Accuracy of Healthcare Worker versus Self Collected (2-in-1) Oropharyngeal and Bilateral Mid-Turbinate (OPMT) Swabs and Saliva Samples for SARS-CoV-2. PLOS ONE. <https://doi.org/10.1371/journal.pone.0244417>

- A review of COVID-19 treatment trials throughout different timepoints in the pandemic found that a substantial portion of trials listed pregnancy as an exclusion criterion. A review in April found that 80% (124/155) of trials excluded pregnant persons, with a similar finding of 75% (538/722) in July. Among studies focusing on therapeutic drugs (including remdesivir), 74% (130/176) listed pregnancy as an exclusion criterion. Of 35 studies evaluating high-dose vitamin treatment, 77% (27/35) excluded pregnant persons. The authors concluded that exclusion was often not well justified, as many of the treatments evaluated have few or no safety concerns during pregnancy.

Taylor et al. (Dec 16, 2020). Inclusion of Pregnant Women in COVID-19 Treatment Trials: A Review and Global Call to Action. The Lancet Global Health. [https://doi.org/10.1016/S2214-109X\(20\)30484-8](https://doi.org/10.1016/S2214-109X(20)30484-8)

- An interim analysis of the ongoing randomized placebo-controlled phase 1-3 trial of the antibody cocktail REGN-COV2 among non-hospitalized patients with COVID-19 (n=228) found a larger reduction in SARS-CoV-2 viral load among patients in the treatment group vs. the placebo group, with a mean difference of -0.41 log₁₀ copies per milliliter (95% CI, -0.71 to -0.10). Among those in the treatment group, patients who were serum antibody negative at baseline, had higher baseline viral loads, and who received a higher treatment dose (8g vs 2.4g) had larger mean differences in viral load compared to the placebo group.
- The prespecified clinical endpoint was the proportion of participants with at least one COVID-19 medically attended visit (telehealth, medical office visit, urgent care, emergency department, or hospitalization) in 29 days of follow-up, which was 3% in the treatment group and 6% in the placebo group. Among those who were serum antibody-negative, 6% in the treatment group had a medically attended visit compared to 15% in the placebo group.

Weinreich et al. (Dec 17, 2020). REGN-COV2, a Neutralizing Antibody Cocktail, in Outpatients with Covid-19. New England Journal of Medicine. <https://doi.org/10.1056/NEJMoa2035002>

Clinical Characteristics and Health Care Setting

- Results from an in vitro study suggest that SARS-CoV-2 that has replicated in cells expressing blood group A and B antigens could be tagged with these antigens. A subsequent observational study (n=290 COVID-19 patients, n=276 asymptomatic controls) found that ABO antibody levels, which are antibodies that correspond to blood type, were significantly lower in COVID-19 patients than in propensity-matched controls. The authors suggest that people with low ABO antibodies may be at higher risk of SARS-CoV-2 infection.

Deleers et al. (Dec 10, 2020). Covid-19 and Blood Groups: ABO Antibody Levels May Also Matter. International Journal of Infectious Diseases. <https://doi.org/10.1016/j.ijid.2020.12.025>

- An analysis of over 26 million US Medicare beneficiaries found the COVID-19 death rate among beneficiaries in nursing homes was much higher than among beneficiaries in the general Medicare population (275.7 vs 5 per 10,000). Clinical predictors of death in the study population included immunocompromised status, frailty index conditions, and comorbidities. Demographic predictors of death included male sex, older age, Medicaid dual-eligibility status, and racial/ethnic minority.

Izurieta et al. (Dec 16, 2020). Natural History of COVID-19: Risk Factors for Hospitalizations and Deaths among 26 Million U.S. Medicare Beneficiaries. The Journal of Infectious Diseases. <https://doi.org/10.1093/infdis/jiaa767>

- Only 55% of COVID-19 survivors who were mechanically ventilated (n=94) survived until at least 3 months post-hospital discharge. Among 48 people in the follow-up study, there was a high prevalence of pulmonary sequelae. Diminished total lung capacity and diffusion capacity were observed in 23 and 36 participants, respectively. High resolution chest tomography showed signs of COVID-19-related abnormalities in all but 2 participants.

van Gassel et al. (Dec 16, 2020). High Prevalence of Pulmonary Sequelae at 3 Months After Hospital Discharge in Mechanically Ventilated COVID-19 Survivors. American Journal of Respiratory and Critical Care Medicine. <https://doi.org/10.1164/rccm.202010-3823LE>

Modeling and Prediction

- *[Pre-print, not peer reviewed]* An agent-based model simulating the New York City and Seattle metropolitan areas from February to June 2020 found 80% of infections were produced by 27% of people, and 10% of events were super-spreading events (SSE). The model found most infections occurred in community and workplace settings prior to NPIs, whereas households were locations for the majority of infections after NPIs were implemented; however notable differences in the location of transmission and SSEs over the course of the pandemic and across cities suggests behavioral factors underly the setting where transmissions are most likely to occur.

Aleta et al. (Dec 17, 2020). Quantifying the Importance and Location of SARS-CoV-2 Transmission Events in Large Metropolitan Areas. Pre-print downloaded Dec 17 from <https://www.medrxiv.org/content/10.1101/2020.12.15.20248273v1>

- A model using data from Japan, Italy, France, and Switzerland that incorporates undetected asymptomatic SARS-CoV-2 infection suggests herd immunity could be achieved when active symptomatic patients are 10-25% of the population, much lower than current estimates.

Kaushal et al. (Dec 16, 2020). Estimating the Herd Immunity Threshold by Accounting for the Hidden Asymptomatics Using a COVID-19 Specific Model. PLOS ONE.

<https://doi.org/10.1371/journal.pone.0242132>

Public Health Policy and Practice

- A survey conducted in July 2020 among 1,009 Health Resources and Services Administration (HRSA)-funded health centers found that health centers in urban areas were more likely to provide >30% of visits virtually than those in rural areas (55.1% vs 29.9%). A higher proportion of health centers in the Northeast, West, US territories, and freely associated states reported 30% or greater virtual visits than those in the South. Higher numbers of telehealth visits were observed in health centers reporting staff absence. No association between the frequency of telehealth visits and PPE shortages for the week following the survey was detected.

Demeke et al. (Dec 18, 2020). Telehealth Practice Among Health Centers During the COVID-19 Pandemic — United States, July 11–17, 2020. MMWR. Morbidity and Mortality Weekly Report.

<https://doi.org/10.15585/mmwr.mm6950a4>

- Patient data from Health Resources and Services Administration (HRSA)-funded health centers found higher testing rates among members of racial/ethnic minority groups, indicating a degree of success in the health centers' capacity to reach minority groups at increased risk for COVID-19. Among persons with known race/ethnicity who received testing (n=2,506,935), 36% were Hispanic/Latino, 38% were white, and 20% were Black; among those with known race/ethnicity with positive test results, 56% were Hispanic/Latino, 24% were white, and 15% were Black. These proportions are higher than national estimates which indicate 15% of patients tested and 12% of those who received positive test results are Black.

Romero et al. (Dec 18, 2020). Health Center Testing for SARS-CoV-2 During the COVID-19 Pandemic — United States, June 5–October 2, 2020. MMWR. Morbidity and Mortality Weekly Report.

<https://doi.org/10.15585/mmwr.mm6950a3>

- Interviews conducted in May on a convenience sample of poultry workers in two facilities in Maryland (n=359) found that foreign-born workers had a higher odds of working on the production floor, having shared commutes, and living with other poultry workers compared to US-born workers. Foreign-born workers had lower odds of participating in social gatherings (e.g. visits to family/friends) than their US-born counterparts, and were more likely to wear masks during shared commutes and get COVID-19 information, but less likely to get information on COVID-19 from the internet.

Rubenstein et al. (Dec 18, 2020). Factors That Might Affect SARS-CoV-2 Transmission Among Foreign-Born and U.S.-Born Poultry Facility Workers — Maryland, May 2020. MMWR. Morbidity and Mortality Weekly Report.

<https://doi.org/10.15585/mmwr.mm6950a5>

Other Resources and Commentaries

- Essential or Expendable [During the COVID-19 Pandemic? A Student-Lived Experience on Grieving the Unjust and Early Deaths of Vulnerable Populations](#) – American Journal of Public Health (Jan)
- [Emergence of a Highly Fit SARS-CoV-2 Variant](#) – New England Journal of Medicine (Dec 16)
- [Ethical Care during COVID-19 for Care Home Residents with Dementia](#) – Nursing Ethics (Dec 16)
- [Surgeon Fills COVID-19 Testing Gap in Philadelphia's Black Neighborhoods.](#) – JAMA (Dec 16)

- [Training Contact Tracers for Populations With Limited English Proficiency During the COVID-19 Pandemic](#) – American Journal of Public Health (Jan)
- [Roman Catholic Diocese of Brooklyn v. Cuomo — The Supreme Court and Pandemic Controls](#) – New England Journal of Medicine (Dec 16)
- [Audio Interview: Covid-19 Vaccine Fundamentals](#) – New England Journal of Medicine (Dec 17)
- [Early Evidence of Effectiveness of Digital Contact Tracing for SARS-CoV-2 in Switzerland](#) – Swiss Medical Weekly (Dec 16)
- [Ensuring Full Participation of People with Disabilities in an Era of Telehealth](#) – Journal of the American Medical Informatics Association (Nov 18)

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