Washington State Department of Health

2019-nCoV Literature Situation Report (Lit Rep)
August 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

➢ **An analysis of COVID-19 hospitalizations across 12 US states found that the share of hospitalizations of white patients was substantially smaller than the corresponding share of the states' populations, and the share of hospitalizations among Black and Hispanic patients was substantially larger.** More

➢ **A national survey of adolescents and young adults age found that COVID-19 diagnosis was 5-fold more likely among ever-users of e-cigarettes and 7-fold more likely among dual users of cigarettes and e-cigarettes.** More

➢ **An interim analysis (n=316) of an ongoing prospective study showed that convalescent plasma transfusion significantly reduced mortality at 28 days, particularly among patients who received plasma with high IgG titers or were transfused within 72 hours.** More

➢ **Death registrations in a cohort in the UK exceeded 3-year historical values by 51% in participants with type 1 diabetes and 64% in participants with type 2 diabetes during the first 19 weeks of 2020, corresponding with the COVID-19 pandemic.** More

Transmission

• Antibodies against SARS-CoV-2 were found in 80% of a community sample of 30 individuals who shared a household with a confirmed COVID-19 case but who had not had a prior SARS-CoV-2 diagnosis. McDade et al. tested for anti-SARS-CoV-2 antibodies using a dried blood spot assay from self-collected samples.

> *McDade et al. (Aug 14, 2020). High Seroprevalence for SARS-CoV-2 among Household Members of Essential Workers Detected Using a Dried Blood Spot Assay. PLOS ONE.*
> https://doi.org/10.1371/journal.pone.0237833

Testing and Treatment

• Results of an interim analysis (n=316) of an ongoing prospective study assessing the efficacy of convalescent plasma transfusion showed a significant reduction in mortality (p=0.047) within 28 days, specifically among patients transfused within 72 hours of admission and who received plasma with a high anti-receptor binding domain IgG titer.

> *Salazar et al. (Aug 10, 2020). Treatment of COVID-19 Patients with Convalescent Plasma Reveals a Signal of Significantly Decreased Mortality. The American Journal of Pathology.*
> https://doi.org/10.1016/j.ajpath.2020.08.001

- *[Pre-print, not peer reviewed]* A systematic review (28 studies, 12,437 COVID-19 ICU admissions in 7 countries) found strong correlates of ICU mortality were invasive mechanical ventilation (OR=16.5, 95%CI 4.4-62.0), acute kidney injury (OR=12.5, 95%CI 1.5-102.7), and acute respiratory distress syndrome (OR=6.5, 95% CI 2.7-16.0).

  Chang et al. (Aug 18, 2020). COVID-19 ICU and Mechanical Ventilation Patient Characteristics and Outcomes - A Systematic Review and Meta-Analysis. Pre-print downloaded Aug 18 from https://doi.org/10.1101/2020.08.16.20035691

- A study in Israel identified potential cross-reactivity between dengue viruses and SARS-CoV-2 by testing serum samples from 55 COVID-19 patients for dengue antibodies and detecting 12 positive cases. In comparison, there were no positives for dengue among serum samples obtained from 70 healthy individuals prior to September 2019 (p < 0.001). In a complementary analysis, 22% (21 of 95) of serum samples obtained prior to September 2019 from patients with diagnosis of past dengue fever were positive on SARS-CoV-2 IgG or IgA antibody tests compared to 4% (4 of 102) of healthy controls (p < 0.001). The investigators suggest that potential cross-reactivity between dengue viruses and SARS-CoV-2 could lead to false positive tests.

  Lustig et al. (Aug 14, 2020). Potential Antigenic Cross-Reactivity between SARS-CoV-2 and Dengue Viruses. Clinical Infectious Diseases. https://doi.org/10.1093/cid/ciaa1207

- *[Pre-print, not peer reviewed]* Severely ill patients developed significantly higher SARS-CoV-2 specific antibody responses, based on analysis of 625 serial plasma samples from 40 hospitalized patients with COVID-19 and 170 SARS-CoV-2 infected outpatients and asymptomatic individuals. The development of plasma antibodies was also correlated with decreases in viral RNAemia, suggesting potential humoral immune clearance of virus. Additionally, the serological responses of outpatient and asymptomatic individuals were found to decrease within 2 months.

  Röltgen et al. (Aug 17, 2020). SARS-CoV-2 Antibody Responses Correlate with Resolution of RNAemia But Are Short-Lived in Patients with Mild Illness. Pre-print downloaded Aug 18 from https://doi.org/10.1101/2020.08.15.20175794

Immunity

- Wu et al. collected plasma at hospital discharge from a cohort of 175 patients who recovered from mild COVID-19 in Shangai and found that the titers of SARS-CoV-2 specific neutralizing antibodies varied substantially, showing a moderate correlation with older age (r=0.414; 95%CI, 0.279-0.533), including 10 patients in whom neutralizing antibodies were below the limit of detection.

  Wu et al. (Aug 18, 2020). Evaluating the Association of Clinical Characteristics With Neutralizing Antibody Levels in Patients Who Have Recovered From Mild COVID-19 in Shanghai, China. JAMA Internal Medicine. https://doi.org/10.1001/jamainternmed.2020.4616

Clinical Characteristics and Health Care Setting

- A national survey of adolescents and young adults in the US (n=4,351) aged 13-24 found that COVID-19 diagnosis was associated with ever-use of e-cigarettes (aOR=5.1), ever dual use of e-cigarettes and cigarettes (aOR=7.0), and past 30-day dual use (aOR=6.8).

  Gaiha et al. (Aug 11, 2020). Association Between Youth Smoking, Electronic Cigarette Use, and Coronavirus Disease 2019. Journal of Adolescent Health. https://doi.org/10.1016/j.jadohealth.2020.07.002

- Analysis of a cohort study of people diagnosed with type 1 and type 2 diabetes registered with a general practice in England found that weekly death registrations in the first 19 weeks of 2020 exceeded corresponding 3-year weekly averages by 51% among people with type 1 diabetes and by 64% among people with type 2 diabetes. Male sex, older age, renal impairment, non-white ethnicity, socioeconomic deprivation, and prior cardiovascular disease was associated with increased COVID-19 related mortality.

  Holman et al. (Aug 13, 2020). Risk Factors for COVID-19-Related Mortality in People with Type 1 and Type 2 Diabetes in England: A Population-Based Cohort Study. The Lancet Diabetes & Endocrinology. https://doi.org/10.1016/S2213-8587(20)30271-0

- A systematic review including 61 studies comprising 790 COVID-19 positive females and 548 neonates found that C-section, premature birth, and adverse pregnancy events varied geographically among women with COVID-19. C-section prevalence ranged from 38% in European studies to 91% in Chinese studies, while adverse pregnancy event prevalence ranged from 15% in US studies to 21% in Chinese studies.

  Dubey et al. (July 21, 2020). Maternal and Neonatal Characteristics and Outcomes among COVID-19 Infected Women: An Updated Systematic Review and Meta-Analysis. European Journal of Obstetrics & Gynecology and Reproductive Biology. https://doi.org/10.1016/j.ejogrb.2020.07.034

- Among COVID-19 positive healthcare workers in Los Angeles County (n=5,118), Hartmann et al. found that the highest proportion worked in long-term care facilities (46%) and hospitals (28%). Sixty-eight percent worked at some point during their infectious period, while nearly half reported a known exposure to a positive patient and/or co-worker. Compared to the general population, healthcare workers reported lower hospitalization rates (5% vs 12%) and death rates (0.7% vs 4%).

  Hartmann et al. (Aug 17, 2020). Coronavirus 2019 (COVID-19) Infections Among Healthcare Workers, Los Angeles County, February - May 2020. Clinical Infectious Diseases. https://doi.org/10.1093/cid/ciaa1200

- *[Pre-print, not peer reviewed]* A large serosurveillance study (n=10,019) of asymptomatic healthcare workers across Oregon found 2.5% (n=253) had antibodies against SARS-CoV-2. The highest seroprevalence was found among those with a job type of housekeeper (8%). Comparing self-reported swab PCR testing with serology results showed only modest agreement (K=0.47).

  Leidner et al. (Aug 18, 2020). Longitudinal SARS-CoV-2 Serosurveillance of over Ten Thousand Health Care Workers in the Providence Oregon Cohort. Pre-print downloaded Aug 18 from https://doi.org/10.1101/2020.08.16.20176107

Modeling and Prediction

- *[Pre-print, not peer reviewed]* Using sociodemographic data and 668,428 COVID diagnoses in 4,803 ZIP codes in the US, Amram et al. developed a small area vulnerability index and found that zip codes with higher population density, higher percentage of uninsured, and a higher proportion of nonwhite race and Hispanic ethnicity had higher COVID-19 diagnosis rates.

  Amram et al. (Aug 18, 2020). Data-Driven Development of a Small-Area COVID-19 Vulnerability Index for the United States. Pre-print downloaded Aug 18 from https://doi.org/10.1101/2020.08.17.20176248

Public Health Policy and Practice

- Across 12 states, the share of the COVID-19 hospitalizations (April 30 and June 24) of white patients was substantially smaller than the corresponding proportion of the state population.
- Asian patients were underrepresented among hospitalized patients in 6 of 10 states reporting hospitalization of Asian individuals. Black patients were overrepresented among the hospitalized patients in all 12 states, and Hispanic patients were overrepresented in 10 out of the 11 states reporting hospitalizations of Hispanic individuals.

  Karaca-Mandic et al. (Aug 17, 2020). Assessment of COVID-19 Hospitalizations by Race/Ethnicity in 12 States. JAMA Internal Medicine. https://doi.org/10.1001/jamainternmed.2020.3857

Other Resources and Commentaries

- [SARS-CoV-2 Antibody Responses in Children with MIS-C and Mild and Severe COVID-19](#) – medRxiv (Aug 18)
- [Design and Implementation of a Regional Inpatient Psychiatry Unit for Patients Who Are Positive for Asymptomatic SARS-CoV-2](#) – Psychosomatics (July 2)
- [School Nursing and Public Health: The Case for School Nurse Investigators and Contact Tracing Monitors of COVID-19 Patients in Massachusetts](#) – NASN School Nurse (Aug 17)
- [CoV-AbDab: The Coronavirus Antibody Database](#) – Bioinformatics (Aug 17)
- [Spatial Analysis of COVID-19 Clusters and Contextual Factors in New York City](#) – Spatial and Spatio-Temporal Epidemiology (June 21)
- [Reactions to COVID-19: Differential Predictors of Distress, Avoidance, and Disregard for Social Distancing](#) – Journal of Affective Disorders (Aug 7)
- [Efficacy and Safety of Disinfectants for Decontamination of N95 and SN95 Filtering Facepiece Respirators: A Systematic Review](#) – Journal of Hospital Infection (Aug 12)
- [COVID-19 Vaccine: A Comprehensive Status Report](#) – Virus Research (Aug 13)
- [Policy Implications of the Orphan Drug Designation for Remdesivir to Treat COVID-19](#) – JAMA Internal Medicine (Aug 17)
- [Hospital Ward Adaptation During the COVID-19 Pandemic: A National Survey of Academic Medical Centers](#) – Journal of Hospital Medicine (Aug 1)
- [Characteristics and Outcomes of COVID-19 in Patients with HIV](#) – AIDS (Aug 10)
- [Improving the Impact of Non-Pharmaceutical Interventions during COVID-19: Examining the Factors That Influence Engagement and the Impact on Individuals](#) – BMC Infectious Diseases (Aug 17)
- [Impact of Routine Infant BCG Vaccination in Young Generation on Prevention of Local COVID-19 Spread in Japan](#) – Journal of Infection (Aug 11)

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