



2019-nCoV Literature Situation Report (Lit Rep)

April 2, 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

- 📄 **Multiple reports discuss optimal timing and implementation of social distancing and lockdown measures and their potential impacts on geographic spread.**
- 📄 **Dudley and Lee observe that poor adherence to social distancing and self-quarantine may have increased age-specific morbidity among Korean youth.**
- 📄 **Increasing evidence confirms presymptomatic transmission, especially among familial clusters.**
- 📄 **PPE used while treating an infant in isolation tested negative for SARS-CoV-2, although multiple environmental samples from the isolation room tested positive.**

Non-Pharmaceutical Interventions

- The authors discuss a phased lift of stringent interventions, allowing for gradual herd immunity while keeping the number of cases within the limits of health care systems.
- The paper acknowledges that this would be most feasible in smaller countries with robust healthcare systems, but that larger countries could implement this approach in specific regions.
Vlas et al. (April 1, 2020). A phased lift of control: a practical strategy to achieve herd immunity against Covid-19 at the country level. Pre-print downloaded Apr 1 from <https://doi.org/10.1101/2020.03.29.20046011>
- The authors conclude that viral spread of SARS-CoV-2 is too fast to be contained by manual contact tracing, but could still be controlled with a more efficient contact tracing app.
- Widespread implementation of such an app, especially if combined with improved early testing, could play a critical role in reducing the need for lockdown measures.
Ferretti et al. (March 31, 2020). Quantifying SARS-CoV-2 transmission suggests epidemic control with digital contact tracing. Science. <https://doi.org/10.1101/2020.03.08.20032946>
- The authors analyze morbidity and mortality data from China and South Korea by age and sex. Results showed a normal distribution in China with peak morbidity at ages 50-59, and a bimodal distribution in Korea with the highest peak morbidity at ages 20-29 and a second peak at ages 50-59.
- The study suggests that poor compliance with social distancing and self-quarantine may have had an impact on age-specific morbidity, especially among the younger Korean cohort.
Dudley and Lee. (March 27, 2020). Disparities in Age-Specific Morbidity and Mortality from SARS-CoV-2 in China and the Republic of Korea. <https://doi.org/10.1101/2020.03.24.20042598>

Transmission

- Li et al report findings from 7 patients in a 2-family cluster, confirming asymptomatic transmission through contacts in familial and hospital settings. Laboratory test results and medical therapies are described to provide a practical reference for diagnosis and treatment.
Li et al. (April 2, 2020). Asymptomatic and Human-to-Human Transmission of SARS-CoV-2 in a 2-Family Cluster, Xuzhou, China. https://wwwnc.cdc.gov/eid/article/26/7/20-0718_article
- Investigations of 243 COVID-19 cases in Singapore identified seven clusters of cases in which presymptomatic transmission likely occurred, accounting for at least 10 total new cases.
Wei et al. (April 1, 2020). Presymptomatic Transmission of SARS-CoV-2 — Singapore, January 23–March 16, 2020. MMWR. <https://www.cdc.gov/mmwr/volumes/69/wr/pdfs/mm6914e1-H.pdf>
- Cao et al describe the epidemiological features of the COVID-19 outbreak in Tianjin China, including 135 total cases and 3 deaths. Most early cases were identified from urban areas and/or had travelled to Hubei province, and familial clustering was the most important characteristic identified (58% of all cases).
Cao et al. (April 1, 2020). Epidemiological Features of 135 Patients with Coronavirus Disease (COVID-19) in Tianjin, China. Disaster Med Public Health Preparedness. <https://doi.org/10.1017/dmp.2020.63>
- Samples were taken from an isolation environment and PPE used while treating a confirmed COVID-19 infant case with mild clinical symptoms. All 3 PPE samples tested negative for SARS-CoV-2, however multiple environmental samples were found to be positive.
- This investigation confirmed that a generally healthy infant with COVID-19 can contaminate the environment with PCR-detectable virus, reaffirming the importance of hand hygiene to reduce environmental transmission.
Yung et al. (April 1, 2020). Environment and Personal Protective Equipment Tests for SARS-CoV-2 in the Isolation Room of an Infant With Infection. Annals of Intern Med. <https://doi.org/10.7326/M20-0942>

Geographic Spread

- Wittkowski summarizes the time-course of COVID-19 by country and region using raw case data, and suggests that different patterns in spread and lethality indicate the presence of at least 2 strains of SARS-CoV-2.
- His analysis predicts that US projections of peak prevalence and lethality may depend on which strain arrived first, and that containment of high-risk people and lockdowns during the month following peak incidence of infections are the most effective prevention strategies.
Wittkowski (March 31, 2020). The first three months of the COVID-19 epidemic: Epidemiological evidence for two separate strains of SARS-CoV-2 viruses spreading and implications for prevention strategies. Pre-print downloaded Apr 1 from <https://doi.org/10.1101/2020.03.28.20036715>
- Neihus et al use a Bayesian modelling approach to estimate various countries' capacity to detect imported COVID-19 cases from Wuhan, using Singapore's capacity as a gold standard.
- Findings suggest that the global weighted ability to detect cases was only 38% of Singapore's capacity, ranging from 11% in locations with low surveillance capacity to 40% in locations with high

surveillance capacity. Case counts in travelers could have been underestimated several-fold, and undetected cases of COVID-19 have probably spread to most locations around the world.

Niehus et al. (April 1, 2020). Using observational data to quantify bias of traveller-derived COVID-19 prevalence estimates in Wuhan, China. Lancet Infect Dis.

[https://doi.org/10.1016/S1473-3099\(20\)30229-2](https://doi.org/10.1016/S1473-3099(20)30229-2)

Testing and Treatment

- Xu et al. report chest CT findings from 3 patients who initially tested negative for SARS-CoV-2 but were later confirmed as positive using rt-PCR. Findings emphasize the possibility that swab testing is not sensitive at early stages of clinical presentation, and may miss patients if case definitions focus on viral detection.

Xu et al. (March 31, 2020). Computed Tomographic Imaging of 3 Patients With Coronavirus Disease 2019 Pneumonia With Negative Virus Real-time Reverse-Transcription Polymerase Chain Reaction Test. Clin Infect Dis. <https://doi.org/10.1093/cid/ciaa207>

Clinical Characteristics and Health Care Setting

- A study of 116 COVID-19 patients in Wuhan, including 5 with chronic kidney disease (CKD), determined that acute kidney injury was uncommon among patients and CKD was not aggravated by SARS-CoV-2 infection.

Wang et al. (March 31, 2020). Coronavirus Disease 19 Infection Does Not Result in Acute Kidney Injury: An Analysis of 116 Hospitalized Patients from Wuhan, China. Am J Nephrol.

<https://doi.org/10.1159/000507471>

Mental Health and Personal Impact

- The authors discuss the expected increase in need for psychiatric help due to widespread stress and mental trauma caused by the COVID-19 pandemic and related containment measures, especially among those infected, health care workers, and other high-risk groups.
- In order to reduce risk of developing mental health problems, the authors suggest: (1) limiting sources of stress, and relying on limited and official information sources only, (2) increasing communication with friends and loved ones, even if at a distance, (3) maintaining a regular daily routine, (4) focusing on the long-term benefits of current isolation measures and (5) seeking professional psychiatric help as needed.

Fiorillo and Gorwood. (2020). The consequences of the COVID-19 pandemic on mental health and implications for clinical practice. European Psychiatry. <https://doi.org/10.1192/j.eurpsy.2020.35>

Public Health Policy and Practice

- Lin et al analyze use of the National Health Insurance database and policy decisions made by Taiwan's government during the first 50 days of the COVID-19 outbreak, highlighting effective delay and containment of community transmission through prevalent public awareness, cross-departmental collaborations, and advanced information technology capacity.

Lin et al. (April 2, 2020). Policy Decisions and Use of Information Technology to Fight 2019 Novel Coronavirus Disease, Taiwan. Emerg Infect Dis. <https://doi.org/10.3201/eid2607.200574>

Other Resources and Commentaries

- [EMA advice on the use of NSAIDs for Covid-19](#) – DBT Select (Mar 2020).

- [Temporary Emergency Guidance to US Stroke Centers During the COVID-19 Pandemic On Behalf of the AHA/ASA Stroke Council Leadership](#) – Stroke (Mar 2020)
- [ISUOG Consensus Statement on organization of routine and specialist obstetric ultrasound services in the context of COVID-19](#) – Ultrasound Obstet Gynecol (Mar 2020)
- [Guidance for Cardiac Electrophysiology During the Coronavirus \(COVID-19\) Pandemic from the Heart Rhythm Society COVID-19 Task Force; Electrophysiology Section of the American College of Cardiology; and the Electrocardiography and Arrhythmias Committee of the Council on Clinical Cardiology, American Heart Association](#) – Heart Rythm (Apr 2020)