



2019-nCoV Literature Situation Report (Lit Rep)

July 10, 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

- **There is evidence of increased incidence of stress cardiomyopathy among COVID-19-negative individuals compared to pre-pandemic time periods, which could be linked to increases in psychological and economic distress.** [More](#)
- **A higher incidence of stillbirths was observed among COVID-19-negative mothers compared to pre-pandemic time periods, suggesting a possible indirect effect of the pandemic as pregnant women may be delaying medical care.** [More](#)
- **Hydrogen peroxide plasma decontamination was effective in disinfecting N95 respirators inoculated with various dilutions of SARS-CoV-2.** [More](#)
- **Models suggest that testing frequently for SARS-CoV-2 while minimizing the delay from testing until isolation for positive individuals could reduce spread in residential colleges.** [More](#)

Transmission

- *[Pre-print, not peer reviewed]* Trottier et al. found increased amounts of SARS-CoV-2 RNA at the wastewater treatment plant of Montpellier, France collected at 45 days post-lockdown compared to 4 days before the end of lockdown. During this period there was an overall decrease in cases in the city. The authors offer potential explanations that include a potential emerging increase in new cases, uneven virus shedding, movement of previously infected people to vacation homes in the area, underestimation of prevalent cases, or local variability in the geographical pattern of virus spread.

Trottier et al. (July 9, 2020). Post-Lockdown Detection of SARS-CoV-2 RNA in the Wastewater of Montpellier France. Pre-print downloaded July 10 from <https://doi.org/10.1101/2020.07.08.20148882>

Geographic Spread

- *[Pre-print, not peer reviewed]* Phylogenetic analysis of 247 full-genome SARS-CoV-2 sequences from two nearby counties in Wisconsin reveal distinct transmission patterns with little evidence for mixing of virus populations between the two closely-linked communities. There is evidence of reduced viral spread in both counties after statewide stay-at-home orders, with the basic reproductive number falling by at least 40%.

Moreno et al. (July 10, 2020). Distinct Patterns of SARS-CoV-2 Transmission in Two Nearby Communities in Wisconsin USA. Pre-print downloaded July 10 from <https://doi.org/10.1101/2020.07.09.20149104>



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Updated 7/10/2020

Testing and Treatment

- [Pre-print, not peer reviewed] To control COVID-19 outbreaks in residential colleges, Chang et al. developed models for repeat testing and found that testing frequently and minimizing the delay from testing until isolation for positive individuals could reduce spread.
Chang et al. (July 10, 2020). Repeat SARS-CoV-2 Testing Models for Residential College Populations. Pre-print downloaded July 10 from <https://doi.org/10.1101/2020.07.09.20149351>
- Weng et al. reviewed 120 COVID-19 adult patients (88% Latino/Hispanic) at a federally qualified health center in Rhode Island and found that individuals with a history of BCG vaccination were less likely to require hospital admission during the disease course (3.7% vs 15.8%, p=0.017).
Weng et al. (July 9, 2020). Bacillus Calmette–Guérin Vaccination and Clinical Characteristics and Outcomes of COVID-19 in Rhode Island, United States: A Cohort Study. Epidemiology and Infection. <https://doi.org/10.1017/S0950268820001569>
- A review article summarizes the current state of knowledge about SARS-CoV-2 and COVID-19 and highlights gaps in knowledge about transmission, infection, and treatment. Dexamethasone shows promise in reducing 28-day mortality, while convalescent plasma has not yet been shown to not shorten time to recovery. At least 120 SARS-CoV-2 vaccines are under development. Until an effective vaccine is developed, face masks, physical distancing, and contact tracing remain the primary methods to reduce spread.
Wiersinga et al. (July 10, 2020). Pathophysiology, Transmission, Diagnosis, and Treatment of Coronavirus Disease 2019 (COVID-19). JAMA. <https://doi.org/10.1001/jama.2020.12839>

Clinical Characteristics and Health Care Setting

- Khalil et al. found that the incidence of stillbirth was significantly higher during the COVID-19 pandemic than prior (9.31 per 1000 births vs 2.38 per 1000 births, p=0.01) at St. George's University Hospital, London even though none of the mothers were known be infected with SARS-CoV-2. The authors hypothesize that the increase in stillbirth could be directly due to SARS-CoV-2 in asymptomatic women who were not tested for infection or it could be due to indirect effects, such as reluctance to seek medical care for situations including reduced fetal movements.
Khalil et al. (July 10, 2020). Change in the Incidence of Stillbirth and Preterm Delivery During the COVID-19 Pandemic. JAMA. <https://doi.org/10.1001/jama.2020.12746>
- A hydrogen peroxide plasma disinfection protocol inhibited the detection of SARS-CoV-2 by RT-PCR on N95 masks that had been inoculated with various dilutions of SARS-CoV-2 in viral media.
Ibáñez-Cervantes et al. (July 10, 2020). Disinfection of N95 Masks Artificially Contaminated with SARS-CoV-2 and ESKAPE Bacteria Using Hydrogen Peroxide Plasma: Impact on the Reutilization of Disposable Devices. American Journal of Infection Control. <https://doi.org/10.1016/j.ajic.2020.06.216>
- Use of double-sided adhesive tape on the inside edges of the 3M respirators resulted in successful fit tests for 17 (68%) out of 26 healthcare workers who had previously failed the respirator fit test.
Wardhan et al. (June 15, 2020). Does a Modified Adhesive Respirator Improve the Face Seal for Health Care Workers Who Previously Failed a Fit Test?: A Pilot Study During the Coronavirus Disease 2019 Pandemic. A&A Practice. <https://pubmed.ncbi.nlm.nih.gov/32643906/>

Mental Health and Personal Impact

- Choi et al. examined fear and anxiety about SARS-CoV-2 infection in relation to participation in sports activities among participants in South Korea and found that older adults and those who participated in group sports had the highest measures of fear and anxiety.
Choi and Bum. (July 6, 2020). Changes in the Type of Sports Activity Due to COVID-19: Hypochondriasis and the Intention of Continuous Participation in Sports. International Journal of Environmental Research and Public Health. <https://doi.org/10.3390/ijerph17134871>
- Jabri et al. found a significant increase in the incidence of stress cardiomyopathy during the COVID-19 period compared to pre-pandemic time periods (RR=4.58; 95%CI: 4.11-5.11). These findings were based on a retrospective study of 1,914 patients presenting with acute coronary syndrome across 5 time periods. Jabri et al. found a significant increase in the incidence of stress cardiomyopathy during the COVID-19 period compared to the combined prepandemic time periods (rate ratio = 4.58, 95% CI: 4.11-5.11). All patients in the cohort were COVID-19 negative, which could suggest that the increase in incidence may be linked to increases in psychological, social, and economic distress accompanying the pandemic.
Jabri et al. (July 9, 2020). Incidence of Stress Cardiomyopathy During the Coronavirus Disease 2019 Pandemic. JAMA Network Open. <https://doi.org/10.1001/jamanetworkopen.2020.14780>

Modeling and Prediction

- Using a quantitative microbial risk assessment and exposure model, Jones found that droplet and inhalation transmission routes contributed to 35% and 57% of the probability of infection among healthcare workers without PPE, respectively. Direct contact accounted for only 8% of transmissions.
Jones. (July 9, 2020). Relative Contributions of Transmission Routes for COVID-19 among Healthcare Personnel Providing Patient Care. Journal of Occupational and Environmental Hygiene. <https://doi.org/10.1080/15459624.2020.1784427>

Public Health Policy and Practice

- Among patients who were screened for COVID-19 at the University of Chicago (n=4,413), Adegunsoye et al. found that after adjusting for zip code, black race was associated with greater likelihood of infection (OR=2.16, 95%CI: 1.73-2.70) and hospitalization (OR=1.51, 95%CI: 1.03-1.05), but not with mortality.
Adegunsoye et al. (July 9, 2020). Association of Black Race with Outcomes in COVID-19 Disease: A Retrospective Cohort Study. Annals of the American Thoracic Society. <https://doi.org/10.1513/AnnalsATS.202006-583RL>

Other Resources and Commentaries

- [Characteristics of Persons Who Died with COVID-19 — United States, February 12–May 18, 2020](#) – MMWR (July 9)
- [School Superintendents Confront COVID-19—“There Are No Good Options for Next Year”](#) – JAMA (July 9)
- [A Multicenter Randomized Open-Label Controlled Trial to Evaluate the Efficacy and Tolerability of Hydroxychloroquine and a Retrospective Study in Adult Patients with Mild to Moderate Coronavirus Disease 2019 \(COVID-19\)](#) – Medrxiv (July 10)

- [SARS-CoV-2 Seroprevalence in COVID-19 Hotspots](#) – The Lancet (July 6)
- [Injection Molded Autoclavable, Scalable, Conformable \(IMASC\) System for Aerosol-Based Protection: A Prospective Single-Arm Feasibility Study](#) – BMJ Open (July 7)
- [COVID-19's Unsustainable Waste Management](#) – Science (June 26)
- [A COVID-19 Model](#) – Nature Biotechnology (July 8)
- [Social Distancing, Social Justice, and Risk during the COVID-19 Pandemic](#) – Canadian Journal of Public Health (July 8)
- [BCG Vaccination Policy and Preventive Chloroquine Usage: Do They Have an Impact on COVID-19 Pandemic?](#) – Cell Death & Disease (July 8)
- [Cardiopulmonary Considerations for High School Student-Athletes During the COVID-19 Pandemic: NFHS-AMSSM Guidance Statement](#) – Sports Health (July 9)
- [First NGS-Based COVID-19 Diagnostic](#) – Nature Biotechnology (July 8)
- [Recommendations for Keeping Parks and Green Space Accessible for Mental and Physical Health During COVID-19 and Other Pandemics](#) – Preventing Chronic Disease (July 9)
- [Culture Matters in Communicating the Global Response to COVID-19](#) – Preventing Chronic Disease (July 9)
- [Overcoming Challenges Resulting From COVID-19: New York State's Creating Healthy Schools and Communities Initiative](#) – Preventing Chronic Disease (July 9)
- [Provision of Pediatric Immunization Services During the COVID-19 Pandemic: An Assessment of Capacity Among Pediatric Immunization Providers Participating in the Vaccines for Children Program - United States, May 2020](#) – MMWR. Morbidity and Mortality Weekly Report (July 10)
- [Transmission of SARS-CoV-2: implications for infection prevention precautions](#) – WHO (July 9)

Report prepared by the UW MetaCenter 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