

2019-nCoV Literature Situation Report (Lit Rep) March 11, 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 SARS-CoV-2 B.1.1.7 variant was associated with an overall 1.6-fold increase in risk of death compared with infection with previous strains. These findings are based on almost 55,000 UK patients considered to be relatively low-risk who were diagnosed with SARS-CoV-2 in the UK between October 2020 to January 2021. [More](#)**
- **Convalescent plasma (CP) was not associated with improved 28-day survival compared to usual care in a randomized controlled trial of hospitalized patients (RECOVERY TRIAL). CP was also not associated with reducing time to hospital discharge or preventing invasive mechanical ventilation among hospitalized patients. [More](#)**
- **SARS-CoV-2 test positivity and incidence were lower in New York City Public School students and staff compared to the general public during in-person teaching from October to December 2020. The estimated secondary attack rate associated with exposure at school was 0.5%, with 78% of secondary cases with sufficient exposure information likely having a staff person as the index case. [More](#)**

Non-Pharmaceutical Interventions

- 68% of individuals contacted by public health departments reported having “no close contacts” (with anyone), according to an evaluation of case investigations and contact tracing (CICT) in 3 health districts in central Washington State. The study included the results of interviews with individuals with COVID-19 (n = 3,572). A total of 968 individuals with COVID-19 named specific contacts (27% of all COVID-19 cases interviewed), naming a total of 2,293 contacts, corresponding to a mean of 2.4 contacts per individual with COVID-19. There was no difference in reporting of contacts by ethnicity, and minimal differences by age group, sex, and employment status.
Miller et al. (Mar 10, 2021). COVID-19 Case Investigation and Contact Tracing in Central Washington State, June–July 2020. Journal of Community Health.
<https://doi.org/10.1007/s10900-021-00974-5>

Transmission

- Testing of asymptomatic students and staff in New York public schools determined that the incidence of COVID-19 was lower among the school population (341.1 cases per 100,000) compared to the citywide population (528.9 cases per 100,000). Of 234,132 asymptomatic persons tested for SARS-CoV-2 infection in New York City public schools during October to December 2020, 986 (0.4%)

tested positive. Trends in test positivity were consistent with rising citywide positivity during the same period, though prevalence in the schools were largely lower than citywide prevalence. Test positivity was highest among K-8 staff and elementary school students. The estimated secondary attack rate associated with exposure at school was 0.5% (191 positive out of 36,423 school-based contacts). For the secondary cases with sufficient exposure information, 78% likely had a staff person as the index case.

Varma et al. (Mar 9, 2021). COVID-19 Infections among Students and Staff in New York City Public Schools. *Pediatrics*. <https://doi.org/10.1542/peds.2021-050605>

Testing and Treatment

- Follow-up testing of "borderline" PCR test results within 96 hours occasionally identified additional positive results, according to a retrospective analysis of over 30,000 SARS-CoV-2 PCR test results (1,092 positive). Of the 204 borderline results, which had viral amplification just below the positivity threshold (>25 viral copies/mL), 107 were re-tested and 10 were found positive, representing 0.92% of overall positive results.

Boeckmans et al. (Feb 18, 2021). Follow-up Testing of Borderline SARS-CoV-2 Patients by RRT-PCR Allows Early Diagnosis of COVID-19. *Diagnostic Microbiology and Infectious Disease*. <https://doi.org/10.1016/j.diagmicrobio.2021.115350>

- [Pre-print, not peer-reviewed] Convalescent plasma (CP) was not associated with improved 28-day survival compared to usual care (RR=1.00, 95% CI: 0.93-1.07)] in a randomized controlled trial of hospitalized patients (RECOVERY TRIAL). The open-label platform trial (RECOVERY Trial) was conducted between May 2020 to January 2021 in the UK. The mortality risk was similar in all prespecified subgroups of patients, including patients without detectable SARS-CoV-2 antibodies at randomization. Additionally, CP had no significant effect on the proportion of patients discharged by day 28 (66% vs 67%), nor on the proportion of non-ventilated patients at baseline progressing to invasive mechanical ventilation or death (28% vs. 29%).

Horby et al. (Mar 10, 2021). Convalescent Plasma in Patients Admitted to Hospital with COVID-19 (RECOVERY) a Randomised Controlled Open-Label Platform Trial. Pre-print downloaded Mar 11 from <https://doi.org/10.1101/2021.03.09.21252736>

Vaccines and Immunity

- [Pre-print, not peer-reviewed] Sera from both individuals with prior SARS-CoV-2 infection (n=35) and individuals fully vaccinated with the Pfizer-BioNTech vaccine (n=23) showed nearly identical antibody binding responses against the B.1.1.7 Cluster 5 and CAL.20C variants compared to wild-type SARS-CoV-2. In contrast, both binding and neutralizing antibody responses among vaccinated individuals were diminished against the B.1.351 variant compared to wild-type SARS-CoV-2, although the 2nd vaccine dose appeared to confer increased neutralization capacities. In a separate analysis, the authors found that individuals with prior SARS-CoV-2 infection had higher IgA antibody titers in saliva, while vaccinated individuals had high IgG titers.

Becker et al. (Mar 10, 2021). Immune Response to SARS-CoV-2 Variants of Concern in Vaccinated Individuals. Pre-print downloaded Mar 11 from <https://doi.org/10.1101/2021.03.08.21252958>

- After a single dose of either the Pfizer-BioNTech or Modernan vaccine, US vaccinees with prior SARS-CoV-2 infection (n=43) had antibody titers 10-45 times as high as those of vaccinees without prior SARS-CoV-2 infection (n=67), according to interim results of a longitudinal study. While titers of

those with prior infection did not increase after the second dose, median antibody titers were 6-fold higher than those without prior infection. No substantial difference was noted in the dynamics of antibody responses elicited by the Pfizer-BioNTech and Moderna vaccines after the first dose.

- In separate analyses within the larger longitudinal study, vaccine side effects after the first dose occurred more frequently among vaccinees with prior infection. [EDITORIAL NOTE: A pre-print related to this manuscript was summarized on February 1, 2020]
Krammer et al. (Mar 10, 2021). Antibody Responses in Seropositive Persons after a Single Dose of SARS-CoV-2 MRNA Vaccine. New England Journal of Medicine.
<https://doi.org/10.1056/NEJMc2101667>
- An immuno-epidemiological model suggests that a one-dose vaccination strategy would likely decrease short-term SARS-CoV-2 infections. Long-term outcomes, as well as likelihood of viral evolution driven by partial immunity, are mainly driven by relative immune robustness of one versus two doses. [EDITORIAL NOTE: A pre-print related to this manuscript was summarized on February 4, 2020]
Saad-Roy et al. (Mar 9, 2021). Epidemiological and Evolutionary Considerations of SARS-CoV-2 Vaccine Dosing Regimes. Science. <https://doi.org/10.1126/science.abg8663>

Clinical Characteristics and Health Care Setting

- The SARS-CoV-2 B.1.1.7 variant was associated with an overall 1.6-fold increase in risk of death compared to previously circulated variants, according to a matched cohort study (n=54,906) of patients diagnosed with SARS-CoV-2 infection in the UK between October 2020 to January 2021. Risk of death was not significantly increased within 14 days of follow-up after the first positive SARS-CoV-2 test result, but increased to 2.4-fold in days 15 to 28. Participants were matched on age, sex, ethnicity, index of multiple deprivation, lower tier local authority region, and sample date of positive specimens, and differed only by S gene target failure, a test result characteristic of B.1.1.7 infection. In this relatively low-risk group, the increase in risk of death corresponds to an increase in deaths from 2.5 to 4.1 per 1,000 detected cases.
Challen et al. (Mar 9, 2021). Risk of Mortality in Patients Infected with SARS-CoV-2 Variant of Concern 202012/1: Matched Cohort Study. BMJ. <https://doi.org/10.1136/bmj.n579>
- 30% of patients with COVID-19 and diabetic ketoacidosis (DKA) died in the hospital (64 of 210) compared to 5% of patients with DKA but without COVID-19 (262 of 4,819), according to a cohort study of 5,029 patients admitted to 175 hospitals across the US. Conducted between February to September 2020, the study also found that overall inpatient mortality among patients with DKA over age 65 was 45% for those with COVID-19, and 13% for those without COVID-19. Additionally, patients with COVID-19 had a higher frequency of acute kidney injury, higher body mass index in all age strata, higher insulin requirements, and prolonged time to resolution of DKA.
Pasquel et al. (Mar 10, 2021). Characteristics of and Mortality Associated With Diabetic Ketoacidosis Among US Patients Hospitalized With or Without COVID-19. JAMA Network Open.
<https://doi.org/10.1001/jamanetworkopen.2021.1091>

Mental Health and Personal Impact

- Approximately 32% of sexual and gender minority (SGM) US university students reported increased alcohol use since the start of the COVID-19 pandemic, according to a cross-sectional online survey of 509 students. Average psychological distress was high, and greater alcohol use since the start of the

pandemic was significantly associated among individuals assigned female at birth, but not among those assigned male at birth.

Salerno et al. (Feb 19, 2021). Changes in Alcohol Use since the Onset of COVID-19 Are Associated with Psychological Distress among Sexual and Gender Minority University Students in the U.S. Drug and Alcohol Dependence. <https://doi.org/10.1016/j.drugalcdep.2021.108594>

- Various government interventions intended to limit the spread of SARS-CoV-2 were associated with a decrease in help-seeking for sexual assault but did not affect help-seeking for domestic violence. Declaration of emergency, school closures, and stay-at-home-orders (SAHOs) were each associated with a reduction in 911 calls for assault and rape, amounting to a nearly a 50% reduction in 911 calls. Although school closures were associated with a reduction to calls to the domestic violence hotline, SAHOs were associated with an increase in calls to the domestic violence hotline resulting in an overall rate of help-seeking for domestic violence that was roughly unchanged.

Sorenson et al. (Mar 10, 2021). The Endemic Amid the Pandemic: Seeking Help for Violence Against Women in the Initial Phases of COVID-19. Journal of Interpersonal Violence. <https://doi.org/10.1177/0886260521997946>

Public Health Policy and Practice

- Implementation of a novel COVID-19 Recuperation Unit (CRU) designed for people experiencing homelessness (PEH) was associated with a 28% reduction in hospitalization among COVID-19 positive PEH during a COVID-19 surge. The CRU was designed as a place where PEH diagnosed with COVID-19 who did not require hospitalization could safely quarantine. During the study period of March to June 2020, the total COVID-19 hospital census in a large safety-net hospital in Boston count began to decline and the daily hospitalized count of COVID-19 positive PEH remained stable after the opening of the CRU on April 9. Meanwhile, the daily census at the CRU increased and peaked on April 21 with nearly 100 COVID-19 positive PEH. By the end of the study, PEH accounted for 84% of the CRU census.

Barocas et al. (Mar 10, 2021). Implementation of a Recuperation Unit and Hospitalization Rates Among People Experiencing Homelessness With COVID-19. JAMA Network Open. <https://doi.org/10.1001/jamanetworkopen.2021.2826>

- COVID-19 prevalence was higher in adolescents (10-19 years) and youth (15-24 years) compared to older adults (>65 years old) in six US states that experienced a surge in cases during Summer 2020, according to data from Departments of Health. Observed COVID-19 prevalence among adolescents and youth in 4 of the 6 states were disproportionately higher than expected based on state population age demographics (as high as 150% in Florida). This period coincided with when lockdown restrictions were being eased in these states.

Rumain et al. (Mar 10, 2021). Prevalence of COVID-19 in Adolescents and Youth Compared with Older Adults in States Experiencing Surges. PLOS ONE. <https://doi.org/10.1371/journal.pone.0242587>

- An analysis of 23 countries found that pediatric (aged <15 years) COVID-19 mortality varied from 0 to 12.1 deaths per million with the highest rate in Peru. The pediatric to general population COVID-19 mortality was highest in India (10.4%). Pediatric COVID-19 mortality strongly correlated with neonatal mortality from 2018, but only had moderate-to-no correlation with COVID-19 mortality in the general population.

González-García et al. (Feb 26, 2021). *International Heterogeneity in Coronavirus Disease 2019 Pediatric Mortality Rates*. *Boletín Médico Del Hospital Infantil de México*.
<https://doi.org/10.24875/BMHIM.20000291>

Other Resources and Commentaries

- [Road toward Universal COVID-19 Testing Method – A Review](#) – Journal of Immunoassay and Immunochemistry (Mar 9)
- [Effectiveness of Community Face Mask Use on COVID-19 Epidemiological Trends and Patterns in Italy: Evidence from a “Translational” Study](#) – Infectious Diseases (Mar 9)
- [Evaluation of the Effect of Border Closure on COVID-19 Incidence Rates across Nine African Countries: An Interrupted Time Series Study](#) – Transactions of The Royal Society of Tropical Medicine and Hygiene (Mar 5)
- [Genomics and Epidemiology of a Novel SARS-CoV-2 Lineage in Manaus, Brazil](#) – MedRxiv (Mar 3)
- [Overcoming Barriers to COVID-19 Vaccination in African Americans: The Need for Cultural Humility](#) – American Journal of Public Health (Apr 1)
- [Community COVID-19 Incidence and Health Care Personnel COVID-19 Seroprevalence](#) – JAMA Network Open (Mar 10)
- [Mass-Vaccination Sites — An Essential Innovation to Curb the Covid-19 Pandemic](#) – New England Journal of Medicine (Mar 10)
- [The Health Impacts of COVID-19–Related Racial Discrimination of Asian Americans Extend Into the Workplace](#) – American Journal of Public Health (Apr 1)
- [SARS-CoV-2 within-Host Diversity and Transmission](#) – Science (Mar 9)
- [Covid-19: Booster Dose Will Be Needed in Autumn to Avoid Winter Surge, Says Government Adviser](#) – BMJ (Mar 9)
- [Assessment of Acute Kidney Injury and Longitudinal Kidney Function After Hospital Discharge Among Patients With and Without COVID-19](#) – JAMA Network Open (Mar 10)
- [Citizenship, Migration and Mobility in a Pandemic \(CMMP\): A Global Dataset of COVID-19 Restrictions on Human Movement](#) – PLOS ONE (Mar 9)
- [Association of Age With Likelihood of Developing Symptoms and Critical Disease Among Close Contacts Exposed to Patients With Confirmed SARS-CoV-2 Infection in Italy](#) – JAMA Network Open (Mar 10)
- [Unraveling COVID-19: A Large-Scale Characterization of 4.5 Million COVID-19 Cases Using CHARYBDIS](#) – Research Square (Mar 1)
- [COVID-19 Community Care in Israel—a Nationwide Cohort Study from a Large Health Maintenance Organization](#) – Journal of Public Health (Mar 5)
- [Effects of Student Life on the Prevention of SARS-CoV-2 Spread at University](#) – Disaster Medicine and Public Health Preparedness (Dec 22, 2020)
- [Vaccine Confidence, Public Understanding and Probity: Time for a Shift in Focus](#) – Journal of Medical Ethics (Mar 9)
- [Excessive Use of Disinfectants against COVID-19 Posing Potential Threat to Living Beings](#) – Current Research in Toxicology (Mar 4, 2021)
- [SARS-CoV-2 Seroprevalence and Symptom Onset in Culturally Linked Orthodox Jewish Communities Across Multiple Regions in the United States](#) – JAMA Network Open (Mar 10)

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