

## 2019-nCoV Literature Situation Report (Lit Rep) September 29, 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

- **A university in North Carolina experienced 670 cases of COVID-19 within 2 weeks of reopening, likely due to student living arrangements and gatherings both on and off campus.** [More](#)
- **The incidence of SARS-CoV-2 infection in August and the first week of September increased by 150% among people 18-22 years old in the US, with the increase driven entirely by young people who are non-Hispanic white. During this period, the incidence declined in all other age groups and among 18-22 year-olds in other racial/ethnic groups. The increase was partially attributed to the resumption of in-person attendance at some colleges and universities.** [More](#)
- **A modeling study found that in-person sports events on college campuses may pose a risk to the campus community, even if COVID-19 outbreaks on campus and in the surrounding community are controlled.** [More](#)

### Non-Pharmaceutical Interventions

- *[Pre-print, not peer-reviewed]* Segmented regression applied to COVID-19 and SARS-CoV-2 case counts in a number of US states was used to estimate the impact of the closures of schools, restaurants and bars, general lockdown orders, and masking mandates. The authors estimate that school closings reduced SARS-CoV-2 infection rates by half, while lockdowns reduced transmission rates by 3- to 4-fold, and other actions (such as closing bars and mandating masks) also decreased the rates. *[EDITORIAL NOTE: The short amount of time between different types of closures and the lack of precision in the date of infection greatly limits the ability to attribute declines in the infection rate to any one intervention approach]*

*Matzinger et al. (Sept 28, 2020). Strong Impact of Closing Schools Closing Bars and Wearing Masks during the Covid-19 Pandemic Results from a Simple and Revealing Analysis. Pre-print downloaded Sept 29 from <https://doi.org/10.1101/2020.09.26.20202457>*

### Transmission

- Within 2 weeks of opening the campus to students (Aug 3 – Aug 25), a North Carolina university experienced 670 COVID-19 cases. Preliminary investigations suggest student gatherings and congregate living settings, both on and off campus, likely contributed to the rapid spread of COVID-19 on campus. The authors state that measures to reduce transmission on college campuses could include reducing on-campus housing density, ensuring that campus community members adhere to masking and other mitigation strategies, increasing testing, and discouraging student gatherings.

*Wilson et al. (Sept 29, 2020). Multiple COVID-19 Clusters on a University Campus — North Carolina, August 2020. MMWR. <https://doi.org/10.15585/mmwr.mm6939e3>*

- During August 2–September 5, 2020, weekly COVID-19 cases among young people ages 18–22 increased 55% nationally, with the largest regional increases in the Northeast (144%) and Midwest (123%). Increases in cases were not solely due to increased testing. The incidence in all other age groups declined during the same period. When examined by race and ethnicity nationally during this time period, the weekly incidence among non-Hispanic white individuals aged 18-22 years increased 150% (from 48 to 120 per 100,000). Incidence in those 18-22 years old in other racial/ethnic groups declined during the same period. The authors note that it is likely that some of this increase is linked to resumption of in-person attendance at some colleges and universities.

*Salvatore et al. (Sept 29, 2020). Recent Increase in COVID-19 Cases Reported Among Adults Aged 18–22 Years — United States, May 31–September 5, 2020. MMWR.*

<https://doi.org/10.15585/mmwr.mm6939e4>

## Testing and Treatment

- A study of household transmission from people with mild COVID-19 found that SARS-CoV-2 RNA concentrations were lowest soon after symptoms appeared and increased with time since symptom onset. Viral concentrations were higher in patients under 18 years of age ( $p=0.01$ ) and those reporting upper respiratory symptoms at the time of sample collection ( $p=0.001$ ), and were lower among participants without symptoms ( $p=0.05$ ). The authors conclude that these findings support the importance of early testing for SARS-CoV-2 among people with respiratory symptoms to identify and isolate infected individuals while their viral shedding is high.

*Salvatore et al. (Sept 28, 2020). Epidemiological Correlates of PCR Cycle Threshold Values in the Detection of SARS-CoV-2. Clinical Infectious Diseases. <https://doi.org/10.1093/cid/ciaa1469>*

- An exploratory, open-label, phase 2 randomized trial of the monoclonal antibody IFX-1 (vilobelimab) in adults with severe COVID-19 indicated that C5a inhibition with the drug appeared to be safe. Mortality estimates at 28 days were 13% for the IFX-1 group and 27% for the control group, although the authors note that this outcome is preliminary and the study lacked sufficient power for this endpoint. The frequency of serious adverse events were similar between groups, and no deaths were considered related to treatment assignment. However, a smaller proportion of patients had serious pulmonary embolisms in the IFX-1 group (13%) than in the control group (40%).

*Vlaar et al. (Sept 2020). Anti-C5a Antibody IFX-1 (Vilobelimab) Treatment versus Best Supportive Care for Patients with Severe COVID-19 (PANAMO): An Exploratory, Open-Label, Phase 2 Randomised Controlled Trial. The Lancet Rheumatology.*

[https://doi.org/10.1016/S2665-9913\(20\)30341-6](https://doi.org/10.1016/S2665-9913(20)30341-6)

## Vaccines and Immunity

- A phase 1, dose escalation trial of a messenger RNA vaccine against SARS-CoV-2 conducted among adults ages 56-70 ( $n=20$ ) and ages 71 or older ( $n=20$ ) reported generating antibody response with mild to moderate adverse events. Serum neutralizing activity was detected in all participants and was similar in magnitude to responses previously reported among participants between the ages of 18 and 55. The authors emphasize the need to include older adults in vaccine trials due to increased risk for severe outcomes from COVID-19 in this age group.

*Safety and Immunogenicity of SARS-CoV-2 MRNA-1273 Vaccine in Older Adults – New England Journal of Medicine (Sept 29) <https://doi.org/10.1056/NEJMoa2028436>*

## Clinical Characteristics and Health Care Setting

- An analysis of ACE2 expression among 229 individuals indicated that participants who were female (OR=2.3), had hypertension (OR=1.3), had a cardiocerebrovascular disease (OR=1.3), had cancer (OR=1.7), or who were over 60 years old (OR=3.1) had higher levels of ACE2 expression, which is one of the cellular entry receptors for SARS-CoV-2. The authors suggest that persons with greater ACE2 expression may be at an increased risk of SARS-CoV-2 infection due to higher expression of ACE2.  
*Li et al. (Aug 19, 2020). Exploring the Demographics and Clinical Characteristics Related to the Expression of Angiotensin-Converting Enzyme 2, a Receptor of SARS-CoV-2. Frontiers in Medicine.*  
<https://doi.org/10.3389/fmed.2020.00530>
- An autopsy study among 21 patients who died of COVID-19 showed widespread systemic inflammation in the lungs, heart, kidney, liver, and brain, with a continued presence of inflammatory neutrophils cells even several weeks into the disease course. The lung was the organ with the most abundant SARS-CoV-2, and extensive inflammation was detected in the brain. SARS-CoV-2-infected cells were sporadically present up to 6 weeks after the onset of symptoms, and occasionally found at late stages of COVID-19. The authors note that these findings suggest a maladaptive immune response to SARS-CoV-2.  
*Schurink et al. (Sept 2020). Viral Presence and Immunopathology in Patients with Lethal COVID-19: A Prospective Autopsy Cohort Study. The Lancet Microbe.*  
[https://doi.org/10.1016/S2666-5247\(20\)30144-0](https://doi.org/10.1016/S2666-5247(20)30144-0)
- An observational study of patients hospitalized with COVID-19 in Japan (n=2,638) found a lower prevalence of comorbidities and a trend toward lower mortality compared to inpatient studies from other countries. Among the study participants, the most common comorbidities were hypertension (15%) and diabetes without complications (14%). In addition, there were twice as many individuals with non-severe COVID-19 as with severe COVID-19. Overall, 67% of patients were discharged home, while 8% died.  
*Matsunaga et al. (Sept 28, 2020). Clinical Epidemiology of Hospitalized Patients with COVID-19 in Japan: Report of the COVID-19 REGISTRY JAPAN. Clinical Infectious Diseases.*  
<https://doi.org/10.1093/cid/ciaa1470>

## Mental Health and Personal Impact

- The COVID-19 pandemic was associated with an increase in alcohol consumption among US adults. Survey data from the RAND Corporation American Life Panel show that on average, 3 out of 4 adults consumed alcohol 1 additional day per month in 2020 than they did in 2019. For women, there was also a 41% increase from baseline in days of heavy drinking, equating to an increase of 1 day for 1 in 5 women. There was also an average increase in the Short Inventory of Problems scale for women, which indicates increased alcohol-related problems independent of consumption level for nearly 1 in 10 women.  
*Pollard et al. (Sept 29, 2020). Changes in Adult Alcohol Use and Consequences During the COVID-19 Pandemic in the US. JAMA Network Open.*  
<https://doi.org/10.1001/jamanetworkopen.2020.22942>

## Modeling and Prediction

- *[Pre-print, not peer-reviewed]* A modeling study using a stochastic compartmental model showed that in-person sporting events on college campuses could increase COVID-19 cases among the campus community. Even when COVID-19 cases were controlled both on-campus and among the larger population from which visitors to campus were drawn, such events presented a risk to the

community. Depending on the scenario, and the prevalence of COVID-19, both on and off campus, the increase ranged from 25% to 822%.

*Johnson et al. (Sept 28, 2020). Excess Risk of COVID-19 to University Populations Resulting from In-Person Sporting Events. Pre-print downloaded Sept 29 from <https://doi.org/10.1101/2020.09.27.20202499>*

## Public Health Policy and Practice

- *[Pre-print, not peer-reviewed]* Despite ongoing COVID-19 activity in Ontario, the prevalence of anti-SARS-CoV-2 antibodies did not change substantially (range 0.4% - 1.4% positive) between five surveys conducted from March to August 2020. Bolotin et al. analyzed residual clinical specimens and found that the geometric mean concentration of antibodies among the positive samples declined between June and August ( $p=0.015$ ), suggesting that loss of anti-N antibodies over time may result in an underestimate of cumulative SARS-CoV-2 infections at the population level. This finding is supported further by an increase over time in the geometric mean concentration of anti-N antibodies in the samples that tested negative.

*Bolotin et al. (Sept 29, 2020). COVID-19 Seroprevalence Surveys and Antibody Decline - A Note of Caution on Antibody Decline. Pre-print downloaded Sept 29 from <https://doi.org/10.1101/2020.09.28.20200915>*

## Other Resources and Commentaries

- [The Exclusion of Older Persons From Vaccine and Treatment Trials for Coronavirus Disease 2019—Missing the Target](#) – JAMA Internal Medicine (Sept 2020)
- [Preparing for COVID-19 Vaccine Safety Surveillance: A United States Perspective](#) - Pharmacoepidemiology and Drug Safety (Sept 2020)
- [Sex Differences in Reported Adverse Drug Reactions to COVID-19 Drugs in a Global Database of Individual Case Safety Reports](#) – Drug Safety (Sept 2020)
- [Covid-19: Delays in getting tests are keeping doctors from work, health leaders warn](#) – BMJ (Sept 2020)
- [COVID-19 prevention and control in China: grid governance](#) – Journal of Public Health (Sept 2020)
- [Lockdown, domestic abuse perpetration, and mental health care: gaps in training, research, and policy](#) – The Lancet Psychiatry (Sept 2020)
- [Current and COVID-19 Challenges With Childhood and Adolescent Sleep](#) – JAMA Pediatrics (Sept 2020)
- [Remdesivir for the treatment of COVID-19 A living systematic review](#) – medRxiv (Sept 2020)
- [Evaluating interest in off-label use of disinfectants for COVID-19](#) – The Lancet Digital Health (Sept 2020)
- [The impact of COVID-19 public health measures on detections of influenza and respiratory syncytial virus in children during the 2020 Australian winter](#) – Clinical Infectious Diseases (Sept 2020)
- [Severe Acute Respiratory Syndrome Coronavirus 2 \(SARS-CoV-2\) Screening With Specimen Pools: Time to Swim, or Too Deep for Comfort?](#) – Clinical Infectious Diseases (Sept 2020)
- [Clinical Screening for COVID-19 in Asymptomatic Patients With Cancer](#) – JAMA Network Open (Sept 2020)
- [US Adults' Preferences for Public Allocation of a Vaccine for Coronavirus Disease 2019](#) – JAMA Network Open (Sept 2020)

*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*