

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 Moderna vaccine mRNA-1273 showed 94.1% efficacy at preventing COVID-19, including severe disease, in a peer-review publication from the phase 3 trial. Efficacy was similar across key secondary analyses, and all severe cases of COVID-19 occurred in the placebo group. [More](#)**
- **19% of asymptomatic people who had household exposure to COVID-19 and had negative laboratory test results for 7 days after the index patient's symptom onset experienced symptoms or received positive test results in the following week, suggesting that quarantines shorter than 14 days may pose some risk of onward transmission. [More](#)**
- **Compared with real-time reverse transcription–polymerase chain reaction (RT-PCR) testing, the Sofia antigen test had a sensitivity of 80.0% and specificity of 98.9% among symptomatic people. Accuracy was lower (sensitivity 41.2% and specificity 98.4%) when used for screening of asymptomatic people. [More](#)**

### Non-Pharmaceutical Interventions

- Findings from the cross-sectional COPE Study (n=491) of women in the United States conducted from May to June 2020 suggest that women's prevention behaviors for SARS-CoV-2 transmission are influenced by multilevel factors. Women who lived in urban environments, had minimal formal education, or had a household annual income of USD 30,000–50,000 were less likely to practice prevention behaviors. Cultural context was noted as a potentially important factor in the decision-making process.

*Anderson and Stockman. (Dec 29, 2020). Staying Home, Distancing, and Face Masks: COVID-19 Prevention among U.S. Women in The COPE Study. International Journal of Environmental Research and Public Health. <https://doi.org/10.3390/ijerph18010180>*

### Transmission

- Among asymptomatic people who had household exposure to COVID-19 and had negative laboratory test results for 7 days after the index patient's symptom onset, 19% experienced symptoms or received positive test results in the following week. The probability that an asymptomatic household contact with negative test results through day 7 would remain asymptomatic and test negative for 14 days after the index patient's illness onset was 81%, and the probability increased to 93% if the household contact remained asymptomatic with negative test results through day 10. The authors suggest that quarantines shorter than 14 days may pose some risk of onward transmission.

Rolfes et al. (Jan 1, 2021). *Implications of Shortened Quarantine Among Household Contacts of Index Patients with Confirmed SARS-CoV-2 Infection — Tennessee and Wisconsin, April–September 2020*. *MMWR*. <https://doi.org/10.15585/mmwr.mm695152a1>

## Testing and Treatment

- Use of SARS-CoV-2 antigen testing on two university campuses had a positive predictive value of 33% and a negative predictive value of 99%. Compared to RT-PCR testing, the Sofia antigen test had a sensitivity of 80.0% and specificity of 98.9% among symptomatic people. Accuracy was lower (sensitivity 41.2% and specificity 98.4%) when used for screening of asymptomatic people. Paired nasal swabs were collected from students, faculty, staff members, and other affiliates at two Wisconsin university campuses. Among those with false-negative antigen tests, two symptomatic individuals with a negative antigen test had virus detected by culture, indicating potential infectiousness among symptomatic individuals with a false-negative antigen test. However, none of the asymptomatic false positive individuals had virus detected by culture. The authors suggest that asymptomatic people with negative antigen results are unlikely to be infected with SARS-CoV-2.

Pray et al. (Jan 1, 2021). *Performance of an Antigen-Based Test for Asymptomatic and Symptomatic SARS-CoV-2 Testing at Two University Campuses — Wisconsin, September–October 2020*. *MMWR*. <https://doi.org/10.15585/mmwr.mm695152a3>

- A longitudinal study of children (n=859, age 3 months – 8 years) and staff (n=376) from daycare centers in Germany conducted from June–September 2020 found that detection of either respiratory or gastrointestinal shedding of SARS-CoV-2 RNA was rare in the context of limited community activity and with facility-based infection prevention measures. Of 7,366 buccal mucosa swabs and 5,907 anal swabs analyzed, no respiratory or gastrointestinal shedding of SARS-CoV-2 was detected in any of the children. Shedding was detected in two staff members, one of whom was asymptomatic, and one who was symptomatic and did not attend the facility on that day.

Hoehl et al. (Jan 3, 2021). *Longitudinal Testing for Respiratory and Gastrointestinal Shedding of SARS-CoV-2 in Day Care Centres in Hesse, Germany*. *Clinical Infectious Diseases*. <https://doi.org/10.1093/cid/ciaa1912>

## Vaccines and Immunity

- Results from a phase 3 randomized, observer-blinded, placebo-controlled trial of the Moderna SARS-CoV-2 vaccine candidate (mRNA-1273) indicated that the vaccine showed 94.1% efficacy at preventing COVID-19, including severe disease. The trial enrolled 30,420 volunteers, and symptomatic illness was confirmed in 185 participants in the placebo group and in 11 participants in the vaccine group. Efficacy was similar across key secondary analyses, including in participants who had evidence of SARS-CoV-2 infection at baseline and analyses in participants 65 years of age or older. Severe COVID-19 occurred in 30 participants, with one fatality; all 30 were in the placebo group. Serious adverse events were rare, and the incidence was similar in the two groups.

Baden et al. (Dec 30, 2020). *Efficacy and Safety of the MRNA-1273 SARS-CoV-2 Vaccine*. *New England Journal of Medicine*. <https://doi.org/10.1056/NEJMoa2035389>

- A study using two randomized experiments embedded in surveys found that perceptions of political influence on the COVID-19 vaccine approval process in the US could impact the confidence in, and uptake of vaccines. Announcing approval of a COVID-19 vaccine one week before the presidential election, compared to one week after, reduced reported intentions to vaccinate by 14%, while endorsement by Dr. Anthony Fauci increased confidence and uptake among all partisan subgroups. People who had a high level of baseline vaccine confidence were found to be especially sensitive to political context.

## Clinical Characteristics and Health Care Setting

- A retrospective study of 799 patients hospitalized with COVID-19 in Michigan showed that while Black patients had disproportionately higher rates of hospitalization, mortality was not higher in Black patients in multivariate analysis (aOR=0.61). Black patients tended to be younger (62.9 years vs. 71.8), had a higher mean body mass index (32.4 kg/m<sup>2</sup> vs 28.8), had higher prevalence of diabetes (136/336 vs 130/408), and presented later (6.6 days after symptom onset vs. 5.4) compared to white patients. The authors suggest the higher prevalence of obesity and diabetes in young Black patients may contribute to disproportionate hospitalization rates.

*Krishnamoorthy et al. (Nov 28, 2020). Racial Disparities in COVID-19 Hospitalizations Do Not Lead to Disparities in Outcomes. Public Health. <https://doi.org/10.1016/j.puhe.2020.11.021>*

- A systematic review and meta-analysis of the effects of COVID-19 on the clinical outcomes of patients with cancer indicated that the pooled 30-day mortality rate from 13 primarily inpatient studies (n=2922 patients) was 30%. The overall pooled 30-day mortality risk from 5 studies that included a mixture of inpatient and outpatient populations (n=624 patients) was 15%, and there was significant heterogeneity across studies. In multivariable metaregression, male sex, along with an interaction between the median patient age and recent active cancer therapy, explained most of the between-study heterogeneity (R<sup>2</sup>=96%).

*Desai et al. (Dec 30, 2020). Mortality in Hospitalized Patients with Cancer and Coronavirus Disease 2019: A Systematic Review and Meta-analysis of Cohort Studies. Cancer. <https://doi.org/10.1002/cncr.33386>*

## Mental Health and Personal Impact

- A multicenter study of US children's hospitals found declines in child physical abuse (CPA) encounters during the COVID-19 pandemic, with the severity of the encounters similar to those in prior years. There was a decline in the overall volume of emergency department visits in children's hospitals in March and a decline in CPA encounters at the same time. The authors note that study findings may reflect true decreases in CPA, or may instead reflect compromised infrastructure for detecting CPA or delayed effects of the pandemic on CPA.

*Kaiser et al. (Dec 30, 2020). Emergency Visits and Hospitalizations for Child Abuse During the COVID-19 Pandemic. Pediatrics. <https://doi.org/10.1542/peds.2020-038489>*

- A rapid, mixed-methods study of Latinx sexual minority men and transgender women found that although no COVID-19 infections were noted among the participants, the pandemic impacted other aspects of participants' health and wellbeing. Participants reported increases in physical conflict or verbal arguments with a partner (14%) or other adult(s) (19%) due to stressors associated with the safer-at-home order, increased alcohol consumption (23%), and problems with sleep (67%) and mental health (78%). Half of the participants lost their jobs, and some experienced disruptions in access to HIV prevention medication, received less medical attention than usual (35%), or reported delays in critical gender-affirming hormones or procedures.

*MacCarthy et al. (Dec 31, 2020). Rapid Mixed-Methods Assessment of COVID-19 Impact on Latinx Sexual Minority Men and Latinx Transgender Women. PLOS ONE. <https://doi.org/10.1371/journal.pone.0244421>*

## Public Health Policy and Practice

- Results from a population-based study conducted from February–April 2020 among members of a health maintenance organization (n=715,164) showed that compared to non-vaccinated people, receiving at least one influenza vaccination was associated with a significantly reduced rate of SARS-CoV-2 positivity. The odds ratios for SARS-CoV-2 infection among individuals vaccinated for influenza in 2018–2019 was 0.82, 2019–2020 was 0.79, and in both seasons was 0.76, compared to non-vaccinated individuals.

*Green et al. (Dec 30, 2020). The Association of Previous Influenza Vaccination and Coronavirus Disease-2019. Human Vaccines & Immunotherapeutics. <https://doi.org/10.1080/21645515.2020.1852010>*

- A study investigating the impact of COVID-19 misinformation on hypothetical demand (i.e., willingness-to-pay) for an unproven treatment and propensity to spread misinformation online among US adults (N=678) found that prior exposure to misinformation increased misinformation promotion by 18%. The study tested two interventions to counteract the misinformation: a tentative or “diplomatic” refutation based on materials used by health authorities and an enhanced refutation developed from psychological research that explains why the information is false and provides factual information to replace it. Both tentative and enhanced refutations reduced demand (by 18% and 25%, respectively) as well as misinformation promotion (by 29% and 55%).

*MacFarlane et al. (Dec 29, 2020). Refuting Spurious COVID-19 Treatment Claims Reduces Demand and Misinformation Sharing. Journal of Applied Research in Memory and Cognition. <https://doi.org/10.1016/j.jarmac.2020.12.005>*

- An analysis of framing devices used by digital media outlets to emphasize the scientific uncertainty of COVID-19-related pre-prints (e.g., mentioning that the study was a pre-print, unreviewed, preliminary) in the early stages of the pandemic found that news outlets frequently did not identify the research they cited as pre-print research, and instead identified it as simply “research.” Over 40% of stories analyzed did not frame the pre-print as uncertain; of those that did, most included a single framing device—typically stating that the research had not been peer reviewed. Over 90% of stories analyzed included a hyperlink to at least one pre-print.

*Fleerackers et al. (Jan 3, 2021). Communicating Scientific Uncertainty in an Age of COVID-19: An Investigation into the Use of Preprints by Digital Media Outlets. Health Communication. <https://doi.org/10.1080/10410236.2020.1864892>*

- *[Pre-print, not peer-reviewed]* A prospective surveillance study of SARS-CoV-2 infection and antibody prevalence among farmworkers in California’s Salinas Valley from June 15 to November 30, 2020 found 22% positivity for nucleic acid detection among workers tested at federally-qualified migrant and community health clinics, as compared to 17% among other adults from the same communities (RR=1.3). In a nested study enrolling 1,115 farmworkers, prevalence of current infection was 28% among participants reporting  $\geq 1$  potential COVID-19 symptom, and 7% among those without symptoms (aOR=4.2). Prevalence of anti-SARS-CoV-2 IgG antibodies increased from 11% during July 16 – August 31 to 21% during November 1 – 30.

*Lewnard et al. (Jan 2, 2021). Prevalence and Clinical Profile of SARS-CoV-2 Infection among Farmworkers in Monterey County California June–November 2020. Pre-print downloaded Jan 4 from <https://doi.org/10.1101/2020.12.27.20248894>*

## Other Resources and Commentaries

- [Vaccinating Detained Migrants against SARS-CoV-2 — Preventing Another Tragedy](#) – New England Journal of Medicine (Dec 30 2020)

- [Initial Guidance on Use of Monoclonal Antibody Therapy for Treatment of COVID-19 in Children and Adolescents](#) – Journal of the Pediatric Infectious Diseases Society (Jan 3 2021)
- [Ameliorating COVID-19's Disproportionate Impact on Black and Hispanic Communities: Proposed Policy Initiatives for the United States](#) – Health and Human Rights (Dec 2020)
- [COVID-19 Stats: COVID-19 Incidence, by Age Group — United States, March 1–November 14, 2020](#) – Morbidity and Mortality Weekly Report (Jan 1 2021)
- [Prioritizing incarcerated populations for COVID-19 vaccination and vaccine trials](#) – EClinicalMedicine (Dec 23 2020)
- [Address Exacerbated Health Disparities and Risks to LGBTQ+ Individuals during COVID-19](#) – Health and Human Rights (Dec 2020)
- [mRNA Vaccines to Prevent COVID-19 Disease and Reported Allergic Reactions: Current Evidence and Approach](#) – The Journal of Allergy and Clinical Immunology (Dec 31 2020)
- [Audio Interview: A Look at Covid-19 Prevention and Care in 2020](#) – New England Journal of Medicine (Dec 31 2020)
- [ARIA-EAACI statement on severe allergic reactions to COVID-19 vaccines – an EAACI-ARIA position paper](#) – Allergy (Dec 30 2020)
- [Alternatives to sharing COVID-19 data with law enforcement: Recommendations for stakeholders](#) – Health Policy (Nov 7 2020)
- [Resources, Production Scales and Time Required for Producing RNA Vaccines for the Global Pandemic Demand](#) – Vaccines (Dec 23 2020)
- [Maintaining Safety with SARS-CoV-2 Vaccines](#) – New England Journal of Medicine (Dec 30 2020)
- [Mass population screening for SARS-CoV-2 and false positives—why Liverpool shows we have a problem](#) – BMJ (Dec 31 2020)
- [Business Not as Usual — Covid-19 Vaccination in Persons with Substance Use Disorders](#) – New England Journal of Medicine (Dec 30 2020)
- [COVID-19 Conspiracies and Beyond: How Physicians Can Deal With Patients' Misinformation](#) – JAMA (Dec 30 2020)
- [The Hidden Epidemic of Opioid Overdoses During the Coronavirus Disease 2019 Pandemic](#) – JAMA Psychiatry (Dec 30 2020)
- [Fluid dynamics of COVID-19 airborne infection suggests urgent data for a scientific design of social distancing](#) – Scientific Reports (Dec 30 2020)

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