



2019-nCoV Literature Situation Report (Lit Rep)

April 9, 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

- ② **A testing protocol that has the potential to dramatically reduce the cost and complexity of population scale testing is proposed by Schmidt et al.**
- ② **Results from a study suggest an association between severe COVID-19 and lower serum concentrations of sodium, potassium and calcium. These findings could have important clinical and pathogenic implications.**
- ② **A digital patient-facing COVID-19 self-triage and self-scheduling tool adopted by a large academic health system is described. The tool has recommended emergency-level care with high sensitivity and decreased triage time for patients with less severe illness.**
- ② **UW Medicine describes their rapid-rollout of IT capabilities in response to the COVID-19 pandemic, including expanded telemedicine, expedited change control processes to quickly update electronic health records and integration of a hospital incidence command structure with IT.**

Non-Pharmaceutical Interventions

- Xu and Li warn of potential adverse consequences of premature relaxation of current COVID-19 strict interventions. They point out that such decisions might lead to a second wave of infections. They recommend that each country evaluate the effect of relaxing each intervention or those that were most effective in containing the spread of the pandemic, before returning to normalcy. Understanding the full impact of each intervention is urgently required.

Xu and Li. (April 8, 2020). Beware of the second wave of COVID-19. The Lancet.

[https://doi.org/10.1016/S0140-6736\(20\)30845-X](https://doi.org/10.1016/S0140-6736(20)30845-X)

Testing and Treatment

- Schmid et al propose using LAMP-Seq, a barcoded Reverse-Transcription Loop-mediated Isothermal Amplification (RT-LAMP) protocol that could dramatically reduce the cost and complexity of population-scale testing of COVID-19. Given the low cost and scalability of next-generation sequencing, the team believes that this method could be affordably scaled to analyze millions of samples per day using existing sequencing infrastructure.

Schmid et al. (April 6, 2020). LAMP-Seq: Population-Scale COVID-19 Diagnostics Using a Compressed Barcode Space. Preprint downloaded April 9 from

<https://doi.org/10.1101/2020.04.06.025635>

Clinical Characteristics and Health Care Setting

- Yuan et al report on the laboratory and clinical characteristics of 25 patients in China who met hospital criteria for discharge, yet remained carriers of SARS-CoV-2 after recovery from COVID-19. They suggest that two negative RT-PCR tests 24 hours apart may not be sufficient for viral clearance evaluation, and recommend repeating RT-PCR testing at least 48 hours after the first test and recommend holding patients longer to ensure the virus is cleared.

Yuan et al. (April 8, 2020). PCR Assays Turned Positive in 25 Discharged COVID-19 Patients. Preprint downloaded April 9 from <https://doi.org/10.1093/cid/ciaa398>

- Tagarro et al discuss the clinical features of children tested for SARS-CoV-2 in Madrid, Spain. They examined children's gender, contact history, severity of infection, case management and comorbidity. This information is useful for those managing COVID-19 in children.

Tagarro et al. (April 8, 2020). Screening and Severity of Coronavirus Disease 2019 (COVID-19) in Children in Madrid, Spain. JAMA pediatrics.

<https://jamanetwork.com/journals/jamapediatrics/fullarticle/2764394>

- Wang et al discuss the clinical care of 344 intensive care patients in a hospital in China. They cover the demographic, clinical, laboratory and radiologic findings, and treatment and outcome data from electronic medical records. This information is important for clinicians managing ICU patients.

Wang et al. (April 8, 2020). Clinical Course and Outcomes of 344 Intensive Care Patients with COVID-19. American Journal of Respiratory and Critical Care Medicine.

<https://doi.org/10.1164/rccm.202003-0736LE>

- Appropriate protection of healthcare workers and newly born infants during and after delivery by a mother with COVID-19 is essential. Chandrasekharan et al outline the precautions and steps to be taken before, during, and after resuscitation of a newborn born to a mother with COVID-19, including three optional variations of current standards involving shared-decision making with parents for perinatal management, resuscitation of the newborn, disposition, nutrition, and post-discharge care.

Chandrasekharan et al. (April 8, 2020) Neonatal resuscitation and postresuscitation care of infants born to mothers with suspected or confirmed SARS-CoV-2 Infection. American Journal of Perinatology. <https://doi.org/10.1055/s-0040-1709688>

- This study reports on various electrolyte abnormalities in patients at admission who progressed to the severe form of COVID-19. Lippi et al compared electrolyte (sodium, potassium, chloride, and calcium) levels between COVID-19 patients with and without severe disease, and found that severity may be associated with lower serum concentrations of sodium, potassium and calcium.
- These findings, in particular hypokalemia (low potassium) could have important clinical implications for physicians managing COVID-19 patients, and may also provide a clue on the pathogenetic mechanisms underlying COVID-19.

Lippi et al. (April 6, 2020). Electrolyte Imbalances in Patients with Severe Coronavirus Disease 2019 (COVID-19). Annals of Clinical Chemistry. <https://doi.org/10.1177/0004563220922255>

Public Health Policy and Practice

- UW Medicine was one of the first health systems to encounter and treat COVID-19 patients in the US. Grange et al describe the rapid rollout of IT capabilities to support UW's clinical response to the COVID-19 pandemic, and provide recommendations for US health systems to urgently consider, as

they plan their own COVID-19 response and prepare for the possibility of other pandemics in the future.

Grange et al. (April 8, 2020). Responding to COVID-19: The UW Medicine Information Technology Services Experience. Applied Clinical Informatics. <https://doi.org/10.1055/s-0040-1709715>

- Judson et al created and implemented a patient portal-based COVID-19 self-triage and self-scheduling tool in a large academic health system. Of the patient completed sessions, the sensitivity for detecting emergency-level care was 87.5%. Patient self-triage tools integrated into electronic health record systems have the potential to greatly improve efficiency and prevent unnecessary doctor visits during the COVID-19 pandemic.

Judson et al (April 8, 2020). Rapid design and implementation of an integrated patient self-triage and self-scheduling tool for COVID-19. Journal of the American Medical Informatics Assoc.

<https://doi.org/10.1093/jamia/ocaa051>

- This policy brief sets forth American Geriatrics Society (AGS) recommendations to guide federal, state, and local governments when making decisions about care for patients with COVID-19 in nursing homes and other long-term care facilities. The AGS continues to review updated guidance from the Centers for Medicare and Medicaid Services, the CDC, and other key agencies

AGS (April 7, 2020). American Geriatrics Society (AGS) Policy Brief: COVID-19 and Nursing Homes. Journal of the American Geriatrics Society (2020). Preprint downloaded April 9 from

<https://doi.org/10.1111/jgs.16477>

- Ling et al describe their SARS-CoV-2 workplace infection prevention and control measures in non-clinical areas of hospitals, adapted from the 2003 SARS epidemic. These areas are potentially high-risk for transmission between healthcare workers and are often neglected by infection and control protocol.

Ling et al. (April 7 2020). Infection control in non-clinical areas during COVID-19 pandemic.

Anaesthesia. <https://doi.org/10.1111/anae.15075>

Other Resources and Commentaries

- [Respiratory health in athletes: facing the COVID-19 challenge](#) – The Lancet (2020)
- [Recommendations from national regulatory agencies for ongoing cancer trials during the COVID-19 pandemic](#) – The Lancet (2020)
- [Quarantine alone or in combination with other public health measures to control COVID-19: a rapid review](#)- Cochrane Database of Systematic Reviews (2020)
- [Absence of SARS-CoV-2 infection in cats and dogs in close contact with a cluster of COVID-19 patients in a veterinary campus](#)- bioRxiv (2020)