



2019-nCoV Literature Situation Report (Lit Rep)

April 8, 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

- ❑ **Two recent studies suggest a link between BCG vaccination policy and the morbidity and mortality due to COVID-19. They conclude that universal BCG vaccination may have protective effect on the course of COVID-19, probably preventing progression to severe disease and death.**
- ❑ **A standard autoclave treatment for a minimum of 10 cycles provides the best alternative to decontaminate N95 respirator masks with no loss of structural or functional integrity for pleated mask models.**
- ❑ **FIGO and allied partners have released new global interim guidance on coronavirus disease 2019 (COVID-19) during pregnancy and puerperium for healthcare professionals**
- ❑ **Social distancing measures applied from March 10 to March 27 in China were effective in reducing the mean daily COVID-19 growth rate by 0.8% and increasing the doubling time of the epidemic from 3.3 to 5.0 days.**

Non-Pharmaceutical Interventions

- Reasons for wide variation in severity of COVID-19 across affected countries around the world remain unknown. Two recent studies suggest a link between BCG vaccination policy and morbidity and mortality due to COVID-19. Dayal and Gupta compared the case fatality rates of COVID-19 between countries with high disease burden and those with BCG revaccination policies.
- They report a significant difference in the CFR between the two groups of countries. They conclude that universal BCG vaccination may have protective effect on the course of COVID-19, probably preventing progression to severe disease and death.

Dayal and Gupta. (April 08, 2020). Connecting BCG Vaccination and COVID-19: Additional Data. Pre-print downloaded Apr 8 from <https://doi.org/10.1101/2020.04.07.20053272>

- Ji et al. report on the temporal dynamics and characteristics of the COVID-19 epidemic in Huangshi City, China, following lockdown and other non-pharmaceutical interventions. The study provides information on how epidemiological inference may be used to provide guidance on choice of lockdown measures in high-risk cities and help improve public health intervention strategies against the pandemic on national and global levels.

Ji et al. (April 7, 2020) Lockdown contained the spread of 2019 novel coronavirus disease in Huangshi city, China: Early epidemiological findings. Clinical Infectious Diseases. <https://doi.org/10.1002/ijgo.13156>

Testing and Treatment

- To date, there are no proven options for prophylaxis for those exposed to SARS-CoV-2 nor therapy for COVID-19 patients. Passive antibody administration of convalescent plasma may immediate and short term immunity to susceptible individuals. Convalescent plasma has been used in the COVID-19 pandemic, however, limited data from China suggests that there are nuanced challenges, both regulatory and logistical. Bloch et al provide an overview of convalescent plasma, from evidence of benefit, regulatory considerations, logistical work flow and proposed clinical trials, as scale up is brought underway to mobilize this critical resource.

Bloch et al. (April 7, 2020). Deployment of convalescent plasma for the prevention and treatment of COVID-19. J Clin Inves. <https://doi.org/10.1172/JCI138745>

Clinical Characteristics and Health Care Setting

- The response to the COVID19 epidemic is generating severe shortages of N95 respirator masks around the world. Kumar et al tested the ability of 4 different decontamination methods on 4 different N95 masks and observed if repeated cycles of decontamination would preserve their structural and functional integrity. A standard autoclave treatment was the best with no loss of structural or functional integrity to a minimum of 10 cycles for the 3 pleated mask models. This particular finding may be useful to health institutions globally with access to autoclaves but are experiencing or imminently expecting shortages for N95 masks due to the pandemic.

Kumar et al. (April 7 2020). N95 Mask Decontamination using Standard Hospital Sterilization Technologies. Pre-print downloaded Apr 8 from <https://doi.org/10.1101/2020.04.05.20049346>

Modelling and Prediction

- Matsushita et al conducted a systematic review of studies that explored pre-existing CVD and its traditional risk factors as risk factors of severe COVID-19. In addition to older age, they report that male sex, hypertension, diabetes, and CVD were associated in univariate analyses with severe COVID-19.

Matsushita et al. (April 2020). The relationship of COVID-19 severity with cardiovascular disease and its traditional risk factors: A systematic review and meta-analysis. Pre-print downloaded Apr 8 from: <https://doi.org/10.1101/2020.04.05.20054155>

- Roy adapted the classical epidemic modelling framework and incorporated a direct person-to-person contact and indirect airborne and fomites-driven transmission parameters to assess the effectiveness of lockdown. To be effective, the models suggest that considerable reduction in both contact and non-contact transmission rates over a long period is required. The author concludes that any premature withdrawal of lockdown can lead to a quicker, sharper and higher secondary peak and recommends exit policies from lockdown using accurate time-series data on infection cases and transmission rates.

Roy (April 4, 2020). COVID-19 pandemic: Impact of lockdown, contact and non-contact transmissions on infection dynamics. Pre-print downloaded Apr 8 from <https://doi.org/10.1101/2020.04.04.20050328>

- Sanche et al performed 2 mathematical modeling approaches to infer the outbreak dynamics in Wuhan by using high resolution domestic travel and infection data. Models showed that the doubling time early in the epidemic in Wuhan was 2.3–3.3 days and median R0 value of 5.7. This was in contrast to other studies that reported doubling time outside Wuhan as 6-7 days and R0 of 2.2-27.

To slow the infection, models show that active surveillance, contact tracing, quarantine, and early strong social distancing efforts are needed to stop transmission of the virus.

Sanche et al. (April 8, 2020). High Contagiousness and Rapid Spread of Severe Acute Respiratory Syndrome Coronavirus. Emerg Infect Dis. <https://doi.org/10.3201/eid2607.200282>

Public Health Policy and Practice

- In response to the World Health Organization (WHO) statements and international concerns regarding COVID-19, experts from FIGO have issued comprehensive guidance for the management of pregnant women. These guidelines can be accessed at: <https://doi.org/10.1002/ijgo.13156>
Poon et al. (April 4, 2020). Global interim guidance on coronavirus disease 2019 (COVID-19) during pregnancy and puerperium from FIGO and allied partners: Information for healthcare professionals. International Journal of Gynecology and Obstetrics.
- Cohen et al provide a framework for pain practitioners and institutions to balance the often-conflicting goals of risk mitigation for health care providers, risk mitigation for patients, conservation of resources, and access to pain management services. The paper discusses general and interventional-specific risk mitigation, patient flow issues and staffing plans, telemedicine options, triaging recommendations, strategies to reduce psychological sequelae in health care providers, and resource utilization.
Cohen et al. (April 7 2020). Pain Management Best Practices from Multispecialty Organizations during the COVID-19 Pandemic and Public Health Crises. Pain Medicine. <https://doi.org/10.1093/pm/pnaa127>
- Siedner et al report that current statewide social distancing measures applied from March 10 to March 27 were effective in reducing the mean daily COVID-19 growth rate. A decline of 0.8% per day was attributed to this effort during this period, corresponding to an increase in doubling time of the epidemic from 3.3 days (before) to 5.0 days. The authors, however, warn of over relying on this data due to potential bias and confounding, and underestimation of social distancing due to spillovers across neighboring states.
Siedner et al. (April 2020). Social distancing to slow the U.S. COVID-19 epidemic: interrupted time-series analysis. Pre-print downloaded Apr 7 from <https://doi.org/10.1101/2020.04.03.20052373>

Other Resources and Commentaries

- [COVID-19, school closures, and child poverty: a social crisis in the making](#)- The Lancet (April 8)
- [Going Remote: Maintaining Normalcy in our Pathology Laboratories During the COVID-19 Pandemic](#) –Cancer Cytopathology (April 2020)
- [Intersecting U.S. Epidemics: COVID-19 and Lack of Health Insurance](#) – Annals of Internal Medicine (April 8)