

## 2019-nCoV Literature Situation Report (Lit Rep) November 13, 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

- **Symptom-based screening of travelers at airports to prevent the spread of SARS-CoV-2 was found to be resource-intensive and overall ineffective, identifying about one case for every 85,000 travelers screened.** [More](#)
- **In a double-blind, randomized single center study, the selective serotonin reuptake inhibitor (SSRI) fluvoxamine at standard doses prevented clinical deterioration in outpatients with mild, symptomatic COVID-19.** [More](#)
- **Social gatherings including church services, a wedding, and a funeral likely contributed to the rapid transmission of SARS-CoV-2 throughout an Amish community in Ohio.** [More](#)
- **Results from a modeling study suggest that the closure of public primary schools in early 2020 could result in decreases in life expectancy for US children due to effects on education attainment.** [More](#)
- **SARS-CoV-2 infections in skilled nursing facilities continue to be an issue in hotspot states with common reports of shortages of personal protective equipment and staffing issues.** [More](#)

### Non-Pharmaceutical Interventions

- *[Pre-print, not peer-reviewed]* People living in communities with the greatest social distancing had a 31% lower risk of predicted COVID-19 compared to those living in communities with poor social distancing, according to a prospective study of 198,077 participants using the COVID Symptom Study smartphone app. In addition, among people living in communities with poor social distancing, self-reported mask wearing at least some of the time was associated with a 63% reduced risk of predicted COVID-19. Predicted COVID-19 rates were based upon a combination of demographic information and symptoms, which was used as a proxy for a positive SARS-CoV-2 test due to the small fraction of positive tests among app users.

*Kwon et al. (Nov 13, 2020). Association of Social Distancing and Masking with Risk of COVID-19. MedRxiv. <https://doi.org/10.1101/2020.11.11.20229500>*

### Transmission

- Social gatherings likely contributed to the rapid transmission of SARS-CoV-2 throughout an Amish community in rural Ohio. Access to testing was increased after an initial cluster of seven SARS-CoV-2 cases was identified in May, resulting in 77% positivity among the 30 additional residents tested by RT-PCR. Transmission was associated with multiple social gatherings, including church services, a

wedding, and a funeral. In key informant interviews, community members cited social and cultural concerns about following mitigation strategies such as social distancing and mask wearing.

*Ali et al. (Nov 13, 2020). COVID-19 Outbreak in an Amish Community — Ohio, May 2020. MMWR. <https://doi.org/10.15585/mmwr.mm6945a2>*

- Symptom-based screening of travelers at US airports to prevent the spread of SARS-CoV-2 was found to be resource-intensive and ineffective. From mid-January to mid-September, a total of 766,044 travelers were screened, 298 (0.04%) of whom met criteria for public health assessment. 35 of those passengers (0.005%) were tested for SARS-CoV-2, and nine (0.001%) were positive. Overall, this approach yielded about one case for every 85,000 travelers screened.

*Dollard et al. (Nov 13, 2020). Risk Assessment and Management of COVID-19 Among Travelers Arriving at Designated U.S. Airports, January 17–September 13, 2020. MMWR.*

*<https://doi.org/10.15585/mmwr.mm6945a4>*

## Geographic Spread

- *[Pre-print, not peer-reviewed]* The prevalence of SARS-CoV-2 antibodies among asymptomatic individuals in the US more than doubled during May to September (3.0% to 6.6%), with the greatest increase observed in younger individuals (< age 20, 7.8%). Antibody prevalence was similar among males and females, but varied by age. Based on the September prevalence, there were an estimated 11.1 million asymptomatic SARS-CoV-2 infections in the US, which was 1.95-times the cumulative number of cases in the US reported to the CDC as of September 1.

*Stout et al. (Nov 13, 2020). The Change in Seroprevalence in the US plus Puerto Rico between May and September of SARS-CoV-2 Antibody in the Asymptomatic Population. MedRxiv.*

*<https://doi.org/10.1101/2020.11.10.20215145>*

## Testing and Treatment

- In a double-blind, randomized trial, adult outpatients with mild symptomatic COVID-19 treated with the SSRI antidepressant drug fluvoxamine had a lower likelihood of clinical deterioration over 15 days compared to placebo (8.7% absolute difference). The study included 152 participants and was conducted without patient contact. Clinical deterioration was defined as both (1) having shortness of breath or being hospitalized for shortness of breath or pneumonia, and (2) having less than 92% oxygen saturation, or requiring supplemental oxygen. 0/80 participants met the primary endpoint (clinical deterioration) in the fluvoxamine group compared to 6/72 in the placebo arm. Overall adverse events were similar between the two groups.

*Lenze et al. (Nov 12, 2020). Fluvoxamine vs Placebo and Clinical Deterioration in Outpatients*

*With Symptomatic COVID-19. JAMA. <https://doi.org/10.1001/jama.2020.22760>*

- A study evaluating the test performance characteristics of 3 nucleic acid amplification tests for SARS-CoV-2 found that the positive percent agreement (PPA) of pooled versus individual testing ranged from 71.7% to 82.6% for pools of 8 and from 82.9% to 100.0% for pools of 4. Pooled samples showed decreased PPA relative to individual samples. False negatives occurred only in pools with a low estimated viral load. The study team also developed a model to estimate effects of dilution on PPA and efficiency of the testing algorithm and determined that PPA depended on the proportion of tests with positive results, cycle threshold distribution, and assay analytical sensitivity.

*Wang et al. (Nov 12, 2021). Performance of Nucleic Acid Amplification Tests for Detection of Severe Acute Respiratory Syndrome Coronavirus 2 in Prospectively Pooled Specimens. Emerging Infectious Disease Journal. [https://wwwnc.cdc.gov/eid/article/27/1/20-3379\\_article](https://wwwnc.cdc.gov/eid/article/27/1/20-3379_article)*

- *[Pre-print, not peer-reviewed]* An assay designed to detect SARS-CoV-2 RNA in stool based upon a modified version of the CDC rRT-PCR SARS-CoV-2 test. Using stool samples from health individuals spiked with inactivated SAR-CoV-2 virus, the lower limit of detection (LoD) of the assay was found to be 3,000 viral RNA copies per gram of original stool sample. Thirty contrived SARS-CoV-2 samples were tested by a second laboratory and were correctly identified as positive or negative in at least one of two rounds of testing. Samples from individuals with COVID-19 were also tested, and the assay was able to detect SARS-CoV-2 RNA in 3 of the 5 samples.

*Coryell et al. (Nov 12, 2020). Validation and Testing of a Method for Detection of SARS-CoV-2 RNA in Healthy Human Stool. MedRxiv. <https://doi.org/10.1101/2020.11.09.20228601>*

- *[Pre-print, not peer-reviewed]* A study evaluating the diagnostic performance of a rapid antigen detection test (RADT) indicated that the sensitivity and specificity were 82.1% and 99.1% respectively in patients with mild COVID-19 in a high incidence setting, and the performance was especially high among samples with a high viral load. Nasal samples from male patients (n = 4183) with mild symptoms were tested using both the RADT and RT-PCR, and the kappa coefficient of agreement between the rapid antigen test and RT-PCR was 0.859. The prevalence of SARS-CoV-2 in the study population was 17.5%. The authors note that this test was intended to supplement RT-PCR testing, not replace it.

*Abdulrahman et al. (Nov 13, 2020). Comparison of SARS-COV-2 Nasal Antigen Test to Nasopharyngeal RT-PCR in Mildly Symptomatic Patients. MedRxiv. <https://doi.org/10.1101/2020.11.10.20228973>*

- A prospective study of 176 Italians who had recovered from COVID-19 and previously tested negative for SARS-CoV-2 RNA via RT-PCR (two negative tests 24 hours apart) found that 32 people (18%) re-tested positive for SARS-CoV-2 (mean of 49 days since initial diagnosis), and one person (3%) was found to have replicative SARS-CoV-2 RNA. It was not possible to determine whether the 31 individuals who re-tested positive had recurrent infection or were reinfected. All but one patient in the study had positive antibody results against SARS-CoV-2 as well as 139 of the remaining 144 patients tested during follow-up. The patient who tested serologically negative was not the same patient that had a positive test result for replicative SARS-CoV-2 RNA.

*Liotti et al. (Nov 12, 2020). Assessment of SARS-CoV-2 RNA Test Results Among Patients Who Recovered From COVID-19 With Prior Negative Results. JAMA Internal Medicine. <https://doi.org/10.1001/jamainternmed.2020.7570>*

## Vaccines and Immunity

- *[Pre-print, not peer-reviewed]* The presence of T-cells reactive to SARS-CoV-2 was found to be a strong indicator of past SARS-CoV-2 infection. In a large population study (n = 2,200) in Italy that included 70 individuals with PCR-confirmed SARS-CoV-2 infection, blood samples taken 60 days after PCR diagnosis indicated that 97% of the people with PCR-confirmed infection had a positive T-cell test result. This percentage was higher than the antibody serology assay (77%). The T-cell response was associated with disease severity, with significantly higher response among people who were symptomatic or hospitalized compared to those who were asymptomatic.

*Gittelman et al. (Nov 12, 2020). Diagnosis and Tracking of Past SARS-CoV-2 Infection in a Large Study of Vo' Italy Through T-Cell Receptor Sequencing. MedRxiv. <https://doi.org/10.1101/2020.11.09.20228023>*

## Clinical Characteristics and Health Care Setting

- Surges in nursing home-associated SARS-CoV-2 infections occurred in hotspot states during the end of October. Data were collected from 778 facilities in Idaho, Montana, North and South Dakota, Utah, and Wisconsin regarding community spread, testing, and PPE and staffing shortages. Across the six states, weekly cases among staff members tripled from September to October and cases among residents quadrupled. By the end of the study period, one in five nursing homes reported PPE shortages, and one in four reported staff shortages. The authors suggest that mitigation efforts thus far have been insufficient to change the trajectory of SARS-CoV-2 transmission in nursing home communities.

*Konetzka and Gorges. (Nov 12, 2020). Nothing Much Has Changed: COVID-19 Nursing Home Cases and Deaths Follow Fall Surges. Journal of the American Geriatrics Society.*

<https://doi.org/10.1111/jgs.16951>

## Mental Health and Personal Impact

- During the COVID-19 pandemic (mid-March to October) mental health related emergency department (ED) visits among children and adolescents decreased in absolute numbers, but increased as a proportion all pediatric ED visits. The proportion of mental health related ED visits among all pediatric ED visits for children aged 5–11 and 12–17 years increased by 24% and 31%, respectively, compared to the same time period in 2019. During this period, there were initial substantial declines in the overall reported number of children’s mental health-related ED visits, which coincided with measures such as school closures, followed by a return to an absolute level similar to the pre-pandemic period. Even larger decreases in overall pediatric ED visits were observed. The authors suggest that this reflects that children’s mental health concerns were sufficient to drive ED visits at a time when non-emergent visits were discouraged.

*Leeb et al. (Nov 13, 2020). Mental Health–Related Emergency Department Visits Among Children Aged <18 Years During the COVID-19 Pandemic — United States, January 1–October 17, 2020. MMWR. Morbidity and Mortality Weekly Report.*

<https://doi.org/10.15585/mmwr.mm6945a3>

## Public Health Policy and Practice

- An analytical model estimated that closing public primary schools may be associated with an estimated 5.53 million years of life lost among US children. The authors first determined that missed instruction was associated with a mean loss of 0.31 years of final educational attainment for boys and 0.21 years for girls. By extrapolating from the known association of reduced educational attainment with reduced life expectancy, the decisional analytic model found around 1.47 million additional years of life lost could result from school closures.

*Christakis et al. (Nov 12, 2020). Estimation of US Children’s Educational Attainment and Years of Life Lost Associated With Primary School Closures During the Coronavirus Disease 2019 Pandemic. JAMA Network Open.*

<https://doi.org/10.1001/jamanetworkopen.2020.28786>

## Other Resources and Commentaries

- [Covid-19 Vaccine Trials and Incarcerated People — The Ethics of Inclusion](#) – NEJM (Nov 2020)
- [Bridging the Gap at Warp Speed — Delivering Options for Preventing and Treating Covid-19](#) – NEJM (Nov 2020)
- [Learning From the US COVID-19 Response Toward Creating a Healthier Country](#) – American Journal of Public Health (Nov 2020)
- [Superspreading events in the transmission dynamics of SARS-CoV-2: Opportunities for interventions and control](#) – PLOS Biology (Nov 2020)

- [Update from the Advisory Committee on Immunization Practices](#) – Journal of the Pediatric Infectious Diseases Society (Nov 2020)
- [Post-COVID-19 Reflections Around the World: A New AJPH Forum](#) – American Journal of Public Health (Nov 2020)
- [Bringing Student Health and Well-Being onto a Health system EHR: the Benefits of Integration in the COVID-19 Era](#) – Journal of American College Health (Nov 2020)
- [COVID-19 Infection—Preventing Clinical Deterioration](#) – JAMA (Nov 2020)
- [“Do I Have to Be Tested?”: Understanding Reluctance to Be Screened for COVID-19](#) – American Journal of Public Health (Nov 2020)
- [Guarding Against Seven Common Threats to the Credible Estimation of COVID-19 Policy Effects](#) – American Journal of Public Health (Nov 2020)
- [COVID-19 and Psychiatry: Can Electronic Medical Records Provide the Answers?](#) – The Lancet Psychiatry (Nov 2020)
- [The UK needs a sustainable strategy for COVID-19](#) – The Lancet (Nov 2020)

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