



2019-nCoV Literature Situation Report (Lit Rep)

June 11, 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

- **Boston, Massachusetts implemented a citywide COVID-19 care model for people experiencing homelessness. A large shelter outbreak during the third week of operations illustrated the need to adapt the model to universal testing and to increase capacity to shelter people experiencing homeless with COVID-19.**
- **Phylogenetic analyses showed at least 7 different SARS-CoV-2 lineages were introduced into California, including epidemic WA1 strains associated with Washington State.**
- **A comparison between containment approaches used in 58 cities in China found a 1-day delay in implementing the first social distancing intervention was associated with prolonging an outbreak by 2.4 days.**
- **Furuse et al. reported that 41% of primary case-patients from non-nosocomial clusters in Japan were pre-symptomatic or asymptomatic. By contrast, Gao et al. reported a contradictory finding of no incident cases among 455 contacts from an asymptomatic carrier in China.**
- **A large observational cohort study found lower mortality in COVID-19 patients treated with tocilizumab. The beneficial association was limited to patients with high levels of the inflammatory marker C-reactive protein.**

Non-Pharmaceutical Interventions

- Du et al. estimated the speed of COVID-19 containment for 58 cities in mainland China outside of Hubei* Province, which deployed 7 different types of social distancing interventions over the course of the COVID-19 epidemic. Results showed the mean (+SD) time elapse between the first confirmed case and the implementation of the first social distancing intervention was 13 (+4.7) days. The mean time until successful containment was 21 (+7) days after the first reported case and 8 (+6.8) days following the initiation of interventions.
- They found a 1-day delay in implementing the first intervention was associated with prolonging an outbreak by 2.4 (95%CI 1.0–3.9) days. This highlights the potential long-term benefits of early and decisive action to implement potentially costly social distancing measures.

Du et al. (June 9, 2020). Effects of Proactive Social Distancing on COVID-19 Outbreaks in 58 Cities, China. Emerging Infectious Diseases. <https://doi.org/10.3201/eid2609.201932>

*Changed from "Hebei" in primary manuscript based on review by Lit Rep team.



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- *[pre-print, not peer reviewed]* Duber et al. identified 422 Emergency Department (ED) visits as with COVID-like illness (CLI) in King County, WA between January 1 and May 1, 2020. Compared to confirmed COVID-19 cases and deaths, CLI visits appear to rise and peak well in advance of both confirmed cases and deaths. They concluded that ED-based CLI visits are a temporally leading indicator of the pandemic, and that adopting and scaling up a CLI monitoring at the local level could aid local response efforts.

Duber et al. (June 11, 2020). A Novel Approach to Monitoring the COVID-19 Pandemic Using Emergency Department Discharge Diagnoses. Pre-print downloaded June 11 from <https://doi.org/10.1101/2020.06.09.20126508>

Transmission

- *[pre-print, not peer reviewed]* Allen et al. developed a web and mobile application to collect self-reported data related to COVID-19. Data from over 500,000 users in the US indicate that adding information beyond symptoms—such as household and community exposure, occupation, and demographics—may improve predictive models of COVID-19 risk and better inform triage of individuals for molecular testing.

Allen et al. (June 11, 2020). Population-Scale Longitudinal Mapping of COVID-19 Symptoms Behavior and Testing Identifies Contributors to Continued Disease Spread in the United States. Pre-print downloaded June 11 from <https://doi.org/10.1101/2020.06.09.20126813>

- Furuse et al. analyzed 3,184 cases of COVID-19 in Japan during January 15–April 4, 2020 and identified 61 case-clusters in healthcare and other care facilities, restaurants and bars, workplaces, and music events. They also identified 22 probable primary case-patients from non-nosocomial clusters, 9 of whom (41%) were pre-symptomatic or asymptomatic at the time of transmission.

Furuse et al. (June 10, 2020). Clusters of Coronavirus Disease in Communities, Japan, January–April 2020. Emerging Infectious Diseases. <https://doi.org/10.3201/eid2609.202272>

- Gao et al. reported a contact investigation involving an asymptomatic person with SARS-CoV-2 infection who presented to the emergency room of a hospital in Guangdong, China. They investigated 455 contacts, including 35 patients, 196 family members, and 224 hospital staff members. No SARS-CoV-2 infections were detected by nucleic acid test. They concluded that some asymptomatic people with SARS-CoV-2 may be weakly infectious.

Gao et al. (May 13, 2020). A Study on Infectivity of Asymptomatic SARS-CoV-2 Carriers. Respiratory Medicine. <https://doi.org/10.1016/j.rmed.2020.106026>

- Huntley et al. conducted a systematic review of 13 studies with a total sample size of 538 individuals to ascertain pregnancy complications of SARS-CoV-2 infection. Maternal ICU admission occurred in 3% of cases (8/263, 95%CI 1.6-5.9%) and maternal critical disease in 1.4% (3/209, 95%CI 0.5-4.1%). No maternal deaths were reported (0/348). The neonatal death rate was 0.3% (1/313, 95%CI 0.1-1.8%). No vertical transmission was reported (0/310).

Huntley et al. (June 9, 2020). Rates of Maternal and Perinatal Mortality and Vertical Transmission in Pregnancies Complicated by Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) Infection: A Systematic Review. Obstetrics and Gynecology. <https://doi.org/10.1097/AOG.0000000000004010>

- *[pre-print, not peer reviewed]* Quicke et al. monitored the presence of viral RNA and infectious virus among workers at five skilled nursing facilities in Colorado. They reported that the percentage of nasopharyngeal swabs that tested positive for viral RNA varied considerably by facility, but there was a general downward trend over the course of the study period. Levels of viral RNA also tended to decline over the duration of infection and corresponded to low levels of infectious virus.
- A high proportion of asymptomatic infection was observed, suggesting that asymptomatic individuals infected by SARS-CoV-2 may contribute to viral transmission within the workplace.
Quicke et al. (June 9, 2020). Longitudinal Surveillance for SARS-CoV-2 RNA Among Asymptomatic Staff in Five Colorado Skilled Nursing Facilities Epidemiologic Virologic and Sequence Analysis. Pre-print downloaded June 11 from <https://doi.org/10.1101/2020.06.08.20125989>

Geographic Spread

- Phylogenetic analyses of samples from 36 patients in Northern California and the Grand Princess cruise ship showed at least 7 different SARS-CoV-2 lineages were introduced into California, including the epidemic WA1 strains associated with Washington State, with lack of a predominant lineage and limited transmission between communities. The authors conclude that these findings support contact tracing, social distancing, and travel restrictions to contain SARS-CoV-2 spread in California and other states.
Deng et al. (June 8, 2020). Genomic Surveillance Reveals Multiple Introductions of SARS-CoV-2 into Northern California. Science. <https://doi.org/10.1126/science.abb9263>

Testing and Treatment

- *[pre-print, not peer reviewed]* Martinez-Sanz et al. conducted a cohort study of 1,229 patients with COVID-19 in Spain to determine the relationship between tocilizumab use and ICU admission or death. Tocilizumab was associated with decreased risk of death (aHR=0.34, 95%CI 0.16-0.72) and ICU admission or death (0.38, 0.19-0.81; p=0.011) among patients with high C-reactive protein (CRP) levels (>150 mg/L). There was no association with low rates of death or ICU admission among those with CRP ≤150 mg/L.
Martinez-Sanz et al. (June 9, 2020). Effects of Tocilizumab on Mortality in Hospitalized Patients with COVID-19 A Multicenter Cohort Study. Pre-print downloaded June 11 from <https://doi.org/10.1101/2020.06.08.20125245>

Clinical Characteristics and Health Care Setting

- Morcuende et al. assessed the incidence of COVID-19-like symptoms and presence of SARS-CoV-2 antibodies among 105 anesthesiologists and affiliated intensive care providers in a large academic hospital in New York City. 58% (61/105) of respondents reporting at least one work-related exposure, of whom only 16 (26%) had post-exposure COVID-19-like symptoms. SARS-CoV-2 was detected in 12% respondents (11/91) with no difference between those who did and did not report a work-related exposure.
- Presence of SARS-CoV-2 appeared to be associated with commuting to work using NYC subway (81% vs. 41%, p=0.027) rather than work-related exposures (54% vs. 56%). The authors note good availability of PPE at this institution.
Morcuende et al. (June 9, 2020). Anesthesiologists' and Intensive Care Providers' Exposure to COVID-19 Infection in a New York City Academic Center: A Prospective Cohort Study Assessing Symptoms and COVID-19 Antibody Testing. Anesthesia and Analgesia. <https://doi.org/10.1213/ANE.0000000000005056>

- Zhang et al. conducted meta-analyses of 46 articles reporting 551 cases of COVID-19 in children. Results showed 18% of cases were asymptomatic. The most common radiographic and computed tomography (CT) findings were patchy consolidations (33%, 95%CI 23%-43%) and ground glass opacities (28%, 95%CI 18%-39%). Six patients, all with major underlying medical conditions, needed invasive mechanical ventilation, including one who died.

Zhang et al. (June 10, 2020). *What We Know so Far about Coronavirus Disease 2019 in Children: A Meta-Analysis of 551 Laboratory-Confirmed Cases*. *Pediatric Pulmonology*.

<https://doi.org/10.1002/ppul.24869>

Mental Health and Personal Impact

- *[pre-print, not peer reviewed]* A cross-sectional study of 104 workers in a single grocery retail store in Massachusetts showed that employees with direct customer exposure were more likely to test positive for SARS-CoV-2 (OR=4.7, 95%CI 1.2 to 32.0), while smokers were less likely to test positive (OR=0.1, 95%CI 0.01 to 0.8). The ability to social distance consistently at work was a significant protective factor for anxiety (OR=0.2 95%CI 0.1 to 0.7) and depression (OR=0.1, 95%CI 0.01 to 0.6). In contrast, exposure to a confirmed case within the past 14 days was positively associated with depression (OR=19.1, 95%CI 2.2-339.1).

Lan et al. (June 9, 2020). *Association between SARS-CoV-2 Infection Exposure Risk and Mental Health among a Cohort of Essential Retail Workers in the United States*. Pre-print downloaded June 11 from <https://doi.org/10.1101/2020.06.08.20125120>

Public Health Policy and Practice

- In March 2020, Boston implemented a citywide COVID-19 care model for people experiencing homelessness. During the first 6 weeks of operation, 429 of 1,297 (33%) people tested were positive for SARS-CoV-2. Of these, 395 people were experiencing homelessness at the time of testing, representing about 10% of the homeless adult population in Boston. Personnel adapted the care model during the third week of operations when a large shelter outbreak of COVID-19 with a high proportion of asymptomatic infections occurred. Their experience illustrated the need to shift from symptom-based screening or contact tracing to universal testing.

Baggett et al. (June 9, 2020). *Addressing COVID-19 Among People Experiencing Homelessness: Description, Adaptation, and Early Findings of a Multiagency Response in Boston*. *Public Health Reports*. <https://doi.org/10.1177/0033354920936227>

- Niepel et al. compared the SARS-CoV-2 fatality risk perception of US adult residents in mid-March 2020 (N=1,182) and mid-April 2020 (N=953). About 67% reported lower perceived risk than the 1% benchmark, and about 51% reported that their own odds of dying if infected were approximately one in ten thousand or lower, suggesting an underestimation of fatality risk compared to current epidemiological evidence. The authors suggest that low risk perception may predict poor adherence to health behaviors that reduce SARS-CoV-2 transmission rates.

Niepel et al. (June 10, 2020). *The Coronavirus (COVID-19) Fatality Risk Perception of US Adult Residents in March and April 2020*. *British Journal of Health Psychology*.

<https://doi.org/10.1111/bjhp.12438>

Other Resources and Commentaries

- [COVID-19: Specific and Non-Specific Clinical Manifestations and Symptoms: The Current State of Knowledge](#) - Journal of Clinical Medicine (June 5)
- [Children's mortality from COVID-19 compared with all-deaths and other relevant causes of death: epidemiological information for decision-making by parents, teachers, clinicians and policymakers](#) – Public Health (May 30)
- [Sustaining Rural Hospitals After COVID-19: The Case for Global Budgets](#) – JAMA (June 10)
- [The Importance of Proper Death Certification During the COVID-19 Pandemic](#) – JAMA (June 10)
- [When the Dust Settles: Preventing a Mental Health Crisis in COVID-19 Clinicians](#) - Annals of Internal Medicine (June 9)
- [Wastewater as a red flag in COVID-19 spread](#) – Public Health (May 30)
- [Ethical Issues in Decision-making Regarding the Elderly Affected by Coronavirus Disease 2019: An Expert Opinion](#) - European Cardiology (April 27)
- [COVID-19 vaccines start moving into advanced trials](#) - Nature Reviews. Drug Discovery (June 8)
- [Operationalizing COVID-19 testing: Who, what, when, where, why, and how](#) - Cleveland Clinic Journal of Medicine (June 9)
- [Audio Interview: The Impact of Covid-19 on Minority Communities](#) – NEJM (June 11)
- [Stereotype threat](#) – The Lancet (May 23)
- [COVID-19 laboratory testing issues and capacities as we transition to surveillance testing and contact tracing](#) – The American Journal of Emergency Medicine (April 21)
- [Mortality surveillance during the COVID-19 pandemic](#) - Bulletin of the World Health Organization (June 1)
- ["You Have to Wait a Little Longer": Transgender \(Mental\) Health at Risk as a Consequence of Deferring Gender-Affirming Treatments During COVID-19](#) - Archives of Sexual Behavior (June 9)
- [Caution and clarity required in the use of chloroquine for COVID-19](#) - The Lancet Rheumatology (April 2)
- [Survivors of COVID-19 are at high risk of posttraumatic stress disorder](#) - Global Health Research and Policy (June 5)

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