



2019-nCoV Literature Situation Report (Lit Rep)

March 3, 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 study of the real-world effectiveness of the Pfizer-BioNTech and Oxford-AstraZeneca vaccines indicated that vaccination with a single dose of either vaccine was associated with a significant reduction in symptomatic COVID-19 cases in older adults, with strong protection against severe disease.** [More](#)
- **On January 25, 2021, the Minnesota Department of Health identified the first US cases of infection with the SARS-CoV-2 variant P.1 in two individuals with recent travel history to Brazil. No high-risk exposures were identified among health care personnel with whom these individuals interacted and no positive test results were reported.** [More](#)
- **Large scale whole genome sequencing of a large number of SARS-CoV-2 samples from clinical isolates in Houston identified the presence of all variants of interest (B.1.1.7, B.1.351, P.1, B.1.429 and B.1.427). None of the affected patients were from a common household or reported recent international travel.** [More](#)

Non-Pharmaceutical Interventions

- Among people who were referred to isolation and quarantine (I/Q) hotels in San Francisco from hospitals, outpatient settings, and public health surveillance, 81% completed their recommended I/Q course. The retrospective cohort study found that of the 1,009 I/Q hotel guests, 501 (50%) were persons experiencing sheltered (n=295) or unsheltered (n=206) homelessness, 33% had other medical disorders, 25% had mental health disorders, and 26% had substance use disorders. The factors that were most strongly associated with premature discontinuation were unsheltered homelessness (aOR=4.5) and quarantine status (compared to isolation) (aOR=2.6).

Fuchs et al. (Mar 2, 2021). Assessment of a Hotel-Based COVID-19 Isolation and Quarantine Strategy for Persons Experiencing Homelessness. JAMA Network Open.
<https://doi.org/10.1001/jamanetworkopen.2021.0490>

Transmission

- *[Pre-print, not peer-reviewed]* Some SARS-CoV-2 variants circulating in San Francisco with increasing prevalence may spread more efficiently to household contacts when compared to prior variants. Using SARS-CoV-2 genomic sequencing and epidemiological data collected from a walk-up rapid testing site in San Francisco, household contacts exposed to individuals infected with certain variants (including those with mutations L452R, S13I, and W152C) were more likely to be infected compared to household contacts exposed to lineages lacking these variants (RR=1.3; 95%CI: 1.01-1.64). These lineages of concern comprised 55% of the total sequences from January, compared to 16% in November. Viral loads were similar among persons infected with these variants versus other

circulating strains, as was the proportion of individuals with symptoms (61% vs 64%). The authors suggest that the results indicate a modest transmissibility increase associated with these variants appearing on the West Coast.

Peng et al. (Mar 3, 2021). *Estimation of Secondary Household Attack Rates for Emergent SARS-CoV-2 Variants Detected by Genomic Surveillance at a Community-Based Testing Site in San Francisco*. Pre-print downloaded Mar 3 from <https://doi.org/10.1101/2021.03.01.21252705>

- A study of SARS-CoV-2 viral shedding showed that while most (97%) of people with mild to moderate COVID-19 continue to shed viral RNA for more than 10 days after symptom onset, virus could not be recovered by cell culture in any of the 35 individuals sampled more than 10 days after symptom onset. The authors conclude that this provides some evidence that individuals with mild to moderate COVID-19 are less likely to be infectious ≥ 10 days after symptom onset.

Owusu et al. (Feb 27, 2021). *Persistent SARS-CoV-2 RNA Shedding without Evidence of Infectiousness: A Cohort Study of Individuals with COVID-19*. *The Journal of Infectious Diseases*. <https://doi.org/10.1093/infdis/jiab107>

Geographic Spread

- On January 25, 2021, the Minnesota Department of Health identified the first US cases of infection with the SARS-CoV-2 variant of concern P.1 (first identified in persons from Brazil) in two individuals, one of whom had a recent travel history to Brazil. Whole genome sequencing revealed identical sequences from both individuals, who lived in the same household, with 15 of the 17 mutations associated with the P.1 variant. No high-risk exposures were identified among health care personnel with whom these individuals interacted, among whom 22 (20%) submitted specimens for testing, and no positive test results were reported.

Firestone et al. (Mar 3, 2021). *First Identified Cases of SARS-CoV-2 Variant P.1 in the United States — Minnesota, January 2021*. *MMWR*. <https://doi.org/10.15585/mmwr.mm7010e1>

- On January 10, 2021, an individual infected with the SARS-CoV-2 B.1.1.7 variant was identified in Texas. No secondary cases with epidemiologic links to the patient have been identified to date. A case investigation revealed that the individual had traveled to the United Kingdom during November 13–December 30, 2020, and reported having been exposed to a relative experiencing COVID-19–compatible symptoms on December 24. In preparation for travel back to the US, the individual received a negative SARS-CoV-2 antigen test result on December 28. On December 30, the patient disclosed a runny nose during the pretravel interview but was cleared to fly from London to Dallas on that day.

Ojelade et al. (Mar 3, 2021). *Travel from the United Kingdom to the United States by a Symptomatic Patient Infected with the SARS-CoV-2 B.1.1.7 Variant — Texas, January 2021*. *MMWR*. <https://doi.org/10.15585/mmwr.mm7010e2>

- [Pre-print, not peer-reviewed] Genomic sequencing of 20,453 virus specimens in Houston, Texas identified the presence of all variants of interest or concern (n=23 of B.1.1.7, n=2 of B.1.351, n=4 of P.1, and n=143 of B.1.429 and n=19 of B.1.427). None of the affected patients were from a common household or reported recent international travel, suggesting that infections were independently acquired locally or during domestic travel.

Long et al. (Mar 2, 2021). *Sequence Analysis of 20453 SARS-CoV-2 Genomes from the Houston Metropolitan Area Identifies the Emergence and Widespread Distribution of Multiple Isolates of All Major Variants of Concern*. Pre-print downloaded Mar 3 from <https://doi.org/10.1101/2021.02.26.21252227>

Testing and Treatment

- *[Pre-print, not peer-reviewed]* A comparison of six commercial rapid antigen lateral flow devices (LFDs) using combined nasal/oropharyngeal swabs obtained from clinical specimens demonstrated sensitivities ranging from 65% to 89%. Sensitivity increased in most tests to over 90% for samples with cycle threshold (Ct) lower than 25 (higher viral concentrations) and most had a high specificity (>98%). Sensitivity increased to over 95% when compared with the detection of infectious virus alone (defined as recovery of virus from cell culture), irrespective of Ct. Test performance did not change in swabs with the B.1.1.7 variant.

Pickering et al. (Mar 2, 2021). Comparative Performance of SARS-CoV-2 Lateral Flow Antigen Tests Demonstrates Their Utility for High Sensitivity Detection of Infectious Virus in Clinical Specimens. Pre-print downloaded Mar 3 from <https://doi.org/10.1101/2021.02.27.21252427>

Vaccines and Immunity

- *[Pre-print, not peer-reviewed]* Reduced neutralization titers against the P.1 SARS-CoV-2 variant were found in both convalescent plasma (6.5-fold) and plasma from individuals who received an mRNA vaccine (2.2-2.8-fold). The P.1 variant completely resisted neutralization by multiple neutralizing monoclonal antibodies. Using a VSV-based SARS-CoV-2 pseudovirus with all 10 mutations of the P.1 variant, the authors note that the magnitude of the loss of activity from vaccinated individuals against this variant was modest relative to that observed with the B.1.351 variant.

Wang et al. (Mar 2, 2021). Increased Resistance of SARS-CoV-2 Variant P.1 to Antibody Neutralization. Pre-print downloaded Mar 3 from <https://doi.org/10.1101/2021.03.01.433466>

- *[Pre-print, not peer-reviewed]* Significantly elevated levels of SARS-CoV-2 specific IgG and IgA antibodies were observed in breast milk starting 7 days after the initial vaccine dose in a cohort study of six lactating women who had received both doses of either the Pfizer/BioNTech or Moderna vaccines. The authors note that the response following vaccination was IgG dominant, in contrast to natural infection in which other studies have found IgA predominates.

Baird et al. (Mar 2, 2021). SARS-CoV-2 Antibodies Detected in Human Breast Milk Post-Vaccination. Pre-print downloaded Mar 3 from <https://doi.org/10.1101/2021.02.23.21252328>

- *[Pre-print, not peer-reviewed]* A study of the real-world effectiveness of the Pfizer-BioNTech and Oxford-AstraZeneca vaccines in the UK indicated that vaccination with a single dose of either vaccine was associated with a significant reduction in symptomatic COVID-19 cases in older adults, with strong protection against severe disease. Effects of the Pfizer-BioNTech vaccine among adults 80 and older were observed 10-13 days after vaccination, reaching an effectiveness of 70% from 28-34 days. From 14 days after the second dose, vaccine efficacy was 89%. For those 70 and older, vaccine effectiveness reached 61% from 28-34 days after vaccination. With the Oxford-AstraZeneca vaccine, vaccine effects were seen from 14-20 days after vaccination, efficacy was 60% from 28-34 days, and increased to 73% from day 35 onwards.

Bernal et al. (Mar 2, 2021). Early Effectiveness of COVID-19 Vaccination with BNT162b2 mRNA Vaccine and ChAdOx1 Adenovirus Vector Vaccine on Symptomatic Disease Hospitalisations and Mortality in Older Adults in England. Pre-print downloaded Mar 3 from <https://doi.org/10.1101/2021.03.01.21252652>

- *[Pre-print, not peer-reviewed]* The willingness of United States Healthcare workers (HCW) to receive an emergency use authorization (EUA)-approved COVID-19 vaccine increased substantially from October, 2020 to December, 2020, according to data from the Healthcare Worker Exposure Response and Outcomes (HERO) Registry. The largest gain in vaccine willingness was observed among physicians, 91% of whom said they would take a vaccine in December, compared to 64% in October. Nurses were the least likely to report that they would take a vaccine, with 67% reporting

they would take a vaccine in December (an increase from 47 in October). Overall, 76% of HCW said that they would take a COVID-19 vaccine, an increase from 54% in October.

O'Brien et al. (Mar 3, 2021). *Recent Changes in COVID-19 Vaccine Hesitancy among Healthcare Workers*. Pre-print downloaded Mar 3 from <https://doi.org/10.1101/2021.03.01.21252457>

- [Pre-print, not peer-reviewed] Results from a multicenter, randomized, observer-blinded, placebo-controlled trial in South Africa of the NVX-CoV2373 (Novavax) nanoparticle vaccine indicated that among 2,684 participants who were SARS-CoV-2 seronegative at baseline (94% HIV-negative; 6% people living with HIV), vaccine efficacy was 49.4%, with 15 and 29 predominantly mild to moderate COVID-19 cases in vaccine and placebo recipients, respectively. Efficacy in HIV-negative participants was 60.1% and did not differ by baseline SARS-CoV-2 serostatus. Of the primary endpoint COVID-19 cases with available whole genome sequencing, 38 (92.7%) of 41 were the B.1.351 variant.
- One notable finding from the study was that among placebo recipients, the incidence of symptomatic COVID-19 was similar in those with and without evidence of antibodies against SARS-CoV-2 at baseline during the first 2 months of follow-up (5.3% vs 5.2%). The authors conclude that this suggests prior infection provided no protection against developing clinical disease when infected with the B.1.351 variant.

Shinde et al. (Mar 3, 2021). *Preliminary Efficacy of the NVX-CoV2373 Covid-19 Vaccine Against the B.1.351 Variant*. Pre-print downloaded Mar 3 from <https://doi.org/10.1101/2021.02.25.21252477>

Other Resources and Commentaries

- [Reimagining the Role of School-Based Health Centers During the COVID-19 Pandemic](#) – Journal of School Health (Mar 2)
- [COVID-19 Drug Practices Risk Antimicrobial Resistance Evolution](#) – The Lancet Microbe (Feb 24)
- [Risk of Symptomatic COVID-19 Due to Aircraft Transmission: A Retrospective Cohort Study of Contact-traced Flights during England's Containment Phase](#) – Influenza and Other Respiratory Viruses (Mar 1)
- [Assessing the Human Immune Response to SARS-CoV-2 Variants](#) – Nature Medicine (Mar 1)
- [COVID-19 Mortality in California Based on Death Certificates Disproportionate Impacts Across Racial/Ethnic Groups and Nativity](#) – MedRxiv (Mar 3)
- [The SARS-CoV-2 Antibody Landscape Is Lower in Magnitude for Structural Proteins, Diversified for Accessory Proteins and Stable Long-Term in Children](#) – MedRxiv (Jan 4)
- [Want to Track Pandemic Variants Faster? Fix the Bioinformatics Bottleneck](#) – Nature (Mar 4)
- [J&J's Single-Dose COVID Vaccine Raises Hopes for Faster Rollout](#) – Nature (Mar 1)
- [Covid-19: Where Are We on Vaccines and Variants](#) – BMJ (Mar 2)
- [The Search for Animals Harboring Coronavirus — and Why It Matters](#) – Nature (Mar 4)
- [An Urgent Call to Collect Data Related to COVID-19 and Indigenous Populations Globally](#) – BMJ Global Health (Mar 2)
- [Years of Life Lost Associated with COVID-19 Deaths in the United States During the First Year of the Pandemic](#) – MedRxiv (Mar 3)
- [Does Telemedicine Reduce Health Disparities? Longitudinal Evidence during the COVID-19 Pandemic in the US](#) – MedRxiv (Mar 2)
- [Association Between COVID-19 Lockdown Measures and Emergency Department Visits for Violence-Related Injuries in Cardiff, Wales](#) – JAMA (Mar 2)
- [Informing Patients That They Are at High Risk for Serious Complications of Viral Infection Increases Vaccination Rates](#) – MedRxiv (Feb 23)

- [COVID-19 Vaccine Acceptance among Pregnant Women and Mothers of Young Children: Results of a Survey in 16 Countries](#) – European Journal of Epidemiology (Mar 1)
- [Persistent SARS-CoV-2 Infection and Increasing Viral Variants in Children and Young Adults with Impaired Humoral Immunity](#) – MedRxiv (Mar 2)

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