



2019-nCoV Literature Situation Report (Lit Rep)

April 12, 2021

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

- 📄 **Emergency department visits for COVID-19 were 1.7 times higher among Hispanic and American Indian or Alaska Native persons and 1.4 times higher among Black persons, than white persons between October-December 2020, based on data from 13 US states. [More](#)**
- 📄 **Compared with adults, children with SARS-CoV-2 positive nasopharyngeal swabs had lower odds of growing virus in culture and lower viral concentrations, suggesting that children may be less likely to transmit infectious virus. [More](#)**
- 📄 **Monoclonal antibody treatment with bamlanivimab significantly reduced the risk of a subsequent emergency department visit or hospitalization within 30 days of a positive SARS-CoV-2 test among patients with COVID-19 (1.9% among treated vs. 12% untreated). [More](#)**

Transmission

- Compared with adults, children with SARS-CoV-2 positive nasopharyngeal swabs (NPS) were less likely to grow virus in culture (OR=0.45) and had lower viral concentrations (cycle threshold: 25.1 age ≤ 10 years, 22.2 age 11–17 years, and 18.7 in adults), suggesting that children may be less likely to transmit infectious virus. The analysis included samples from children (n = 175) and adults (n = 130) infected with SARS-CoV-2 and their close contacts between March and December 2020. The median number of infectious particles (via 50% tissue culture infective dose per mL) was also significantly lower in children aged 11–17 years than adults.
Bullard et al. (Apr 9, 2021). Infectivity of Severe Acute Respiratory Syndrome Coronavirus 2 in Children Compared with Adults. Canadian Medical Association Journal.
<https://doi.org/10.1503/cmaj.210263>
- Residual samples analyzed from patients evaluated for acute respiratory illness in the Seattle metropolitan area in the Seattle Flu Study after unusually high snowfall in Washington State in February 2019 showed that disruption in contact patterns reduced effective contact rates by 16 to 95% and reduced cumulative disease incidence through the remainder of the season by 3 to 9%. The extreme snow event occurred close to the predicted peak of seasonal epidemics of several viruses (i.e, influenza A/H1N1 and RSV), with final attack rates reduced by 7.6 to 9.2%. Incidence reductions were greatest for viruses that were peaking when the disruption occurred. The authors suggest these findings may indicate that shorter periods of social distancing behaviors may also slow viral transmission of SARS-CoV-2.

Jackson et al. (Apr 2021). Effects of Weather-Related Social Distancing on City-Scale Transmission of Respiratory Viruses: A Retrospective Cohort Study. *BMC Infectious Diseases*.

<https://doi.org/10.1186/s12879-021-06028-4>

Testing and Treatment

- [Pre-print, not peer-reviewed] Sera from convalescent individuals (n = 44) and individuals who received the Pfizer-BioNTech vaccine (n = 51) showed reduced neutralization activity against the SARS-CoV-2 B.1.1.7 and B.1.351 variants. Among vaccinated individuals, the geometric mean 50% receptor binding domain (RBD) antibody concentration was 1.3-fold lower for the B.1.1.7 variant and 1.4-fold lower for the B.1.351 variant. Age was negatively correlated with neutralization among vaccinated individuals, and levels of variant-specific RBD antibodies were proportional to neutralizing activity.

Bates et al. (Apr 9, 2021). Neutralization of SARS-CoV-2 Variants by Convalescent and Vaccinated Serum. Pre-print downloaded Apr 12 from <https://doi.org/10.1101/2021.04.04.21254881>

- [Pre-print, not peer-reviewed] Monoclonal antibody treatment significantly reduced the risk of subsequent emergency department visit or hospitalization among patients with COVID-19 (n = 598) in a real-world study using electronic health record data. Among 270 (45%) patients treated with the monoclonal antibody bamlanivimab, 5 (1.9%) presented to the emergency department (ED) or required hospitalization within 30 days of a positive SARS-CoV-2 test, compared to 39 of 328 (12%) untreated patients. The risk of an ED visit or hospitalization was 82% lower in patients treated with bamlanivimab than untreated patients after adjusting for age, gender, and comorbidities.

Rainwater-Lovett et al. (Apr 10, 2021). Real-World Effect of Monoclonal Antibody Treatment in COVID-19 Patients in a Diverse Population in the United States. Pre-print downloaded Apr 12 from <https://doi.org/10.1101/2021.04.08.21254705>

Vaccines and Immunity

- [Pre-print, not peer-reviewed] Fully immunized individuals (either Pfizer-BioNTech or Moderna) experienced 86% protection against SARS-CoV-2 infection, and partial protection was observed following the first dose (66%) and in the first two weeks after receipt of a second dose (78%) in a case-control study conducted from February 24 to April 7, 2021. Cases were defined by a positive SARS-CoV-2 test and controls by a negative test. Among cases (n = 325), 23 (7%) and 13 (4%) received the Pfizer-BioNTech and Moderna vaccines, respectively, and 8 (2%) were fully vaccinated while among controls 49 (19%) and 49 (19%) received Pfizer-BioNTech and Moderna, respectively; 42 (16%) were fully vaccinated. Hesitancy to receive COVID-19 vaccines (when eligible) was reported among 39% and 23% of unvaccinated participants residing in rural and urban regions, respectively.

Andrejko et al. (Apr 10, 2021). Early Evidence of COVID-19 Vaccine Effectiveness within the General Population of California. Pre-print downloaded Apr 12 from

<https://doi.org/10.1101/2021.04.08.21255135>

- [Pre-print, not peer-reviewed] A case-control study of individuals with SARS-CoV-2 infection in Israel who received the Pfizer vaccine (cases) versus unvaccinated carriers (controls) found that the predominant SARS-CoV-2 variant among vaccine recipients with a positive SARS-CoV-2 PCR result differed depending on their timing in the vaccine course. Compared to controls,

vaccinated individuals infected at least a week after the second dose were disproportionately infected with the B.1.351 variant (OR=8), while those infected between two weeks after the first dose and one week after the second dose were disproportionately infected by B.1.1.7 (odds ratio of 26:10). The B.1.351 variant was not evaluated at this time point due to low case numbers of B.1.351. The authors suggest there may be reduced vaccine effectiveness against both variants of concern under different conditions of number of doses and dose timing. The B.1.1.7 variant was found to be the predominant strain over the study period.

Kustin et al. (Apr 9, 2021). Evidence for Increased Breakthrough Rates of SARS-CoV-2 Variants of Concern in BNT162b2 mRNA Vaccinated Individuals. Pre-print downloaded Apr 12 from <https://doi.org/10.1101/2021.04.06.21254882>

- [Pre-print, not peer-reviewed] While all fully vaccinated long-term care residents (n = 70) in a cross-sectional study in the Pittsburg region between March 15 and April 1, 2021 had detectable SARS-CoV-2 antibodies, levels tended to be lower among those who were male, older, used steroid medications, or had a longer length of time since vaccination. Antibody levels tended to be higher among those who previously tested positive for SARS-CoV-2 (15.7%).

Nace et al. (Apr 10, 2021). Antibody Responses in Elderly Residential Care Persons Following COVID-19 mRNA Vaccination. Pre-print downloaded Apr 12 from <https://doi.org/10.1101/2021.04.07.21254925>

Clinical Characteristics and Health Care Setting

- A systematic review and meta-analysis (n = 35 studies) found that the pooled prevalence of SARS-CoV-2 RNA in fecal samples from COVID-19 patients was 43%, and that a higher proportion of patients with gastrointestinal (GI) symptoms (OR = 2.4) compared with no GI symptoms, specifically diarrhea (OR = 3.0), had detectable fecal RNA. SARS-CoV-2 RNA shedding in feces lasted longer than in respiratory samples (mean difference = 7.1 days).

Zhang et al. (Apr 2021). Prevalence and Persistent Shedding of Fecal SARS-CoV-2 RNA in Patients With COVID-19 Infection: A Systematic Review and Meta-Analysis. Clinical and Translational Gastroenterology. <https://doi.org/10.14309/ctg.0000000000000343>

Public Health Policy and Practice

- Based on hospitalization discharge data from each of the four US census regions, the age-adjusted COVID-19 proportionate hospitalization ratios (aPHRs) were highest for Hispanic or Latino patients (range 2.7-3.9) relative to non-Hispanic white patients. Racial and ethnic disparities in COVID-19 hospitalization were largest during May–July 2020, and while aPHRs declined for most racial and ethnic groups during July–November 2020, they increased for some racial and ethnic groups in some regions in December. These disparities became less pronounced over the course of the pandemic, as COVID-19 hospitalizations increased among non-Hispanic white persons.

Romano et al. (2021). Trends in Racial and Ethnic Disparities in COVID-19 Hospitalizations, by Region — United States, March – December 2020. MMWR. <https://www.cdc.gov/mmwr/volumes/70/wr/mm7015e2.htm>

- Between October and December 2020, data from 13 US states indicate that the rate of emergency department (ED) visits for COVID-19 was 1.7 times higher among Hispanic and American Indian or Alaska Native (AI/AN) persons, and 1.4 times higher among Black persons,

than white persons. Hispanic, AI/AN, and Black persons had significantly more COVID-19–related ED visits overall (RR range = 1.39–1.77) and in all age groups through age 74 years. The authors provide context for these findings by stating that the racial/ethnic groups that sought ED care for COVID-19 at disproportionately higher rates have also experienced long-standing systemic inequities that affect their health, and that racism (rather than a person’s race or ethnicity), is a key driver of the observed health inequities.

Smith et al. (April 2021). *Emergency Department Visits for COVID-19 by Race and Ethnicity — 13 States, October–December 2020*. *MMWR*.

<https://www.cdc.gov/mmwr/volumes/70/wr/mm7015e3.htm>

- New York City stratified data on out of hospital sudden death (OHSD) showed that between March 1 and April 10, 2020, educational attainment and the proportion of Black residents in zip codes were independent predictors of increased levels of zip code-level OHSD, after controlling for 2019 rates. The number of OHSD rose to 4,334 from 1,112 the year prior. Other social influencers of health associated with increased rates of OHSD within ZIP codes were proportions of single parent households, unemployed residents, people completing less than high school education, residents with no health insurance, people financially struggling or living in poverty, percent of non-citizens, and population density.

Mountantonakis et al. (Apr 9, 2021). *The Association of Structural Inequities and Race with Out-of-Hospital Sudden Death during the COVID-19 Pandemic*. *Circulation: Arrhythmia and Electrophysiology*. <https://doi.org/10.1161/CIRCEP.120.009646>

- In a serosurvey of 45,367 New York City adult residents, 23.6% were infected with SARS-CoV-2 during the first few months of the pandemic (May 13 – July 21, 2020). High seroprevalence (>30%) was observed among Black and Hispanic individuals, people from high poverty neighborhoods, and people in health care or essential worker industry sectors. Reporting a history of COVID-19 symptoms was associated with seropositivity (aRR = 2.76). Other risk factors included male sex, age 44-64 years, non-white race/ethnicity, working outside the home, contact with a COVID-19 case, obesity, and increasing numbers of household members.

Pathela et al. (Apr 9, 2021). *Seroprevalence of SARS-CoV-2 Following the Largest Initial Epidemic Wave in the United States: Findings from New York City, May 13-July 21, 2020*. *The Journal of Infectious Diseases*. <https://doi.org/10.1093/infdis/jiab200>

Other Resources and Commentaries

- [Genome Analysis for Sequence Variants in SARS-CoV-2 Among Asymptomatic Individuals in a Long-Term Care Facility](#) – JAMA Network Open (Apr 9)
- [COVID-19 and Suicide: A Deadly Association](#) – The Journal of Nervous and Mental Disease (May 1)
- [Antibody Response to mRNA SARS-CoV-2 Vaccine among Dialysis Patients - a Prospective Cohort Study](#) – Nephrology Dialysis Transplantation (Apr 11)
- [Distinguishing the Real from the Hyperglycaemia: Does COVID-19 Induce Diabetes](#) – The Lancet Diabetes & Endocrinology (Apr)
- [Changes in Drug Use in European Cities during Early COVID-19 Lockdowns - A Snapshot from Wastewater Analysis](#) – Environment International (Mar)
- [Factors Associated with Willingness to Be Vaccinated Against COVID-19 in a Large Convenience Sample](#) – Journal of Community Health (Apr 9)

- [SARS-CoV-2 Viral Load Dynamics and Real-Time RT-PCR Cycle Threshold Interpretation in Symptomatic Non-Hospitalised Individuals in New Zealand: A Multicentre Cross Sectional Observational Study](#) – Pathology (Mar)
- [Covid-19 Mortality Needs Age Adjusting for International Comparisons](#) – Journal of Medical Virology (Apr 10)
- [Neutralization Potency of Monoclonal Antibodies Recognizing Dominant and Subdominant Epitopes on SARS-CoV-2 Spike Is Impacted by the B.1.1.7 Variant](#) – Immunity (Apr)
- [E-Cigarette Vape and Lung ACE2 Expression: Implications for Coronavirus Vulnerability](#) – Environmental Toxicology and Pharmacology (Apr)
- [Cutaneous Reactions Reported after Moderna and Pfizer COVID-19 Vaccination: A Registry-Based Study of 414 Cases](#) – Journal of the American Academy of Dermatology (Apr)
- [Travel-Related Control Measures to Contain the COVID-19 Pandemic: An Evidence Map](#) – BMJ Open (Apr 9)
- [Modelling the Impact of Extending Dose Intervals for COVID-19 Vaccines in Canada](#) – MedRxiv (Apr 10)
- [SARS-CoV 2 Infection \(Covid-19\) and Cardiovascular Disease in Africa: Health Care and Socio-Economic Implications](#) – Global Heart (Mar 15)
- [Prevalence, Clinical Characteristics and Outcomes of Guillain-Barré Syndrome Spectrum Associated with COVID-19: A Systematic Review and Meta-analysis](#) – European Journal of Neurology (Apr 9)
- [Characteristics and Disease Severity of US Children and Adolescents Diagnosed With COVID-19](#) – JAMA Network Open (Apr 9)
- [Program and Patient Characteristics for the United States Expanded Access Program to COVID-19 Convalescent Plasma](#) – MedRxiv (Apr 11)
- [Psychological Distress and Alcohol Use Disorder during the COVID-19 Era among Middle- and Low-Income U.S. Adults](#) – Journal of Affective Disorders (June)

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