



2019-nCoV Literature Situation Report (Lit Rep) September 18, 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

- **West Virginia nursing homes with higher quality ratings from the Centers for Medicare and Medicaid Services had up to 94% lower odds of experiencing a COVID-19 outbreak compared to nursing homes with the lowest quality ratings.** [More](#)
- **CovidNudge, a rapid point-of-care test requiring no laboratory handling or sample-preprocessing, had an overall sensitivity and specificity of 94% and 100% when compared to standard PCR in paired samples.** [More](#)
- **Six out of 50 cats from households of people with COVID-19 in Hong Kong tested positive for SARS-CoV-2.** [More](#)

Transmission

- Contact tracing data (n=1,038) was used to identify 4 to 7 superspreading events across 51 SARS-CoV-2 clusters in Hong Kong between January and April 2020.
- An estimated 19% of cases seeded 80% of all local transmission. While transmissions between household contacts were observed most frequently, transmissions that occurred in social settings were associated with more secondary cases.
Adam et al. (Sept 17, 2020). Clustering and Superspreading Potential of SARS-CoV-2 Infections in Hong Kong. Nature Medicine. <https://doi.org/10.1038/s41591-020-1092-0>
- Six (12%) out of 50 healthy cats from COVID-19 households or close contacts in Hong Kong tested positive for SARS-CoV-2 using respiratory and fecal samples, suggesting human-to-feline transmission. Virus genomes sequenced from 1 cat and its owner were identical.
Barrs et al. (Sept 18, 2020). SARS-CoV-2 in Quarantined Domestic Cats from COVID-19 Households or Close Contacts, Hong Kong, China. Emerging Infectious Diseases. <https://doi.org/10.3201/eid2612.202786>

Testing and Treatment

- The CovidNudge test, a rapid point-of-care real-time PCR test requiring no laboratory handling or sample pre-processing, had an overall sensitivity and specificity of 94% (95% CI: 86-98%) and 100%



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(95% CI: 99-100%), respectively, when compared against standard laboratory PCR in paired samples (n=386) from health workers and hospitalized patients.

Gibani et al. (Sept 17, 2020). Assessing a Novel, Lab-Free, Point-of-Care Test for SARS-CoV-2 (CovidNudge): A Diagnostic Accuracy Study. The Lancet Microbe. [https://doi.org/10.1016/S2666-5247\(20\)30121-X](https://doi.org/10.1016/S2666-5247(20)30121-X)

- A propensity score matched cohort study (n=303) found that, compared to patients receiving standard of care, patients receiving colchicine, an anti-inflammatory drug commonly used to prevent or treat gout, had a higher odds of being discharged at 28 days (OR=5.0, 95%CI: 1.25-20.1) and had lower odds of dying at 28 days (OR=0.2, 95% CI: 0.05-0.80).

Brunetti et al. (Sept 14, 2020). Colchicine to Weather the Cytokine Storm in Hospitalized Patients with COVID-19. Journal of Clinical Medicine. <https://doi.org/10.3390/jcm9092961>

- A double-blind randomized trial (n=198) of BCG vaccination of elderly patients to protect against subsequent infections (September 2017 through August 2019) found that BCG vaccination increased the time to first infection (median 16 weeks vs 11 weeks) and reduced the incidence of new infections (25% vs 42%). Most of the protection was against respiratory tract infections of probable viral origin (HR=0.21, p=0.01). The authors suggest that BCG could potentially protect against COVID-19 among elderly people.

Giamarellos-Bourboulis et al. (Aug 31, 2020). Activate: Randomized Clinical Trial of BCG Vaccination against Infection in the Elderly. Cell. <https://doi.org/10.1016/j.cell.2020.08.051>

- Patients with COVID-19 who received corticosteroids experienced longer time to viral clearance (median 18 days vs 16 days, p<0.001) and hospitalization (median 17 days vs 15 days, p=0.023), in a retrospective multi-center study in China (n=309).

Huang et al. (Sept 15, 2020). Corticosteroid Therapy Is Associated with the Delay of SARS-CoV-2 Clearance in COVID-19 Patients. European Journal of Pharmacology. <https://doi.org/10.1016/j.ejphar.2020.173556>

- Two point-of-care serology tests utilizing capillary whole blood samples from a finger prick (COVID-PRESTO and COVID-DUO) had 100% sensitivity and 100% specificity for SARS-CoV-2 antibodies when administered at least 15 days after symptom onset. Sensitivity was calculated among patients who tested positive by PCR (n=238) and specificity was calculated among patients negative by PCR (n=143). Sensitivity was only 10% within five days of symptom onset.

Prazuck et al. (Sept 17, 2020). Evaluation of Performance of Two SARS-CoV-2 Rapid IgM-IgG Combined Antibody Tests on Capillary Whole Blood Samples from the Fingertip. PLOS ONE. <https://doi.org/10.1371/journal.pone.0237694>

Clinical Characteristics and Health Care Setting

- Compared to West Virginia nursing homes receiving a 1-star (lowest quality) rating from the Centers for Medicare and Medicaid Services, 2- to 3- star-rated nursing homes had an 87% lower odds of a COVID-19 outbreak and 4- to 5- star-rated nursing homes had a 94% lower odds.

Bui et al. (Sept 18, 2020). Association Between CMS Quality Ratings and COVID-19 Outbreaks in Nursing Homes — West Virginia, March 17–June 11, 2020. MMWR. <https://doi.org/10.15585/mmwr.mm6937a5>

- Patients who recovered from COVID-19 (n=47) and had a recurrent positive SARS-CoV-2 RNA test had significantly lower levels of anti-receptor binding domain (RBD) IgG antibodies than persistently RNA-negative patients (p=0.013). The authors conclude that this suggests that anti-RBD IgG levels could predict recovered patients who are at risk of viral rebound.

Liu et al. (Sept 16, 2020). Recovered COVID-19 Patients with Recurrent Viral RNA Exhibit Lower Levels of Anti-RBD Antibodies. Cellular & Molecular Immunology.

<https://doi.org/10.1038/s41423-020-00528-0>

Mental Health and Personal Impact

- There were increases in urine drug test positivity among people with or at risk of substance use disorders (n=150,000) from the 4 months before the COVID-19 emergency declaration to the 4 months after the declaration. Test positivity increased from 3% to 5% for cocaine, from 4% to 7% for fentanyl, from 1% to 2% for heroin, and from 6% to 8% for methamphetamine.

Wainwright et al. (Sept 18, 2020). Analysis of Drug Test Results Before and After the US Declaration of a National Emergency Concerning the COVID-19 Outbreak. JAMA.

<https://doi.org/10.1001/jama.2020.17694>

- A national survey in Brazil (n=12,196) found high prevalence of depression, anxiety, and stress due to isolation experienced during the COVID-19 pandemic. Younger individuals, those with previous mental health diagnoses, participants with excessive exposure to news, or with lower economic and education status were more likely to develop symptoms.

Campos et al. (Sept 15, 2020). Early Psychological Impact of the COVID-19 Pandemic in Brazil: A National Survey. Journal of Clinical Medicine. <https://doi.org/10.3390/jcm9092976>

- Adoption of social distancing, as well as perceptions of its effectiveness were associated with lower stress levels, less anxiety, and fewer depressive symptoms (p <0.01) in a survey of 1,501 adults in Hong Kong. However, an increased number of stay-at-home days was associated with more depressive symptoms (OR=1.09).

Zhao et al. (Sept 14, 2020). Social Distancing Compliance under COVID-19 Pandemic and Mental Health Impacts: A Population-Based Study. International Journal of Environmental Research and Public Health. <https://doi.org/10.3390/ijerph17186692>

- Having a diagnosed mental illness was not associated with testing positive for SARS-CoV-2 (OR=1.00) in a propensity score-matched cohort in Korea (n=1391). However, among those who tested positive, having a mental illness diagnosis was associated with a moderate increase in the likelihood of severe clinical outcomes (OR=1.27).

Lee et al. (Sept 17, 2020). Association between Mental Illness and COVID-19 Susceptibility and Clinical Outcomes in South Korea: A Nationwide Cohort Study. The Lancet Psychiatry.

[https://doi.org/10.1016/S2215-0366\(20\)30421-1](https://doi.org/10.1016/S2215-0366(20)30421-1)

Modeling and Prediction

- A 10% prevalence of COVID-19 over a year could decrease life expectancy at birth by more than 1 year in North America, while a 50% prevalence could drop it by 3 to 9 years, according to a modeling study. If prevalence remains below 1 or 2%, life expectancy is unlikely to be substantially affected.

Marois et al. (Sept 17, 2020). *Assessing the Potential Impact of COVID-19 on Life Expectancy*. PLOS ONE. <https://doi.org/10.1371/journal.pone.0238678>

Public Health Policy and Practice

- Social network analysis was applied to contact tracing data (1,959 patients in India), demonstrating how the approach can identify key individual patients and components of the network that could inform the public health response. The analysis showed that 11% of patients acted as a source of infection to 40% of the other patients, while 12 out of 221 of source patients were identified as more influential and had collectively infected 38% of secondary patients.

Nagarajan et al. (Sept 17, 2020). *Social Network Analysis Methods for Exploring SARS-CoV-2 Contact Tracing Data*. BMC Medical Research Methodology. <https://doi.org/10.1186/s12874-020-01119-3>

Other Resources and Commentaries

- [Immigrants and the Right to Health Care in the Era of COVID-19](#) – Hispanic Health Care International (Sept 17)
- [Potential Impact of COVID-19–Related Racial Discrimination on the Health of Asian Americans](#) – American Journal of Public Health (Sept 17)
- [Health and Social Precarity Among Americans Receiving Unemployment Benefits During the COVID-19 Outbreak](#) – Journal of General Internal Medicine (Sept 16)
- [Centers for Disease Control and Prevention 2019 Novel Coronavirus Disease \(COVID-19\) Information Management: Addressing National Health-Care and Public Health Needs for Standardized Data Definitions and Codified Vocabulary for Data Exchange](#) – Journal of the American Medical Informatics Association (Sept 17)
- [Social \(Un\)Distancing: Teammate Interactions, Athletic Identity, and Mental Health of Student-Athletes During the COVID-19 Pandemic](#) – Journal of Adolescent Health (Sept 14)
- [Fast Coronavirus Tests: What They Can and Can't Do](#) – Nature (Sept 16)
- [Safeguarding Children's Right to Health in Hospital during COVID-19](#) – The Lancet Child & Adolescent Health (Sept 14)
- [COVID-19 Pandemic and Farr's Law: A Global Comparison and Prediction of Outbreak Acceleration and Deceleration Rates](#) – PLOS ONE (Sept 17)
- [School Closure and Children in the Outbreak of COVID-19](#) – Clinical Practice & Epidemiology in Mental Health (Aug 18)
- [TEAM to Defeat COVID-19: A Management Strategy Plan to Address Return to Play in Sports Medicine](#) – Orthopaedic Journal of Sports Medicine (Sept 1)
- [The Risk Of Severe COVID-19 Within Households Of School Employees And School-Age Children](#) – Health Affairs (Sept 17)
- [Catalysing the Response to NCDI Poverty at a Time of COVID-19](#) – The Lancet (Sept 14)
- [Statistical Analysis of Clinical COVID-19 Data: A Concise Overview of Lessons Learned, Common Errors and How to Avoid Them](#) – Clinical Epidemiology (Sept 3)
- [Interventions for Treatment of COVID-19: A Living Systematic Review with Meta-Analyses and Trial Sequential Analyses \(The LIVING Project\)](#) - PLOS Medicine (Sept 17)

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