



## 2019-nCoV Literature Situation Report (Lit Rep)

April 30, 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

- ▣ **Patients with severe COVID-19 who received the anti-inflammatory medication tocilizumab were more likely to be discharged from the hospital (57% vs. 50%) and less likely to die (31% vs. 35%) in a randomized trial.**
- ▣ **A large, national survey of US adults (N=2,142,887) found an association between living with a child who attended in-person school and the risk of COVID-19-associated outcomes (OR=1.4), although this association did not persist when  $\geq 7$  in-school low-cost, common mitigation measures such as mask mandates were reported. [More](#)**
- ▣ **A review of post-authorization safety data after administration of 7.98 million doses of Johnson & Johnson/Janssen COVID-19 vaccine during March–April 2021 found that the most commonly reported reactions were similar to those observed in clinical trials and 97% of these events were classified as nonserious. A total of 17 events consistent with cerebral venous sinus thrombosis (CVST) and 3 events of non-CVST thrombosis events were reported in women <60 years. [More](#)**

### Non-Pharmaceutical Interventions

- A large, national survey of US adults in all 50 states and Washington, DC (N=2,142,887) found an association between living with a child who attended in-person school and the risk of COVID-19-associated outcomes, including reporting COVID-like illness (OR=1.4) or testing positive for SARS-CoV-2 (OR=1.3), although this association did not persist when  $\geq 7$  in-school mitigation measures were reported. These mitigation measures were low-cost and common, including temperature checks, cessation of extracurricular activities, and mask mandates. The authors caution that this association may not be causal given that community mitigation measures are not randomly distributed in the population and may affect respondents' COVID-19 risk from other settings. *[EDITORIAL NOTE: This manuscript was previously summarized as a pre-print on March 2, 2021].*  
*Lessler et al. (Apr 29, 2021). Household COVID-19 Risk and in-Person Schooling. Science.*  
<https://doi.org/10.1126/science.abh2939>

### Transmission

- *[Pre-print, not peer-reviewed]* The COVID-19 incidence among non-student residents of Centre County, PA (home to Penn State University) was lower than among non-student residents of neighboring counties after students returned to classes in fall 2020. However, the rate of COVID-19 among student residents of Centre County was higher than among non-residents in all surrounding



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counties. Non-student residents of Centre County demonstrated greater declines in movement compared to residents of surrounding counties as measured by mobile phone data, which authors note may be related to the ability of Centre County residents to more effectively work from home. This data may indicate that the return of students to universities may not necessarily result in a higher incidence of COVID-19 in the surrounding community.

*Bharti et al. (Apr 29, 2021). Large University with High COVID-19 Incidence Did Not Increase Risk to Non-Student Population. Pre-print downloaded Apr 30 from <https://doi.org/10.1101/2021.04.27.21255023>*

## Testing and Treatment

- A randomized, controlled, open-label study of 4,116 adults hospitalized with severe COVID-19 found that administration of the anti-inflammatory medication tocilizumab reduced mortality, increased the chances of successful hospital discharge, and reduced the chances of requiring invasive mechanical ventilation. During a 28-day follow-up period, patients who received tocilizumab were significantly more likely to be discharged from the hospital (57% vs 50%), less likely to die (31% vs 35%) and less likely to reach a composite endpoint of requiring invasive mechanical ventilation or death (25% vs 42%). These effects were consistent across patients, regardless of level of respiratory support provided during care.

*Abani et al. (May 1, 2021). Tocilizumab in Patients Admitted to Hospital with COVID-19 (RECOVERY): A Randomised, Controlled, Open-Label, Platform Trial. The Lancet. [https://doi.org/10.1016/S0140-6736\(21\)00676-0](https://doi.org/10.1016/S0140-6736(21)00676-0)*

- A comparison of five automated SARS-CoV-2 serology tests found that the Euroimmun and Roche assays (either the assay targeting the nucleocapsid (N) or spike protein (S) antigens) performed equally well without the need for additional confirmatory testing in high prevalence settings compared to the gold standard of rRT-PCR and rIFA. However, the authors suggest that in lower prevalence settings, combining assays that detect antibodies to N- and S-antigens may be needed.

*Andrey et al. (Apr 10, 2021). Head-to-Head Evaluation of Five Automated SARS-CoV-2 Serology Immunoassays in Various Prevalence Settings. Journal of Clinical Medicine. <https://doi.org/10.3390/jcm10081605>*

- An in-vitro comparison of SARS-CoV-2 spike pseudoviruses carrying mutations characteristic of the B.1.351 lineage (N501Y, K417N, and E484K) and the original D614G lineage found that the viruses in the B.1.351 lineage demonstrated increased infectivity in cellular assays. Additionally, the monoclonal antibody imdevimab neutralized all three B.1.351 lineage viruses, while neutralization by the monoclonal antibody casirivimab was significantly reduced.

*Kim et al. (Apr 7, 2021). The Impact on Infectivity and Neutralization Efficiency of SARS-CoV-2 Lineage B.1.351 Pseudovirus. Viruses. <https://doi.org/10.3390/v13040633>*

- A study of 730 adults undergoing simultaneous nasopharyngeal (NPS), anterior nasal (ANS), and saliva specimen collection for SARS-CoV-2 testing found the sensitivity for saliva testing was 85% and sensitivity for ANS testing was 80%, which increased to 100% and 94%, respectively, among participants with culture-positive SARS-CoV-2 by any specimen type. Saliva (37%) and ANS (46%) testing were preferred by patients over NPS (13%), although a majority (87%) reported they would be willing to undergo an NPS collection in the future.

Marx et al. (Apr 2021). SARS-CoV-2 Detection on Self-Collected Saliva or Anterior Nasal Specimens Compared with Healthcare Personnel-Collected Nasopharyngeal Specimens. *Clinical Infectious Diseases* <https://doi.org/10.1093/cid/ciab330>

## Vaccines and Immunity

- A meta-analysis of efficacy data from Phase III trials of the Pfizer-BioNTech, Moderna, AstraZeneca, and Sputnik V vaccines found that type of vaccine, age and sex of recipients, and the underlying rate of COVID-19 in the study populations did not affect vaccine efficacy. The meta-regression calculated lower efficacy point estimates for the mRNA vaccines among older age groups without a statistically significant test for effect modification.

Calzetta et al. (Apr 1, 2021). Factors Influencing the Efficacy of COVID-19 Vaccines: A Quantitative Synthesis of Phase III Trials. *Vaccines*. <https://doi.org/10.3390/vaccines9040341>

- A review of data from 5 mass vaccination sites providing the Johnson & Johnson/Janssen COVID-19 vaccine (total doses=8,624) revealed 64 anxiety-related events post-vaccination, including 17 events of fainting. The most commonly-reported event was light-headedness or dizziness. 13 persons were transported to an emergency department for follow-up, and all five for whom follow-up information was available were discharged the same day. A review of data from the Vaccine Adverse Events Reporting System found the rate of fainting following vaccination with the Johnson & Johnson/Janssen vaccine to be 8.2/100,000 doses, which is substantially higher than the rate among persons receiving the influenza vaccine (0.05/100,000). Of note, these anxiety-related events were all observed prior to the temporary pause of the Johnson & Johnson/Janssen vaccine in the US.

Hause et al. (Apr 30, 2021). Anxiety-Related Adverse Event Clusters After Janssen COVID-19 Vaccination — Five U.S. Mass Vaccination Sites, April 2021. *MMWR. Morbidity and Mortality Weekly Report*. <https://doi.org/10.15585/mmwr.mm7018e3>

- [Pre-print, not peer-reviewed] A small study of sera from patients vaccinated with the Pfizer-BioNTech vaccine (N=30) found similar levels of anti-SARS-CoV-2 spike antibodies in persons with and without previous documentation of SARS-CoV-2 infection. Additionally, post-vaccination sera from previously infected persons demonstrated higher neutralizing activity in in-vitro against B.1.1.7, B.1.351 and P.1 compared to previously uninfected persons. There was no significant difference between the post-vaccination neutralizing antibody titers of previously infected participants against B.1.351 and those of uninfected participants against wildtype SARS-CoV-2, suggesting that first-generation COVID-19 vaccines could retain efficacy against variants when administered following infection with wildtype SARS-CoV-2.

Leier et al. (Apr 29, 2021). Previously Infected Vaccinees Broadly Neutralize SARS-CoV-2 Variants. Pre-print downloaded Apr 30 from <https://doi.org/10.1101/2021.04.25.21256049>

- A review of post-authorization safety data after administration of 7.98 million doses of Johnson & Johnson/Janssen COVID-19 vaccine during March–April 2021 found that commonly-reported reactions, such as fatigue and pain, were similar to those observed in clinical trials, and 97% of these events were classified as nonserious. A total of 17 events consistent with cerebral venous sinus thrombosis (CVST) and 3 events of non-CVST thrombosis events were reported in women <60 years. 88 deaths occurred post vaccination and 3 of these occurred in persons with CVST, while the remaining 85 were determined to not be associated with vaccination.

Shay et al. (Apr 30, 2021). Safety Monitoring of the Janssen (Johnson & Johnson) COVID-19 Vaccine — United States, March–April 2021. *MMWR. Morbidity and Mortality Weekly Report*. <https://doi.org/10.15585/mmwr.mm7018e2>

## Clinical Characteristics and Health Care Setting

- Persons living with HIV had lower SARS-CoV-2 IgG seroprevalence (3.7%) compared to persons without HIV (7.4%), according to a retrospective matched case-control study (N=2,200) of remnant serum samples from US adults presenting for routine laboratory testing. However, among those who had past SARS-CoV-2 infection, persons living with HIV were more likely to have had severe COVID-19 (OR = 5.5) and have lower IgG concentrations and pseudovirus neutralizing antibody titers, indicating a diminished immunological response.

Spinelli et al. (Apr 30, 2021). SARS-CoV-2 Seroprevalence, and IgG Concentration and Pseudovirus Neutralising Antibody Titres after Infection, Compared by HIV Status: A Matched Case-Control Observational Study. *The Lancet HIV*. [https://doi.org/10.1016/S2352-3018\(21\)00072-2](https://doi.org/10.1016/S2352-3018(21)00072-2)

## Mental Health and Personal Impact

- A cross-sectional survey of persons living in the US who lost a loved one to COVID-19 (N=1,065) validated the clinical utility of the 5-item Pandemic Grief Scale (PGS) for identifying mourners at risk of functional impairment and substance use. The authors found the PGS uniquely explained work and social difficulties attributed to a COVID-19 loss beyond contributing factors such as relationship with the deceased, post-traumatic stress, depression and anxiety, and general grief reactions. Notably, the depressive and anxious symptoms assessed by the PGS did not demonstrate a decline over time since the loss.

Lee et al. (Apr 2021). The Utility of the Pandemic Grief Scale in Identifying Functional Impairment from COVID-19 Bereavement. *Journal of Palliative Medicine*. <https://doi.org/10.1089/jpm.2021.0103>

## Other Resources and Commentaries

- [Strategies for Immunomonitoring after Vaccination and during Infection](#) -- Vaccines (Apr 9)
- [#Scamdemic, #Plandemic, or #Scaredemic: What Parler Social Media Platform Tells Us about COVID-19 Vaccine](#) -- Vaccines (Apr 22)
- [Anti-Immigrant Rhetoric, Deteriorating Health Access, and COVID-19 in the Rio Grande Valley, Texas](#) -- Health Security (Apr 29)
- [COVID-19 Outbreaks at Two Construction Sites — New York City, October–November 2020](#) -- Clinical Infectious Diseases (Apr 29)
- [Demand Creation for COVID-19 Vaccination: Overcoming Vaccine Hesitancy through Social Marketing](#) -- Vaccines (Apr)
- [Changes to Physical Activity during a Global Pandemic: A Mixed Methods Analysis among a Diverse Population-Based Sample of Emerging Adults in the U.S](#) -- International Journal of Environmental Research and Public Health (Apr 1)
- [Characteristics of Anti-SARS-CoV-2 Antibodies in Recovered COVID-19 Subjects](#) -- Viruses (Apr 16)
- [COVID-19 and Pregnancy: Vertical Transmission and Inflammation Impact on Newborns](#) -- Vaccines (Apr)
- [Host-Pathogen Dynamics in Longitudinal Clinical Specimens from Patients with COVID-19](#) -- MedRxiv (Apr 29)

- [Estimating Local Outbreak Risks and the Effects of Non-Pharmaceutical Interventions in Age-Structured Populations SARS-CoV-2 as a Case Study](#) -- MedRxiv (Apr 29)
- [Optimizing Mother-Baby Wellness during the 2019 Coronavirus Disease Pandemic: A Case for Telemedicine](#) -- Women's Health (2021)
- [Current Status of Putative Animal Sources of SARS-CoV-2 Infection in Humans: Wildlife, Domestic Animals and Pets](#) -- Microorganisms (Apr)
- [Will COVID Force Public Health to Confront America's Epic Inequality](#) -- Nature (Apr)
- [Understanding the Challenges and Uncertainties of Seroprevalence Studies for SARS-CoV-2](#) -- International Journal of Environmental Research and Public Health (Apr)
- [Assessing the Impact of COVID-19 on Work-Related Quality of Life through the Lens of Sexual Orientation](#) -- Behavioral Sciences (Apr)
- [Genetic Diversity of SARS-CoV-2 over a One-Year Period of the COVID-19 Pandemic: A Global Perspective](#) -- Biomedicines (Apr)
- [Correction in Active Cases Data of COVID-19 for the US States by Analytical Study](#) -- Disaster Medicine and Public Health Preparedness (Apr 30)
- [The Implementation of Mass-Vaccination against SARS-CoV-2: A Systematic Review of Existing Strategies and Guidelines](#) – Vaccines (Apr 1)
- [Development and Validation of the Long Covid Symptom and Impact Tools, a Set of Patient-Reported Instruments Constructed from Patients' Lived Experience](#) -- Clinical Infectious Diseases (Apr 29)

*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*