

2019-nCoV Literature Situation Report (Lit Rep) September 22, 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

- **Antibody testing of healthcare workers in Detroit found that 7% had antibodies against SARS-CoV-2 and that nurse assistants and nurses had higher likelihood of SARS-CoV-2 seropositivity than physicians. Consistent use of PPE, including N95 respirators and surgical facemasks, decreased the likelihood of seropositivity.** [More](#)
- **There was no significant difference in the concentration of SARS-CoV-2 viral nucleic acid in swab samples between young children and adults.** [More](#)
- **Nursing homes caring for disproportionately more residents from racial/ethnic minority groups tended to have more new COVID-19 confirmed cases among their residents and staff and more new COVID-19 related deaths among residents.** [More](#)
- **In two North Carolina counties, the effectiveness of contact tracing of COVID-19 cases was limited by a large proportion of cases who reported no contacts, a large number of contacts who could not be reached, and delays in notifying contacts.** [More](#)

Non-Pharmaceutical Interventions

- *[Pre-print, not peer-reviewed]* Despite recommendations for people in the UK who were at high-risk of severe COVID-19 to shield themselves (extended self-isolation) this group experiences considerably higher COVID-19 mortality than lower risk individuals. 2.5% of the 1.3 million people included in the population study had been advised to shield, but were found to be more likely to have confirmed infections than low-risk individuals (RR=7.9), more likely to die following confirmed infection (RR=5.2), and were more likely to die from COVID-19 overall (RR=48.6). Moderate risk individuals who were not advised to shield were also more likely to die following infection and more likely to die overall, leading the authors to conclude that expanding the shielding criteria should be considered.

Jani et al. (Sept 21, 2020). Comparison of COVID-19 Outcomes among Shielded and Non-Shielded Populations A General Population Cohort Study of 1.3 Million. Pre-print downloaded Sept 22 from <https://doi.org/10.1101/2020.09.17.20196436>

Transmission

- Whole virus genome viral sequencing of hospital-acquired cases of COVID-19 (March to April) in a tertiary referral center in Ireland indicated that the majority of the hospital-acquired cases occurred in patients highly dependent on nursing care. The authors conclude that this suggests that the likely route of transmission was by close contact or droplet, rather than aerosol, transmission. Mortality

among hospital-acquired COVID-19 infections was 33%, consistent with other studies of outbreaks in a hospital setting.

Lucey et al. (Sept 19, 2020). Whole-Genome Sequencing to Track SARS-CoV-2 Transmission in Nosocomial Outbreaks. Clinical Infectious Diseases. <https://doi.org/10.1093/cid/ciaa1433>

Geographic Spread

- *[Pre-print, not peer-reviewed]* Between 44% and 66% of the population of Manaus, Brazil was infected with SARS-CoV-2 through the course of the epidemic, as estimated by a study of cross-sectional monthly seroprevalence estimates in blood donors. According to Buss et al., although nonpharmaceutical interventions and other changes in population behavior may have helped to limit SARS-CoV-2 transmission in Manaus, the unusually high infection rate suggests that herd immunity may have played a role in determining the size of the epidemic.

Buss et al. (Sept 21, 2020). COVID-19 Herd Immunity in the Brazilian Amazon. Pre-print downloaded Sept 22 from <https://doi.org/10.1101/2020.09.16.20194787>

Testing and Treatment

- Pre-exposure prophylaxis with hydroxychloroquine once or twice weekly did not significantly reduce laboratory-confirmed COVID-19 or COVID-19-compatible illness among healthcare workers in a randomized, double-blind, placebo-controlled clinical trial. For once weekly hydroxychloroquine prophylaxis, the hazard ratio was 0.72 (95%CI 0.44 to 1.16) and for twice weekly it was 0.74 (95%CI 0.46 to 1.19), as compared with placebo.

Rajasingham et al. (Sept 21, 2020). Hydroxychloroquine as Pre-Exposure Prophylaxis for COVID-19 in Healthcare Workers a Randomized Trial. Pre-print downloaded Sept 22 from <https://doi.org/10.1101/2020.09.18.20197327>

- There was no significant difference in the rate of SARS-CoV-2 viral clearance between patients receiving early treatment with the anti-viral agent favipiravir and those receiving late treatment in a prospective, randomized, open-label, multicenter trial at 25 hospitals across Japan (aHR=1.42; 95%CI 0.76–2.62). Favipiravir did not significantly improve viral clearance as measured by RT-PCR by day 6, but was associated with a shorter fever duration. The most common adverse event associated with favipiravir was elevated serum uric acid, which occurred in 84% of participants and was transient. No patients experienced progression of disease or death.

Doi et al. (Sept 21, 2020). A Prospective, Randomized, Open-Label Trial of Early versus Late Favipiravir in Hospitalized Patients with COVID-19. Antimicrobial Agents and Chemotherapy. <https://doi.org/10.1128/AAC.01897-20>

- Levels of antibodies against SARS-CoV-2 were found to decline over an 18-week period following symptom onset, although antibodies remained detectable. Data from longitudinal profiles of different antibody immunoglobulin classes using tests with different antigens and neutralizing titers showed that receptor-binding-domain-specific (RBD) and nucleocapsid protein-specific (NCP) IgM as well as S1-specific IgA levels significantly decreased within four months after COVID-19 onset, with RBD-specific IgM and S1-specific IgA still detectable at this time point. Furthermore, the authors reported a stronger decrease for NCP- than for S1-specific IgG antibodies and neutralizing titers, suggesting that the observed durability of SARS-CoV-2 antibody responses depends on the tests used for their assessment.

Orth-Höller et al. (Sept 18, 2020). Kinetics of SARS-CoV-2 Specific Antibodies (IgM, IgA, IgG) in Non-Hospitalized Patients Four Months Following Infection. *Journal of Infection*.

<https://doi.org/10.1016/j.jinf.2020.09.015>

- Glucocorticoid therapy did not change viral clearance or peripheral lymphocyte counts in patients with SARS-CoV-2 infection in a cohort study from two hospitals in China. Time to viral clearance among participants with severe or critical COVID-19 was 26 days in participants who received glucocorticoids (n=72) versus 25.5 days in participants who did not (n=108). In participants with mild COVID-19, it was 23.5 days among participants who received glucocorticoids (n=30) versus 22 days in participants who did not (n=460).

Ji et al. (Dec 21, 2020). Glucocorticoid Therapy Does Not Delay Viral Clearance in COVID-19 Patients. *Critical Care*. <https://doi.org/10.1186/s13054-020-03287-6>

Clinical Characteristics and Health Care Setting

- SARS-CoV-2 antibody testing of healthcare workers, first responders, and public safety personnel in EMS agencies and hospitals in Detroit (May-June 2020) indicated that 7% of participants had SARS-CoV-2 antibodies. Seropositivity was associated with exposure to SARS-CoV-2-positive household members (aOR=6.18) and working within 15 km of Detroit (aOR=5.60). Nurse assistants (aOR=1.88) and nurses (aOR=1.52) had higher likelihood of seropositivity than physicians. Working in a hospital emergency department increased the likelihood of seropositivity (aOR=1.16). Consistently using N95 respirators (aOR=0.83) and surgical facemasks (aOR=0.86) decreased the likelihood of seropositivity.

Akinbami et al. (Dec 21, 2020). SARS-CoV-2 Seroprevalence among Healthcare, First Response, and Public Safety Personnel, Detroit Metropolitan Area, Michigan, USA, May-June 2020. *Emerging Infectious Diseases*. <https://doi.org/10.3201/eid2612.203764>

- [Pre-print, not peer-reviewed] A multicenter investigation of >5,000 patients with confirmed SARS-CoV-2 infection found no significant difference in the amount of viral nucleic acid in nasopharyngeal swabs between young children and adults. Viral loads were comparable between children under 5, older children, and adults.

Madera et al. (Sept 22, 2020). Nasopharyngeal SARS-CoV2 Viral Loads in Young Children Do Not Differ Significantly from Those in Older Children and Adults. Pre-print downloaded Sept 22 from <https://doi.org/10.1101/2020.09.17.20192245>

- A national study of 12,576 nursing homes indicated that nursing homes caring for disproportionately more racial/ethnic minority residents tended to have more new COVID-19 confirmed cases among their residents and staff and more new COVID-19 related deaths among residents. The number of weekly new COVID-19 confirmed cases among residents increased with higher nursing home proportion of racial/ethnic minorities, from an average of 0.4 cases per facility (SD=2.5) for the low-proportion group (93% of which had zero new case) to 1.5 cases per facility (SD=6.3) for the highest-proportion group (79% had zero new case). In addition, the authors found no substantial disparities in self-reported shortages of staff or PPE.

Li et al. (Sept 21, 2020). Racial and Ethnic Disparities in COVID-19 Infections and Deaths across U.S. Nursing Homes. *Journal of the American Geriatrics Society*. <https://doi.org/10.1111/jgs.16847>

- A single-center cross-sectional study of hospital staff in Wuhan, China tested all staff members who did not have clinical symptoms of COVID-19 (n=3,764) and found that 126 (3%) hospital staff had findings consistent with SARS-CoV-2 infection. These included 61 (2%) with anti-SARS-CoV-2 IgG

antibodies, 37 (1%) with chest CT findings consistent with COVID-19, and 28 (0.7%) with anti-SARS-CoV-2 IgM or positive PCR. There was no statistical difference between the titers of IgM antibody of participants with asymptomatic infections and confirmed patients with COVID-19 in recovery period. Zhou et al. (Sept 14, 2020). *Tracing Asymptomatic SARS-CoV-2 Carriers among 3674 Hospital Staff: A Cross-Sectional Survey*. *EClinicalMedicine*. <https://doi.org/10.1016/j.eclinm.2020.100510>

Mental Health and Personal Impact

- The percentage of US adults with depression increased significantly during the COVID-19 pandemic from 8% in 2017–2018 to 11% in March 2020 and 14% in April 2020. Using data from the Patient Health Questionnaire-2 screening instrument, Daly et al. found statistically significant increases in depression levels for all population subgroups examined, with the exception of those aged 65+ years and Black participants. In addition, young adults (aged 18–34) experienced a marked increase in depression (13 percentage points), larger than any other age group.

Daly et al. (Sept 15, 2021). *Depression Reported by US Adults in 2017–2018 and March and April 2020*. *Journal of Affective Disorders*. <https://doi.org/10.1016/j.jad.2020.09.065>

Modeling and Prediction

- Saad-Roy et al. used SIR(S) models to explore how the COVID-19 pandemic might unfold under different assumptions about how long immunity lasts to SARS-CoV-2 and how protective it is against re-infection and transmission. They use these models to explore estimates for the magnitude and timing of future COVID-19 cases given different protective efficacy and duration of the adaptive immune response to SARS-CoV-2, as well as its interaction with vaccines and nonpharmaceutical interventions.

Saad-Roy et al. (Sept 21, 2020). *Immune Life History, Vaccination, and the Dynamics of SARS-CoV-2 over the next 5 Years*. *Science*. <https://doi.org/10.1126/science.abd7343>

Public Health Policy and Practice

- During periods of high COVID-19 incidence in two counties in North Carolina, many people with COVID-19 did not report any contacts, many contacts were not reached, and the typical time needed to notify contacts likely reduced the impact of contact tracing as a mitigation strategy. In one county, 48% of COVID-19 patients reported no contacts, and 25% of contacts were not reached. In another, 35% of COVID-19 patients reported no contacts, and 48% of contacts were not reached. The median interval from specimen collection from the index patient to notification of identified contacts was 6 days in both counties. .

Lash et al. (Sept 22, 2020). *COVID-19 Contact Tracing in Two Counties — North Carolina, June–July 2020*. *MMWR*. <https://doi.org/10.15585/mmwr.mm6938e3>

Other Resources and Commentaries

- [Steroids and COVID-19: We Need a Precision Approach, Not One Size Fits All](#) – Infectious Diseases and Therapy (Sep 12)
- [Working from home and income inequality: risks of a ‘new normal’ with COVID-19](#) – Journal of Population Economics (Sept 12)
- [Pandemic Politics: Timing State-Level Social Distancing Responses to COVID-19](#) – Journal of Health Politics, Policy and Law (Sept 16)
- [COVID-19 and Human Trafficking—the Amplified Impact on Vulnerable Populations](#) – JAMA Pediatrics (Sept 21)

- [Core Elements of a National COVID-19 Strategy: Lessons Learned from the US National HIV/AIDS Strategy](#) – AIDS and Behavior (Sept 21)
- [Perceived Control Buffers the Effects of the COVID-19 Pandemic on General Health and Life Satisfaction: The Mediating Role of Psychological Distance](#) – Applied Psychology: Health and Well-Being (Sept 21)
- [Transmission of severe acute respiratory syndrome coronavirus 2 \(SARS-CoV-2\) to animals: an updated review](#) – Journal of Translational Medicine (Sept 21)
- [Early Evidence of the Impacts of COVID-19 on Minority Unemployment](#) – Journal of Public Economics (Sept 14)
- [Introduction to the special series: translating behavioral medicine research to prevent and control the spread of COVID-19](#) – Translational Behavioral Medicine (Sept 21)
- [The indirect impact of COVID-19 on child health](#) – Paediatrics and Child Health (Sept 16)
- [COVID-19 and Black America](#) – The Nurse Practitioner (Oct 2020)
- [Evaluation of current medical approaches for COVID-19: a systematic review and meta-analysis](#) – BMJ Supportive & Palliative Care (Aug 14)
- [A Decision-Making Algorithm for Children With Suspected Coronavirus Disease 2019](#) – JAMA Pediatrics (Sept 21)

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