

2019-nCoV Literature Situation Report (Lit Rep) September 30, 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

- **Among patients hospitalized with COVID-19 in the US, prior psychiatric diagnosis was associated with a higher mortality rate after controlling for demographic characteristics, other comorbidities, and hospital locations.** [More](#)
- **Daily hydroxychloroquine administration to healthcare workers as pre-exposure prophylaxis against SARS-CoV-2 infection did not change infection risk, although this double-blind placebo-controlled randomized trial was ended early and may be underpowered.** [More](#)
- **Nearly half of residents diagnosed with COVID-19 in a long-term care facility in Boston were asymptomatic at the time of diagnosis, emphasizing the importance of universal testing rather than symptom-based screening to control outbreaks in similar settings.** [More](#)
- **The Abbott ID NOW diagnostic test for SARS-CoV-2 RNA performed significantly worse than similar tests, particularly in samples with low viral load and in nasal swab samples (vs nasopharyngeal samples).** [More](#)

Testing and Treatment

- Daily administration of hydroxychloroquine to hospital-based healthcare workers as pre-exposure prophylaxis against SARS-CoV-2 infection did not change infection risk between participants receiving hydroxychloroquine vs placebo (6.3% vs 6.6%, $p > 0.99$) in this randomized, double-blind, placebo-controlled trial ($n = 132$).
- The trial was terminated early due to futility and may have been underpowered to detect clinically important differences.

Abella et al. (Sept 30, 2020). Efficacy and Safety of Hydroxychloroquine vs Placebo for Pre-Exposure SARS-CoV-2 Prophylaxis Among Health Care Workers. JAMA Internal Medicine.
<https://doi.org/10.1001/jamainternmed.2020.6319>

- The nucleic acid amplification test (NAAT) platform Abbott ID NOW performed significantly worse than similar tests (Abbott m2000, DiaSorin Simplexa, and Cepheid Xpert) in detecting SARS-CoV-2 RNA in a comparative study. All four tests were used in parallel on nasopharyngeal and nasal samples from 88 emergency department and hospital-admitted patients. In particular, the ID NOW platform performed poorly in samples with a low viral load (high cycle time) that were detected as positive by the other tests.

Lephart et al. (Sept 3, 2021). Comparative Study of Four SARS-CoV-2 Nucleic Acid Amplification Test (NAAT) Platforms Demonstrates That ID NOW Performance Is Impaired Substantially by

- Chronic treatment with the antihypertensive medications angiotensin converting enzyme inhibitors (ACE-I) and early treatment with low-molecular-weight heparin (LMWH) were both associated with lower in-hospital mortality in a cohort of patients hospitalized with COVID-19 in Italy (n=575), after adjusting for age. Angiotensin receptor blockers, which are also antihypertensive agents acting on the same physiological pathway, were not associated with differences in mortality.

Desai et al. (Sept 24, 2020). The Role of Anti-Hypertensive Treatment, Comorbidities and Early Introduction of LMWH in the Setting of COVID-19: A Retrospective, Observational Study in Northern Italy. International Journal of Cardiology. <https://doi.org/10.1016/j.ijcard.2020.09.062>

- Three commercially available serological test kits using immunochromatography (Hangzhou AllTest, SD BIOSENSOR, and Vazyme) were evaluated using identical sample sets consisting of 99 serum samples from SARS-CoV-2 positive patients and 100 serum samples from healthy volunteers in 2017. All test kits achieved >97% specificity for IgM and IgG and >97% sensitivity to IgG at 13 days after symptom onset. Sensitivity to IgM after 4 days varied, with both Hangzhou and Vazyme unable to achieve values >33.3%.

Fujigaki et al. (Sept 29, 2020). Reliability of Serological Tests for COVID-19: Comparison of Three Immunochromatography Test Kits for SARS-CoV-2 Antibodies. Heliyon.

<https://doi.org/10.1016/j.heliyon.2020.e04929>

- In a large cohort of people with chronic obstructive pulmonary disease (COPD) in the UK (n=148,557), and asthma (818,490), Schultze et al. found an increased risk of COVID-19 related death associated with use of inhaled corticosteroids, compared to other commonly-used medications.
- The authors note that the observed increased risks could be attributed to unmeasured confounding due to disease severity. They further note that the results do not support the regular use of inhaled corticosteroids for protection against COVID-19 mortality in people with COPD or asthma.

Schultze et al. (Sept 24, 2020). Risk of COVID-19-Related Death among Patients with Chronic Obstructive Pulmonary Disease or Asthma Prescribed Inhaled Corticosteroids: An Observational Cohort Study Using the OpenSAFELY Platform. The Lancet Respiratory Medicine.

[https://doi.org/10.1016/S2213-2600\(20\)30415-X](https://doi.org/10.1016/S2213-2600(20)30415-X)

Clinical Characteristics and Health Care Setting

- Among a cohort of hospitalized patients with COVID-19 in the US (n=1685), the risk of death remained significantly greater among patients with a psychiatric disorder after controlling for demographic characteristics, other medical comorbidities, and hospital location.

Li et al. (Sept 30, 2020). Association of a Prior Psychiatric Diagnosis With Mortality Among Hospitalized Patients With Coronavirus Disease 2019 (COVID-19) Infection. JAMA Network Open.

<https://doi.org/10.1001/jamanetworkopen.2020.23282>

- Nearly half (46%) of the 146 out of 389 residents of a long-term care facility who were diagnosed with COVID-19 were asymptomatic at the time of diagnosis, emphasizing the importance of universal testing rather than symptom-based testing to control outbreaks. Anorexia and delirium were the most common symptoms during the course of illness. Male sex and bowel incontinence were predictors of COVID-19 diagnosis among residents. A greater proportion of staff per unit who

lived in a community with a high prevalence of COVID-19 was also associated with greater risk of SARS-CoV-2 infection among residents.

Shi et al. (Aug 25, 2020). Risk Factors, Presentation, and Course of Coronavirus Disease 2019 in a Large, Academic Long-Term Care Facility. Journal of the American Medical Directors Association. <https://doi.org/10.1016/j.jamda.2020.08.027>

- Male sex, cardiovascular disease, diabetes, and biomarker indicators of biological aging were associated with higher levels of soluble angiotensin-converting enzyme 2 (sACE2) among two international cohorts of elderly patients with atrial fibrillation. Higher levels of sACE2 could reflect a higher cellular expression of ACE2, a cellular receptor by which SARS-CoV-2 enters human cells, and thus pose as higher risk for severe COVID-19 infection.

Wallentin et al. (Sept 27, 2020). Angiotensin-Converting Enzyme 2 (ACE2) Levels in Relation to Risk Factors for COVID-19 in Two Large Cohorts of Patients with Atrial Fibrillation. European Heart Journal. <https://doi.org/10.1093/eurheartj/ehaa697>

Mental Health and Personal Impact

- Among surveyed women living in the UK with an infant aged ≤ 12 months ($n=1,329$), a majority reported feeling down (56%), lonely (59%), irritable (62%), and worried (71%) since the beginning of lockdown, but 70% felt able to cope. Having support with her own health, contacting infant support groups, and higher gestational age of the infant were associated with better mental health, while travelling for work, lockdown effects on ability to afford food, and having an annual income less than £30,000 were associated with poorer mental health.

Dib et al. (Sept 26, 2020). Maternal Mental Health and Coping during the COVID-19 Lockdown in the UK: Data from the COVID-19 New Mum Study. International Journal of Gynecology & Obstetrics. <https://doi.org/10.1002/ijgo.13397>

Modeling and Prediction

- [Pre-print, not peer-reviewed] A microsimulation model calibrated to PCR data from outbreaks in 5 homeless shelters found that while infection control strategies can prevent outbreaks in low-risk settings, they may be unlikely to do so in high-risk settings. The model found that in shelters with low ($R_0 = 1.5$), moderate ($R_0 = 2.9$), and high ($R_0 = 6.2$) risk of transmission, the probability of averting an outbreak over 30 days given the use of combined daily symptom-based screening was 0.68, twice-weekly PCR testing was 0.40, and universal masking was 0.08.

Chapman et al. (Sept 29, 2020). Comparison of Infection Control Strategies to Reduce COVID-19 Outbreaks in Homeless Shelters in the United States a Simulation Study. Pre-print downloaded Sept 30 from <https://doi.org/10.1101/2020.09.28.20203166>

- A modeling study found that continuing measures to prevent SARS-CoV-2 infection among people experiencing homelessness would result in a small projected number of cases and deaths (1754 infections, 31 deaths) in the context of a second wave of SARS-CoV-2 infection in the general population (June 2020 to January 2021). However, in a scenario with no second wave and a lifting of preventive measures, the authors project 12,151 infections and 184 deaths, suggesting that homeless settings might experience outbreaks even if incidence remains low in the general population.

Lewer et al. (Sept 23, 2020). COVID-19 among People Experiencing Homelessness in England: A Modelling Study. The Lancet Respiratory Medicine. [https://doi.org/10.1016/S2213-2600\(20\)30396-9](https://doi.org/10.1016/S2213-2600(20)30396-9)

- *[Pre-print, not peer-reviewed]* A modeling study shows that adoption of masks in secondary schools and community settings under current test-trace-isolate (TTI) levels could reduce the size of a second wave in the UK but not prevent it. Under current tracing levels, and at effective mask coverage of 30%, 46% of those with symptomatic infection would need to be tested to avoid a second wave.

Panovska-Griffiths et al. (Sept 29, 2020). The Potential Contribution of Face Coverings to the Control of SARS-CoV-2 Transmission in Schools and Broader Society in the UK a Modelling Study. Pre-print downloaded Sept 29 from <https://doi.org/10.1101/2020.09.28.20202937>

Other Resources and Commentaries

- [Long-Term Hydroxychloroquine Use in Patients with Rheumatic Conditions and Development of SARS-CoV-2 Infection: A Retrospective Cohort Study](#) – The Lancet Rheumatology (Sept 21)
- [Hard to Reach: COVID-19 Responses and the Complexities of Homelessness](#) – The Lancet. Respiratory Medicine (Sept 23)
- [Superiority of Cilostazol among Antiplatelet FDA-Approved Drugs against COVID 19 M\(pro\) and Spike Protein: Drug Repurposing Approach](#) – Drug Development Research (Sept 27)
- [COVID-19 in Children: What Did We Learn from the First Wave?](#) – Paediatrics and Child Health (Sept 18)
- [Use of a Smartwatch for Assessment of the QT Interval in Outpatients with Coronavirus Disease 2019](#) – Journal of Innovations in Cardiac Rhythm Management (Sept 1)
- [High Proportion of Asymptomatic SARS-CoV-2 Infections in 9 Long-Term Care Facilities, Pasadena, California, USA, April 2020](#) – Emerging Infectious Diseases (July 2)
- [SARS-CoV-2 Antibody Prevalence in Brazil: Results from Two Successive Nationwide Serological Household Surveys](#) – The Lancet Global Health (Sept 23)
- [Lifting Lockdown Policies: A Critical Moment for COVID-19 Stigma](#) – Global Public Health (Sept 27)
- [Dealing with the Rising Tide of Suicides during the COVID-19 Pandemic: Strengthening the Pillars of Prevention and Timely Intervention](#) – International Journal of Social Psychiatry (Sept 26)
- [Implementation Science to Respond to the COVID-19 Pandemic](#) – Frontiers in Public Health (Sept 2)
- [Blood and Marrow Transplantation during the Emerging COVID-19 Pandemic: The Seattle Approach](#) – Bone Marrow Transplantation (Sept 26)

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