2019-nCoV Literature Situation Report (Lit Rep)
March 13, 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

- **More research is exploring transmission routes for COVID-19, emphasizing fomite spread and possible aerosolization in confined spaces.**
- **SARS-CoV-2 may persist in the gastrointestinal tract longer than the respiratory system in pediatric patients.**
- **A new study questions the effectiveness of school closures at stemming disease spread, as closures can lead to loss of childcare for health-care workers.**
- **An MMWR article provides detailed information on Singapore's multipronged surveillance and containment strategy that contributed to successful slowing of the outbreak.**

Transmission

- While most studies in the literature so far have not indicated vertical transmission of COVID-19, this study reports a case of neonatal COVID-19 infection in China 36 hours after birth.

  Wang et al. (Mar 12, 2020). A case report of neonatal COVID-19 infection in China. Clin Infect Dis. https://doi.org/10.1093/cid/ciaa225

- A study of 46 hospitalized COVID-19 patients aged 10 to 35 years indicates that adolescents and young adults may have a longer incubation period, a shorter serial interval and may be more likely to be asymptomatic.

  Liao et al. (Mar 10, 2020). Epidemiological and clinical characteristics of COVID-19 in adolescents and young adults. Pre-print downloaded on Mar 13 from https://doi.org/10.1101/2020.03.10.20032136

- This study argues for the need to assess both duration and incidence of asymptomatic cases, which can help in evaluating post-pandemic outcomes.

  Park et al. (Mar 9, 2020). The time scale of asymptomatic transmission affects estimates of epidemic potential in the COVID-19 outbreak. Pre-print downloaded on Mar 13 from https://doi.org/10.1101/2020.03.09.20033514

- The authors investigated a cluster of COVID-19 cases associated with a shopping mall in Wenzhou, China to determine possible modes of virus transmission. The results indicate that indirect

transmission potentially occurred via virus contaminated objects, aerosolization in a confined space or spread from asymptomatic infected persons.

Cai et al. (Mar 13, 2020). Indirect Virus Transmission in Cluster of COVID-19 Cases, Wenzhou, China, 2020. Emerg Infect Dis. https://doi.org/10.3201/eid2606.200412

- After investigating a 2-family cluster of persons infected with COVID-19 in Zhejiang Province, China, the authors suggest that infection resulted from contact with a potentially pre-symptomatic traveler from the city of Wuhan.

  Tong et al. (Mar 9, 2020). Potential Presymptomatic Transmission of SARS-CoV-2, Zhejiang Province, China, 2020. Emerg Infect Dis. https://doi.org/10.3201/eid2605.200198

Testing and Treatment

- This report summarizes the innovative approach of using home assessment to provide real-time clinical evaluation of patients who do not require emergency medical care or hospitalization, a process originally developed for the 2014 Ebola response by the Harborview Medical Center and Public Health Seattle King County. This tool benefits both the public health and clinical healthcare systems by increasing safety and efficiency while reducing the costs and complexity of COVID-19 testing.

  Bryson-Cahn et al. (Mar 12, 2020). A Novel Approach for a Novel Pathogen: using a home assessment team to evaluate patients for 2019 novel coronavirus (SARS-CoV-2). Clinical Infect Dis. https://doi.org/10.1093/cid/ciaa256

Clinical Characteristics and Health Care Setting

- Based on 3 pediatric cases of COVID-19 that were reported in Qingdao, China, the authors conclude that SARS-CoV-2 may exist in the gastrointestinal tract for a longer time than the respiratory system. Viral RNA remained detectable in stools of these 3 cases for 8-20 days after the nucleic acid tests turned out negative in the respiratory samples.
- The study highlights the need to implement strict hygiene measures in school settings and the need to be cautious while handling stool samples to minimize the potential viral transmission through fecal-oral route.

  Xing et al. (Mar 13, 2020). Prolonged presence of SARS-CoV-2 in feces of pediatric patients during the convalescent phase. Pre-print downloaded Mar 13 from https://doi.org/10.1101/2020.03.11.20033159

- Li et al conducted a case-control study that included 16 pregnant women with confirmed COVID-19 pneumonia and 18 suspected cases who were admitted in their third trimester. They did not find any evidence to suggest that COVID-19 pneumonia causes severe maternal and neonatal complications among these women who had vaginal or caesarean section.

  Li et al. (Mar 10, 2020). Maternal and neonatal outcomes of pregnant women with COVID-19 pneumonia: a case control study. Pre-print downloaded on Mar 13 from https://doi.org/10.1101/2020.03.10.20033605

- This article highlights that healthcare resources may be higher in some US cities that have a higher prevalence of vulnerable populations.

  Li et al. (Mar 9, 2020). The demand for inpatient and ICU beds for COVID-19 in the US: lessons from Chinese cities. Pre-print downloaded Mar 14 from https://doi.org/10.1101/2020.03.09.20033241

- Based on a review of 101 COVID-19 fatalities from the Intensive Care Unit in a Wuhan hospital, the authors conclude that after lungs, the heart may be the next organ to experience damage.

  Fan et al. (Mar 9, 2020). Retrospective Analysis of Clinical Features in 101 Death Cases with COVID-19. Pre-print downloaded on Mar 13 from https://doi.org/10.1101/2020.03.09.20033068

Modelling and Prediction

- The analyses from this modeling study showed that transmissibility and the duration of the latent period relative to the duration of the incubation period have a strong impact on how well the disease can be controlled.
- While isolation and contact tracing will not fully control the COVID-19 outbreak, the authors emphasize that these are still important aspects of effective containment strategies as they will eventually reduce growth rates and increase epidemic doubling times.

  Kretzchmar, et al. (Mar 10, 2020). Effectiveness of isolation and contact tracing for containment and slowing down a COVID-19 epidemic: a modelling study. Pre-print downloaded on Mar 13 from https://doi.org/10.1101/2020.03.10.20033738

Public Health Policy and Practice

- The authors provide detailed data for public health officials to make informed decisions about the tradeoff associated with closing schools and healthcare worker absenteeism. Potential loss of healthcare workers due to lack of childcare may jeopardize overall public health outcomes.
- For school closures to unambiguously provide a net reduction in COVID-19 mortality, the school closures must reduce cases by over 25%, otherwise school closures will lead to a greater number of COVID-19 deaths than they can prevent.

  Bayhan and Fenichel (Mar 9, 2020). The Impact of School Closure for COVID-19 on the US Healthcare Workforce and the Net Mortality Effects. Pre-print downloaded on Mar 13 from https://doi.org/10.1101/2020.03.09.20033415

- In this MMWR article, the authors share Singapore's multipronged surveillance and containment strategy that contributed to enhanced case ascertainment and slowing of the COVID-19 outbreak.

  Ng et al. (Mar 13, 2020). Evaluation of the Effectiveness of Surveillance and Containment Measures for the First 100 Patients with COVID-19 in Singapore — January 2–February 29, 2020. MMWR. http://dx.doi.org/10.15585/mmwr.mm6911e1

Other Resources

- What further should be done to control COVID-19 outbreaks in addition to cases isolation and contact tracing measures? - BMC Medicine (Mar 13, 2020)
  - The author suggests that contact tracing and case isolation alone may be insufficient to control the COVID-19 outbreak.
- Infrared assessment of human facial temperature in the presence and absence of common cosmetics – MedRxiv (Mar 12, 2020)
  - The study provides detailed information on how using certain cosmetics and lotions can make the infrared-based screening for fever unreliable by almost 2-4 degrees Fahrenheit.