



2019-nCoV Literature Situation Report (Lit Rep)

April 7, 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

- ❑ **A new study questions the effectiveness of surgical and cotton masks in blocking cough droplets from SARS-CoV-2 infected patients.**
- ❑ **Environmental sampling from isolation rooms housing COVID-19 patients strongly implies that toilets may be high-risk areas, highlighting the need for hand and environmental hygiene as an intervention.**
- ❑ **One study describes a group testing strategy that could be particularly applicable for testing vulnerable confined populations such as nursing homes, prisons, military ships and cruise ships; while another study suggests that pooled screening may facilitate detection of early community transmission and enable timely infection control measures.**
- ❑ **Several studies highlight the importance of mental health and well-being in youth, HCWs and persons with additive disorders during this pandemic, and provide strategies to help each of these groups.**

Non-Pharmaceutical Interventions

- This experiment compared surgical masks to reusable cloth masks by measuring viral loads after patients coughed while wearing no mask, a surgical mask and a cloth mask. All swabs from the outer mask surfaces were positive for SARS-CoV-2, whereas most swabs from the inner mask surfaces were negative. Neither surgical nor cotton masks effectively filtered SARS-CoV-2 during coughs by infected patients.
- Since the size and concentrations of SARS-CoV-2 in aerosols generated during coughing are unknown, more studies are needed to recommend whether face masks decrease transmission of the virus from asymptomatic individuals or those with suspected COVID-19 who are not coughing.
Bae et al. (Apr 6, 2020). Effectiveness of Surgical and Cotton Masks in Blocking SARS-CoV-2: A Controlled Comparison in 4 Patients. [Annals of Internal Med. https://doi.org/10.7326/M20-1342](https://doi.org/10.7326/M20-1342)

Transmission

- This article provides details on why pregnant women may be more susceptible to COVID-19, and the potential maternal and fetal complications from an immunological viewpoint.
- Pregnant women may be more susceptible to COVID-19 since pregnant women are vulnerable to respiratory infection in general. Liu et al reiterate that there is no evidence for vertical transmission

of the virus in pregnant women with COVID-19, however, they are more likely to have preterm deliveries.

Liu et al. (Apr 6, 2020). Why are pregnant women susceptible to COVID-19? An immunological Viewpoint. Jour of Reprod Immunol. <https://doi.org/10.1016/j.jri.2020.103122>

- The authors tested 107 surface samples from 4 isolation rooms housing 10 COVID-19 patients in a Chinese hospital. Fecal-derived aerosols in the patients' toilets contained most of the detected SARS-CoV-2 virus in the hospital, highlighting the importance of surface and hand hygiene for intervention as well as the importance of hygiene in both private and public toilets.

Ding et al. (Apr 3, 2020). Toilets dominate environmental detection of SARS-CoV-2 virus in a hospital. Pre-print downloaded Apr 7 from <https://doi.org/10.1101/2020.04.03.20052175>

Testing and Treatment

- The authors used sampled pooling, a strategy used for community monitoring of other infectious diseases, in this retrospective study to increase overall testing efficiency at an expected slight loss of sensitivity.
- 292 pools were screened, corresponding with 2740 nasopharyngeal samples and 148 bronchoalveolar lavage samples, collected from inpatients and outpatients between Jan 1-Feb 26 in the San Francisco Bay area. Results suggest that pooled screening may facilitate detection of early community transmission of SARS-CoV-2 and enable timely implementation of appropriate infection control measures to reduce spread.

Hogan et al. (Apr 6, 2020). Sample Pooling as a Strategy to Detect Community Transmission of SARS-CoV-2. JAMA. <https://jamanetwork.com/journals/jama/fullarticle/2764364>

- The authors propose non-adaptive and adaptive group testing strategies based on generalized binary splitting (GBS) where the group test is restricted to the largest group that can be used. The authors suggest that this approach described in the article is particularly applicable to vulnerable confined populations such as nursing homes, prisons, military ships and cruise ships.

Mentus et al. (Apr 5, 2020). Analysis and Applications of Non-Adaptive and Adaptive Group Testing Methods for COVID-19. Pre-print downloaded Apr 7 from <https://doi.org/10.1101/2020.04.05.20050245>

Clinical Characteristics and Health Care Setting

- Choi et al summarize the epidemiological and clinical features of COVID-19 in children to-date, reiterating that while children make up a small fraction of COVID-19 cases and present most often with mild symptoms, some mild cases may progress to severe disease or death. Newborns are also susceptible and may play a role in community transmission.

Choi et al. (Apr 6, 2020). Epidemiology and Clinical Features of Coronavirus disease 2019 in Children. Clin Exp Pediatr. <https://doi.org/10.3345/cep.2020.00535>

- This article mentions that the comorbid diagnosis of Parkinson's disease (PD) or other movement disorders has not emerged as specific risk factor for negative outcomes of COVID-19. The medical strategy for safety of patients with PD is the same as the strategy for the general elderly population.

Papa et al. (Apr 6, 2020). Impact of the COVID-19 pandemic on Parkinson's disease and movement disorders. Movement Disorders. <https://doi.org/10.1002/mds.28067>

- This article discusses the epidemiological dynamics of COVID-19 with the aim of understanding the ability and inability of the immune system to combat COVID-19. Transmission may be influenced by the host-related factors that are known to be associated with immune dysregulation.
- The article also mentions that finding immune biomarkers that can distinguish severe-to-critical from mild-to-moderate infection would help to designate targets for immunotherapy of COVID-19. *Saghazadeh & Rezaei (Apr 6, 2020). Immune-epidemiological parameters of the novel coronavirus – a perspective. Expert Rev Clin Immun.* <https://doi.org/10.1080/1744666X.2020.1750954>

Mental Health and Personal Impact

- Results from this study in China indicate that children and adolescents have been impacted psychologically, manifesting behavioral and emotional problems despite being less vulnerable than adults to COVID-19.
- The article highlights several strategies for professionals and parents/guardians involved in the care of children during the COVID-19 outbreak including – 1) nurturing resilience, 2) increasing communication with children to address their fears and concerns, 3) playing collaborative games to alleviate loneliness and 4) encouraging activities that promote physical activity. *Jiao et al. (Apr 2, 2020). Behavioral and Emotional Disorders in Children during the COVID-19 Epidemic. European Paediatric Assoc.* <https://doi.org/10.1016/j.jpeds.2020.03.013>
- Based on the authors' observations of HCW stress during the SARS outbreak, they describe an approach to enhance the well-being and resilience of HCWs in response to the COVID-19 pandemic. Three strategic principles that may be helpful include: 1) provide leadership focused on resilience, 2) structure crisis communications to provide information and empowerment and 3) create a continuum of staff support within the organization. *Wu et al. (Apr 6, 2020). COVID-19: Peer Support and Crisis Communication Strategies to Promote Institutional Resilience. Annals of Internal Med.* <https://doi.org/10.7326/M20-1236>
- While summarizing many of the issues that pose as particular threats to people with addictive disorders during this COVID-19 pandemic, Marsden et al suggest that this pandemic may increase the extent and severity of some addictive disorders; and call for a coordinated effort to mitigate these problems and to find innovative ways of continuing to provide clinical and public health services to help people with addictive disorders. *Marsden et al. (Apr 6, 2020). Mitigating and learning from the impact of COVID-19 infection on addictive disorders. Addiction.* <https://doi.org/10.1111/add.15080>

Modelling and Prediction

- Silverman & Washburne show how they repurposed publicly available CDC influenza-like illness (ILI) outpatient surveillance data to estimate the detection rate of symptomatic SARS-CoV-2 infections.
- They noted a surge of non-influenza ILI above the seasonal average that correlated with COVID-19 case counts across the states. *Silverman & Washburne (Apr 3, 2020). Using ILI surveillance to estimate state-specific case detection rates and forecast SARS-CoV-2 spread in the United States. Pre-print downloaded Apr 6 from* <https://doi.org/10.1101/2020.04.01.20050542>

Public Health Policy and Practice

- In this convenience sample survey distributed via 3 social media platforms in the U.S., participants reported serious concerns about COVID-19 and that they were preparing by washing hands, remaining homebound, and practicing social distancing. There was variation in the levels of concern about COVID-19 in different age groups, and the most common difficulties were getting hand sanitizer or food, arranging childcare, and lost wages or reduced working hours.

Nelson et al. (Apr 7, 2020). US Public Concerns About the COVID-19 Pandemic From Results of a Survey Given via Social Media. JAMA.

<https://jamanetwork.com/journals/jamainternalmedicine/fullarticle/2764368>

Other Resources and Commentaries

- [Reducing hand recontamination of health workers during COVID-19](#) – Infect Cont & Hosp Epi (Apr 6)
 - This article highlights that behavior change needs to be tailored and targeted to reduce hand re-contamination of HCWs.
- [Kidney diseases in the time of COVID-19: major challenges to patient care](#) – JCI (Apr 5)
 - Rabb discusses a number of kidney-specific aspects of COVID-19 infections noting therapeutic and basic research opportunities.
- [Intensive care management of coronavirus disease 2019 \(COVID-19\): challenges and recommendations](#) – Lancet Respir Med (Apr 6)
- [A global needs assessment in times of a global crisis: world psychiatry response to the COVID-19 pandemic](#)– BJPsych (Apr 6)
 - This editorial outlines key challenges for psychiatry, research questions, and serves as a preliminary framework of what needs to be addressed to ensure the mental health wellbeing for everyone during the COVID-19 outbreak.