

2019-nCoV Literature Situation Report (Lit Rep)

May 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

- **Syndromic screening of air-travelers at exit or entry and broad communication about COVID-19 symptoms following their arrival has likely delayed the local spread of SARS-CoV-2.**
- **If the US had taken China-like or South Korea-like interventions in response to COVID-19 outbreak at the early stage (March 10), 99% cases may have been prevented by the end of the epidemic. If actions were taken on April 1, cases may have been reduced by 66% to 73%, highlighting the importance of early interventions and the need for swift response.**
- **The presence of acute loss of smell or taste seems to be part of a constellation of symptoms that could be used to detect early COVID-19 cases.**
- **The incidence of liver injury, as assessed by serum analysis (AST, ALT, total Bilirubin and Albumin levels), seems to be higher in patients with severe COVID-19 infection.**

Non-Pharmaceutical Interventions

- This large-scale (N=5,995) online survey investigates user acceptability of a contact-tracing app across different installation scenarios (voluntary installation vs. automatic installation by mobile phone providers) in France, Germany, Italy, the UK and the US. Results show strong support for the app under both installation scenarios, with at least 68% of respondents across countries indicating that they would install the app or keep it if automatically installed. Concerns about cyber security and privacy, as well as lack of trust in government, are the main barriers to adoption.
- These findings suggest that app-based contact tracing may be an acceptable approach to help control the spread of COVID-19.

Altmann et al. (May 4, 2020). Acceptability of app-based contact tracing for COVID-19: Cross-country survey evidence. Pre-print downloaded May 11 from <https://doi.org/10.1101/2020.05.05.20091587>

- This study evaluated whether interventions aimed at air travelers can delay local SARS-CoV-2 community transmission in a previously unaffected country. Results from stochastic simulation showed that introducing exit and entry screening for SARS-CoV-2 at departure and/or arrival, in combination with traveler sensitization about COVID-19 symptoms, can delay a local outbreak by 8 days (50% interval: 3-14 days). The additional benefit of entry screening is small if exit screening is effective: the combination of exit screening and traveler sensitization can delay an outbreak by 7 days (50% interval: 2-13 days).

- Syndromic screening and traveler sensitization in combination may have marginally delayed SARS-CoV-2 outbreaks in unaffected countries.
Clifford et al. (May 8, 2020). Effectiveness of interventions targeting air travellers for delaying local outbreaks of SARS-CoV-2. Journal of Travel Medicine. <https://doi.org/10.1093/jtm/taaa068>

Geographic Spread

- Liu et al. modeled how many COVID-19 cases could have been prevented in the US if the US had implemented comprehensive and strict lockdown measures like in Wuhan, China or widespread testing as in South Korea.
- Researchers estimate that if these measure were implemented at the early stage of the outbreak (March 10), 99% (1.15 million) fewer cases could have been expected by the end of the epidemic. If actions were taken on April 1, this number could have decreased to 66% (with the China-like scenario) and 73% (with South Korea-like scenario), highlighting the importance of early interventions and the need for swift response.
Liu et al. (May 11, 2020). How many COVID-19 cases could have been prevented in the US if its interventions were as effective as those in China and South Korea? Pre-print downloaded May 11 from <https://doi.org/10.1101/2020.05.06.20092981>

Clinical Characteristics and Health Care Setting

- Lee et al. determined the prevalence of acute loss of smell (anosmia) and taste (ageusia) among 3,191 patients awaiting hospitalization for COVID-19 in Korea.
- The presence of acute anosmia or ageusia was observed in 15.3% (488/3,191) patients in the early stage of COVID-19 and in 16% (367/2,342) patients with asymptomatic-to-mild disease severity. The prevalence was higher among females (17% vs. 13%) and among people aged <60 years (17% vs. 10%). Most patients with anosmia or ageusia recovered from these symptoms within 3 weeks, with a median time to recovery of 7 days for both symptoms.
- Anosmia and ageusia seem to be common early symptoms of SARS-CoV-2 infection that could be used to syndromically detect COVID-19 at the early stage.
Lee et al. (May 11, 2020). Prevalence and Duration of Acute Loss of Smell or Taste in COVID-19 Patients. Journal of Korean Medical Science. <https://doi.org/10.3346/jkms.2020.35.e174>
- A meta-analysis of retrospective studies summarized available findings on the association between liver injury and severity of COVID-19 infection. In total, 20 retrospective studies with 3,428 COVID-19 infected patients (severe cases = 1,455 and mild cases = 1,973), were included. The incidence of liver injury, as assessed by serum analysis (AST, ALT, total Bilirubin and Albumin levels), seems to be higher in patients with severe COVID-19 versus mild disease.
Parohan et al. (May 9, 2020). Liver Injury Is Associated with Severe Coronavirus Disease 2019 (COVID-19) Infection: A Systematic Review and Meta-Analysis of Retrospective Studies. Hepatology Research. <https://doi.org/10.1111/hepr.13510>
- Sun et al prospectively assessed 49 coronavirus disease cases in Guangdong, China, to estimate the frequency and duration of detectable SARS-CoV-2 RNA in human body fluids. The estimated time to clearance of viral RNA ranged from 45.6 days for nasopharyngeal swab to 46.3 days for feces samples in mild cases; and from 48.9 days for nasopharyngeal swab samples to 49.4 days for feces samples in severe cases. These are longer clearance times than has been reported for patients with SARS-CoV or MERS-CoV infections.

Sun et al. (May 8, 2020). Prolonged Persistence of SARS-CoV-2 RNA in Body Fluids. *Emerging Infectious Diseases*. <https://doi.org/10.3201/eid2608.201097>

Modeling and Prediction

- Milligan et al. modeled interactions among "essential" workers (EWs) including cashiers, factory employees and healthcare workers, and between essential workers and the general population to assess disease risk during a shelter-in-place scenario.
- Even with limited exposure to the public, EWs at high interaction workplaces such as manufacturing and food processing facilities, or with high exposure to infected individuals, such as health care workers, are at the highest individual risk of infection. In contrast, public-facing workers, such as cashiers, have a much lower individual risk, but can have a greater impact on infection transmission in the general population due to their high number of contacts.

Milligan and Sella. (May 9, 2020). *Impact of Essential Workers in the Context of Social Distancing for Epidemic Control*. Pre-print downloaded May 11 from <https://doi.org/10.1101/2020.05.05.20092262>

- Bunnik et al. found that adoption of a segmenting and shielding strategy to protect older adults and persons with underlying medical conditions could allow for partial exit from COVID-19 lockdown measures in the UK while limiting the risk of an overwhelming second wave of infection.
- The range of options for relaxation can be increased by maintaining restrictions and intensive routine screening of vulnerable populations and their closest contacts. The outcome of future policy is strongly influenced by the contact matrix between segments and the relationships between physical distancing measures and transmission rates. Close monitoring of the epidemic would be essential during and after the exit from lockdown.

Bunnik et al. (May 8, 2020). *Segmentation and shielding of the most vulnerable members of the population as elements of an exit strategy from COVID-19 lockdown*. Pre-print downloaded May 11 from <https://doi.org/10.1101/2020.05.04.20090597>

Public Health Policy and Practice

- Three overlapping epidemiologic waves of spread of COVID-19 are linked to different structural vulnerabilities. 1) Early community transmission reaching nursing homes and long-term care facilities with high prevalence of chronic disease and limited health monitoring. 2) Transmission and broad community spread that has disproportionately affected African Americans, undocumented and documented Hispanic immigrants, and members of the Native American Navajo Nation with high prevalence chronic disease, lack of health insurance, and environmental disparities. 3) Custodial settings, including immigration detention centers, jails, and prisons with high prevalence chronic diseases and crowded unsanitary conditions.
- There is an urgent need to reduce prevailing structural vulnerabilities that result in social inequities and health disparities involving large segments of the U.S. population.

Solis et al. (May 7, 2020). *Structural Vulnerability in the United States Revealed in Three Waves of Novel Coronavirus Disease (COVID-19)*. *The American Journal of Tropical Medicine and Hygiene*. <https://doi.org/10.4269/ajtmh.20-0391>

- Ahmed et al. compared the characteristics of 1,229 (6.1%) SARS-CoV-2-positive patients to 18,859 (93.9%) people who tested negative in Salt Lake County, Utah. Adjusted for symptoms, Hispanic or

Latino persons were 2-fold more likely than non-Hispanic white individuals to test positive (aOR=2.0, 95%CI: 1.3-3.1).

- Risk of hospitalization was higher among people aged 60+ compared to people aged 0-19 (aOR=6.9, 95%CI: 2.1-22.5). Younger individuals (aged 0-19) were underrepresented in both overall rates of testing and rates of testing positive.

Ahmed et al. (May 9, 2020). Comprehensive Testing Highlights Racial Ethnic and Age Disparities in the COVID-19 Outbreak. Pre-print downloaded May 11 from <https://doi.org/10.1101/2020.05.05.20092031>

Other Resources and Commentaries

- Case series in multiple locations are reporting a hyperinflammatory syndrome associated with COVID-19 in children.
[Characteristics and Outcomes of Children With Coronavirus Disease 2019 \(COVID-19\) Infection Admitted to US and Canadian Pediatric Intensive Care Units](#) – JAMA Pediatrics (May 11)
[Hyperinflammatory shock in children during COVID-19 pandemic](#) – Lancet (May 6)
- ["Keep It Going if You Can": HIV Service Provision for Priority Populations During the COVID-19 Pandemic in Seattle, WA](#) – AIDS and behavior (May 8)
- [Enabling emergency mass vaccination: Innovations in manufacturing and administration during a pandemic](#) – Vaccine (Apr 20)
- [Reducing risks from coronavirus transmission in the home-the role of viral load](#) – BMJ (Clinical research) (May 6)
- [Caution when linking COVID-19 to mental health consequences](#) – Brain, Behavior, and Immunity (May 5)
- [Association of higher body mass index \(BMI\) with severe coronavirus disease 2019 \(COVID-19\) in younger patients](#) – Clinical Infectious Diseases (May 8)
- [Changes in SARS-CoV-2 Positivity Rate in Outpatients in Seattle and Washington State, March 1-April 16, 2020](#) – JAMA (May 8)

Report prepared by the UW MetaCenter for Pandemic Preparedness and Global Health Security and the START Center in collaboration with and on behalf of WA DOH COVID-19 Incidence Management Team