

2019-nCoV Literature Situation Report (Lit Rep) November 20, 2020

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

- **Mask mandates at the county-level were associated with a decrease in the rate of COVID-19 infections in Kansas.** [More](#)
- **A motorcycle rally in Sturgis, South Dakota was linked to an ongoing SARS-CoV-2 outbreak in Minnesota, including at least 51 index cases, 21 secondary cases, and 5 tertiary cases.** [More](#)
- **Changes in the concentration of antibodies against SARS-CoV-2 over time in children were found to be similar to adults up to three months after infection.** [More](#)
- **The antiviral drug favipavir was associated with faster time-to-resolution of clinical symptoms in an open-label study of Indian adults with non-severe COVID-19.** [More](#)

Non-Pharmaceutical Interventions

- After implementation of mask mandates in 24 Kansas counties, the increasing trend in COVID-19 incidence reversed. Although rates were considerably higher in mandated counties than in non-mandated counties, rates in mandated counties declined markedly after July 3, compared with those in non-mandated counties. Kansas counties that had mask mandates in place appear to have mitigated the transmission of COVID-19, whereas counties that did not have mask mandates continued to experience increases in cases.

Van Dyke et al. (Nov 20, 2020). Trends in County-Level COVID-19 Incidence in Counties With and Without a Mask Mandate — Kansas, June 1–August 23, 2020. MMWR.

<https://doi.org/10.15585/mmwr.mm6947e2>

- A combination of daily symptom tracking for staff, daily testing of staff, and twice-weekly testing of residents was associated with reduced incidence of COVID-19 in long term care facilities. Implementation of a surveillance program that conducted daily symptom screening questionnaires for all persons involved in daily activities at a Pennsylvania long term care facility in combination of collection and testing of nasal swabs from residents twice per week and staff daily for 10 weeks (June 23–October 1, 2020) was associated with an incidence of COVID-19 that was 17-times lower than that of neighboring facilities without such programs.

Shimotsu et al. (Nov 20, 2020). COVID-19 Infection Control Measures in Long-Term Care Facility, Pennsylvania, USA. Emerging Infectious Diseases. <https://doi.org/10.3201/eid2702.204265>

Transmission

- Following a 10-day motorcycle rally in Sturgis, South Dakota attended by approximately 460,000 persons, 51 confirmed cases of COVID-19 that were directly associated with the event were identified in Minnesota residents, along with 21 secondary cases and five tertiary cases. An additional nine likely event-associated secondary or tertiary cases were identified. Four patients were hospitalized, and one died. Genomic sequencing supported the associations with the motorcycle rally. Approximately one third of counties in Minnesota reported at least one case epidemiologically linked to the event. The authors note that this is likely an underascertainment of the total number of cases in in Minnesota and other states that were attributable to the event.

Firestone et al. (Nov 20, 2020). COVID-19 Outbreak Associated with a 10-Day Motorcycle Rally in a Neighboring State — Minnesota, August–September 2020. MMWR.

<http://dx.doi.org/10.15585/mmwr.mm6947e1>

- Barracks-style buildings for migrant workers in Singapore were associated with a faster pace of infection when compared to apartment-style housing. After all workers were confined to their respective living quarters, the number of cases of SARS-CoV-2 infection doubled every 1.6 days in barracks-style buildings whereas the corresponding doubling time for apartment-style buildings was 2.7 days.

Gorny et al. (Nov 15, 2020). SARS-CoV-2 in Migrant Worker Dormitories: Geospatial Epidemiology Supporting Outbreak Management. International Journal of Infectious Diseases.

<https://doi.org/10.1016/j.ijid.2020.11.148>

Vaccines and Immunity

- *[Pre-print, not peer reviewed]* A prospective longitudinal cohort study of healthcare workers shows that antibodies against the spike protein of SARS-CoV-2 (suggesting previous infection) are associated with lower risk of a PCR-positive test (IRR: 0.24, 95% CI: 0.08-0.76). The study included 11,052 seronegative individuals and 1,246 seropositive individuals. No symptomatic infections and only three asymptomatic PCR-positive results (0.21 cases per 10,000 days at risk) were seen in those with anti-spike antibodies, over 30 weeks of follow-up. By comparison, among the initially seronegative individuals there were 89 PCR-confirmed symptomatic cases (0.46 cases per 10,000 days at risk) and 76 confirmed asymptomatic cases (0.40/10,000 days at risk). The authors conclude that these results provide evidence that antibodies produced by prior SARS-CoV-2 infection are associated with at least partial protection against reinfection for at least six months.

Lumley et al. (Nov 18, 2020). Antibodies to SARS-CoV-2 are associated with protection against Reinfection. Pre-print downloaded Nov 19 from <https://doi.org/10.1101/2020.11.18.20234369>

- Changes in the concentration of antibodies against SARS-CoV-2 over time in children were found to be similar to adults. In a prospective multicenter cohort study of antibody responses in 849 children, antibody titers in children exposed to SARS-CoV-2 remain at a detectable level for at least 62 days, with the mean titer increasing over time. The longest follow-up was 81 days.

Roarty et al. (Nov 19, 2020). Kinetics and seroprevalence of SARS-CoV-2 antibodies in children. Lancet Infectious Diseases. [https://doi.org/10.1016/S1473-3099\(20\)30884-7](https://doi.org/10.1016/S1473-3099(20)30884-7)

Testing and Treatment

- Significant performance differences were observed in commercially available serologic assays for antibodies against SARS-CoV-2. In a multi-center clinical and analytical validation of seven

commercially available automated serology assays, samples from 2391 SARS-CoV-2 negative individuals and 698 SARS-CoV-2 PCR positive patients (collected between March and May 2020) were analyzed. Significant performance differences were observed with major impacts on the positive predictive values of the tests (probability of a true positive given a positive test) in low prevalence scenarios. A subgroup of symptomatic patients (~ 5%) remained seronegative across a wide range of antigens, isotypes, and technologies.

Oved et al. (Nov 19, 2020). Multi-center nationwide comparison of seven serology assays reveals a SARS-CoV-2 non-responding seronegative subpopulation. EClinicalMedicine.

<https://doi.org/10.1016/j.eclinm.2020.100651>

- In a randomized, multicenter, open-label, parallel-arm, Phase 3 trial of adults in India with non-severe COVID-19 (including asymptomatic patients), those who received the antiviral drug favipavir within seven days of symptoms onset had faster clinical recovery compared to placebo. Median time to clinical cure was 3 days (95%CI: 3-4 days) in those who received oral favipavir versus 5 days (95%CI: 4-6 days) in those who received placebo (p = 0.030). Median time to cessation of viral shedding was 5 days in the favipavir arm (95% CI: 4-7 days) vs 7 days in the placebo arm (95% CI: 5-8 days) (p = 0.129). Of note, the primary endpoint of this trial was viral shedding.

Udwadia et al. (Nov 19, 2020). Efficacy and Safety of Favipiravir, an Oral RNA-Dependent RNA Polymerase Inhibitor, in Mild-to-Moderate COVID-19: A Randomized, Comparative, Open-Label, Multicenter, Phase 3 Clinical Trial. International Journal of Infectious Diseases.

<https://doi.org/10.1016/j.ijid.2020.11.142>

Clinical Characteristics and Health Care Setting

- SARS-CoV-2 infection in pregnancy was not associated with adverse pregnancy outcomes in a cohort of women in Texas. At a large county medical center, adverse pregnancy outcomes were similar in 252 SARS-CoV-2–positive and 3,122 negative pregnant women tested in outpatient and inpatient settings. Neonatal infection occurred in 3% of infants, predominantly among infants born to asymptomatic or mildly symptomatic women. Placental abnormalities were not associated with disease severity and the rate of hospitalization was similar to rates among nonpregnant women.

Adhikari et al. (Nov 19, 2020). Pregnancy Outcomes Among Women With and Without Severe Acute Respiratory Syndrome Coronavirus 2 Infection. JAMA.

<https://doi.org/10.1001/jamanetworkopen.2020.29256>

- *[Pre-print, not peer reviewed]* In a population-based cohort study of all laboratory-confirmed COVID-19 cases in the Province of Ontario, Canada (population >14-million) between March 1, 2020 and July 16, the average lag time between community cases and nursing home outbreaks was 23 days, with substantial variability across geographic regions ranging from 11 to 43 days.

Malikov et al. (Nov 19, 2020). Temporal Associations between Community Incidence of COVID-19 and Nursing Home Outbreaks in Ontario, Canada. Pre-print downloaded Nov 19 from

<https://doi.org/10.1101/2020.11.17.20233312>

- Delirium is a common symptom in older adults diagnosed with COVID-19 in the emergency department (ED). In this cohort study of 817 older ED patients with COVID-19, 28% had delirium at presentation, and delirium was the sixth most common of all presenting symptoms and signs. Among delirious patients, 16% presented with delirium as a primary symptom and 37% had no typical COVID-19 symptoms or signs, such as cough or fever. These findings suggest that older adults

with COVID-19 commonly present to the ED with delirium and that delirium should be considered an important presenting symptom of COVID-19.

Kennedy et al. (Nov 19, 2020). Delirium in Older Patients With COVID-19 Presenting to the Emergency Department. JAMA. <https://doi.org/10.1001/jamanetworkopen.2020.29540>

Modeling and Prediction

- A mathematical model used to estimate the population benefits of a vaccine against COVID-19 finds that factors related to implementation will contribute more to the success of vaccination programs than a vaccine's efficacy as determined in clinical trials. The model suggests the benefits of a vaccine will decline substantially in the event of manufacturing or deployment delays, significant vaccine hesitancy, or greater epidemic severity.

Paltiel et al. (Nov 19, 2020). Clinical Outcomes Of A COVID-19 Vaccine: Implementation Over Efficacy. Health Affairs. <https://doi.org/10.1377/hlthaff.2020.02054>

Public Health Policy and Practice

- *Pre-print, not peer reviewed*] A majority of healthcare workers expressed concerns about receiving a COVID-19 vaccine, and non-physician healthcare workers reported a greater desire to delay receiving a COVID-19 vaccine compared to physicians. In a cross-sectional survey of healthcare workers enrolled in a longitudinal cohort study investigating the incidence of SARS-CoV-2 infection (n = 1,093), the odds of reporting an intent to delay COVID-19 vaccine uptake were 4.15 times higher among nurses, 2.45 times higher among other personnel with patient contact roles, and 2.15 times higher among those without patient contact compared to doctors.

Gadoth et al. (Nov 18, 2020). Assessment of COVID-19 vaccine acceptance among healthcare workers in Los Angeles. Pre-print downloaded Nov 19 from <https://doi.org/10.1101/2020.11.18.20234468>

Other Resources and Commentaries

- [A Safety Net Unraveling: Feeding Young Children During COVID-19](#) – American Journal of Public Health (Nov 19)
- [COVID-19 Projections Using Machine Learning](#)
- [Preventing the Spread of COVID-19 in Immigration Detention Centers Requires the Release of Detainees](#) – American Journal of Public Health (Nov 19)
- [How to Leverage the Medicare Program for a COVID-19 Vaccination Campaign](#) – JAMA (Nov 19)
- [Consideration Of Value-Based Pricing For Treatments And Vaccines Is Important, Even In The COVID-19 Pandemic](#) – Health Affairs (Nov 19)
- [Ensuring Equitable Access To COVID-19 Vaccines In The US: Current System Challenges And Opportunities](#) – Health Affairs (Nov 19)
- [Older Adults and the Mental Health Effects of COVID-19](#) – JAMA (Nov 19)
- [COVID-19 Vaccine To Vaccination: Why Leaders Must Invest In Delivery Strategies Now](#) – Health Affairs (Nov 19)

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