



2019-nCoV Literature Situation Report (Lit Rep)

March 19, 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

- ❑ **School-related COVID-19 incidence was <1% among Florida K-12 students (August-December 2020), were most schools resumed in-person instruction sometime during August 2020. The incidence among students was correlated with community incidence and was highest in smaller counties, districts without mask requirements, and those that reopened earliest after closure in March 2020. Approximately 11% of K-12 schools experienced outbreaks with a median of 6 cases per outbreak. 20% of school outbreaks were associated with activities outside of the classroom. [More](#)**
- ❑ **Despite high community incidence and an inability to space classroom seats at least 6 feet apart, there was low SARS-CoV-2 transmission and no school-related outbreaks in 20 Salt Lake County elementary schools with high mask adherence. [More](#)**
- ❑ **Secondary transmission occurred in only 2% of 102 students and staff who had close contact with someone with COVID-19 in school settings in two counties in Missouri. [More](#)**
- ❑ **Higher doses of anticoagulation did not improve all-cause mortality or reduce venous thromboembolism compared with standard prophylactic anticoagulation in a multicenter randomized trial of patients with COVID-19 admitted to the ICU. [More](#)**

Transmission

- COVID-19 school-related incidence among Florida students was low (August-December 2020), were most schools resumed in-person instruction sometime during August 2020, and was correlated with community incidence and was highest in smaller counties, districts without mask requirements, and those that reopened earliest after closure in March 2020.
- A total of 63,654 total cases of COVID-19 were identified among school-age children in Florida during this time period, of which 60% were estimated to be not school-related.
- Fewer than 1% of registered students were identified as having school-related COVID-19 and <11% of K-12 schools reported outbreaks.
- Among school-related cases, 101 hospitalizations and no deaths were reported among students, and 219 hospitalizations and 13 deaths were reported among staff members. 12% of 86,832 persons who had a close school setting contact received a positive SARS-CoV-2 test result (27% of contacts who were tested).
- A total of 695 school-based outbreaks were identified in 62 of 67 school districts (4,370 total cases), for a statewide average of 6.3 COVID-19 cases per outbreak. 20% of these outbreaks were associated

with activities outside the classroom setting, including sports, non-school-sponsored social gatherings or transportation to school.

Doyle et al. (Mar 19, 2021). COVID-19 in Primary and Secondary School Settings During the First Semester of School Reopening — Florida, August–December 2020. MMWR.

<https://doi.org/10.15585/mmwr.mm7012e2>

- Despite high community incidence and an inability to space classroom seats at least 6 feet apart, there was low SARS-CoV-2 transmission and no school-related outbreaks in 20 Salt Lake County elementary schools. Schools documented high mask adherence among students and also implemented multiple strategies to limit transmission. The authors suggest that these findings add to evidence that in-person elementary schools can be opened safely with minimal in-school transmission when critical prevention strategies are implemented, including mask use, even though maintaining at least 6 feet between students' seats is not possible.

Hershow, R et al. Low SARS-CoV-2 Transmission in Elementary Schools — Salt Lake County, Utah, December 3, 2020–January 31, 2021. MMWR. <https://doi.org/10.15585/mmwr.mm7012e3>

- School-based SARS-CoV-2 secondary transmission occurred in 2% of 102 close contacts identified in investigations of cases that occurred in K-12 schools (n=22) in Springfield and St. Louis County, Missouri. All schools offered in person-learning, with 21,342 (70%) students attending in-person at least part-time. While schools in both counties implemented COVID-19 mitigation strategies, schools in Springfield implemented a modified quarantine policy permitting in-person learning for student close contacts aged ≤18 years who had a school-associated contact with a person with COVID-19.
- A total of 37 students, teachers, and staff members with SARS-CoV-2 infection and 156 of their school-based contacts were interviewed and offered testing. 2% of 102 contacts who received testing had positive results, indicating probable school-based transmission. 42 student contacts in Springfield were permitted to continue in-person classes under the modified quarantine, none of whom received a positive test result.

Dawson et al. (Mar 19, 2021). Pilot Investigation of SARS-CoV-2 Secondary Transmission in Kindergarten Through Grade 12 Schools Implementing Mitigation Strategies — St. Louis County and City of Springfield, Missouri, December 2020. MMWR.

<https://doi.org/10.15585/mmwr.mm7012e4>

- Findings from SARS-CoV-2 testing offered to clients and staff at 63 homeless shelters, irrespective of symptoms, found lower prevalence of infection at shelters that implemented head-to-toe sleeping and that excluded symptomatic staff from working. Shelters with medical services available were less likely to have very high infection prevalence (defined as >10%).

Self, J et al. Shelter Characteristics, Infection Prevention Practices, and Universal Testing for SARS-CoV-2 at Homeless Shelters in 7 US Urban Areas. American Journal of Public Health.

<https://doi.org/10.2105/AJPH.2021.306198>

Testing and Treatment

- Intermediate-dose prophylactic anticoagulation treatment did not improve clinical outcomes among patients admitted to the ICU with COVID-19 compared with standard prophylactic anticoagulation, according to a randomized clinical trial (n=562). There was no difference in the primary composite outcome (an adjudicated venous or arterial thrombosis, treatment with extracorporeal membrane oxygenation, or mortality within 30 days) between patients treated with standard doses of enoxaparin typically used to prevent venous thromboembolism (equivalent to 40mg of enoxaparin

daily) versus intermediate doses (1 mg/kg enoxaparin equivalent daily). The authors conclude that these results do not support the routine empirical use of intermediate-dose prophylactic anticoagulation in unselected patients admitted to the ICU with COVID-19.

Sadeghipour, P et al. Effect of Intermediate-Dose vs Standard-Dose Prophylactic Anticoagulation on Thrombotic Events, Extracorporeal Membrane Oxygenation Treatment, or Mortality Among Patients With COVID-19 Admitted to the Intensive Care Unit. JAMA.

<https://doi.org/10.1001/jama.2021.4152>

- A systematic review (10 randomized trials among 6896 people with COVID-19) found that treatment of COVID-19 patients with the IL-6 blocker tocilizumab reduces the risk of all-cause mortality over 28 days, compared standard of care (with or without placebo). On average, tocilizumab reduced the risk of death by 32 deaths per 1000 compared to standard care alone or placebo.

Ghosn, L et al. Interleukin-6 blocking agents for treating COVID-19: a living systematic review.

Cochrane Database of Systematic Reviews. <https://doi.org/10.1002/14651858.CD013881>

- A multicenter randomized open-labeled clinical trial found that adding Favipiravir to the treatment protocol for in patients with moderate to severe SARS-CoV-2 infection did not reduce the number of ICU admissions or intubations or In-hospital mortality compared to Lopinavir/Ritonavir regimen. It also did not shorten time to clinical recovery or length of hospital stay.

Solaymani-Dodaran et al. Safety and efficacy of Favipiravir in moderate to severe SARS-CoV-2

pneumonia. International Immunopharmacology. <https://doi.org/10.1016/j.intimp.2021.107522>

Vaccines and Immunity

- Neutralizing antibody activity against four SARS-CoV-2 variants, including B.1, B.1.1.7, and N501Y was maintain in sera from individuals with infection- and vaccine-induced antibodies. There was minimal reductions in serum neutralization observed across four representative SARS-CoV-2 strains. Serum was obtained from adults (n=20) hospitalized with COVID-19 5 to 19 days after symptom onset, convalescent individuals (n=2) 32 to 94 days after symptom onset, and individuals (n=14) 14 days after the 2nd dose in the Moderna vaccine phase 1 clinical trial. Neutralizing activity was evaluated by “live virus focus reduction neutralization tests” against the A.1 lineage similar to original Wuhan strain, the B.1 lineage containing the D614G mutation that has emerged worldwide, the B.1.1.7 variant originally identified in the UK, and the N501Y engineered variant containing mutation in spike protein present across multiple emerging variants. Neutralizing activity was not significantly different across the four variants for both hospitalized COVID-19 patients and convalescent individuals. Neutralizing activity induced by vaccines was reduced for all strains compared to the original A1 strain but was similar for the B.1, B.1.1.7, and synthetic N501Y strain.

Edara et al. (Mar 19, 2021). Neutralizing Antibodies Against SARS-CoV-2 Variants After Infection and Vaccination. JAMA. <https://doi.org/10.1001/jama.2021.4388>

Clinical Characteristics and Health Care Setting

- Patients admitted to the most COVID-19 burdened hospitals had increased mortality compared to non-burdened hospitals, according to an analysis of patient admission data (n=14,226 patients) from an administrative database in April 2020. As of June 2020, 21% of all patients admitted with a COVID-19 diagnosis had died, and 1% remained hospitalized. At the hospital level, the observed mortality ranged from 0% to 44% (23% in the highest burden quintile). After adjustment for age, sex and comorbidities, the odds of in-hospital death in the most burdened hospitals was 1.5-times that of hospitals in the bottom four quintiles of burden.

Block et al. (Mar 2021). Variation in COVID-19 Mortality Across 117 US Hospitals in High- and Low-Burden Settings. *Journal of Hospital Medicine*. <https://pubmed.ncbi.nlm.nih.gov/33734977>

- Potential bacterial lung superinfections were found post-mortem in 32% of persons who died of COVID-19, with proven super-infection occurring in 8% of persons who died of COVID-19, based on a review of 75 published postmortem studies including post-mortem findings from 621 COVID-19 patients. Histopathologic findings in patients with potential lung infections demonstrated diffuse pneumonia was the most frequent manifestation observed (95%). Proven superinfection (direct tissue visualization, microbiologic cultures and/or postmortem PCR) were identified in 8% of patients. Lung superinfections were the cause of death of 16% of patients with potential bacterial infections for whom a cause of death was assigned. The most commonly attributed cause of death was respiratory failure due to COVID-19.

Clancy et al. (Mar 2021). *Bacterial Superinfections Among Persons With Coronavirus Disease 2019: A Comprehensive Review of Data From Postmortem Studies*. *Open Forum Infectious Diseases*. <https://doi.org/10.1093/ofid/ofab065>

- The infectivity of the 501Y.V2 variants (which include the B.1.351 variant that was first identified in South Africa) was not significantly different than the reference strain (D614G) across multiple cell types. The neutralizing activity of multiple RBD-targeting monoclonal antibodies decreased significantly, and polyclonal antibodies (from RBD-immunized mouse sera and from SARS-CoV-2 convalescent sera) also had decreased neutralizing activity against 501Y.V2 variants.

Li, Q et al. SARS-CoV-2 501Y.V2 variants lack higher infectivity but do have immune escape. *Cell*. <https://doi.org/10.1016/j.cell.2021.02.042>

Other Resources and Commentaries

- [Change Over Time in Public Support for Social Distancing, Mask Wearing, and Contact Tracing to Combat the COVID-19 Pandemic Among US Adults, April to November 2020](#) – American Journal of Public Health (Mar 18)
- [Development and Dissemination of Infectious Disease Dynamic Transmission Models during the COVID-19 Pandemic: What Can We Learn from Other Pathogens and How Can We Move Forward](#) – The Lancet Digital Health (Jan)
- [Review: The Mental Health Implications for Children and Adolescents Impacted by Infectious Outbreaks – a Systematic Review](#) – Child and Adolescent Mental Health (Mar 17)
- [Enhanced Telehealth Case Management Plus Emergency Financial Assistance for Homeless-Experienced People Living With HIV During the COVID-19 Pandemic](#) – American Journal of Public Health (Mar 18)
- [Monthly Trend in Mortality and Length of Stay among COVID-19 Patients: Analysis of a Nationwide Multi-Hospital United States Database](#) – Infection Control & Hospital Epidemiology (Mar 19)
- [Myocarditis in Naturally Infected Pets with the British Variant of COVID-19](#) – BioRxiv (Mar 18)
- [Understanding Varying COVID-19 Mortality Rates Reported in Africa Compared to Europe, United States of America and Asia](#) – Tropical Medicine & International Health : TM & IH (Mar)
- [Beyond Command and Control: A Rapid Review of Meaningful Community-Engaged Responses to COVID-19](#) – Global Public Health (Mar)
- [The B.1.351 and P.1 Variants Extend SARS-CoV-2 Host Range to Mice](#) – BioRxiv (Mar 18)
- [Reopening Businesses and Risk of COVID-19 Transmission](#) – Npj Digital Medicine (Dec 16)
- [Disentangling the Coronavirus Disease 2019 Health Disparities in African Americans: Biological, Environmental, and Social Factors](#) – Open Forum Infectious Diseases (Mar 1)

- [Vaccinating the World against COVID-19: Getting the Delivery Right Is the Greatest Challenge](#) – BMJ Global Health (Mar)
- [Mass SARS-CoV-2 Testing in a Dormitory-Style Correctional Facility in Arkansas](#) – American Journal of Public Health (Mar 18)
- [Sinophobic Stigma Going Viral: Addressing the Social Impact of COVID-19 in a Globalized World](#) – American Journal of Public Health (Mar 18)
- [Transmission of Severe Acute Respiratory Syndrome Coronavirus 2 during Border Quarantine and Air Travel, New Zealand \(Aotearoa\)](#) – Emerging Infectious Diseases (Mar 18)

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