



2019-nCoV Literature Situation Report (Lit Rep)

August 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

- **Employees of a New York City hospital had a considerably lower seroprevalence of SARS-CoV-2 antibodies (10%) compared to general population estimates for New York City (21%) and Long Island (17%).** [More](#)
- **Nursing homes with good ratings from regulatory agencies for nurse staffing levels were less likely to be in the highest category of COVID-19 cases.** [More](#)
- **The inactivated whole virion vaccine CoronaVac demonstrated favorable safety and immunogenicity findings in a Phase 2 trial.** [More](#)
- **Each additional day before completion of facility-wide testing for SARS-CoV-2 in nursing homes following the identification of a COVID-19 case was associated with an additional 1.3 cases detected.** [More](#)

Transmission

- At a large tertiary community hospital in New York City, the rate of SARS-CoV-2 infection among health care workers (n=3,046) was lower than what has been reported for the general public in the surrounding region. Among the hospital employees, 10% tested positive for antibodies, compared to seroprevalence estimates of 21% for New York City and 17% for Long Island. There were no significant difference across job titles or work areas, by race, or between those working in high versus low exposure areas.

Jeremias et al. (Aug 11, 2020). Prevalence of SARS-CoV-2 Infection Among Health Care Workers in a Tertiary Community Hospital. JAMA Internal Medicine.

<https://doi.org/10.1001/jamainternmed.2020.4214>

- Facility-wide testing for SARS-CoV-2 in nursing homes following the identification of an initial COVID-19 case in the facility yielded a prevalence of 12%, compared to 0.4% when facility-wide testing was conducted in nursing homes without a previous COVID-19 case. In facilities with a previous COVID-19 case, it was estimated that for each additional day before completion of facility-wide testing, an estimated 1.3 additional cases were identified.

Hatfield et al. (Aug 11, 2020). Facility-Wide Testing for SARS-CoV-2 in Nursing Homes — Seven U.S. Jurisdictions, March–June 2020. MMWR. <https://doi.org/10.15585/mmwr.mm6932e5>

- A retrospective cross-sectional study from a New York hospital with high incidence of maternal SARS-CoV-2 infection found that newborns did not show signs of infection after birth (n=45 live births from SARS-CoV-2-positive mothers). Patil et al. additionally reported no short-term adverse neonatal outcomes with skin-to-skin care, rooming-in, or breastfeeding in infants of SARS-CoV-2



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positive mothers. Of the SARS-CoV-2-positive mothers, 60% were asymptomatic and only 7% of newborns tested positive. None of the newborns required NICU admission for COVID-19-related symptoms, reported any symptoms consistent with COVID-19 post-discharge, or had emergency department visits or hospital admissions related to COVID-19 post-discharge.

Patil et al. (Aug 10, 2020). Newborns of COVID-19 Mothers: Short-Term Outcomes of Colocating and Breastfeeding from the Pandemic's Epicenter. Journal of Perinatology.

<https://doi.org/10.1038/s41372-020-0765-3>

- An assessment of the immediate effects of COVID-19 national lockdown orders on pediatric emergency room visits and respiratory tract infections in Finland indicates that social distancing and other lockdown strategies slowed the spreading of common respiratory viral diseases and decreased the need for hospitalization among children. A major decrease in the rate of daily median pediatric emergency room visits was detected in both hospitals in the study during the nationwide lockdown compared with the study period before the lockdown. No pediatric cases of COVID-19 were found in participating hospitals during the study period.

Kuitunen et al. (July 28, 2020). Effect of Social Distancing Due to the COVID-19 Pandemic on the Incidence of Viral Respiratory Tract Infections in Children in Finland During Early 2020. The Pediatric Infectious Disease Journal.

<https://doi.org/10.1097/INF.0000000000002845>

Testing and Treatment

- Reifer et al. describe positive SARS-CoV-2 IgG antibody responses in 12,424 of 28,523 (44%) people tested who were participating in primary care and urgent care facilities in the New York City metropolitan area. For a subset of patients (n=240) who received a symptom severity score, patients who reported more severe clinical had higher serum levels of SARS-CoV-2 IgG antibody.

Reifer et al. (July 21, 2020). SARS-CoV-2 IgG Antibody Responses in New York City. Diagnostic Microbiology and Infectious Disease.

<https://doi.org/10.1016/j.diagmicrobio.2020.115128>

- Kennedy et al. performed a retrospective chart review of all in-patients and out-patients age ≥ 18 years old with at least 2 SARS-CoV-2 PCR tests and found that that re-testing for SARS-CoV-2 was uncommon and often resulted in multiple negative tests. The majority of individuals were re-tested due to pre-procedural asymptomatic screening or clinical suspicion for COVID-19 disease.

Kennedy et al. (Aug 10, 2020). Re-Testing for SARS-CoV-2: Patterns of Testing from a Large U.S. Healthcare System. Infection Control & Hospital Epidemiology.

<https://doi.org/10.1017/ice.2020.413>

- Results from a retrospective observational study of patients with initial negative and subsequent positive SARS-CoV-2 RT-PCR results in New Zealand suggest repeat testing may be indicated for patients who have a significant risk factor for infection and an initial negative test result. A total of 20,089 samples were received for SARS-CoV-2 testing. Of 2,011 samples from patients with multiple tests, 25 samples were positive. Nine samples were from patients who initially tested negative then tested positive. All 9 of these patients had significant risk factors for infection, such as international travel or exposure to a known contact, and ongoing or evolving symptoms that prompted repeat testing.

Fox-Lewis et al. (July 31, 2020). An Understanding of Discordant SARS-CoV-2 Test Results: An Examination of the Data from a Central Auckland Laboratory. The New Zealand Medical Journal.

<https://www.nzma.org.nz/journal-articles/an-understanding-of-discordant-sars-cov-2-test-results-an-examination-of-the-data-from-a-central-auckland-laboratory>

- A systematic review (7 studies, 5,444 patients) found that the use of convalescent plasma therapy in patients with COVID-19 reduces mortality (OR=0.44, 95% CI 0.25-0.77), increases viral clearance (OR=11.29, 95% CI 4.9-25.9), and improves clinical condition (OR=2.06, 95% CI 0.8-4.9).
Sarkar et al. (Aug 10, 2020). Convalescent Plasma a Clutch at Straws in COVID-19 Management! A Systematic Review and Meta-Analysis. Journal of Medical Virology.
<https://doi.org/10.1002/jmv.26408>

Vaccines

- *[pre-print, not peer-reviewed]* Zhang et al. conducted a randomized, double-blind, placebo-controlled trial to evaluate the optimal dose, immunogenicity, and safety of a SARS-CoV-2 inactivated whole virion vaccine (CoronaVac), finding that the vaccine demonstrated favorable safety and immunogenicity on both schedules and both dosages. The lower 3 g dose elicited 92.4% seroconversion under a Day 0, 14 schedule and 97.4% under a Day 0, 28 schedule. Most adverse events were mild and the three serious adverse events were determined to be unrelated to the vaccine.
Zhang et al. (Aug 10, 2020). Immunogenicity and Safety of a SARS-CoV-2 Inactivated Vaccine in Healthy Adults Aged 18-59 Years Report of the Randomized Double-Blind and Placebo-Controlled Phase 2 Clinical Trial. Pre-print downloaded Aug 11 from
<https://doi.org/10.1101/2020.07.31.20161216>

Modeling and Prediction

- Results of simulation experiments from a computational model developed by Bartsch et al. indicate that a SARS-CoV-2 vaccine would need to have an efficacy of at least 70% to prevent an epidemic and at least 80% to extinguish an epidemic without any other measures (e.g., social distancing) in the US. A vaccine with an efficacy between 60% and 80% could reduce or eliminate the need for other measures under certain circumstances, such as such as a vaccination coverage of nearly 100%.
Bartsch et al. (July 15, 2020). Vaccine Efficacy Needed for a COVID-19 Coronavirus Vaccine to Prevent or Stop an Epidemic as the Sole Intervention. American Journal of Preventive Medicine.
<https://doi.org/10.1016/j.amepre.2020.06.011>
- An age structured agent-based model of SARS-CoV-2 in a generalized Canadian setting found that the only intervention scenario that consistently kept hospitals and intensive care unit bed use under capacity, prevented nearly all deaths, and eliminated the epidemic was continuation of case detection and contact tracing, continuation of physical distancing, and reimplementation of restrictive measures. Extending school closures had minimal effects in the general population but did reduce transmission in schools. Extending closures of workplaces and mixed-age venues markedly reduced attack rates and usually or always eliminated the epidemic.
Ng et al. (Aug 9, 2020). Projected Effects of Nonpharmaceutical Public Health Interventions to Prevent Resurgence of SARS-CoV-2 Transmission in Canada. Canadian Medical Association Journal. <https://doi.org/10.1503/cmaj.200990>

Public Health Policy and Practice

- Figueroa et al. found that nursing homes (NHs) with good ratings for nurse staffing were less likely to be in the highest category for COVID-19 cases in an analysis of nursing homes in 8 states rated by the Centers for Medicare & Medicaid Services across 3 domains (nurse staffing, health inspections, quality measures, and). In contrast, there was no significant difference in the burden of COVID-19 cases between high- vs low-performing NHs for health inspection or quality measure ratings.
Figueroa et al. (Aug 10, 2020). Association of Nursing Home Ratings on Health Inspections, Quality of Care, and Nurse Staffing With COVID-19 Cases. JAMA.
<https://doi.org/10.1001/jama.2020.14709>

Other Resources and Commentaries

- [Refugees and COVID-19: Achieving a Comprehensive Public Health Response](#) – WHO (Aug 1)
- [Association of Frailty with Mortality in Older Inpatients with Covid-19: A Cohort Study](#) – Age and Ageing (Aug 10)
- [COVID-19 on TikTok: Harnessing an Emerging Social Media Platform to Convey Important Public Health Messages](#) – International Journal of Adolescent Medicine and Health (Aug 10)
- [Transmission of SARS-CoV-2 Involving Residents Receiving Dialysis in a Nursing Home — Maryland, April 2020](#) – MMWR (Aug 11)
- [COVID-19 in Canada](#) – JAMA (Aug 10)
- [Ensuring Access and Affordability through COVID-19 Vaccine Research and Development Investments: A Proposal for the Options Market for Vaccines](#) – Vaccine (July 31)
- [Universal Masking in the United States](#) – JAMA (Aug 10)
- [Clarifying the Sweeping Consequences of COVID-19 in Pregnant Women, Newborns, and Children With Existing Cohorts](#) – JAMA Pediatrics (Aug 10)
- [Clinical Efficacy of Antivirals against Novel Coronavirus \(COVID-19\): A Review](#) – Journal of Infection and Public Health (Aug 3)
- [Influenza Immunization and COVID-19](#) – Vaccine (July 29)
- [Beyond Serosurveys: Human Biology and the Measurement of SARS-Cov-2 Antibodies](#) – American Journal of Human Biology (Aug 9)
- [A Review of Remdesivir for COVID-19: Data to Date](#) – Cardiology in Review (Aug 10)
- [Comparison of the Analytical Sensitivity of Seven Commonly Used Commercial SARS-CoV-2 Automated Molecular Assays](#) – Journal of Clinical Virology (Aug 5)
- [Point Prevalence Testing of Residents for SARS-CoV-2 in a Subset of Connecticut Nursing Homes](#) – JAMA (Aug 10)
- [Applications of Predictive Modelling Early in the COVID-19 Epidemic](#) – The Lancet Digital Health (Aug 10)
- [Recovery From Severe COVID-19](#) – JAMA (Aug 5)
- [The Effects of the Coronavirus Disease 2019 Pandemic on the Risk of Youth Substance Use](#) – Journal of Adolescent Health (Aug 6)

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