

2019-nCoV Literature Situation Report (Lit Rep) February 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

- **Mask adherence among children in US summer camps was approximately 34% among surveyed summer camps (n=486) that operated in 2020 and 15% of camps reported one or more confirmed COVID-19 cases in either campers or staff. Facial coverings among staff and targeted physical distancing measures were associated with lower COVID-19 risks, but not to the same degree as campers wearing masks. [More](#)**
- **During the first 2 months of the 2020-2021 school year (August to October 2020) when schools reopened with in-person instruction, children and adolescents in France had lower risk of a positive SARS-CoV-2 PCR test and lower incidence of infection compared to adults, though risk among older adolescents was close to that of adults. [More](#)**
- **The first doses of the Pfizer and the Oxford-AstraZeneca vaccines were associated with an efficacy of 85% and 94%, respectively, in preventing COVID-19-related hospitalization at 28-34 days post-vaccination among recipients in Scotland. Peak efficacy was similar among those aged 80 or older. The combined vaccine efficacy declined to 58% at 48 or more days after the first dose without a second vaccine dose. [More](#)**
- **Pooled analysis of four randomized placebo-controlled trials (total n=24,00) of the efficacy of the Oxford-AstraZeneca vaccine show that overall efficacy against symptomatic SARS-CoV-2 infection was 67% at >14 days after the second dose. Among those who receive two standard doses, the vaccine efficacy after the second dose was 82% when doses were ≥12 weeks apart and 55% when doses were <6 weeks apart. [More](#)**

Non-Pharmaceutical Interventions

- *[Pre-print, not peer-reviewed]* Mask adherence among children in US summer camps was approximately 34% according to a survey of 486 summer camps that operated in 2020. Approximately 15% of camps reported one or more confirmed COVID-19 cases in either campers or staff, with three camps reporting a COVID-19 outbreak. Among the types of non-pharmaceutical interventions implemented, facial coverings among campers were associated with the lowest risk of COVID-19. Facial coverings among staff and targeted physical distancing measures reduced COVID-19 risks, but not as effectively as campers wearing masks. Pre-camp quarantine was not associated with reduced risk of COVID-19.

Suh et al. (Feb 22, 2021). Effectiveness of Non-Pharmaceutical Interventions on Child and Staff COVID-19 Cases in US Summer Camps. Pre-print downloaded Feb 23 from <https://doi.org/10.1101/2021.02.18.21250271>

Transmission

- Children and adolescents in France had lower risk of a positive SARS-CoV-2 PCR test and lower incidence of infection compared to adults during the first 2 months of the 2020-2021 school year (August to October 2020), though risk among older adolescents was close to that of adults. Schools re-opened with infection control measures in place, such as mandatory face coverings for staff and secondary school students. By October, children aged 0-5 years and 6-17 were 54% and 31% less likely to have a positive PCR test compared to adults. Compared to adults during the 2-month study period, children aged 0-5 years, 6-10, 11-14 were 91%, 69%, 36% less likely to acquire SARS-CoV-2 infection, respectively, while children aged 15-17 years were 7% more likely to get infected. The proportion of the infected who were asymptomatic was 57% in August and 48% in October.

Gras-Le Guen et al. (Feb 15, 2021). Reopening Schools in the Context of Increasing COVID-19 Community Transmission: The French Experience. Archives de Pédiatrie.

<https://doi.org/10.1016/j.arcped.2021.02.001>

Geographic Spread

- Analysis of nearly 6,000 publicly available SARS-CoV-2 genome assemblies in South America identified a total of 169 circulating lineages across 16 South American countries, with the B lineage the predominantly circulating lineage. Lineages of concern that were identified include the P.1 variant (94 genomes) and the B.1.1.7 variant (28 genomes), with both variants displaying 33 mutations compared to the reference strain. In contrast, other circulating lineages had 24 or fewer mutations compared to the reference strain.

Muñoz et al. (Feb 2021). Characterizing SARS-CoV-2 Genome Diversity Circulating in South American Countries: Signatures of Potentially Emergent Lineages? International Journal of Infectious Diseases. <https://doi.org/10.1016/j.ijid.2021.02.073>

Testing and Treatment

- Saliva RT-PCR had a sensitivity of 88% and specificity of 99% compared to nasopharyngeal swabs (NPS) in a study of 485 NPS and saliva sample pairs collected from 476 children presenting for COVID-19 screening in Dubai. Viral detection in at least one specimen type was reported in 18%, with 17% in NPS alone and 16% in saliva alone. Concordance of findings between the NPS and saliva did not differ by age or gender.

Al Suwaidi et al. (Feb 2021). Saliva for Molecular Detection of SARS-CoV-2 in School-Aged Children. Clinical Microbiology and Infection. <https://doi.org/10.1016/j.cmi.2021.02.009>

- The average SARS-CoV-2 IgG levels among first-time US COVID-19 convalescent plasma donations have dropped significantly, according to a longitudinal analysis of 8,749 plasma units collected from April to September 2020. The decrease in mean IgG values were significantly correlated with decreases in mean plasma donor age and the percentage of units obtained from donors who had been hospitalized. The highest titer plasma units were obtained from acutely convalescent COVID-19 patients requiring hospitalization, and advanced age donors.

Karbiener et al. (Feb 22, 2021). Longitudinal Analysis of SARS-CoV-2 Antibodies in 8000 U.S. First-time Convalescent Plasma Donations. Transfusion. <https://doi.org/10.1111/trf.16291>

- COVID-19 outbreaks across two Utah communities positively correlated with an increase in wastewater SARS-CoV-2 RNA. Wastewater surveillance only cost \$0.005-\$0.10 per capita, according

to a wastewater epidemiology study conducted in 10 wastewater facilities covering approximately 1.26 million Utah residents. Overall, RNA was detected in 61% of 126 wastewater samples.

Weidhaas et al. (Feb 12, 2021). *Correlation of SARS-CoV-2 RNA in Wastewater with COVID-19 Disease Burden in Sewersheds*. *Science of The Total Environment*.

<https://doi.org/10.1016/j.scitotenv.2021.145790>

Vaccines and Immunity

- [Pre-print, not peer-reviewed] Antibodies collected from people who had been infected with SARS-CoV-2 or who had received the Moderna vaccine showed lower levels of binding to the SARS-CoV-2 B.1.351 variant (first described in South Africa) compared to the D614G variant that has been dominant globally. This effect was observed for antibodies from individuals with acute infection within 5-19 days post-symptom onset (n=19), recovering individuals through 8 months post-symptom onset (n=30), and individuals within 14 days of the 2nd dose of the Moderna vaccine (n=19). There was a 4.3-fold average reduction in IgG antibody titers to the B.1.351-derived receptor binding domain of the spike protein and 3.5-fold average reduction in neutralizing titers. Reduction in neutralizing titers was lowest among convalescent individuals at the 3-8 month timepoint (2.1-fold reduction), followed by vaccinated individuals (3.8-fold reduction). However, most sera from acutely infected (74%) and convalescent individuals (77% at 1-3 months and 85% at 1-3 months) and all sera from vaccinated individuals neutralized the SARS-CoV-2 B.1.351 variant *in vitro*.

Edara et al. (Feb 22, 2021). *Reduced Binding and Neutralization of Infection- and Vaccine-Induced Antibodies to the B.1.351 (South African) SARS-CoV-2 Variant*. Pre-print downloaded Feb 23 from <https://doi.org/10.1101/2021.02.20.432046>

- [Pre-print, not peer-reviewed] Essential healthcare workers included in the Phase 1a population defined by the Advisory Committee on Immunization Practices (ACIP) prioritized for vaccination were estimated to have a larger share of women (74%), non-Hispanic Black individuals (18%), and adults aged 25-44 years (41%) compared to the general US population. Phase 1b has a more equal gender balance (49% women), larger proportion of non-Hispanic white individuals (70%), and adults aged ≥75 years (35%). Phase 1c largely follows the demographic distribution of the general population, while Phase 2 includes higher proportions of men (54%), adults aged 18-24 years and 25-44 years, and Hispanic Americans (24%).

Vashist et al. (Feb 22, 2021). *Demographic Benchmarks for Equitable Coverage of the COVID-19 Vaccination Program among Priority Populations*. Pre-print downloaded Feb 23 from <https://doi.org/10.1101/2021.02.18.21251992>

- [Pre-print, not peer-reviewed] A national prospective cohort study including approximately 99% of residents in Scotland (n=5.4 million) found a peak vaccine efficacy to prevent COVID-19-related hospitalization following a first dose of 85% (95% CI: 76-91%) for the Pfizer vaccine and 94% (95% CI: 73-99%) for the Oxford-AstraZeneca vaccine, with the peak occurring at 28-34 days post-vaccination. Approximately 35% of the study cohort was vaccinated. Restricting that analysis to those aged 80 or older resulted in an efficacy of 81% at 28-34 days post-vaccination. Vaccine efficacy in preventing hospitalization declined to 58% at 48 or more days post-vaccination, with the largest decline among those aged 18-64 years.

Vasileiou et al. (Feb 19, 2021). *Effectiveness of First Dose of COVID-19 Vaccines against Hospital Admissions in Scotland: National Prospective Cohort Study of 5.4 Million People*. Pre-print downloaded Feb 23 from <https://ssrn.com/abstract=3789264>

- Pooled analysis of four randomized placebo-controlled trials (total n=24,422) of the Oxford-AstraZeneca ChAdOx1 nCov-19 (AZD1222) vaccine show that overall efficacy against symptomatic SARS-CoV-2 infection >14 days after the second dose was 66.7% (95%CI: 57.4-74.0%), with 84 cases (1% cumulative incidence) in the 8,597 participants in the vaccine group and 248 cases (2.9% cumulative incidence) in the 8,581 participants in the control group.
- Efficacy appears to have been greater when doses were administered ≥12 weeks apart. Among those receiving two standard doses, the vaccine efficacy after the second dose was 81.3% (95%CI: 60.3-91.2%) when doses were ≥12 weeks apart and 55.1% (95%CI: 33.0-69.9%) when doses were <6 weeks apart. Exploratory analyses showed that vaccine efficacy after a single standard dose of vaccine from day 22 to day 90 after vaccination was 76.0% (59.3–85.9%)
- Participants included in this pooled analysis were from studies in the UK (COV001) and (COV002), Brazil (COV003), and South Africa (COV005). [EDITORIAL NOTE: A pre-print version of this analysis was summarized in this report on February 3, 2021.]

Voysey et al. (Feb 19, 2021). *Single-Dose Administration and the Influence of the Timing of the Booster Dose on Immunogenicity and Efficacy of ChAdOx1 NCoV-19 (AZD1222) Vaccine: A Pooled Analysis of Four Randomised Trials*. *The Lancet*. [https://doi.org/10.1016/S0140-6736\(21\)00432-3](https://doi.org/10.1016/S0140-6736(21)00432-3)

Clinical Characteristics and Health Care Setting

- In a systematic review and meta-analysis of 87 articles including over 35,000 patients and almost 6,000 deaths, diabetes mellitus was the best predictor of COVID-19-associated mortality rate after adjusting for confounders including age and gender, followed by chronic pulmonary obstructive disease and malignancies.

Corona et al. (Feb 22, 2021). *Diabetes Is Most Important Cause for Mortality in COVID-19 Hospitalized Patients: Systematic Review and Meta-Analysis*. *Reviews in Endocrine and Metabolic Disorders*. <https://doi.org/10.1007/s11154-021-09630-8>

Modeling and Prediction

- A model using population-based data from US states suggests that voluntary behavioral changes, such as reducing time at work, could have up to a 3-fold higher impact on reducing COVID-19 incidence compared to school closures. Each day earlier that school closures were implemented was associated with a 3.5% reduction in incidence, whereas each day earlier that behavioral changes were implemented was associated with a 9.3% reduction. Simulations suggest that a 2-week delay in school closures alone could have resulted in 23,000 additional deaths, while a 2-week delay in voluntary behavioral change with school closures could have resulted in 140,000 additional deaths. [EDITORIAL NOTE: The abstract states that associations with reductions in incidence were per day of delay in implementation of closures, but based on the results section, it appears that the correct interpretation should be per day of earlier implementation.]

Zimmerman and Anderson. (Feb 22, 2021). *Association of the Timing of School Closings and Behavioral Changes With the Evolution of the Coronavirus Disease 2019 Pandemic in the US*. *JAMA Pediatrics*. <https://doi.org/10.1001/jamapediatrics.2020.6371>

Public Health Policy and Practice

- A retrospective cohort study of over 17,687 singleton deliveries prior to the COVID-19 pandemic (January 2018 to January 2020) and over 5,396 singleton deliveries during the pandemic (April 2020 to October 2020) at a single tertiary center in Pennsylvania found a small but statistically significant

decrease in overall preterm birth (11% vs 10%). Both spontaneous and indicated preterm births decreased in the study population. However, decreases in spontaneous preterm birth were limited to deliveries to women from more advantaged neighborhoods (most advantaged: 4.4 vs. 3.8%; least advantaged: 7.2 vs. 7.4%), white mothers (white: 5.6 vs 4.7%; Black: 6.6 vs 7.1%), and those receiving care from providers at clinics that do not provide prenatal care to those eligible for Medicare/Medicaid (non-OPC) (non-OPC providers: 5.5 vs 4.8%; OPC-providers: 6.3 vs 6.7%).

Lemon et al. (Feb 18, 2021). What Is Driving the Decreased Incidence of Preterm Birth during the COVID-19 Pandemic? American Journal of Obstetrics & Gynecology MFM.

<https://doi.org/10.1016/j.ajogmf.2021.100330>

Other Resources and Commentaries

- [Health Equity and the Public Health Code of Ethics: Rebuilding Trust from the COVID-19 Pandemic](#) – The American Journal of Bioethics (Feb 22)
- [MAB for Symptomatic COVID-19 in Correctional Facilities: An Important Opportunity](#) – The Lancet (Feb 19)
- [Same Script, Different Viruses: HIV and COVID-19 in US Black Communities](#) – The Lancet (Feb 18)
- [Race, Racism, and Structural Injustice: Equitable Allocation and Distribution of Vaccines for the COVID-19](#) – The American Journal of Bioethics (Feb 22)
- [Trends in Trauma Admissions During the COVID-19 Pandemic in Los Angeles County, California](#) – JAMA Network Open (Feb 22)
- [The Birth of Injustice: COVID-19 Hospital Infection Control Policy on Latinx Birth Experience](#) – The American Journal of Bioethics (Feb 22)
- [Will Student Contracts Keep Campuses Safe From COVID-19? A Behavioral Science Perspective](#) – Public Health Reports (Feb 22)
- [Unmasked: How the COVID-19 Pandemic Exacerbates Disparities for People With Communication-Based Disabilities](#) – Journal of Hospital Medicine (Feb 17)
- [Adoption of COVID-19 Contact Tracing Apps: A Balance Between Privacy and Effectiveness \(Preprint\)](#) – Journal of Medical Internet Research (Feb 22)
- [Biodetection Dogs for COVID-19: An Alternative Diagnostic Screening Strategy](#) – Public Health (Jan 19)
- [Rationale to Continue Approving Placebo-Controlled COVID-19 Vaccine Trials in LMICs](#) – The Lancet (Feb 19)
- [Identifying COVID-19 Risk Through Observational Studies to Inform Control Measures](#) – JAMA (Feb 22)
- [Reifying Racism in the COVID-19 Pandemic Response](#) – The American Journal of Bioethics (Feb 22)
- [The Invisibility of Asian Americans in COVID-19 Data, Reporting, and Relief](#) – The American Journal of Bioethics (Feb 22)
- [Equitable Access to Research Benefits: Considerations for COVID-19 Vaccine Development and Clinical Trial Crossover](#) – The American Journal of Bioethics (Feb 22)
- [Sinophobic Epidemics in America: Historical Discontinuity in Disease-Related Yellow Peril Imaginaries of the Past and Present](#) – Journal of Medical Humanities (Feb 22)

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