



2019-nCoV Literature Situation Report (Lit Rep)

April 23, 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

- **A large, retrospective cohort analysis of patients enrolled in a Houston healthcare network (N=91,134) found that vaccination with 2 doses of either the Pfizer-BioNTech or Moderna vaccine reduced the risk of COVID-19 hospitalization by 96% and COVID-19 associated deaths by 99%. Additionally, the study found that persons with partial immunization, defined as 2-weeks following the 1st dose through 7 days following the 2nd dose, had a 77% lower risk of hospitalization and a 64% lower risk of death. [More](#)**
- **An analysis of state-level, race-stratified COVID-19 vaccination data found that vaccine coverage among Black and Hispanic US adults was 27% compared to 44% in white US adults as of March 31, 2021. The authors estimate that if current racial disparities in vaccination persist, Hispanic adults and Black adults would reach 75% coverage of ≥1 vaccine dose nationally 24 days and 30 days later, respectively, than white adults. [More](#)**
- **Among adult patients in Georgia with SARS-CoV-2 who were not hospitalized, approximately two thirds had at least one outpatient medical encounter 28–180 days after diagnosis, and approximately two thirds of these persons received a new illness diagnosis (not a pre-existing condition). Common new diagnoses included cough, shortness of breath, chest or throat pain, and fatigue, which the authors suggest likely represent ongoing COVID-19 symptoms. [More](#)**

Geographic Spread

- *[Pre-print, not peer-reviewed]* By February 2021, the SARS-CoV-2 B.1.526 lineage accounted for approximately 32% of 3,288 sequenced genomes from specimens collected in New York City. The lineage was first sequenced in November, 2020, when it accounted for less than 1% of sequenced genomes in the city. Using the Variant Database software, the authors noted that the sub-clade of this lineage, defined by the E484K mutation in the receptor binding domain of the spike protein, has outpaced the growth of other circulating variants in the area. Experiments with a pseudovirus containing spike protein mutations associated with this lineage showed more resistance to neutralization via plasma from convalescent and vaccinated individuals compared to the D614G lineage.

West et al. (Jan 1, 2021). Detection and Characterization of the SARS-CoV-2 Lineage B.1.526 in New York. BioRxiv. <https://doi.org/10.1101/2021.02.14.431043>

Vaccines and Immunity

- *[Pre-print, not peer-reviewed]* A large, nationally representative online survey of US adults ages 18-64 (N=732,308) found that COVID-19 vaccine hesitancy decreased from 28% in January 2021 to 22% in March 2021, but remained higher in specific occupational groups. Persons employed in physical/life sciences and education had the lowest vaccine hesitancy (9%) while persons employed in physical labor (e.g. construction, maintenance, and repair) had the highest levels of vaccine hesitancy (42-46%). Among healthcare workers, persons employed as medical assistants, emergency medical technicians/paramedics, and nursing assistants/psychiatric aides had the highest vaccine hesitancy (20-23%). Nearly half of respondents who reported vaccine hesitancy cited concerns about side effects while a third believed that they do not need a vaccine or expressed concerns about vaccine safety and government mistrust.

King et al. (Apr 23, 2021). COVID-19 Vaccine Hesitancy January-March 2021 among 18-64 Year Old US Adults by Employment and Occupation. Pre-print downloaded Apr 23 from <https://doi.org/10.1101/2021.04.20.21255821>

- *[Pre-print, not peer-reviewed]* A study of UK healthcare workers (N=974) vaccinated with the Pfizer-BioNTech vaccine found that prior SARS-CoV-2 infection, but not long-COVID, was associated with a higher incidence of self-reported adverse events following the first vaccine dose. Those with a self-reported prior SARS-CoV-2 infection were more likely to report ≥ 1 moderate-to-severe symptom with onset 24-48 hours post-vaccination (56% vs. 47%). The most commonly reported symptoms were fever, fatigue, muscle and joint pain, and swollen lymph nodes. Adverse events were more common in women and decreased with age. Adverse events were not statistically more common among the small subset of persons with long-COVID (N=30) compared to those without long-COVID.

Raw et al. (Apr 22, 2021). Previous COVID-19 Infection but Not Long-COVID Is Associated with Increased Adverse Events Following BNT162b2/Pfizer Vaccination. Pre-print downloaded Apr 23 from <https://doi.org/10.1101/2021.04.15.21252192>

- *[Pre-print, not peer-reviewed]* An analysis of state-level, race-stratified COVID-19 vaccination data found that Black and Hispanic adults have received proportionally lower levels of vaccinations compared to white adults. Across all states, adjusted for eligible population size, vaccine coverage among Black and Hispanic adults was 27% compared to 44% in white adults as of March 31, 2021. The authors estimate that if current racial disparities in vaccination persist, Hispanic adults and Black adults would reach 75% coverage of ≥ 1 vaccine dose nationally 24 days and 30 days later, respectively, than white adults. However, the authors also suggest that geographic targeting of vaccine to underserved populations could accelerate vaccine coverage in these groups.

Reitsma et al. (Apr 23, 2021). Addressing Racial/ethnic Disparities in the COVID-19 Vaccination Campaign. Pre-print downloaded Apr 23 from <https://doi.org/10.1101/2021.04.21.21255878>

- *[Pre-print, not peer-reviewed]* A large, retrospective cohort analysis of patients enrolled in a Houston, TX healthcare network (N=91,134) found that vaccination with 2 doses of either the Pfizer-BioNTech or Moderna vaccine reduced the risk of COVID-19 hospitalization by 96% and COVID-19 associated deaths by 99%. Additionally, the study found that persons with partial immunization, (defined as 2 weeks following the 1st dose through 7 days following the 2nd dose) had a 77% lower risk of hospitalization and a 64% lower risk of death. Effectiveness did not differ significantly across populations defined by age, race/ethnicity, area deprivation index, or comorbidities. The authors note that this is the largest cohort vaccine effectiveness study in a US population published to date.

Clinical Characteristics and Health Care Setting

- Among adult patients with SARS-CoV-2 who were not hospitalized and who were enrolled in an integrated health system in Georgia, approximately two thirds had at least 1 outpatient medical encounter 28–180 days after diagnosis, and approximately two thirds of these persons received a new primary diagnosis at one or more visits. New diagnoses included cough, shortness of breath, chest or throat pain, and fatigue, which the authors suggest likely represent ongoing COVID-19 symptoms and are consistent with other reports of patient-reported symptoms months after SARS-CoV-2 infection. COVID-19–related visits declined from 24 per 10,000 person-days during the 28–59-day interval to fewer than two per 10,000 person-days during the 120–180-day interval. However, whether the number of visits among non-hospitalized adults 28–180 days after COVID-19 diagnosis is higher compared with adults without COVID-19 remains unclear.

March et al. (2021). Health Care Utilization and Clinical Characteristics of Nonhospitalized Adults in an Integrated Health Care System 28 – 180 Days After COVID-19 Diagnosis — Georgia, May 2020–March 2021. *MMWR*. <https://www.cdc.gov/mmwr/volumes/70/wr/mm7017e3.htm>

- A retrospective evaluation of WHO SARS-CoV-2 daily situation reports data found that the global cumulative reported case fatality rate (rCFR) reached a peak of 7.2% during the week of April 22-28, 2020 before declining to 2.2% in December 28-31, 2020. The decline in rCFR was not associated with an increase in tests performed. However, county-level models showed that the proportion of the population over age 65 and the prevalence of obesity were significantly associated with higher rCFR. The authors suggest that the observed decline in rCFR may be due to increased rates of infection in young persons, improvements in medical management, and efforts to shield persons at high risk for severe disease.

Hasan et al. (Apr 21, 2021). The Global Case-Fatality Rate of COVID-19 Has Been Declining Since May 2020. *The American Journal of Tropical Medicine and Hygiene*. <https://doi.org/10.4269/ajtmh.20-1496>

- [Pre-print, not peer-reviewed] A single-center study of patients admitted for COVID-19 pneumonia with diabetes (N=176) found that having new-onset diabetes was associated with higher risk of ICU admission and death and a longer time to viral clearance compared to having a preexisting diagnosis of diabetes. Nearly 30% of patients with new-onset diabetes did not have clinical indicators of diabetes after viral clearance, suggesting that reversible, transient inflammatory factors may trigger hyperglycemia in some patients with COVID-19. The authors suggest that the higher incidence of severe outcomes in patients with new-onset diabetes highlights the importance of screening for hyperglycemia in patients hospitalized with COVID-19 at admission.

Laurenzi et al. (Apr 22, 2021). Preexisting and New-Onset Diabetes in Patients with COVID-19 Pneumonia. Pre-print downloaded Apr 23 from <https://doi.org/10.1101/2021.04.17.21255548>

- A systematic review and meta-analysis found no association between angiotensin inhibitor (ACE) use and COVID-19 severity or mortality. The authors suggest that these data may indicate that the presence of hypertension, rather than the use of ACEs, is a greater risk factor for severe COVID-19 outcomes. The authors conclude that there is no evidence to support discontinuation of ACE drugs to prevent COVID-19-associated morbidity.

Ma et al. (Apr 2021). Does Taking an Angiotensin Inhibitor Increase the Risk for COVID-19? - A Systematic Review and Meta-Analysis. *Aging*. <https://doi.org/10.18632/aging.202902>

Public Health Policy and Practice

- An analysis of hospitalized adult patients admitted at 6 US Level I trauma centers from 2018-2020 (N=31,225) found that the proportion of patients without health insurance increased from 15% to 21%. The authors hypothesized that the proportion of patients without insurance would increase due to higher rates of unemployment during the pandemic. However, the proportion of patients with commercial or private insurance coverage remained stable during the study period (40%) while the proportion of patients with Medicare decreased significantly from 39% to 34%. The authors hypothesize that a growing workforce during the years preceding the COVID-19 pandemic may have blunted any reductions in employment-associated insurance coverage, while the reduction in Medicare coverage may be explained by a shift to a younger trauma patient population during the pandemic.

Sercy et al. (2021). Effect of the COVID-19 Pandemic on Health Insurance Coverage among Trauma Patients: A Study of Six Level I Trauma Centers. *Trauma Surgery & Acute Care Open*. <https://doi.org/10.1136/tsaco-2020-000640>

Other Resources and Commentaries

- [State Health Disparities Research in Rural America: Gaps and Future Directions in an Era of COVID-19](#) – The Journal of Rural Health : Official Journal of the American Rural Health Association and the National Rural Health Care Association (Apr)
- [Platform Trials — Beware the Noncomparable Control Group](#) – New England Journal of Medicine (Apr 22)
- [Recombinant Protein Vaccines against SARS-CoV-2](#) – The Lancet Infectious Diseases (Apr)
- [The SARS-CoV-2 and Other Human Coronavirus Spike Proteins Are Fine-Tuned towards Temperature and Proteases of the Human Airways](#) – PLoS Pathogens (Apr)
- [Model-Based Evaluation of Alternative Reactive Class Closure Strategies against COVID-19](#) – MedRxiv (Apr 23)
- [Exploring the Effects on Student Learning and Engagement of COVID-19: An Innovative and Interdisciplinary Approach](#) – Journal of Microbiology & Biology Education (2021)
- [India’s Massive COVID Surge Puzzles Scientists](#) – Nature (Apr 21)
- [Remote Research and Clinical Trial Integrity During and After the Coronavirus Pandemic](#) – JAMA (Apr 22)
- [COVID-19 Herd Immunity by Immunisation: Are Children in the Herd](#) – The Lancet Infectious Diseases (Apr)
- [Audio Interview: Covid-19 Vaccines and Pregnancy — A Conversation with CDC Director Rochelle Walensky](#) – New England Journal of Medicine (Apr 22)
- [Adult Multisystem Inflammatory Syndrome in a Patient Who Recovered from COVID-19 Postvaccination](#) – BMJ Case Reports (Apr)

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