



## 2019-nCoV Literature Situation Report (Lit Rep) September 3, 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

- **The recombinant nanoparticle vaccine NVX-CoV2373 induced higher anti-spike IgG and neutralizing responses compared to convalescent serum without serious adverse events.** [More](#)
- **Use of intravenous treatment with the steroid dexamethasone plus standard care compared with standard care alone resulted in 2.2 more ventilator-free days among patients with COVID-19 who had moderate to severe respiratory failure.** [More](#)
- **There was a strong dose-response relationship between the frequency of movement and self-reported history of COVID-19. Those who report using public transport or visiting a place of worship more frequently were also more likely to have a history of SARS-CoV-2 infection, even after adjusting for social distancing behaviors.** [More](#)
- **The severity of disease was strongly associated with the likelihood of mounting a robust neutralizing antibody response among patients who had recovered from SARS-CoV-2 infection.** [More](#)

### Non-Pharmaceutical Interventions

- *[Pre-print, not peer reviewed]* Clipman et al. found strong dose-response relationships between frequency of movement (e.g. traveling for non-essential services) and self-reported SARS-CoV-2 positivity. Social distancing practices were associated with a lower likelihood of reporting a history of SARS-CoV-2 infection. Travel using public transport and visiting a place of worship were also associated with a history of SARS-CoV-2 infection, even after adjusting for social distancing. These findings were based on sampling of 1,030 individuals in Maryland.  
*Clipman et al. (Aug 1, 2020). Rapid Real-Time Tracking of Non-Pharmaceutical Interventions and Their Association SARS-CoV-2 Positivity: The COVID-19 Pandemic Pulse Study. Pre-print downloaded Sep 3 from <https://doi.org/10.1101/2020.07.29.20164665>*
- Based on location data from mobile devices, mandatory stay-at-home orders issued by states or territories were associated with decreased median population movement compared to the period before orders were implemented. The period after the first state relaxed a stay-at-home order was associated with increased population movement even in states or territories that still had a mandate in place. The analysis included all 50 US states, the District of Columbia, and five US territories.  
*Moreland et al. (Sept 4, 2020). Timing of State and Territorial COVID-19 Stay-at-Home Orders and Changes in Population Movement — United States, March 1–May 31, 2020. MMWR. <https://doi.org/10.15585/mmwr.mm6935a2>*

## Transmission

- Sixty percent (704/1162) of patients with confirmed COVID-19 did not have detectable SARS-CoV-2 RNA on a subsequent nasopharyngeal sample at a median time of 30 days (IQR 23-40) from diagnosis and 36 days (IQR (28-45) from symptom onset. However, 21% of participants with a negative sample had a subsequent positive sample, suggesting a high false negative rate for confirmation of viral clearance.
- The time to viral clearance from symptom onset slightly increased with age and disease severity *Mancuso et al. (Sept 2, 2020). Temporal Profile and Determinants of Viral Shedding and of Viral Clearance Confirmation on Nasopharyngeal Swabs from SARS-CoV-2-Positive Subjects: A Population-Based Prospective Cohort Study in Reggio Emilia, Italy. BMJ Open.* <https://doi.org/10.1136/bmjopen-2020-040380>
- [Pre-print, not peer reviewed] A modeling analysis considering air flow and aerosol transport parameters suggests that physical distancing guidelines should also include a contact time recommendation. The authors recommend less than 5 minutes of contact at a distance of one meter apart and less than 15 minutes for two meters apart in scenarios where an asymptomatic individual is speaking to a susceptible individual in a poorly ventilated environment with neither person wearing a mask.
- If the asymptomatic individual is a superspreader, the infection risk is high within less than one minute at three meters of separation. *Yang et al. (Sept 2, 2020). Towards Improved Social Distancing Guidelines Space and Time Dependence of Virus Transmission from Speech-Driven Aerosol Transport Between Two Individuals. Pre-print downloaded Sep 3 from* <https://doi.org/10.1101/2020.08.31.20185439>

## Testing and Treatment

- Administration of hydrocortisone, either as a 7-day fixed-dose course, or dosing only during periods of shock, was associated with being alive and free of ICU-based respiratory or cardiovascular support within 21 days, according to findings of a randomized control trial (n=384) which was stopped early after results were released from another trial. The fixed-dose course and shock-dependent dosing resulted in Bayesian probabilities of superiority of 93% and 80%, respectively. *Angus et al. (Sept 2, 2020). Effect of Hydrocortisone on Mortality and Organ Support in Patients With Severe COVID-19. JAMA.* <https://doi.org/10.1001/jama.2020.17022>
- Intravenous dexamethasone plus standard of care compared with standard care alone resulted in 2.3 days (95%CI 0.02-4.4, p=0.04) more ventilator-free days during the first 28 days in a randomized clinical trial among patients with COVID-19 who had moderate to severe respiratory failure (n=299) in Brazil.
- The trial was stopped early before reaching the planned sample size of 350 patients following publication of a related study. *Tomazini et al. (Sept 2, 2020). Effect of Dexamethasone on Days Alive and Ventilator-Free in Patients With Moderate or Severe Acute Respiratory Distress Syndrome and COVID-19. JAMA.* <https://doi.org/10.1001/jama.2020.17021>

## Vaccines and Immunity

- NVX-CoV2373, a recombinant nanoparticle vaccine, induced higher levels of anti-spike IgG and neutralizing antibody responses compared to convalescent serum of mostly symptomatic COVID-19 patients. There were no serious adverse events, and events such as fever and sore arm were mild and not long-lasting. These results were from a primary analysis at day 35 of a randomized control trial (n=83). [EDITORIAL NOTE: A summary of a pre-print version of this manuscript appeared in the Lit Rep on August 6]

*Keech et al. (Sept 2, 2020). Phase 1–2 Trial of a SARS-CoV-2 Recombinant Spike Protein Nanoparticle Vaccine. New England Journal of Medicine.*

<https://doi.org/10.1056/NEJMoa2026920>

- Greater disease severity was associated with higher levels of serum neutralizing capacity among 59 patients recovered from COVID-19 in China. Generation of antibodies capable of completely neutralizing pseudovirus was observed in 80% of patients who recovered from severe illness, while asymptomatic patients failed to generate competent neutralizing antibodies. Complete neutralization was observed in 47% of recovered patients with moderate symptoms and 25% of those with mild symptoms.

*Chen et al. (Sept 2, 2020). Disease Severity Dictates SARS-CoV-2-Specific Neutralizing Antibody Responses in COVID-19. Signal Transduction and Targeted Therapy.*

<https://doi.org/10.1038/s41392-020-00301-9>

## Mental Health and Personal Impact

- A survey of young people (age 16-24 years; n=2,372) in Mexico found 53% did not adhere to COVID-19 prevention guidelines. Among respondents with asthma, 31% did not comply with basic prevention guidelines. Among those with asthma, male sex, active smoker status, and belief that COVID-19 does not more severely affect people with asthma were associated with non-adherence to guidelines.

*Vázquez-Nava et al. (Sept 2, 2020). Risk Factors of Non-Adherence to Guidelines for the Prevention of COVID-19 among Young Adults with Asthma in a Region with a High Risk of a COVID-19 Outbreak. Journal of Asthma. <https://doi.org/10.1080/02770903.2020.1818774>*

## Public Health Policy and Practice

- The overall infection fatality ratio (IFR) for the state of Indiana, excluding institutionalized persons and children under 12 years of age, was 0.3%. Stratifying the IFR across demographic groups resulted in an IFR of 0.01% among those <40 years of age, 1.7% among those ≥60 years of age, 0.2 among white patients, and 0.6% among non-white patients. The investigators used a statewide non-random sample to obtain 187,802 cumulative infections.

*Blackburn et al. (Sept 2, 2020). Infection Fatality Ratios for COVID-19 Among Noninstitutionalized Persons 12 and Older: Results of a Random-Sample Prevalence Study. Annals of Internal Medicine. <https://doi.org/10.7326/M20-5352>*

- [Pre-print, not peer reviewed] The 7-day average percentage of SARS-CoV-2 test positivity among people who had died and were identified as possible recent COVID-19 cases and were posthumously tested (n=237) closely matched the trajectory of percent positivity in the catchment population, according to the Wayne County Medical Examiner's office in Michigan.

- SARS-CoV-2 positive flagged decedents were more likely to be Black compared to a random sample of known positive decedents (89% vs 51%).

*Brouwer et al. (Aug 7, 2020). SARS-CoV-2 Surveillance in Decedents in a Large Urban Medical Examiner's Office. Pre-print downloaded Sep 3 from <https://doi.org/10.1101/2020.08.03.20162883>*

## Other Resources and Commentaries

- [Stigma and Discrimination \(SAD\) at the Time of the SARS-CoV-2 Pandemic](#) – International Journal of Environmental Research and Public Health (Aug 31)
- [Integrating Climate Action for Health into Covid-19 Recovery Plans](#) – BMJ (Sept 2)
- [Return to Football Training and Competition after Lockdown Caused by the COVID-19 Pandemic: Medical Recommendations](#) – Biology of Sport (June 25)
- [A Meta-Analysis of Potential Biomarkers Associated with Severity of Coronavirus Disease 2019 \(COVID-19\)](#) – Biomarker Research (Aug 31)
- [Ocular Conjunctival Inoculation of SARS-CoV-2 Can Cause Mild COVID-19 in Rhesus Macaques](#) – Nature Communications (Sept 2)
- [Take-Home Dosing Experiences among Persons Receiving Methadone Maintenance Treatment During COVID-19](#) – medRxiv (Sept 2)
- [Association between Eating Behavior and Quarantine/Confinement Stressors during the Coronavirus Disease 2019 Outbreak](#) – Journal of Eating Disorders (Sept 1)
- [Women's Health in Times of Emergency: We Must Take Action](#) – Journal of Women's Health (Sept 1)
- [An Eye on Covid: Hurricane Preparedness at a COVID-19 Alternative Care Site](#) – Disaster Medicine and Public Health Preparedness (Sept 3)
- [Adolescent Health in the Days of COVID-19: Scoping Review](#) – Cadernos de Saúde Pública (Aug 28)
- [Expansion of Atypical Memory B Cells Is a Prominent Feature of COVID-19](#) – Cellular & Molecular Immunology (Sept 2)
- [COVID-19 Length of Hospital Stay: A Systematic Review and Data Synthesis](#) – BMC Medicine (Sept 3)
- [Healthcare Professionals' Perceptions of Critical Care Resource Availability and Factors Associated with Mental Well-Being during COVID-19: Results from a US Survey](#) – Clinical Infectious Diseases (Sept 2)
- [Mental Health Inequities in the Context of COVID-19](#) – JAMA Network Open (Sept 2)
- [Sex in the Time of COVID-19: Results of an Online Survey of Gay, Bisexual and Other Men Who Have Sex with Men's Experience of Sex and HIV Prevention During the US COVID-19 Epidemic](#) – AIDS and Behavior (Sept 2)
- [Information on the COVID-19 Pandemic in Daily Newspapers' Front Pages: Case Study of Spain and Italy](#) – International Journal of Environmental Research and Public Health (Aug 31)
- [Law, Structural Racism, and the COVID-19 Pandemic](#) – Journal of Law and the Biosciences (July 25)

*Report prepared by the UW MetaCenter 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*