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 composite test for both SARS-CoV-2 virus and antibodies shows promise for rapid diagnosis with high test validity. More

➢ Probable anxiety disorders were found to have nearly doubled from pre-pandemic levels in two UK cohorts. More

➢ A study in the Baltimore/Washington, D.C. region found that Latino patients were more likely than non-Latino patients to test positive for COVID-19, but were less likely to be hospitalized. More

Non-Pharmaceutical Interventions

• Using Google COVID-19 community mobility reports, Huynh demonstrated that countries with a higher “Uncertainty Avoidance Index” had a lower proportion of people gathering in public, even after controlling for gross domestic product (GDP) per capita.


Testing and Treatment

• A retrospective cohort study of 4,480 patients with COVID-19 using data from the Danish national administrative registries found that prior use of ACE inhibitors and angiotensin receptor blockers (ACEI/ARBs) was not associated with higher mortality from COVID-19.

• [EDITORIAL NOTE: The article was accompanied by a JAMA editorial that concluded that when there is a clinical indication for their use, ACEI/ARBs should not be discontinued in patients with COVID-19, unless the drugs cannot be tolerated due to hemodynamic instability. However, we note that adjusted models showed a significant or nearly significant modest association with severe COVID-19]


• [pre-print, not peer reviewed] Miccochova et al. compared a combined rapid test (nucleic acid amplification on nose/throat swab and lateral flow assay antibody test on serum) suitable for point-of-care use with a composite gold standard on 45 patients with suspected moderate to severe COVID-19 disease. In days 1-7 of illness, sensitivity of the nucleic acid test alone was 79.2%, which increased to 100% when combined with the rapid antibody test. Specificity of the combined test in
days 1-7 of illness was 90% (95% CI 55.5-99.7%). These results show a potentially promising point-of-care approach that improves sensitivity while maintaining relatively high specificity.

Micochova et al. (June 18, 2020). Combined Point of Care Nucleic Acid and Antibody Testing for SARS-CoV-2 a Prospective Cohort Study in Suspected Moderate to Severe COVID-19 Disease. Pre-print downloaded June 19 from https://doi.org/10.1101/2020.06.16.20133157

- [pre-print, not peer reviewed] Among 16 SARS-CoV-2 neutralizing monoclonal antibodies from 5 patients with severe disease, 19 potently neutralized the virus in vitro, 9 with exquisite potency. Several are promising candidates for treatment or prevention of COVID-19. These 19 antibodies were nearly equally divided between two regions at the top of the viral spike — the receptor binding domain and the N-terminal domain — demonstrating the immunogenicity of these regions.

Ho et al. (June 18, 2020). Potent Neutralizing Monoclonal Antibodies Directed to Multiple Epitopes on the SARS-CoV-2 Spike. Pre-print downloaded June 19 from https://doi.org/10.1101/2020.06.17.153486

Clinical Characteristics and Health Care Setting

- [pre-print, not peer reviewed] A systematic review and meta-analysis (n=19 studies; 5,652 patients) studied the incidence of cardiac endpoints among COVID-19 patients treated with chloroquine or hydroxychloroquine, including QT prolongation—a potential precursor to the arrhythmias torsades de pointes (TdP) or ventricular tachycardia (VT) or cardiac arrest—as well as TdP/VT or cardiac arrest. The pooled incidence was 90 per 1,000 for prolonged QTc, 3 per 1,000 for TdP/VT or cardiac arrest, and 50 per 1,000 for discontinuation of either medication due to prolonged QTc or arrhythmias. Treatment of COVID-19 patients with chloroquine or hydroxychloroquine is associated with a substantial risk of QTc prolongation and its sequelae.

Tleyjeh et al. (June 18, 2020). The Cardiac Toxicity of Chloroquine or Hydroxychloroquine in COVID-19 Patients: A Systematic Review and Meta-Regression Analysis. Pre-print downloaded June 19 from https://doi.org/10.1101/2020.06.16.20132878

- A retrospective telephone survey of patients diagnosed with COVID-19 during March 5-23, 2020 (n=204) found that 57% reported reduction of taste and/or smell prior to diagnosis and that 40% reported reduction of both taste and smell prior to diagnosis. 55% reported taste reduction and 41% reported smell reduction. Nasal obstruction was rare among patients with severe taste or smell reduction. Changes to taste and smell may be a frequent and early symptom of COVID-19.


Mental Health and Personal Impact

- [pre-print, not peer reviewed] Two longitudinal cohorts in the UK collected validated mental health measures before and during the COVID-19 pandemic. Anxiety and lower wellbeing, but not depression, increased since the start of the pandemic. The percentage of individuals with probable anxiety disorder nearly doubled from 13% to 24%. Younger people, women, those with pre-existing mental or physical health conditions, and those living alone and in socio-economic adversity were at a higher risk of these outcomes. There was no evidence that key workers or healthcare workers were at higher risk of these outcomes.

Kwong et al. (June 18, 2020). Mental Health during the COVID-19 Pandemic in Two Longitudinal UK Population Cohorts. Pre-print downloaded June 19 from https://doi.org/10.1101/2020.06.16.20133116
Public Health Policy and Practice

- Among 29,299 workers in Wuhan, China who were screened for SARS-CoV-2 by PCR prior to returning to work, 18 (0.061%) were positive, all of whom were asymptomatic. Of the 18 positives, 13 became negative within 8 days, and 41 of their close contacts tested negative. Among 22,633 workers tested for SARS-CoV-2 antibodies, 617 (3%) had positive IgG but negative IgM, 40 (0.2%) had negative IgG but positive IgM, and 196 (0.9%) were positive for both.
  
  Han et al. (Sept 2020). Severe Acute Respiratory Syndrome Coronavirus 2 among Asymptomatic Workers Screened for Work Resumption, China. Emerging Infectious Diseases.  
  https://doi.org/10.3201/eid2609.201848

- A national survey conducted in March and April among US adults (n=5,198) found that African American respondents, men, and younger people had less accurate knowledge about COVID-19 symptoms and preventive behaviors than white respondents, women, and older individuals.

- Additionally, African American respondents were 3.5 percentage points more likely than white respondents to report having been infected with COVID-19, and men across race/ethnicity groups were 3.2 percentage points more likely than women to report having been infected.

  Alsan et al. (June 18, 2020). Disparities in Coronavirus 2019 Reported Incidence, Knowledge, and Behavior Among US Adults. JAMA Network Open.  
  https://doi.org/10.1001/jamanetworkopen.2020.12403

- Out of 37,727 patients from 5 hospitals who were tested for SARS-CoV-2 in the Baltimore/Washington, D.C. region, 16.3% (95% CI 16.0-16.7%) tested positive. Prevalence was significantly higher for Latino patients (42.6%, 95% CI 41.1-44.1%), black patients (17.6%, 95% CI 16.6-18.3%) and patients of other non-white race/ethnicity (17.2%, 95% CI 16.2-18.3%) compared to white patients (8.8%, 95% CI 8.4-9.2%). Trends in positivity peaked later for Latino patients than white or black patients. The hospital admission rate was lower for Latino patients (29.1%, 95% CI 27.0-31.2%) than white patients (40.1%, 95% CI 37.6-42.5%) or black patients (41.7%, 95% CI 39.5-43.8%). Hospitalized Latino patients were younger and had lower rates of comorbidities than white or black patients.

  Martinez et al. (June 18, 2020). SARS-CoV-2 Positivity Rate for Latinos in the Baltimore-Washington, DC Region. JAMA.  
  https://doi.org/10.1001/jama.2020.11374

Other Resources and Commentaries

- Polymorphism and selection pressure of SARS-CoV-2 vaccine and diagnostic antigens: implications for immune evasion and serologic diagnostic performance – bioRxiv (June 18)
- COVID-19 projections for reopening Connecticut – medRxiv (June 19)
- Pathological Findings and Management of COVID-19 Patients: A Brief Overview of Modern-day Pandemic – Cureus (May 15)
- Isolation, Sequence, Infectivity, and Replication Kinetics of Severe Acute Respiratory Syndrome Coronavirus 2 – Emerging Infectious Diseases
- Host range of SARS-CoV-2 and implications for public health – Lancet Microbe (June 18)
- COVID-19’s Crushing Effects on Medical Practices, Some of Which Might Not Survive – JAMA (June 18)
- Amplifying RNA Vaccine Development – New England Journal of Medicine (June 18)
• **Challenges of “Return to Work” in an Ongoing Pandemic** – New England Journal of Medicine (June 18)
• **Economic Vulnerability of Households With Essential Workers** – JAMA (June 18)
• **Effects of the COVID-19 pandemic on the mental health of prisoners** – The Lancet Psychiatry (June 19)
• **Seeing COVID-19 through José Saramago’s Blindness** – The Lancet (June 19)

*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*