



2019-nCoV Literature Situation Report (Lit Rep) February 5, 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

- **The ChAdOx1 (Oxford-AstraZeneca) vaccine against symptomatic COVID-19 disease had similar efficacy against B.1.1.7 and non-B.1.1.7 viral lineages. Among those who were vaccinated and subsequently became infected with SARS-CoV-2, both the duration of shedding and viral load were lower than among control participants.** [More](#)
- **Surveys of mask or face covering usage in indoor public settings at six US universities found high levels of correct usage (92%). Correct usage was highest for N95-masks (97%) and somewhat lower for cloth masks (92%) and bandanas, scarves, and similar face coverings (79%).** [More](#)
- **The COVID-19 pandemic has led to a 34% reduction in testing of blood lead levels (BLL), resulting in the missed identification of an estimated 9,600 children with elevated BLLs.** [More](#)

Non-Pharmaceutical Interventions

- Among persons observed indoors in public settings at six universities with mask mandates, 92% wore masks correctly, according to a study conducted during September–November 2020. Correct usage varied by mask type, with 97% for N95-type masks, 92% for cloth masks and 79% for bandanas, scarves, and similar face coverings.
Barrios et al. (Feb 5, 2021). Observed Face Mask Use at Six Universities — United States, September–November 2020. MMWR. <https://doi.org/10.15585/mmwr.mm7006e1>
- Hospitals in states with statewide mask mandates reported a decline in weekly COVID-19–associated hospitalization growth rates by up to 5.5 percentage points for adults aged 18–64 years after mandate implementation, compared with growth rates during the 4 weeks preceding implementation of the mandate. Data were collected during March 22–October 17, 2020 in 10 sites participating in the COVID-19–Associated Hospitalization Surveillance Network.
Joo et al. (Feb 5, 2021). Decline in COVID-19 Hospitalization Growth Rates Associated with Statewide Mask Mandates — 10 States, March–October 2020. MMWR. <https://doi.org/10.15585/mmwr.mm7006e2>
- Implementation of face mask mandates may lead to people participating in higher risk activities. Using SafeGraph smart device location data and variation in the date that US states and counties issued face mask mandates, a comparison of time at home and the number of visits to public locations before and after face mask orders suggests that face mask orders led to risk compensation behavior. People subject to the mask orders spent 11–24 fewer minutes at home on average and

made more visits to some commercial locations—most notably restaurants, which are a high-risk location.

Yan et al. (Feb 4, 2021). Risk compensation and face mask mandates during the COVID-19 pandemic. *Scientific Reports*. <https://doi.org/10.1038/s41598-021-82574-w>

Transmission

- Results from a SARS-CoV-2 antibody seroprevalence survey (July 10 to August 16, 2020, n=2979) from a socioeconomically and demographically diverse population of adults in Orange County, California found a seroprevalence of approximately 12 percent. Antibody testing was conducted using a highly specific and sensitive CoVAM microarray. This SARS-CoV-2 point seroprevalence among adults for July to August 2020 is seven-fold greater than the cumulative incidence of diagnosed cases reported to Orange County.

Bruckner et al. (Feb 4, 2021). Estimated seroprevalence of SARS-CoV-2 antibodies among adults in Orange County, California. *Scientific Reports*. <https://doi.org/10.1038/s41598-021-82662-x>

Testing and Treatment

- [Pre-print, not peer reviewed] An analysis of SARS-CoV-2 genome sequences from around the world found that the overall rate of non-synonymous mutations in the spike protein was low. While only 14% of the samples contained no variation from the reference sequence, fewer than 10 non-synonymous mutations were found in 99.98% of samples. Recurrent variations were common and were distributed throughout the spike genome. The mean and median number of spike protein mutations per sample increased over time, however.

Schroers et al. (Feb 4, 2021). Large-scale analysis of SARS-CoV-2 spike-glycoprotein mutants demonstrates the need for continuous screening of virus isolates. Pre-print downloaded Feb 5 from <https://doi.org/10.1101/2021.02.04.429765>

- Saliva was found to be more sensitive for the detection of SARS-CoV-2 when compared to NP swab or self-administered nasal swab in a cohort of migrant workers in Singapore. Subjects who presented with acute respiratory infection, their asymptomatic roommates, and prior confirmed cases who were undergoing isolation at a community care facility underwent serial RT-PCR of saliva, self-administered nasal (SN), and nasopharyngeal (NP) swabs using two separate probes. The percentage of test-positive saliva was higher than NP and SN swabs (62%, 45%, and 38% respectively).

Teo et al. (Feb 4, 2021). Saliva is more sensitive than nasopharyngeal or nasal swabs for diagnosis of asymptomatic and mild COVID-19 infection. *Scientific Reports*.

<https://doi.org/10.1038/s41598-021-82787-z>

Vaccines and Immunity

- [Pre-print, not peer reviewed] The efficacy the ChAdOx1 nCoV-19 vaccine (Oxford-AstraZeneca; AZD1222) against the B.1.1.7 variant of SARS-CoV-2 was similar to the efficacy against parent lineages, with 74% efficacy (95% CI, 42-89%) against B.1.1.7 compared to 84% efficacy (95% CI, 71-91%) against non- B.1.1.7 lineages. Vaccine-induced antibodies had an approximately nine-fold reduction in neutralization activity against the B.1.1.7 variant compared to a canonical non-B.1.1.7 lineage in a live-virus neutralization assay.
- All participants received weekly nasal swabs for surveillance. Among those vaccinated with ChAdOx1 who subsequently became infected with SARS-CoV-2, both the duration of shedding and viral load

was lower than among control participants. The authors suggest that this may result in a lower potential for transmission with vaccination.

Emary et al. (Feb 4, 2021). Efficacy of ChAdOx1 nCoV-19 (AZD1222) vaccine against SARS-CoV-2 VOC. Pre-print downloaded Feb 5 <https://ssrn.com/abstract=3779160>

Clinical Characteristics and Health Care Setting

- A multicenter study of SARS-CoV-2 cases (n=5,544) confirmed by RT-PCR assay found no significant differences in viral concentration (as measured by Ct values) across different age groups. In particular, the children less than 5 years old did not display higher nasopharyngeal viral loads than older children or adults.

Madera et al. (Feb 4, 2021). Nasopharyngeal SARS-CoV-2 viral loads in young children do not differ significantly from those in older children and adults. Scientific Reports.

<https://doi.org/10.1038/s41598-021-81934-w>

Mental Health

- During April and May 2020 among US adults aged ≥ 18 years, the overall prevalence of depression was 29%, initiating or increasing substance use was 18%, and suicidal thoughts/ideation was 8%, according to a cross-sectional survey. Hispanic adults reported a higher prevalence of psychosocial stress related to not having enough food or stable housing than did adults in other racial and ethnic groups. The authors suggested that these estimates were high when compared to historical surveys that used different methodologies. Hispanic adults reported a higher prevalence of psychosocial stress related to not having enough food or stable housing than did adults in other racial and ethnic groups.

McKnight et al. (Feb 5, 2021). Racial and Ethnic Disparities in the Prevalence of Stress and Worry, Mental Health Conditions, and Increased Substance Use Among Adults During the COVID-19 Pandemic — United States, April and May 2020. MMWR.

<http://dx.doi.org/10.15585/mmwr.mm7005a3>

Modeling and Prediction

- A mathematical model suggests that in communities where the SARS-CoV-2 is spreading rapidly, weekly testing coupled with a 2-week isolation period after a positive test is advisable. The authors assessed eight surveillance testing strategies that varied by testing frequency (from daily to monthly testing) and isolation period (1 or 2 weeks), compared with the status-quo strategy of symptom-based testing and isolation. In communities without rapid viral spread, monthly testing with a 1-week isolation period after a positive test is expected to be the most optimal strategy.

Du et al. (Feb 4, 2021). Comparative cost-effectiveness of SARS-CoV-2 testing strategies in the USA: a modelling study. The Lancet Public Health

[https://www.thelancet.com/journals/lanpub/article/PIIS2468-2667\(21\)00002-5/fulltext](https://www.thelancet.com/journals/lanpub/article/PIIS2468-2667(21)00002-5/fulltext)

Public Health Policy and Practice

- 34% fewer US children aged < 6 years had blood lead level (BLL) testing during January–May 2020 when compared to January–May 2019, according to data from 34 state and local health departments. The authors estimate that reduced testing due to the COVID-19 pandemic has led to missed identification of 9,603 children with elevated BLLs.

Courtney et al. (Feb 4, 2021). *Decreases in Young Children Who Received Blood Lead Level Testing During COVID-19 - 34 Jurisdictions, January-May 2020*. MMWR.

<https://doi.org/10.15585/mmwr.mm7005a2>

- Several underlying health conditions associated with risk for developing more severe COVID-19–related illness were more prevalent among sexual minority persons, according to data from the Behavioral Risk Factor Surveillance System (BRFSS). The presence of greater numbers of risk factors were observed when compared to heterosexual individuals, both within the overall population and specific racial/ethnic groups. The authors suggest that inclusion of sexual orientation and gender identity data in COVID-19 surveillance and other data collection could improve knowledge about disparities in infections and adverse outcomes among sexual and gender minority populations.

Heslin et al. (Feb 5, 2021). *Sexual Orientation Disparities in Risk Factors for Adverse COVID-19-Related Outcomes, by Race/Ethnicity - Behavioral Risk Factor Surveillance System, United States, 2017-2019*. MMWR. <http://dx.doi.org/10.15585/mmwr.mm7005a1>

Other Resources and Commentaries

- [COVID-19 vaccines: acting on the evidence](#) – Nature Medicine (Feb 4)
- [A systematic bias assessment of top-cited full-length original clinical investigations related to COVID-19](#) – European Journal of Internal Medicine (Jan 22)
- [SARS-CoV-2 variant evades antibodies whilst maintaining fitness](#) – Nature Reviews Immunology (Feb 4)
- [Vaccine Innovations; Past and Future](#) – The New England Journal of Medicine (Feb 4)
- [Youth Experiencing Homelessness During the COVID-19 Pandemic: Unique Needs and Practical Strategies From International Perspectives](#) – Journal of Adolescent Health (Feb 1)
- [A novel box for aerosol and droplet guarding and evacuation in respiratory infection \(BADGER\) for COVID-19 and future outbreaks](#) – Scientific Reports (Feb 4)
- [Remdesivir and Systemic Corticosteroids for the Treatment of COVID-19: A Bayesian Reanalysis](#) – International Journal of Infectious Diseases (Feb 1)
- [Balancing Risks: Making Decisions for Maternal Treatment without Data on Fetal Safety](#) – American journal of obstetrics and gynecology (Feb 1)
- [COVID-19 Taught Us Statistics Need Context](#) – Academic Medicine: Journal of the Association of BAmerican Medical Colleges (Feb 2)
- [Employer-Mandated Vaccination for COVID-19](#) – American Journal of Public Health (Feb 4)
- [Reflections On Governance, Communication, And Equity: Challenges And Opportunities In COVID-19 Vaccination](#) – Health Affairs (Feb 4)
- [The COVID-19 Innovation System](#) – Health Affairs (Feb 4)
- [Covid-19: How the UK is using lateral flow tests in the pandemic](#) – BMJ (Feb 4)

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