



2019-nCoV Literature Situation Report (Lit Rep)

May 29, 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

- **Four separate lines of evidence point to sustained community transmission of SARS-CoV-2 within the US beginning in late January and early February, weeks before the first non-travel-related cases were detected. A separate phylogenetic study concluded that the first SARS-CoV-2 case identified in Washington State in January 2020 is not linked to outbreaks that occurred weeks later, and that the rapid public health response may have prevented an earlier potential outbreak.**
- **Paper towels pretreated with a salt-based solution may provide similar protection against viral particles compared to medical grade surgical masks.**
- **A weighted risk-score was used to characterize the risk distribution for COVID-19 mortality across the population. While those in the highest-risk group are at 10-fold higher risk, the small size of this group relative to the overall population means that most deaths from COVID-19 will likely occur outside of the highest-risk groups. This suggests that targeted interventions may not be a substituted for community-wide measures.**
- **HIV-infected individuals appear to have similar clinical and radiological presentation of COVID-19 compared to that described in the general population.**

Non-Pharmaceutical Interventions

- A critical review of alcohol-based sanitizing products reported that hand sanitation is a main preventive measure during the COVID-19 pandemic and consumer demand is likely to remain high until widespread pharmacological measures are available. The presence of substandard products on the market (i.e., not meeting 60-95% ethanol content) points to the need for customer counseling, awareness campaigns, and review by regulatory bodies.

Berardi et al. (May 16, 2020). Hand Sanitisers amid CoViD-19: A Critical Review of Alcohol-Based Products on the Market and Formulation Approaches to Respond to Increasing Demand. International Journal of Pharmaceutics. <https://doi.org/10.1016/j.ijpharm.2020.119431>

- Carnino et al. demonstrated that household paper towels pretreated with a salt-based solution for as little as 10 minutes may provide similar protection against viral-sized particles compared with a medical grade mask. This suggests pretreated inexpensive materials might be used to complement homemade, surgical, or N95 masks to increase their lifespan and effectiveness.

Carnino et al. (May 25, 2020). Pretreated Household Materials Carry Similar Filtration Protection against Pathogens When Compared with Surgical Masks. American Journal of Infection Control. <https://doi.org/10.1016/j.ajic.2020.05.024>



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Transmission

- Huff et al. completed a narrative review summarizing emerging evidence that SARS-CoV-2 transmission is likely high during pre-symptomatic and asymptomatic phases. Data from settings with universal testing, such as in a homeless shelter in Boston and on the US Navy aircraft carrier Theodore Roosevelt indicate that a high proportion of individuals test positive without reporting symptoms. The authors conclude that there is a need to shift from testing of persons with symptoms to universal testing of exposed individuals.

Huff and Singh. (May 28, 2020). Asymptomatic Transmission during the COVID-19 Pandemic and Implications for Public Health Strategies. Clinical Infectious Diseases.

<https://doi.org/10.1093/cid/ciaa654>

- *[pre-print, not peer reviewed]* Jin et al. used a weighted risk-score to characterize the distribution of risk for COVID-19 mortality for populations across 442 large US cities and found that though 1.34 million individuals are at a 10-fold higher risk than the general population, the majority of deaths will still occur outside these high-risk groups. The authors suggest that targeted interventions for high-risk groups such as shielding do not fully substitute for broader community-level interventions such as social distancing.

Jin et al. (May 29, 2020). Estimating the Size of High-Risk Populations for COVID-19 Mortality across 442 US Cities. Preprint downloaded May 29 from

<https://doi.org/10.1101/2020.05.27.20115170>

Geographic Spread

- *[pre-print, not peer reviewed]* Contrary to earlier conclusions, based on phylogenetic analysis, Worobey et al. conclude that the first SARS-CoV-2 case identified in Washington State in January 2020 was not linked to outbreaks that occurred weeks later. Rather, the subsequent outbreak was due to a separate later importation from China. The authors speculate that the rapid public health response may have prevented an earlier outbreak.

Worobey et al. (May 23, 2020). The Emergence of SARS-CoV-2 in Europe and the US. Preprint downloaded May 29 from. <https://doi.org/10.1101/2020.05.21.109322>

- Syndromic surveillance, virus surveillance, phylogenetic analysis, and retrospectively identified cases provide evidence that sustained community transmission in the US may have begun before the detection of the first two non-travel related US cases in late February 2020, likely from a single importation from China, followed by several importations from Europe.

Jorden et al. (May 29, 2020). Evidence for Limited Early Spread of COVID-19 Within the United States, January – February 2020. MMWR. <https://doi.org/10.15585/mmwr.mm6922e1>

Vaccines

- Aaby et al. review studies showing that live vaccines like BCG have non-specific effects including protection against respiratory and viral infections, and that females develop a greater antibody response to BCG. There is no conclusive evidence, however, that BCG vaccination provides non-specific protection against COVID-19, and social justice issues could arise from shifting BCG vaccine supplies from low- to high-income countries.

Aaby et al. (May 27, 2020). The Non-Specific and Sex-Differential Effects of Vaccines. Nature Reviews Immunology. <https://doi.org/10.1038/s41577-020-0338-x>

Clinical Characteristics and Health Care Setting

- Vizcarra et al. compared the characteristics of 51 HIV-infected individuals diagnosed with COVID-19 in Spain to 1,288 HIV-infected individuals not diagnosed with COVID-19 and found that age and CD4 cell count were similar between the groups, but that a greater proportion of persons with COVID-19 had at least one comorbidity (63% vs. 38%). The clinical and radiological presentation of COVID-19 was similar to that described in the general population.

Vizcarra et al. (May 28, 2020). Description of COVID-19 in HIV-Infected Individuals: A Single-Centre, Prospective Cohort. The Lancet HIV. [https://doi.org/10.1016/S2352-3018\(20\)30164-8](https://doi.org/10.1016/S2352-3018(20)30164-8)

- Among 91 medical residency programs, representing 2,306 residents around New York City, 45.1% of programs report at least one resident with confirmed COVID-19. These include 101 residents with confirmed positive tests (2 of whom were hospitalized), and 163 residents who were presumed positive but not tested. Anesthesiology, emergency medicine, and ophthalmology appeared to cluster as high-risk specialties based on the proportion of residents with confirmed COVID-19. Mask reuse or extended mask use was reported by 90 out of 91 programs, while 43 programs reported suboptimal PPE.

Breazzano et al. (May 28, 2020). New York City COVID-19 Resident Physician Exposure during Exponential Phase of Pandemic. The Journal of Clinical Investigation. <https://doi.org/10.1172/JCI139587>

- Investigators in Paris, France found that pulmonary embolism identified by post-mortem CT was much higher among those who had unexplained deaths during the COVID-19 outbreak compared to a control group who had unexplained deaths in 2019. Furthermore, the prevalence of unexplained deaths was much higher during the COVID-19 outbreak compared to 2019. These results suggest the need for additional PPE when handling bodies of persons whose death was unexplained, and that pulmonary embolism should be explored in patients with severe COVID-19.

Benzakoun et al. (May 28, 2020). Excess Out-of-Hospital Deaths during COVID-19 Outbreak: Evidence of Pulmonary Embolism as a Main Determinant. European Journal of Heart Failure. <https://doi.org/10.1002/ejhf.1916>

Modeling and Prediction

- *[pre-print, not peer reviewed]* Chernozhukov et al. constructed counterfactual causal models to evaluate the dynamic impact of various policies on behavioral responses relevant to COVID-19 control. They concluded that these policies (e.g., school, business, and restaurant closures) explain a large fraction of observed changes in social distancing behavior. They estimate that if all policies had been removed on April 1, it would have led to an additional 30- to 200-fold more cases and that nationally mandating face masks would have led to 30%-57% fewer reported cases by late May.

Chernozhukov et al. (May 29, 2020). Causal Impact of Masks Policies Behavior on Early Covid-19 Pandemic in the U.S. Preprint downloaded May 29 from <https://doi.org/10.1101/2020.05.27.20115139>

Other Resources and Commentaries

- [Human Rights Protections Are Needed alongside PPE for Health-Care Workers Responding to COVID-19](#) – The Lancet Global Health (May 25)
- [The Epic Battle against Coronavirus Misinformation and Conspiracy Theories](#) – Nature (May 27)

- [Stress and Cognitive Functioning during a Pandemic: Thoughts from Stress Researchers](#) – Psychological Trauma (May 28)
- [We're Not All in This Together: On COVID-19, Intersectionality, and Structural Inequality](#) – American Journal of Public Health (May 28)
- [Rethinking the Role of the School after COVID-19](#) – The Lancet Global Health (May 25)
- [Kawasaki Disease Linked to COVID-19 in Children](#) – Nature Reviews (May 27)
- [Using Controlled Trials to Resolve Key Unknowns About Policy During the COVID-19 Pandemic](#) – JAMA (May 28)
- [Clinical Features and Outcome of HIV/SARS-CoV-2 Co-infected Patients in the Bronx, New York City](#) – Journal of Medical Virology (May 28)
- [COVID-19 and the Difficulty of Inferring Epidemiological Parameters from Clinical Data](#) – The Lancet Infectious Diseases (May 28)

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