

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

- **While the risk of reporting COVID-19-related outcomes was approximately 2-fold higher for US household members living with a child attending in-person learning, risks largely disappeared among household members of children attending schools with 7 or more mitigation measures and were completely absent among those reporting 10 or measures.** [More](#)
- **Results from the phase 2 trials for the recombinant nanoparticle vaccine made by Novavax show >98% seroconversion rates by 14 days after the second dose in both participants aged 18-59 years and 60-84 years.** [More](#)
- **SARS-CoV-2-specific antibody seroprevalence in England was 14% overall in a nationwide study conducted January 26 to February 8, 2021. This figure includes seroprevalence due to both immunization and infection.** [More](#)
- **Sera from individuals infected with the SARS-CoV-2 B.1.1.7 variant had reduced neutralizing ability against a parental reference strain isolated from Wuhan, suggesting that those infected with the B.1.1.7 variant in recent waves may have reduced protection against reinfection from other strains.** [More](#)

Transmission

- *[Pre-print, not peer-reviewed]* Mask wearing in a transit or school bus setting could reduce the overall particle count released into the bus by an average of 50% or more (depending on mask quality), and could reduce the dispersion distance by several feet, according to an experimental study. The study conducted 84 test runs totaling 124 miles of on-the-road testing and used nebulized sodium chloride and 28 particle counters to simulate and measure cough aerosol dispersion.
Edwards et al. (Mar 1, 2021). Reducing COVID-19 Airborne Transmission Risks on Public Transportation Buses An Empirical Study on Aerosol Dispersion and Control. Pre-print downloaded Mar 2 from <https://doi.org/10.1101/2021.02.25.21252220>
- *[Pre-print, not peer-reviewed]* School-based mitigation measures reduced the odds of reporting COVID-19 like illness (CLI) and/or a positive SARS-CoV-2 PCR test result among household members living with a child attending in-person learning, according to an online survey of over 2 million US respondents conducted between November 2020 to January 2021. While the risk of reporting a CLI or a positive test was two-fold higher among household members of children attending schools full-

or part-time without mitigation measures, risks largely disappeared with 7 or more measures, and were completely absent among those reporting 10 or measures.

- Among those reporting 7 or more mitigation measures, over 80% reported student and teacher mask mandates, restricted entry, extra space between desks and no supply sharing, and over 50% reported student cohorting, reduced class size, and daily symptom screening.
- A separate analysis found that while Pre-K to high school teachers working outside the home were 1.8 times as likely to report COVID-19 outcomes compared to those working from home, this increased risk was similar among respondents working in healthcare (1.7 times) and office work (1.6 times).

Lessler et al. (Mar 1, 2021). Household COVID-19 Risk and in-Person Schooling. Pre-print downloaded Mar 2 from <https://doi.org/10.1101/2021.02.27.21252597>

Testing and Treatment

- In a retrospective analysis of patients with moderate-to-severe COVID-19 in India (n=346), patients receiving remdesivir 9 days or less after symptom onset had significantly lower all-cause mortality compared to those who received it after 9 days (18% vs 34%). Odds of death were reduced by 37% among patients receiving remdesivir ≤ 9 days post-symptom onset compared to those receiving it after 9 days. All patients also received corticosteroids.

Mehta et al. (Feb 26, 2021). A Shorter Symptom-Onset to Remdesivir Treatment (SORT) Interval Is Associated with a Lower Mortality in Moderate-to-Severe COVID-19: A Real-World Analysis. International Journal of Infectious Diseases. <https://doi.org/10.1016/j.ijid.2021.02.092>

Vaccines and Immunity

- *[Pre-print, not peer-reviewed]* Convalescent sera from patients infected with the SARS-CoV-2 B.1.1.7 variant demonstrated reduced activity against reference strains from earlier in the pandemic. Neutralizing activity of sera isolated from patients that had confirmed infection by the SARS-CoV-2 B.1.1.7 variant (n=29) was reduced against a parental reference strain isolated from Wuhan by 3.4-fold. In contrast, sera isolated from patients infected with the D614G variant (n=37) had similar neutralizing titers against the both the B.1.1.7 variant and the parental reference strain. Meanwhile, both D614G and B.1.1.7 sera displayed significantly reduced neutralization of the B.1.351 variant by 8.2- and 7.7-fold, respectively.

Faulkner et al. (Mar 1, 2021). Reduced Antibody Cross-Reactivity Following Infection with B.1.1.7 than with Parental SARS-CoV-2 Strains. Pre-print downloaded Mar 2 from <https://doi.org/10.1101/2021.03.01.433314>

- *[Pre-print, not peer-reviewed]* The two-dose Novavax recombinant nanoparticle vaccine candidate “NVX-CoV2373” induced robust IgG-anti-spike protein and neutralizing antibody titers against SARS-CoV-2 in both young and older participants, according to results from a Phase I/II trial (n=1,283). >98% of participants had seroconversion in both age groups fourteen days after the second dose. Reactogenicity was predominantly mild to moderate in severity and short in duration (median <3 days) after the first dose, with adverse events occurring in higher frequencies and intensities after the second dose among those receiving the 25-ug dose regimen.

Formica et al. (Mar 1, 2021). Evaluation of a SARS-CoV-2 Vaccine NVX-CoV2373 in Younger and Older Adults. Pre-print downloaded Mar 2 from <https://doi.org/10.1101/2021.02.26.21252482>

- The Advisory Committee on Immunization Practices (ACIP) issued an interim recommendation for use of the single-dose Johnson & Johnson COVID-19 vaccine in persons at least 18 years. The February 28, 2021 recommendation was based on a transparent evidence-based review of all

available data, primarily informed by the interim analysis of the Phase 3 clinical trials including approximately 40,000 participants and reporting a 66% vaccine efficacy against symptomatic SARS-CoV-2 infection occurring at least 14 days after vaccination. Overall vaccine efficacy against hospitalization 14 days after immunization was 93% (CI= 71.1-98.4%) and no participant who was vaccinated was hospitalized 28 days after immunization.

Oliver et al. (Mar 2, 2021). The Advisory Committee on Immunization Practices' Interim Recommendation for Use of Janssen COVID-19 Vaccine — United States, February 2021. MMWR. Morbidity and Mortality Weekly Report. <https://doi.org/10.15585/mmwr.mm7009e4>

- *[Pre-print, not peer-reviewed]* A longitudinal study in California found that SARS-CoV-2-specific T cell responses remained largely stable up to 9 months following SARS-CoV-2 infection (n=70). Stronger CD4+ T cell responses were associated with initial disease severity as well as neutralizing antibody levels, whereas pre-existing lung disease predicted long-term CD8+ T cell responses. While 36% of participants had COVID-19-related symptoms persisting approximately 4 months after initial illness (median 125 days), no substantial differences in long-term T cell or antibody responses were identified between participants with or without persisting symptoms.

Peluso et al. (Mar 1, 2021). Long-Term SARS-CoV-2-Specific Immune and Inflammatory Responses Across a Clinically Diverse Cohort of Individuals Recovering from COVID-19. Pre-print downloaded Mar 2 from <https://doi.org/10.1101/2021.02.26.21252308>

- A single dose of mRNA vaccine (Pfizer or Moderna vaccine) elicited higher antibody and neutralization titers in health care workers (n=59) with previous serology-confirmed SARS-CoV-2 infection compared to healthcare workers who were seronegative at baseline. At 14 days post-vaccination, antibody binding strength to SARS-CoV-2 antigens from participants with both asymptomatic and symptomatic prior infection were up to 38-fold higher compared to those seronegative at baseline. Similarly, neutralizing titers were several orders of magnitude higher among those with prior infection when compared to seronegative participants.

Saadat et al. (Mar 1, 2021). Binding and Neutralization Antibody Titers After a Single Vaccine Dose in Health Care Workers Previously Infected With SARS-CoV-2. JAMA. <https://doi.org/10.1001/jama.2021.3341>

- *[Pre-print, not peer-reviewed]* Bioinformatic analysis suggests that memory T cells generated either by mild SARS-CoV-2 infection (n=11) or mRNA vaccines will not be affected by currently circulating variants. No significant differences were found in the capacity of CD4+ or CD8+ T cells isolated either from convalescent patients following mild disease or vaccinated individuals to recognize a pool of S protein peptides in any lineage tested. These peptides corresponded either to the parental reference SARS-CoV-2 strain isolated from Wuhan or the different variant lineages B.1.1.7, B.1.351, P.1, and CAL.20C.

Tarke et al. (Mar 1, 2021). Negligible Impact of SARS-CoV-2 Variants on CD4+ and CD8+ T Cell Reactivity in COVID-19 Exposed Donors and Vaccinees. Pre-print downloaded Mar 2 from <https://doi.org/10.1101/2021.02.27.433180>

- *[Pre-print, not peer-reviewed]* A nationwide cross-sectional study in the England (n=172,000) conducted between January 26 to February 8, 2021 found that the SARS-CoV-2-specific antibody seroprevalence representative of the national population was 14% overall. This figure included seroprevalence due to both immunization and infection. Seroprevalence in unvaccinated people was highest in London and among members of racial and ethnic minority populations. Vaccine confidence was at 92%, though lower among young people and those of Black ethnicity. Seroprevalence was at 84% among those receiving a single dose of the Pfizer vaccine and under 60

years of age, with a decreasing trend in older age groups. Those with confirmed or suspected prior COVID-19 had 90% seroprevalence across age groups.

Ward et al. (Mar 1, 2021). REACT-2 Round 5 Increasing Prevalence of SARS-CoV-2 Antibodies Demonstrate Impact of the Second Wave and of Vaccine Roll-out in England. Pre-print downloaded Mar 2 from <https://doi.org/10.1101/2021.02.26.21252512>

Clinical Characteristics and Health Care Setting

- *[Pre-print, not peer-reviewed]* Risk factors for developing moderate-to-severe COVID during pregnancy included age 30-39 years, Black/Non-Hispanic race/ethnicity, healthcare occupation, pre-pregnancy obesity, chronic lung disease, chronic hypertension, cardiovascular disease, pre-gestational diabetes or gestational diabetes. The study was conducted by the CDC from March 2020 to January 2021 and included 5,963 pregnant women with laboratory confirmed SARS-CoV-2 infection. Risk of disease severity increased with the number of underlying medical or pregnancy-related conditions.

Galang et al. (Mar 1, 2021). Risk Factors for Illness Severity among Pregnant Women with Confirmed SARS-CoV-2 Infection - Surveillance for Emerging Threats to Mothers and Babies Network 20 State Local and Territorial Health Departments March 29 2020 -January 8 2021. Pre-print downloaded Mar 2 from <https://doi.org/10.1101/2021.02.27.21252169>

Other Resources and Commentaries

- [The High Prevalence of Asymptomatic SARS-CoV-2 Infection Reveals the Silent Spread of COVID-19](#) – International Journal of Infectious Diseases (Feb 24)
- [Pandemic Psyche](#) – The Lancet Infectious Diseases (Mar 2)
- [COVID-19 International Border Surveillance Cohort Study at Toronto’s Pearson Airport](#) – MedRxiv (Mar 1)
- [The Relationship Between Asthma, Eosinophilia, and Outcomes in COVID-19 Infection](#) – Annals of Allergy, Asthma & Immunology (Feb 26)
- [Povidone Iodine Hydrogen Peroxide and Chlorhexidine Mouthwashes Reduce SARS-CoV2 Burden in Whole Mouth Fluid and Respiratory Droplets](#) – MedRxiv (Mar 1)
- [Predicted Occurrence, Ecotoxicological Risk and Environmentally Acquired Resistance of Antiviral Drugs Associated with COVID-19 in Environmental Waters](#) – Science of The Total Environment (Feb 15)
- [The Johnson & Johnson Vaccine for COVID-19](#) – JAMA (Mar 1)
- [Screening for SARS-CoV-2 Infections in Daycare Facilities for Children in a Large City in Germany](#) – MedRxiv (Mar 1)
- [Racial/Ethnic Minority and Neighborhood Disadvantage Leads to Disproportionate Mortality Burden and Years of Potential Life Lost Due to COVID-19 in Chicago, Illinois](#) – Health & Place (Feb 19)
- [Safety of New mRNA Vaccines Against COVID-19 in Severe Allergic Patients](#) – Journal of Investigational Allergy and Clinical Immunology (Mar 2)
- [Addressing the Critical Need for Long-Term Mental Health Data during the COVID-19 Pandemic: Changes in Mental Health from April to September 2020](#) – Preventive Medicine (Feb 27)
- [Alcohol Sales and Alcohol-Related Emergencies During the COVID-19 Pandemic](#) – Annals of Internal Medicine (Mar 2)

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