



2019-nCoV Literature

Situation Report (Lit

Rep)

November 17, 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

- **Large-scale pooled testing combined with contact tracing and other prevention strategies at Duke University contributed to limited SARS-CoV-2 transmission and efficiently identified asymptomatic cases, which comprised over half of the 84 cases detected during fall 2020.** [More](#)
- **Analysis of private insurance claims from over 16,000 enrollees in the US showed a net decrease in total medical visits from January to June 2020, with the substantial decline in in-person visits partially offset by an increase in telemedicine visits.** [More](#)
- **Estimates of cumulative incidence of SARS-CoV-2 infection in New York City (27%) and Connecticut (9%) that were adjusted for waning antibodies were 2-4% higher than unadjusted estimates that relied solely on cross-sectional serosurveys.** [More](#)

Non-Pharmaceutical Interventions

- Duke University observed limited SARS-CoV-2 transmission during fall 2020, which is likely due to widespread adoption of risk-reduction behaviors, large-scale asymptomatic pooled testing for SARS-CoV-2, and contact tracing. Participation in asymptomatic testing was 95%, with 68,913 tests performed among 10,265 students, resulted in 84 positive cases detected. Most were identified through pool testing (35%) and contact tracing (27%). More than half of the positive cases were asymptomatic and 73% of the positive cases (identified through entry testing, pooled testing, or contact tracing) would not have been detected as quickly or at all through symptomatic testing alone. Pooled testing was highly cost-effective, saving nearly 80% of test resources compared with testing samples individually.

Denny et al. (Nov 17, 2020). Implementation of a Pooled Surveillance Testing Program for Asymptomatic SARS-CoV-2 Infections on a College Campus — Duke University, Durham, North Carolina, August 2–October 11, 2020. MMWR. <https://doi.org/10.15585/mmwr.mm6946e1>

Transmission

- *[Pre-print, not peer reviewed]* A longitudinal cohort analysis in Washington State found a shift in the age distribution of confirmed COVID-19 cases from older age groups to young adults and children. From March to April 2020, there was a 10% decline in cases age 60 years and older and a 20% increase among those age 0-19 and 20-39 years. By August 2020, cases who were younger than age 40 comprised an average of 60% of total cases, with ages 0-19 accounting for 19% of cases and ages 20-39 accounting for 42% of cases.



Malmgren et al. (Nov 16, 2020). *Continued Age Shift of Confirmed Positive COVID-19 Incidence Over Time to Children and Young Adults Washington State March - August 2020*. Pre-print downloaded Nov 17 from <https://doi.org/10.1101/2020.11.12.20229468>

Vaccines and Immunity

- [Pre-print, not peer reviewed] The cumulative incidence of SARS-CoV-2 infection may be underestimated by using cross-sectional data from serology tests without adjusting for waning antibodies. By estimating the average time from seroconversion to seroreversion and combining with population-level cross sectional data, Shioda et al. calculated the cumulative incidence to be 27% in New York City and 9% in Connecticut (through the end of September 2020), while prior estimates were lower (22% and 6%, respectively).

Shioda et al. (Nov 16, 2020). *Estimating the Cumulative Incidence of SARS-CoV-2 Infection and the Infection Fatality Ratio in Light of Waning Antibodies*. Pre-print downloaded Nov 17 from <https://doi.org/10.1101/2020.11.13.20231266>

- [Pre-print, not peer reviewed] Different components of the immune memory against SARS-CoV-2 exhibited distinct kinetics over time in a cross-sectional study of 185 recovered COVID-19 cases. Spike IgG levels were relatively stable over >6 months, memory B cells were more abundant at 6 months than at 1 month, and CD8+ and CD4+ T cells declined with a half-life of 3-5 months.
- Dan et al. (Nov 16, 2020). *Immunological Memory to SARS-CoV-2 Assessed for Greater than Six Months after Infection*. Pre-print downloaded Nov 17 from <https://doi.org/10.1101/2020.11.15.383323>

Clinical Characteristics and Health Care Setting

- A national cohort study in England found a 30% decline in invasive pneumococcal disease (IPD) incidence across all age groups following COVID-19 lockdowns, similar to other reported reductions in bacterial and viral infections attributable to social distancing measures. Although IPD/COVID-19 co-infections were rare (about 0.025% of SARS-CoV-2 infections), the case fatality rates were much higher than for COVID-19 or IPD alone, which could indicate a synergistic relationship between the two pathogens.

Amin-Chowdhury et al. (Nov 16, 2020). *Impact of the COVID-19 Pandemic on Invasive Pneumococcal Disease and Risk of Pneumococcal Coinfection with SARS-CoV-2: Prospective National Cohort Study, England*. *Clinical Infectious Diseases*. <https://doi.org/10.1093/cid/ciaa1728>

- In a multicenter study of children hospitalized with COVID-19 in New York, New Jersey, and Connecticut (n=281), over half had respiratory disease and 69/281 (25%) had multi-system inflammatory syndrome in children (MIS-C). Obesity and low blood oxygen levels (hypoxia) on admission predicted severe respiratory disease, while lower absolute lymphocyte count predicted severe MIS-C. Neither race/ethnicity nor socioeconomic status were associated with disease severity. 267 (95%) children were discharged to home and 7 (2%) died.

Fernandes et al. (Nov 16, 2020). *SARS-CoV-2 Clinical Syndromes and Predictors of Disease Severity in Hospitalized Children and Youth*. *The Journal of Pediatrics*. <https://doi.org/10.1016/j.jpeds.2020.11.016>

- In a cohort of "long-term" COVID-19 patients who recovered from acute disease but still shed viral RNA for more than 3 months (n=38), the median shedding duration was 92 days. Fluctuations between positive and negative PCR tests were observed and viral loads were lower than in patients with acute infection. Most participants were elderly people (median age 65 years) with a history of

mild infection. Genomic analysis matched patient samples with viral clades known to be circulating 3 months prior, suggesting the long-term carriers persistently carried SARS-CoV-2 and were not re-infected.

Li et al. (Nov 16, 2020). Prolonged Shedding of Severe Acute Respiratory Syndrome Coronavirus 2 in Patients with COVID-19. Emerging Microbes & Infections. <https://doi.org/10.1080/22221751.2020.1852058>

- *[Pre-print, not peer reviewed]* SARS-CoV-2 seroprevalence was low (<1%) among a large cohort of healthcare workers (HCWs) in Tennessee (n=11,787) from May to June 2020, despite sustained community-wide transmission during the same time period. Differences in seroprevalence across facilities reflected the differences in levels of community transmissions, with higher prevalence among HCWs located in urban centers.

Rebeiro et al. (Nov 16, 2020). Prevalence of IgG Antibodies against the Severe Acute Respiratory Syndrome Coronavirus-2 among Healthcare Workers in Tennessee during May and June 2020. Pre-print downloaded Nov 17 from <https://doi.org/10.1101/2020.11.12.20230912>

Modeling and Prediction

- *[Pre-print, not peer reviewed]* A SARS-CoV-2 transmission model parametrized to the University of California, Berkeley community found that an approach combining group size limits, rapid symptom-based isolation and contact tracing, and targeted high frequency asymptomatic surveillance testing offers the most cost-effective outbreak control. The model suggests reducing group sizes to a maximum of 12 greatly reduces the chances of superspreader events. Targeting high-risk populations, such as students living in high-density housing, with biweekly surveillance testing that prioritizes turnaround time over test sensitivity, was effective in overcoming the challenge of asymptomatic infections.

Brook et al. (Nov 16, 2020). Optimizing COVID-19 Control with Asymptomatic Surveillance Testing in a University Environment. Pre-print downloaded Nov 17 from <https://doi.org/10.1101/2020.11.12.20230870>

Public Health Policy and Practice

- Analysis of private insurance claims in the US (n=16,740,365 enrollees) showed a net decrease in total medical visits from January to June 2020, with the substantial decline in in-person visits partially offset by an increase in telemedicine visits. Telemedicine visits increased from 0.8 visits to 17.8 visits per 1,000 enrollees, peaking in mid-April 2020. In-person visits dropped from 102.7 to 76.3 visits per 1,000 enrollees, and total visits (telemedicine and in-person visits combined) decreased from 103.5 to 94.1 visits. Geographic variation in the proportion of telemedicine visits was observed during the last 4 weeks of the study period, ranging from 8% in South Dakota to 48% in Massachusetts.

Patel et al. (Nov 16, 2020). Trends in Outpatient Care Delivery and Telemedicine During the COVID-19 Pandemic in the US. JAMA Internal Medicine. <https://doi.org/10.1001/jamainternmed.2020.5928>

Other Resources and Commentaries

- [Challenges Facing Young Scientists in Academia and Industry in the United States from the Lens of a Millennial Academic](#) – Chemistry – A European Journal (Nov 16)
- [Provision of Holistic Care after Severe COVID-19 Pneumonia: Anticipating Clinical Need and Managing Resources](#) – The Lancet Respiratory Medicine (Nov 13)

- [Managing the Combined Consequences of COVID-19 Infection and Lock-down Policies on Athletes: Narrative Review and Guidelines Proposal for a Safe Return to Sport](#) – BMJ Open Sport & Exercise Medicine (Oct 17)
- [Ethical Issues in COVID-19 Communication to Mitigate the Pandemic: Dilemmas and Practical Implications](#) – Health Communication (Nov 15)
- [Non-COVID-19 Excess Deaths by Age and Gender in the United States during the First Three Months of the COVID-19 Pandemic](#) – Public Health (Oct 10)
- [Racism, COVID-19, and Health Inequity in the USA: A Call to Action](#) – Journal of Racial and Ethnic Health Disparities (Nov 16)
- [COVID-19 Mobile Apps: A Systematic Review of the Literature](#) – Journal of Medical Internet Research (Oct 11)
- [Pandemics, Epidemics and Inequities in Routine Childhood Vaccination Coverage: A Rapid Review](#) – BMJ Paediatrics Open (Nov 2)
- [COVID-19, Decarceration, and the Role of Clinicians, Health Systems, and Payers](#) – JAMA (Nov 16)

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