



## 2019-nCoV Literature Situation Report (Lit Rep) November 25, 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

- **A model assessing the relative impact of symptom monitoring, testing, and quarantine practices on transmission of SARS-CoV-2 by infected travelers suggests that quarantining for 14 days could almost completely eliminates risk of transmission. When combined with symptom monitoring and testing, a 7-day quarantine after arrival had similar modeled effectiveness.** [More](#)
- **Among 156 frontline health care personnel who had positive SARS-CoV-2 antibody test results in spring 2020, 146 (94%) experienced a decline in antibody concentrations at repeat testing approximately 60 days later and 28% tested negative at follow-up.** [More](#)
- **During summer 2020, 18% of hospitals reported that in-person lactation support for new mothers had decreased due to SARS-CoV-2 infection control measures.** [More](#)

### Non-Pharmaceutical Interventions

- *[Pre-print; not peer-reviewed]* A model built to assess the relative impact of symptom monitoring, testing, and quarantine practices on transmission of SARS-CoV-2 by infected travelers suggests that quarantining for 14 days almost eliminates risk of transmission. The effectiveness of testing depended on timing and quality of the test, with the combination of a pre-travel test and a post-travel test 2 to 3 days after arrival reducing the risk of transmission by 45 to 70%. When combined with symptom monitoring and testing, a 7-day quarantine after arrival had similar effectiveness in preventing transmission to a 10-day or 14-day quarantine on its own.

*Johansson et al. (Nov 24, 2020). Reducing Travel-Related SARS-CoV-2 Transmission with Layered Mitigation Measures Symptom Monitoring Quarantine and Testing. Pre-print downloaded Nov. 25 from <https://doi.org/10.1101/2020.11.23.20237412>*

- Educational gains among primary school students in Switzerland were cut in half with distance learning during school closures due to the COVID-19 pandemic. An analysis of educational gains during the 8 weeks of school closures related to the COVID-19 pandemic in Switzerland, compared to the prior 8 weeks, found high heterogeneity in learning processes between individual primary school students during the lockdown, and that overall learning slowed down. Primary school students learned more than twice as fast in person as they did in the distance learning setting. No significant differences in the learning pace of secondary school students were observed.

*Tomasik et al. (Nov 24, 2020). Educational Gains of in-person vs. Distance Learning in Primary and Secondary Schools: A Natural Experiment during the COVID-19 Pandemic School Closures in Switzerland. International Journal of Psychology. <https://doi.org/10.1002/ijop.12728>*



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## Testing and Treatment

- A retrospective cohort study of 6,068 COVID-19 patients in England found that each additional day between symptom onset and hospital admission was associated with a 1% increase in the risk of mortality. Healthcare workers, obese people, and Black, Asian, and other ethnic minorities were more likely to experience later hospital admission, which the authors suggest shows the importance of timely medical care for members of these high-risk groups.

*Alaa et al. (Nov 23, 2020). Retrospective Cohort Study of Admission Timing and Mortality Following COVID-19 Infection in England. BMJ Open. <https://doi.org/10.1136/bmjopen-2020-042712>*

- A comparison of two point-of-care antigen tests to PCR testing concluded that the low sensitivity of antigen testing contributes to a significant risk of false negatives when used in symptomatic or asymptomatic COVID-19 patients. The two antigen tests exhibited sensitivities of 0.66 and 0.62 among all COVID-19 patients, 0.74 and 0.69 among symptomatic patients, and 0.13 for both tests among patients whose positive samples had a low concentration of viral RNA (PCR threshold cycles above 30). The authors suggest that the use of antigen testing for screening purposes would require frequent repetition of tests to control transmission.

*Drevinek et al. (Nov 24, 2020). The Sensitivity of SARS-CoV-2 Antigen Tests in the View of Large-Scale Testing. Pre-print downloaded Nov. 25 from <https://doi.org/10.1101/2020.11.23.20237198>*

- An open-label, cluster-randomized trial of healthy contacts of patients with PCR-confirmed SARS-CoV-2 infection in Spain found that hydroxychloroquine did not prevent infection or symptomatic COVID-19 in these individuals. The incidence of PCR-confirmed, symptomatic COVID-19 was similar between those who received hydroxychloroquine and those who received usual care (5.7% and 6.2%, respectively; RR = 0.86). Hydroxychloroquine was also not associated with a lower incidence of SARS-CoV-2 transmission (18.7% and 17.8%, respectively). The incidence of adverse events was higher in the hydroxychloroquine group than in the usual-care group (56.1% vs. 5.9%).

*Mitjà et al. (Nov 24, 2020). A Cluster-Randomized Trial of Hydroxychloroquine for Prevention of Covid-19. New England Journal of Medicine. <https://doi.org/10.1056/NEJMoa2021801>*

## Vaccines and Immunity

- Among 156 frontline health care personnel who had positive SARS-CoV-2 antibody test results in spring 2020, 146 (94%) experienced a decline in antibody concentrations at repeat testing approximately 60 days later. In addition, 28% had seroreverted (negative antibody test). Individuals with higher initial antibody responses were more likely to have antibodies detected at the follow-up test than were those who had a lower initial antibody response. The authors note that these results suggest that cross-sectional serology testing may underestimate the number of people who had previous SARS-CoV-2 infection. They also suggest that convalescent plasma from recovered COVID-19 patients for use in treatment should be collected within 60 days of convalescence.

*Self et al. (Nov 27, 2020). Decline in SARS-CoV-2 Antibodies After Mild Infection Among Frontline Health Care Personnel in a Multistate Hospital Network — 12 States, April–August 2020. MMWR. <https://doi.org/10.15585/mmwr.mm6947a2>*

- A repeated cross-sectional study carried out in all 50 US states, the District of Columbia, and Puerto Rico found that although SARS-CoV-2 seroprevalence varied between 1% and 23%, fewer than 10% of people nationally had detectable antibodies. A total of 177,919 samples were obtained during four periods between July 27 and September 24, 2020 from people presenting to a healthcare

setting for routine screening or clinical care. As of the final collection of samples, the seroprevalence in Washington State was estimated to be under 5%.

*Bajema et al. (Nov 2020). Estimated SARS-CoV-2 Seroprevalence in the US as of September 2020. JAMA Internal Medicine. <https://doi.org/10.1001/jamainternmed.2020.7976>*

## Clinical Characteristics and Health Care Setting

- During summer 2020, 18% of hospitals reported that in-person lactation support for new mothers had decreased. An analysis of data from 1,344 US hospitals indicated that hospitals were attempting to balance evidence-based practices to support breastfeeding with SARS-CoV-2 infection control measures. For mothers with suspected or confirmed COVID-19, 14% of hospitals discouraged and 7% prohibited skin-to-skin care; 38% discouraged and 5% prohibited rooming-in; 20% discouraged direct breastfeeding; and 13% did not support direct breastfeeding but encouraged feeding of expressed breast milk.

*Perrine et al. (Nov 27, 2020). Implementation of Hospital Practices Supportive of Breastfeeding in the Context of COVID-19 — United States, July 15–August 20, 2020. MMWR. <https://doi.org/10.15585/mmwr.mm6947a3>*

- By comparing viral loads of asymptomatic and symptomatic laboratory-confirmed COVID-19 patients in samples obtained on admission to a hospital, researchers found that asymptomatic patients had higher SARSCoV-2 viral loads than symptomatic patients. Viral loads decreased with increasing disease severity. Viral loads of patients with at least one comorbidity (i.e., hypertension, diabetes, malignancy, chronic pulmonary disease) were found to be significantly lower than patients with no comorbidity.

*Hasanoglu et al. (Nov 24, 2020). Higher Viral Loads in Asymptomatic COVID-19 Patients Might Be the Invisible Part of the Iceberg. Infection. <https://doi.org/10.1007/s15010-020-01548-8>*

## Mental Health and Personal Impact

- *[Pre-print; not peer-reviewed]* A systematic review of 14 studies examining burnout symptoms among nurses during the COVID-19 pandemic found that roughly 34% of the 17,390 nurses included reported experiencing emotional exhaustion. Increased burnout was associated with being younger, having decreased social support, having a relative or friend diagnosed with COVID-19, and working in a high-risk environment or a hospital with inadequate resources, among other factors.

*Galanis et al. (Nov 25, 2020). Nurses' Burnout and Associated Risk Factors during the COVID-19 Pandemic a Systematic Review and Meta-Analysis. Pre-print downloaded Nov. 25 from <https://doi.org/10.1101/2020.11.24.20237750>*

- Implementation of lockdown policies was not significantly associated with measures of depression, delirium, or behavioral problems among residents (n=765) of seven long-term care facilities in Canada between January and June. In-person visits and group activities were restricted in March 2020. Strategies to keep residents connected to family included use of iPads for video chatting and scheduling outdoor visits. While the number of residents who had in-person visits with family decreased from 73% before lockdown to 18% during lockdown, the number of residents experiencing delirium and behavioral problems did not change significantly. The proportion of residents with indications of depression decreased from 20% before to 12% during lockdown.

McArthur et al. (Oct 26, 2020). *Evaluating the Effect of COVID-19 Pandemic Lockdown on Long-Term Care Residents' Mental Health: A Data-Driven Approach in New Brunswick*. *Journal of the American Medical Directors Association*. <https://doi.org/10.1016/j.jamda.2020.10.028>

## Modeling and Prediction

- [Pre-print; not peer-reviewed] A mathematical modeling study of SARS-CoV-2 transmission described two types of SARS-CoV-2 “hot zones” that may be important in understanding community transmission. The first type of “static hot zone” modeled included nursing homes, prisons, and other places in which the same people repeatedly interact. The model found that even if community transmission is slow, outbreaks in static hot zones can temporarily accelerate initial community virus growth and can be a reservoir enabling viral persistence following implementation of non-pharmaceutical interventions. The second model examined “dynamic hot zones” that repeatedly form and dissolve and involve random individuals from the community (e.g., restaurants, bars, movie theaters). Dynamic hot zones could accelerate the average rate of community transmission, but they did not predict the occurrence of infection plateaus.

Wodarz et al. (Nov 24, 2020). *Effect of Hot Zone Infection Outbreaks on the Dynamics of SARS-CoV-2 Spread in the Community at Large*. Pre-print downloaded Nov. 25 from <https://doi.org/10.1101/2020.11.23.20237172>

## Public Health Policy and Practice

- [Pre-print; not peer-reviewed] A retrospective analysis of 85,328 patients tested for COVID-19 at New York City's public hospital system between March and May of 2020 found that among Asian American patients, South Asian patients had the highest rates of SARS-CoV-2 positivity. Patients of South Asian descent also had higher rates of comorbid conditions such as hypertension (26%), obesity (14%; BMI > 30), diabetes (23%), and heart disease (22%) than other Asian ethnic groups. Patients of Chinese descent had the highest mortality rate of all Asian ethnic groups and were nearly 1.5-times more likely to die than white patients (OR=1.44). The authors suggest that disaggregating race data could help address disparities in infection and mortality risks among Asian Americans.

Marcello et al. (Nov 24, 2020). *Disaggregating Asian Race Reveals COVID-19 Disparities among Asian Americans at New York City's Public Hospital System*. Pre-print downloaded Nov. 25 from <https://doi.org/10.1101/2020.11.23.20233155>

## Other Resources and Commentaries

- [The COVID vaccine challenges that lie ahead](#) – Nature (Nov 24)
- [Why Oxford's positive COVID vaccine results are puzzling scientists](#) – Nature (Nov 23)
- [Yakima, COVID-19 in the Community](#) – Journal of Ambulatory Care Management (Nov 24)
- [Indirect benefits are a crucial consideration when evaluating SARS-CoV-2 vaccine candidates](#) – Nature Medicine (Nov 23)
- [Evaluation of seven commercial RT-PCR kits for COVID-19 testing in pooled clinical specimens](#) – Journal of Medical Virology (Nov 24)
- [Statistical Analyses of the Public Health and Economic Performance of Nordic Countries in Response to the COVID-19 Pandemic](#) – medRxiv (Nov 24)
- [Interventions for treatment of COVID-19 second edition of a living systematic review with meta-analyses and trial sequential analyses \(The LIVING Project\)](#) – medRxiv (Nov 24)
- [Mobile outreach testing for COVID-19 in twenty homeless shelters in Toronto Canada](#) – medRxiv (Nov 24)
- [Vitamin D and SARS-CoV-2 virus/COVID-19 disease](#) – BMJ Nutrition, Prevention, and Health (July 9)

- [Community evidence of severe acute respiratory syndrome coronavirus 2 \(SARS-CoV-2\) transmission through air](#) – Atmospheric Environment (Nov 20)
- [Cold-chain transportation in the frozen food industry may have caused a recurrence of COVID-19 cases in destination: Successful isolation of SARS-CoV-2 virus from the imported frozen cod package surface](#) – Biosafety and Health (Nov 19)
- [Covid-19: What do we know about the late stage vaccine candidates?](#) – BMJ (Nov 24)
- [An alternative way to perform diagnostic nasopharyngeal swab for SARS-CoV-2 infection](#) – American Journal of Otolaryngology (Nov 17)
- [Antibodies, Immunity, and COVID-19](#) – JAMA Internal Medicine (Nov 24)

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