

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 more highly transmissible variant of SARS-CoV-2, lineage B.1.1.7, has been confirmed in 76 cases in the United States as of January 13, 2021. Models suggest that this variant has potential to drive a new phase of exponential growth in cases in the US, and that even if vaccination protects against infection, substantial transmission of the variant will continue until it becomes the dominant strain. [More](#)**
- **The COVID-19 pandemic could result in to 3 to 4 times larger reductions in life expectancy for Black and Latino populations in the United States compared to the reduction in life expectancy among white people. [More](#)**
- **Women hospitalized for childbirth with confirmed COVID-19 were younger, more often Black and/or Hispanic, and more often had diabetes or obesity compared with pregnant women without COVID-19 in the US. [More](#)**

### Non-Pharmaceutical Interventions

- A comparison of seven commercially available masks with a vacuum pump suggested that N95 respirators allow the fewest microplastics from the ambient air and from the mask to pass through the mask. The other types of masks, including surgical, cotton, non-woven, and activated carbon masks, reduced microplastic simulated inhalation risk through four hours of wear, after which they showed an increase in risk. Further testing indicated that washing masks with water and allowing them to air dry was the gentlest method for cleaning masks for reuse. Alcohol disinfection caused the heaviest damage to the masks' structures.

*Li et al. (June 2021). COVID-19: Performance Study of Microplastic Inhalation Risk Posed by Wearing Masks. Journal of Hazardous Materials. <https://doi.org/10.1016/j.jhazmat.2020.124955>*

### Geographic Spread

- A more highly transmissible variant of SARS-CoV-2, lineage B.1.1.7, has been confirmed to have caused 76 cases in at least 10 states in the US as of January 13, 2021. Models suggest that this variant has potential to drive a new phase of exponential growth in cases in the US, and that even if vaccination protects against infection, substantial transmission of the variant will continue until it becomes the dominant strain. Although there is no known difference in clinical outcomes associated with the B.1.1.7 variant, a higher rate of transmission will lead to more cases, strain on healthcare systems, and deaths. The authors recommend urgent mitigation efforts, including physical distancing

and masking, to limit the spread of the variant and allow more time for ongoing vaccination to achieve higher population-level immunity.

*Galloway et al. (Jan 15, 2021). Emergence of SARS-CoV-2 B.1.1.7 Lineage — United States, December 29, 2020–January 12, 2021. MMWR. Morbidity and Mortality Weekly Report. <https://doi.org/10.15585/mmwr.mm7003e2>*

## Testing and Treatment

- Treatment with corticosteroids was not associated with in-hospital mortality among adults hospitalized with COVID-19 (n=1,444) after adjusting for confounding factors, although patients receiving steroids were less likely to be admitted to the ICU compared to patients not receiving them. The authors used propensity score matching to account for potential differences between patients who were prescribed corticosteroids and those who were not.

*Albani et al. (Dec 13, 2021). Corticosteroid Treatment Has No Effect on Hospital Mortality in COVID-19 Patients. Scientific Reports. <https://doi.org/10.1038/s41598-020-80654-x>*

- A systematic review and meta-analysis of 16 studies comparing the accuracy of saliva nucleic acid amplification testing (NAAT) to nasopharyngeal swab NAAT found that the two methods yielded comparable results. The sensitivity of saliva NAAT was 83% compared to 85% for nasopharyngeal NAAT. Both tests had a specificity of 99%. The authors suggest that the superior ease and comfort of collecting saliva samples may make it an attractive alternative to nasopharyngeal swabs to support large-scale testing.

*Butler-Laporte et al. (Jan 15, 2021). Comparison of Saliva and Nasopharyngeal Swab Nucleic Acid Amplification Testing for Detection of SARS-CoV-2: A Systematic Review and Meta-Analysis. JAMA Internal Medicine. <https://doi.org/10.1001/jama/internmed.2020.8876>*

## Clinical Characteristics and Health Care Setting

- A systematic review and meta-analysis (104 studies, n=20,152 participants) found that 13.3% of individuals with SARS-CoV-2 infection were asymptomatic, though there was substantial variation between studies (I<sup>2</sup>=95%). Children were more likely to be asymptomatic than adults (32% vs. 10%). More than 47% of asymptomatic individuals who had chest imaging had abnormal lung findings.

*Chen et al. (Jan 2021). The Epidemiological and Radiographical Characteristics of Asymptomatic Infections with the Novel Coronavirus (COVID-19): A Systematic Review and Meta-Analysis. International Journal of Infectious Diseases. <https://doi.org/10.1016/j.ijid.2021.01.017>*

- Women hospitalized for childbirth with confirmed COVID-19 (n=6,380) were younger, more often Black and/or Hispanic, and more often had diabetes or obesity than women without COVID-19. Although in-hospital mortality was low, it was significantly higher in the women with COVID-19 than in those without COVID-19 (141 vs 5 deaths per 100,000 women). The women with COVID-19 experienced higher rates of myocardial infarction and venous thromboembolism than those without COVID-19.

*Jering et al. (Jan 15, 2021). Clinical Characteristics and Outcomes of Hospitalized Women Giving Birth With and Without COVID-19. JAMA Internal Medicine. <https://doi.org/10.1001/jamainternmed.2020.9241>*

- Recorded use of angiotensin-converting enzyme inhibitors (ACEIs) or angiotensin II receptor blockers (ARBs) in the 30 days preceding their COVID-19 diagnosis was not associated with all-cause mortality or respiratory events in a cohort of 682 people with hypertension who tested positive for COVID-19. ACEI/ARB use was associated with lower rates of use of mechanical ventilation, ICU admission, and sepsis among COVID-19 patients.

*Kim et al. (Dec 29, 2020). Clinical Outcomes From COVID-19 Following Use of Angiotensin-Converting Enzyme Inhibitors or Angiotensin-Receptor Blockers Among Patients with*

*Hypertension in South Korea: A Nationwide Study. Epidemiology and Health.* <https://doi.org/10.4178/epih.e2021004>

- A study conducted among hospital workers in Illinois in May and June 2020 (n=6510) found that support service workers (10.4%), medical assistants (10.1%), and nurses (7.6%) had significantly higher prevalence of COVID-19 seropositivity than administrators (3.3%). Among participants who had a family member in their home who tested positive for COVID-19 (n=93), 54% were seropositive.

*Wilkins et al. (Jan 1, 2021). Seroprevalence and Correlates of SARS-CoV-2 Antibodies in Health Care Workers in Chicago. Open Forum Infectious Diseases.* <https://doi.org/10.1093/ofid/ofaa582>

- Elevated mitochondrial DNA levels measured within 24 hours of presentation were associated with mortality, ICU admission, intubation, vasopressor use, and renal replacement therapy in patients hospitalized with COVID-19. These associations were maintained after adjustment for age, sex, and comorbidities. Circulating mitochondrial DNA levels demonstrate similar or improved sensitivity over clinically established measurements for assessing potential outcomes for COVID-19 patients.

*Scozzi et al. (Jan 14, 2021). Circulating Mitochondrial DNA Is an Early Indicator of Severe Illness and Mortality from COVID-19. JCI Insight.* <https://doi.org/10.1172/jci.insight.143299>

## Mental Health and Personal Impact

- More stringent pandemic control responses were correlated with decreased perceived access to HIV prevention and treatment services in a study of 10,654 men who have sex with men from 20 countries. For every ten-point increase in stringency, assessed with the Oxford Government Response Tracker Stringency Index, there was a 3% reduction in the prevalence of perceived access to in-person testing, a 6% reduction in access to self-testing, and a 5% reduction in access to pre-exposure prophylaxis for HIV (PrEP).

*Rao et al. (Jan 13, 2021). Perceived Interruptions to HIV Prevention and Treatment Services Associated with COVID-19 for Gay, Bisexual, and Other Men Who Have Sex with Men in 20 Countries. JAIDS Journal of Acquired Immune Deficiency Syndromes.* <https://doi.org/10.1097/QAI.0000000000002620>

## Modeling and Prediction

- The COVID-19 pandemic could result in to 3 to 4 times larger reductions in life expectancy for Black and Latino populations in the United States compared to the reduction in life expectancy among white people. Estimated reductions in life expectancy were 2.1 in Black and 3.1 years in Latino populations versus 0.7 years in white populations. The authors carried out their analysis using deaths through October 9th, 2020, before cases and deaths associated with the holiday season.

*Andrasfay and Goldman. (Feb 2, 2021). Reductions in 2020 US Life Expectancy Due to COVID-19 and the Disproportionate Impact on the Black and Latino Populations. Proceedings of the National Academy of Sciences.* <https://doi.org/10.1073/pnas.2014746118>

- A comparison of lockdown measures and counts of COVID-19 cases across 9 countries using an SIR-based epidemic model found that lockdown policies were effective in reducing SARS CoV-2 infections. The models discerned two groups of countries. The first group included Sweden and the United States, which had either no lockdowns or abruptly ended lockdown policies and exhibited a prolonged plateau of new infections and higher values of  $R_0$ . The second group of countries (New Zealand, France, Spain, Germany, the Netherlands, and Italy) had early-onset stay-at-home orders

followed by gradual deconfinement associated with a rapid reduction in infected individuals and lower  $R_0$  during the study period of February 23, 2020 to June 14, 2020.

Mégarbane et al. (Jan 13, 2021). *Is Lockdown Effective in Limiting SARS-CoV-2 Epidemic Progression?—A Cross-Country Comparative Evaluation Using Epidemiokinetic Tools*. *Journal of General Internal Medicine*. <https://doi.org/10.1007/s11606-020-06345-5>

## Other Resources and Commentaries

- [Managing COVID-19 in Low- and Middle-Income Countries](#) – American Journal of Medicine and Tropical Hygiene
- [Placebo-Controlled Trials of Covid-19 Vaccines — Why We Still Need Them](#) – New England Journal of Medicine (Dec 2)
- [Past COVID-19 Infection Provides Some Immunity but People May Still Carry and Transmit Virus](#) – Public Health England (Jan 14)
- [Why a Pioneering Plan to Distribute COVID Vaccines Equitably Must Succeed](#) – Nature (Jan 14)
- [Traitorous COVID Antibodies and Fast-Spreading Variant](#) – Nature (Jan 14)
- [Online “anti-Vax” Campaigns and COVID-19: Censorship Is Not the Solution](#). – Public Health (Dec 16)
- [The Need for Inclusion of Pregnant Women in COVID-19 Vaccine Trials](#) – Vaccine (Jan 11)
- [Anaphylactic Reactions to Novel MRNA SARS-CoV-2/COVID-19 Vaccines](#) – Vaccine (Jan 6)
- [COVID-19 Vaccine Testing in Pregnant Females Is Necessary](#) – Journal of Clinical Investigation (Jan 14)
- [COVID Reinfections Are Unusual — but Could Still Help the Virus to Spread](#) – Nature (Jan 14)
- [Fake News and Science Denier Attacks on Vaccines. What Can You Do?](#) – Canada Communicable Disease Report (Nov 5)
- [Covid-19: Past Infection Provides 83% Protection for Five Months but May Not Stop Transmission, Study Finds](#) – BMJ (Jan 14)
- [On the Origins of SARS-CoV-2](#) – Nature Medicine (Jan 13)
- [Mitigating Ethnic Disparities in Covid-19 and Beyond](#) – BMJ (Jan 14)
- [COVID-19 Measures Also Suppress Flu—for Now](#) – Science (Jan 15)

*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*