



2019-nCoV Literature Situation Report (Lit Rep)

March 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

- 📄 **There is new evidence indicating stability of SARs-CoV-2 on surfaces and in the air, supporting plausible fomite and aerosol transmission of COVID-19.**
- 📄 **New research continues to suggest that intrauterine vertical transmission of SARS-CoV-2 in pregnant women is unlikely.**
- 📄 **A new study suggests that up to 10% of patients with COVID-19 may develop symptoms after 14 days.**

Transmission

- There is new evidence indicating plausible fomite and aerosol transmission of COVID-19. Doremalen et al report that the stability of SARS-CoV-2 in the environment is similar to SARS-CoV-1. The agent can be detected in the aerosols up to 3 hours post aerosolization, up to 2 hours on copper, 24 hours on cardboard and up to 2-3 days on plastic (polypropylene) and stainless steel. These results can inform environmental sanitation practices in public spaces and healthcare facilities.
Doremalen et al. (Mar 10, 2020). Aerosol and surface stability of HCoV-19 (SARS-CoV-2) compared to SARS-CoV-1. Pre-print downloaded Mar 11 from <https://doi.org/10.1101/2020.03.09.20033217>
- Chen et al retrospectively reviewed clinical and lab results for nine pregnant women with laboratory-confirmed COVID-19 pneumonia, for the presence of SARS-CoV-2 in amniotic fluid, cord blood, and neonatal throat swab samples. All the samples tested negative. Though limited in size, these findings reiterate findings from other recent studies suggesting that there is currently no evidence of vertical transmission during pregnancy.
Chen et al. (Mar 10, 2020). Clinical characteristics and intrauterine vertical transmission potential of COVID-19 infection in nine pregnant women: a retrospective review of medical records. The Lancet. <https://doi.org/10.1101/2020.03.09.20033217>
- Qin et al conducted a longitudinal follow-up study of 1,211 asymptomatic individuals, who had travelled previously from Wuhan, until their symptoms developed.
- Findings suggest that about 10% of patients with COVID-19 may not develop symptoms until 14 days after infection. Further study of individuals with long incubation periods is warranted.

Qin et al. (Mar 10, 2020). Estimation of incubation period distribution of COVID-19 using disease onset forward time: a novel cross-sectional and forward follow-up study. Pre-print downloaded Mar 11 from <https://doi.org/10.1101/2020.03.06.20032417>

Non-pharmaceutical Interventions

- Tian et al report the impact of travel restriction and national emergency response in delaying the growth and limiting the size of COVID-19 epidemic in China. The Wuhan shutdown slowed the dispersal of infection to other cities by an estimated 2.9 days and averted hundreds of thousands of cases across China. The most effective interventions were; suspending intra-city public transport, closing entertainment venues and banning public gatherings. This could provide lesson to countries in early stages of COVID-19 outbreak.

Tian et al. (Mar 10, 2020). The impact of transmission control measures during the first 50 days of the COVID-19 epidemic in China. Pre-print downloaded Mar 11 from <https://doi.org/10.1101/2020.01.30.20019844>

Testing and Treatment

- Researchers tested a new CRISPR-based DETECTR Lateral Flow Assay (CRISPR-Cas12) and found it to perform comparably to the US CDC SARS-CoV-2 real time RT-PCR assay.

Broughton et al. (Mar 10, 2020). Rapid Detection of 2019 Novel Coronavirus SARS-CoV-2 Using a CRISPR-based DETECTR Lateral Flow Assay. Pre-print downloaded Mar 11 from <https://doi.org/10.1101/2020.03.06.20032334>

Clinical Characteristics and Health Care Setting

- Fang et al conducted a systematic review of clinical characteristics, radiology findings on chest CT scan and laboratory findings of 3,468 lab confirmed COVID-19 patients. This large patient-based systematic review provides useful information for physicians who manage COVID-19 patients.

Fang et al. (Mar 10, 2020). Clinical Characteristics of 2019 Coronavirus Pneumonia (COVID-19): An Updated Systematic Review. Pre-print downloaded Mar 11 from <https://doi.org/10.1101/2020.03.07.20032573>

- Gao et al explore the epidemiological and clinical characteristics of 213 COVID-19 patients in Jingmen Hospital, China.

Gao et al. (Mar 10, 2020). The epidemiological characteristics of 2019 novel coronavirus diseases (COVID-19) in Jingmen, Hubei, China. Pre-print downloaded Mar 11 from <https://doi.org/10.1101/2020.03.07.20031393>

- The authors reviewed epidemiologic data for COVID-19 cases in Japan. Severe cases are more likely to be reported however they still account for a minority of all cases that occur.

Omori et al. (Mar 10, 2020). Ascertainment rate of novel 1 coronavirus disease (COVID-19) in Japan. Pre-print downloaded Mar 11 from <https://doi.org/10.1101/2020.03.09.20033183>

- In alignment with prior research, Tang et al conclude that children with COVID-19 tend to present with milder symptoms and better prognosis than adults.

Tang et al. (Mar 10, 2020). A retrospective study of the clinical characteristics of COVID-19 infection in 26 children. Pre-print downloaded Mar 11 from <https://doi.org/10.1101/2020.03.08.20029710>

- Zeng et al compare clinical characteristics and cellular immune functions between 752 COVID-19 patients and 14,117 controls in China. These findings may be helpful to clinicians who manage COVID-19 infections.

Zeng et al. (Mar 10, 2020). Mortality of COVID-19 is Associated with Cellular Immune Function Compared to Immune Function in Chinese Han Population. Pre-print downloaded Mar 11 from <https://doi.org/10.1101/2020.03.08.20029710>

Mental Health & Personal Impact

- Sun et al found that prevalence of posttraumatic stress symptoms (PTSS) among the public in mainland China 1 month after the start of the COVID-19 outbreak was 4.6%. Factors associated with PTSS included female sex, having some exposure history related to Wuhan, being part of a high-risk populations (e.g., people residing in high incidence regions), having had close contact with COVID-19 patients, and poor sleep quality.
- This study offers insight on how people can cope with future epidemics, while emphasizing the need for awareness around potential risk factors for mental health effects.

Sun et al. (Mar 6, 2020). Prevalence and Risk Factors of Acute Posttraumatic Stress Symptoms during the COVID-19 Outbreak in Wuhan, China. Pre-print downloaded Mar 10 from <https://doi.org/10.1101/2020.03.06.20032425>

- In this editorial, Smith et al drew parallels between the worsening humanitarian crisis of the COVID-19 outbreak, the 2003 SARS outbreak, and the 2019 Australian bushfires. The authors remind researchers continue conducting collaborative research to further develop the knowledge base of the international scientific community around COVID-19. The article highlights the importance of the nursing profession and shares key lessons learned from previous experiences.

Smith et al (Mar 9, 2020). COVID-19: Emerging compassion, courage and resilience in the face of misinformation and adversity. Journal of Clinical Nursing. <https://onlinelibrary.wiley.com/doi/10.1111/jocn.15231>

Other Resources and Commentaries

- [Data-driven discovery of clinical routes for severity detection of COVID-19 pediatric cases](#) - Pre-print downloaded Mar 11 from MedRxiv.