



2019-nCoV Literature

Situation Report (Lit

Rep)

October 27, 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

- **An outbreak investigation of SARS-CoV-2 infections among members of a university's men's and women's soccer team had an attack proportion of 38% (17 out of 45 exposed to index case), with all infected cases attending at least 1 of 18 social gatherings included in the investigation. [More](#)**
- **A longitudinal study following SARS-CoV-2 patients found that while patients with high peak infective dose maintained high neutralizing antibody titers even after >60 days, titers of those with low peak infective dose returned almost to baseline. [More](#)**
- **Studies using hospital admission data found substantial decreases in non-COVID-19 hospitalizations during the peak pandemic period compared to periods prior to the pandemic, including decreases for common medical emergencies. [More](#) and [More](#)**

Non-Pharmaceutical Interventions

- A nationally representative survey (n=6,475) conducted in three waves from April to June 2020 found that self-reported mask wearing increased across survey waves, while handwashing, physical distancing, and cancelling social activities decreased. Avoiding some or all restaurants did not change significantly. While >40% of respondents reported following all recommended behaviors across all waves, engagement was lowest among adults aged 18-29 years and highest among those aged >60 years.

Hutchins et al. (Oct 27, 2020). COVID-19 Mitigation Behaviors by Age Group — United States, April–June 2020. MMWR. <https://doi.org/10.15585/mmwr.mm6943e4>

Transmission

- *[Pre-print, not peer reviewed]* Secondary transmission of SARS-CoV-2 within households was more likely where the index case was male and/or experienced testing delays, in an analysis of address-matched household cohorts of confirmed positive cases in Ontario, Canada. In contrast, being a health worker was associated with lower odds of transmission. Neighborhoods with larger average family size and a higher proportion of multiple persons per room were associated with greater odds of household transmission. These neighborhood characteristics were used as proxy measures because the total number of people per household was not available in the data.

Paul et al. (Oct 26, 2020). Characteristics Associated with Household Transmission of SARS-CoV-2 in Ontario Canada. Pre-print downloaded Oct 27 from <https://doi.org/10.1101/2020.10.22.20217802>



- An outbreak investigation among members of a Chicago university's men's and women's soccer team in August 2020 identified several social gatherings in which transmission could have occurred. The outbreak had a 38% attack proportion (17 out of 45) from the index patient in the men's soccer team. 18 social gatherings with minimal mask use or social distancing were reported over the course of the outbreak, including a birthday party, coed soccer match, dorm and apartment visits, and an outdoor lake gathering, and all 17 positive students attended at least one gathering. 4 out of the 17 cases were asymptomatic and were identified after universal testing of teams was conducted. Genomic analysis suggests a single source of introduction, with sequences belonging in the same clade that had been circulating in Chicago since March.

Teran et al. (Oct 27, 2020). COVID-19 Outbreak Among a University's Men's and Women's Soccer Teams — Chicago, Illinois, July–August 2020. MMWR. <https://doi.org/10.15585/mmwr.mm6943e5>

- *[Pre-print, not peer reviewed]* COVID-19 transmission patterns in the state of Georgia evolved over time, including a contraction of the serial interval between cases and a downward shift in the age of index cases. Data from 4,080 transmission pairs show that the serial interval decreased from 6.0 days in February–April to 4.4 days in June–July. The age range contributing most to the spread of SARS-CoV-2 shifted from ages 40–70 years in February–April to 20–50 years old in June–July. Two distinct waves separated by a shelter-in-place period were identified, suggesting that measures were not long enough to suppress COVID-19 transmission in areas with high transmission, such as densely populated areas and areas near interstate highways.

Wang et al. (Oct 26, 2020). Transmission of COVID-19 in the State of Georgia United States Spatiotemporal Variation and Impact of Social Distancing. Pre-print downloaded Oct 27 from <https://doi.org/10.1101/2020.10.22.20217661>

Testing and Treatment

- A serial COVID-19 testing program in an Iowa hospital found that out of 1,950 patients that had at least one repeat test during their admission, 19 (1%) converted from negative to positive. While the serial testing program allowed the hospital to detect seven infectious patients sooner and were able to prevent further in-hospital exposure events, the authors note that serial testing was both time and resource intensive.

Kobayashi et al. (Oct 26, 2020). COVID-19 Serial Testing among Hospitalized Patients in a Midwest Tertiary Medical Center, July–September 2020. Clinical Infectious Diseases. <https://doi.org/10.1093/cid/ciaa1630>

Vaccines and Immunity

- A longitudinal study that followed 65 SARS-CoV-2 infected individuals up to 94 days post onset of symptoms found that the neutralizing antibody (nAb) response to SARS-CoV-2 is typical of an acute viral infection, with an initial peak whose magnitude is dependent upon disease severity, followed by declining titers. Some infected individuals with a high peak infective dose ($ID_{50} > 10,000$) were found to maintain nAb titers $>1,000$ at >60 days post symptom onset, while some with lower peak ID_{50} had nAbs titers similar to baseline.

Seow et al. (Oct 26, 2020). Longitudinal Observation and Decline of Neutralizing Antibody Responses in the Three Months Following SARS-CoV-2 Infection in Humans. Nature Microbiology. <https://doi.org/10.1038/s41564-020-00813-8>

Clinical Characteristics and Health Care Setting

- A meta-analysis of 61 studies (108,571 patients) found a 1.4% prevalence of acute cerebrovascular disease (CVD) among patients with COVID-19. The most common manifestation was acute ischemic

stroke (87.4%). Patients developing acute CVD were older and more likely to have pre-existing vascular risk factors such as hypertension, diabetes, and coronary artery disease.

Nannoni et al. (Oct 26, 2020). EXPRESS: Stroke in COVID-19: A Systematic Review and Meta-Analysis. International Journal of Stroke. <https://doi.org/10.1177/1747493020972922>

Modeling and Prediction

- An agent-based model applied to New York City (NYC), Milwaukee metro area, and Dane County, WI shows that the timing of and adherence to social distancing measures could have major effects on COVID-19 occurrence. Implementing measures in NYC 1 week earlier would have reduced the number of cases by 80%, while a 1-week delay in implementation would increase cases by almost 7-fold. In comparing Milwaukee and Dane County (both of which are in Wisconsin), a differential effect on timing of measures was observed in part due to differences in adherence to social distancing practices.

Alagoz et al. (Oct 27, 2020). Effect of Timing of and Adherence to Social Distancing Measures on COVID-19 Burden in the United States. Annals of Internal Medicine. <https://doi.org/10.7326/M20-4096>

Public Health Policy and Practice

- There were significant drops in the daily caseload of 4 common medical emergencies after the onset of the COVID-19 pandemic, based on analysis of data from March 2018 to May 2020 from 2 academic medical centers in New York and California. Reductions in the average daily volume for acute MI (heart attack), ischemic stroke, nontraumatic subarachnoid hemorrhage and appendicitis were observed across the two medical centers, though they were more apparent in New York.

Bhambhvani et al. (Oct 26, 2020). Hospital Volumes of 5 Medical Emergencies in the COVID-19 Pandemic in 2 US Medical Centers. JAMA Internal Medicine. <https://doi.org/10.1001/jamainternmed.2020.3982>

- A retrospective study of admissions to 4 hospitals in a New York health system found a substantial decrease in non-COVID-19 hospitalizations across a range of diagnoses during the COVID-19 pandemic, which may have been due in part to patient avoidance of emergency care for fear of COVID-19. Compared to baseline data from 2018 and 2019, hospitalization rates during the early pandemic (March 1 - March 21) were similar to baseline, decreased during the peak period (March 22-April 11), then slightly increased during the late period (April 12 to May 9). Admission diagnoses that had a significant decline during the peak COVID-19 period include septicemia, heart failure, and myocardial infarction.

Blecker et al. (Oct 26, 2020). Hospitalizations for Chronic Disease and Acute Conditions in the Time of COVID-19. JAMA Internal Medicine. <https://doi.org/10.1001/jamainternmed.2020.3978>

- The National Academies of Sciences, Engineering, and Medicine published a report of best practices for implementing decarceration (release of inmates and detainees) as a strategy to mitigate the spread of COVID-19 in correctional facilities. Recommendations include diverting individuals from incarceration by avoiding pre-trial detention and prioritization of non-custodial penalties. They advise correctional officials to work with public health officials to assess optimal population levels of their facilities to support adherence to public health guidelines. They suggest identifying candidates for release from prison or jail in a manner that considers medical vulnerability and risk of committing a serious crime and incorporating COVID-19 testing and services at release such as housing, health care, and income supports. They recommend that all correctional facilities report key COVID-19 indicators like cases, testing rates, and that these are monitored by state and federal research infrastructures.

Other Resources and Commentaries

- [Exploring the Immediate Effects of COVID-19 Containment Policies on Crime: An Empirical Analysis of the Short-Term Aftermath in Los Angeles](#) – American Journal of Criminal Justice (Oct 19)
- [Rethinking the COVID-19 Pandemic: Back to Public Health](#) – Annals of Global Health (Oct 8)
- [COVID-19 – Lessons Learned and Questions Remaining](#) – Clinical Infectious Diseases (Oct 26)
- [COVID-19 in Long Term Care Facilities: A Review of Epidemiology, Clinical Presentations, and Containment Interventions](#) – Infection Control & Hospital Epidemiology (Oct 26)
- [FDA Emergency Use Authorization: Glass Half Empty?](#) – Clinical Infectious Diseases (Oct 26)
- [Coronavirus Disease 2019 and the Athletic Heart](#) – JAMA Cardiology (Oct 26)
- [Preventing the Spread of SARS-CoV-2 With Masks and Other “Low-Tech” Interventions](#) – JAMA (Oct 26)
- [Applying Best Practices from Health Communication to Support a University’s Response to COVID-19](#) – Health Communication (Oct 26)
- [Prolonged Adaptive Immune Activation in COVID-19: Implications for Maintenance of Long-Term Immunity?](#) – Journal of Clinical Investigation (Oct 26)
- [Bioethical Implications in Vaccine Development, a COVID-19 Challenge](#) – Cureus (Sept 18)
- [Update Alert: Use of N95, Surgical, or Cloth Masks to Prevent COVID-19 in Health Care and Community Settings: Living Practice Points From the American College of Physicians \(Version 1\)](#) – Annals of Internal Medicine (Oct 27)
- [Covid-19: Tackling Health Inequalities Is More Urgent than Ever, Says New Alliance](#) – BMJ (Oct 26)
- [Best Practices for COVID-19–Positive or Exposed Mothers—Breastfeeding and Pumping Milk](#) – JAMA Pediatrics (Oct 26)
- [No Community Left Behind: A Call for Action During the COVID-19 Pandemic](#) – Psychiatric Services (Oct 27)
- [Return to Play for Athletes After Coronavirus Disease 2019 Infection—Making High-Stakes Recommendations as Data Evolve](#) – JAMA Cardiology (Oct 26)
- [We Need the Lens of Equity in COVID-19 Communication](#) – Health Communication (Oct 26)

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