

2019-nCoV Literature Situation Report (Lit Rep)

July 20, 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 recombinant adenovirus type-5-vectored candidate vaccine currently in phase 2 testing showed strong antibody and T-cell response and no evidence of serious adverse reactions.** [More](#)
- **Based on modeling results, a delay of 3 or more days in tracing and testing contacts of COVID-19 cases could significantly reduce the effectiveness of contact tracing to control the pandemic.** [More](#)
- **Self-collected saliva samples demonstrated high agreement with healthcare provider-collected nasopharyngeal samples among symptomatic adults, and could reduce the burden on healthcare workers and the use of PPE for testing.** [More](#)
- **Population-based screening in a German village that was quarantined for six weeks after a SARS-CoV-2 outbreak found that 8% of inhabitants had a positive test for SARS-CoV-2 antibodies but that only 53% of participants with previously confirmed SARS-CoV-2 infections had detectable antibodies.** [More](#)

Testing and Treatment

- *[pre-print, not peer-reviewed]* Hanson et al. compared healthcare worker-collected nasopharyngeal swabs (NPS) to self-collected anterior nasal swabs (ANS) and saliva for diagnosis of SARS CoV-2 infection in adults accessing drive through testing (n=268). The positive percent agreement between NPS and ANS or saliva was 86.3% and 93.8%, respectively. Negative percent agreement was 99.6% for NPS vs. ANS and 97.8% for NPS vs. saliva. All participants had symptoms suggestive of COVID-19 infection.

Hanson et al. (July 19, 2020). Self-Collected Anterior Nasal and Saliva Specimens versus Healthcare Worker-Collected Nasopharyngeal Swabs for the Molecular Detection of SARS-CoV-2. Pre-print downloaded July 20 from <https://doi.org/10.1101/2020.07.17.20155754>

- *[pre-print, not peer-reviewed]* Screening for SARS-CoV-2 by RT-PCR and antibody testing in a village in Germany that had been quarantined for six weeks after a SARS-CoV-2 outbreak found that only 53% of participants with previously confirmed SARS-CoV-2 infections had detectable antibodies. Overall, 8% of the inhabitants had a positive SARS-CoV-2 antibody test (based on two or more independent tests), of whom 38% had a previous SARS-CoV-2 PCR test.

Weis et al. (July 17, 2020). Seroprevalence of SARS-CoV-2 Antibodies in an Entirely PCR-Sampled and Quarantined Community after a COVID-19 Outbreak - the CoNAN Study. Pre-print downloaded July 20 from <https://doi.org/10.1101/2020.07.15.20154112>

- [pre-print, not peer-reviewed] Becker et al. developed a multiplexed immunoassay to measure IgG and IgA responses against six SARS-CoV-2 antigens, achieving a sensitivity of 90% and a specificity of 100%. By monitoring IgA response, they were able to detect an early immune response in some patients. The authors suggest that the test may be useful in monitoring vaccination studies and conducting widespread screening.

Becker et al. (July 17, 2020). *Going beyond Clinical Routine in SARS-CoV-2 Antibody Testing - A Multiplex Corona Virus Antibody Test for the Evaluation of Cross-Reactivity to Endemic Coronavirus Antigens*. Pre-print downloaded July 20 from <https://doi.org/10.1101/2020.07.17.20156000>

- In the open-label RECOVERY trial among hospitalized COVID-19 patients, Horby et al. found that 28-day mortality was lower for patients receiving the steroid dexamethasone than for the usual care group among patients receiving invasive mechanical ventilation (29% vs. 41%) or supplemental oxygen without invasive mechanical ventilation (23% vs. 26%), but not among those who were receiving no respiratory support at randomization (18% vs. 14%). [EDITORIAL NOTE: A version of these findings was published as a pre-print article that was included in this Literature Report on June 23, 2020]

Horby et al. (July 17, 2020). *Dexamethasone in Hospitalized Patients with Covid-19 — Preliminary Report*. *New England Journal of Medicine*. <https://doi.org/10.1056/NEJMoa2021436>

Vaccines

- Zhu et al. conducted a randomized, double-blind, placebo-controlled, phase 2 trial of the Ad5-vectored COVID-19 vaccine to determine the immunogenicity and incidence of adverse reactions.
- Both doses of the vaccine induced significant neutralizing antibody responses to live SARS-CoV-2. Evidence of antigen-specific T-cell responses were observed in 88-90% of vaccine recipients.
- Within 14 days, 72% of participants in one vaccine dose group and 74% of participants in another dose group reported at least one adverse reaction, both of which were significantly higher than the 37% of participants in the placebo group. Common reactions included fatigue, fever, headache, and pain at the injection site. However, no serious adverse events were documented within 28 days after injection.

Zhu et al. (July 20, 2020). *Articles Immunogenicity and Safety of a Recombinant Adenovirus Type-5-Vectored COVID-19 Vaccine in Healthy Adults Aged 18 Years or Older : A Randomised , Double-Blind , Placebo- Controlled , Phase 2 Trial*. *The Lancet*. [https://doi.org/10.1016/S0140-6736\(20\)31605-6](https://doi.org/10.1016/S0140-6736(20)31605-6)

Clinical Characteristics and Health Care Setting

- Bilaloglu et al. found that 533 of 3334 (16%) consecutive patients hospitalized in New York City with COVID-19 had thrombotic events diagnosed during routine clinical care. Age, sex, Hispanic ethnicity, coronary artery disease, prior myocardial infarction, and higher D-dimer levels at hospital presentation were associated with a thrombotic event, and all-cause mortality was higher in those who experienced them (43% vs. 21%).

Bilaloglu et al. (July 20, 2020). *Thrombosis in Hospitalized Patients With COVID-19 in a New York City Health System*. *JAMA*. <https://doi.org/10.1001/jama.2020.13372>

- In conducting post-mortem examinations of 14 people who died with COVID-19 in Washington state, Bradley et al. found coronavirus-like particles in the respiratory system, kidney, and gastrointestinal tract. One decedent had findings of lymphocytic myocarditis, with SARS-CoV-2 RNA

detected in the myocardial tissue. All patients had clinically-significant comorbidities, with the most common being hypertension, chronic kidney disease, obstructive sleep apnea, and metabolic disease including diabetes and obesity.

Bradley et al. (July 16, 2020). Histopathology and Ultrastructural Findings of Fatal COVID-19 Infections in Washington State: A Case Series. The Lancet. [https://doi.org/10.1016/S0140-6736\(20\)31305-2](https://doi.org/10.1016/S0140-6736(20)31305-2)

- *[pre-print, not peer-reviewed]* In a systematic review and meta-analysis, Golinelli et al. concluded that SARS-CoV-2 positive individuals are more likely to have blood group A (pooled OR=1.21, 95%CI 1.08-1.37) and less likely to have blood group O (pooled OR=0.76, 95% CI 0.66-0.87). The analysis included 7 studies with 7,524 SARS-CoV-2 positive cases and 2,962,160 controls.

Golinelli et al. (July 17, 2020). ABO Polymorphism and SARS-CoV-2 Infection - a Meta-Analysis. Pre-print downloaded July 20 from <https://doi.org/10.1101/2020.07.17.20155986>

- Reiter et al. used a longitudinal national survey to assess the duration of acute loss of taste and smell associated with COVID-19 infection. After excluding respondents who reported a negative test, they found that after 1-month, 67% reported a return to “very good” or “good” smell and 73% reported a return to “very good” or “good” taste.

Reiter et al. (July 8, 2020). Subjective Smell and Taste Changes during the COVID-19 Pandemic: Short Term Recovery. American Journal of Otolaryngology. <https://doi.org/10.1016/j.amjoto.2020.102639>

- Yuan et al. report that 11% of recovered COVID-19 patients were found to be SARS-CoV-2 RNA positive one or two weeks after hospital discharge, although none were symptomatic at the time of testing. Patients under 18 and patients with shorter hospital stays were more likely to have a positive re-test; no severe cases tested positive after discharge.

Yuan et al. (July 17, 2020). Recurrence of Positive SARS-CoV-2 Viral RNA in Recovered COVID-19 Patients during Medical Isolation Observation. Scientific Reports. <https://doi.org/10.1038/s41598-020-68782-w>

Modeling and Prediction

- Kretzschmar et al. used a model to demonstrate the relative importance of minimizing delays and maximizing coverage of contact tracing and testing. With a delay of three days or longer in testing and tracing, even complete coverage of contacts was not sufficient to reach R values below 1, which would lead to decline of the epidemic.

Kretzschmar et al. (July 16, 2020). Impact of Delays on Effectiveness of Contact Tracing Strategies for COVID-19: A Modelling Study. The Lancet Public Health. [https://doi.org/10.1016/S2468-2667\(20\)30157-2](https://doi.org/10.1016/S2468-2667(20)30157-2)

- *[pre-print, not peer-reviewed]* Wilson et al. constructed a model to estimate the length of quarantine necessary to bring the risk of infection below a given threshold based on the degree of contact with an infected person. The model fits the framework of the Google/Apple Exposure Notification API, in which both the transmitter and the receiver carry Bluetooth-enabled devices that detect their proximity.

Wilson et al. (July 19, 2020). Quantifying SARS-CoV-2 Infection Risk within the Apple/Google Exposure Notification Framework to Inform Quarantine Recommendations. Pre-print downloaded July 20 from <https://doi.org/10.1101/2020.07.17.20156539>

Other Resources and Commentaries

- [Cross-Reactive Antibody Response between SARS-CoV-2 and SARS-CoV Infections](#) – Cell Reports (June 2)
- [An Overview of the Safety, Clinical Application and Antiviral Research of the COVID-19 Therapeutics](#) – Journal of Infection and Public Health (July 13)
- [Converging Pandemics Impact on Students, Schools, and Communities: COVID-19 and Racism](#) – NASN School Nurse (July 18)
- [Mass Masking as a Way to Contain COVID-19 and Exit Lockdown in Low- and Middle-Income Countries](#) – Journal of Infection (July 14)
- [Strengthening the Global Effort on COVID-19 Research](#) – The Lancet (July 16)
- [Offline: COVID-19 and the Dangers of Sinophobia](#) – The Lancet (July 18)
- [How Mental Health Care Should Change as a Consequence of the COVID-19 Pandemic](#) – The Lancet Psychiatry (July 16)
- [The Explosion of New Coronavirus Tests That Could Help to End the Pandemic](#) – Nature (July 17)
- [SARS-CoV-2 T Cell Immunity: Specificity, Function, Durability, and Role in Protection](#) – Science Immunology (July 17)
- [Modelling Insights into the COVID-19 Pandemic](#) – Paediatric Respiratory Reviews (June 20)
- [The Early Food Insecurity Impacts of COVID-19](#) – Nutrients (July 15)
- [Challenges and Issues of SARS-CoV-2 Pool Testing](#) – The Lancet Infectious Diseases (July 14)
- [COVID-19: From Rapid Genome Sequencing to Fast Decisions](#) – The Lancet Infectious Diseases (July 14)
- [Neutralizing and Cross-Reacting Antibodies: Implications for Immunotherapy and SARS-CoV-2 Vaccine Development](#) – Human Vaccines & Immunotherapeutics (July 17)
- [SARS-CoV-2 RNAemia in a Healthy Blood Donor 40 Days After Respiratory Illness Resolution](#) – Annals of Internal Medicine (July 17)
- [COVID-19 and Post-traumatic Stress Disorder: A Vicious Circle Involving Immunosuppression](#) – CNS Neuroscience & Therapeutics (Aug 17)
- [Engaging With Communities — Lessons \(Re\)Learned From COVID-19](#) – Preventing Chronic Disease (July 16)
- [The Structural and Social Determinants of the Racial/Ethnic Disparities in the U.S. COVID-19 Pandemic: What's Our Role?](#) – American Journal of Respiratory and Critical Care Medicine (July 17)

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 Incident Management Team