



2019-nCoV Literature

Situation Report (Lit

Rep)

November 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

- **Intergenerational co-residence (age 18–34 years living with their parents) was associated with more deaths from COVID-19, with each additional point increase in the percent of co-residence associated with a 12% increase in cumulative deaths 100 days after onset of the pandemic in the US.** [More](#)
- **Interim analysis of an ongoing phase 3 trial (43,538 participants) reported the BNT162b2 mRNA vaccine manufactured by Pfizer and BioNTech had a 90% efficacy in preventing COVID-19.** [More](#)
- **Detection of SARS-CoV-2 spike glycoprotein (S)-reactive IgG antibodies in SARS-CoV-2-uninfected individuals may suggest the presence of cross-reactive immunological memory from preexisting infection of seasonal human coronaviruses.** [More](#)
- **Among 106,543 patients discharged after hospitalization for COVID-19 in the US in March–July 2020, 9% were readmitted and 2% were readmitted more than once. Risk factors for readmission included white race, older age, and underlying medical conditions.** [More](#)

Non-Pharmaceutical Interventions

- A cohort study among COVID-19 patients in Portugal (n=551) from March 1 to April 30, 2020 found no significant difference in the attack rate from index cases between patients who received contact tracing, isolated and had close contacts who were quarantined and those who did not (12%, 95% CI 7–19% vs. 9%, 95% CI 8–11%, respectively). Patients who were traced had a shorter time between symptom onset and laboratory diagnosis (median 3 vs. 5 days, p=0.004) and fewer close contacts (median: 0 vs. 2 per index case, p<0.001) compared to patients who were not traced.

Malheiro et al. (Sept 29, 2020). Effectiveness of Contact Tracing and Quarantine on Reducing COVID-19 Transmission: A Retrospective Cohort Study. Public Health. <https://doi.org/10.1016/j.puhe.2020.09.012>

Transmission

- A study using aggregate data from 29 European countries and all 50 US states reported a positive correlation between intergenerational co-residence (age 18–34 years living with their parents) and COVID-19 mortality. On average, each additional percent increase in intergenerational co-residence was associated with a 3-4% increase in cumulative deaths from COVID-19 40-100 days following the



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area's onset of the epidemic. This association was larger among US states, with a 12% increase 100 days after onset of the pandemic.

Aparicio Fenoll and Grossbard. (Oct 29, 2020). Intergenerational Residence Patterns and Covid-19 Fatalities in the EU and the US. Economics & Human Biology. <https://doi.org/10.1016/j.ehb.2020.100934>*

Testing and Treatment

- A multicenter, blinded, placebo-controlled randomized trial among 479 patients hospitalized with SARS-CoV-2 infection reported that treatment with hydroxychloroquine was not associated with changes in clinical status (on an ordinal scale from 1 as death to 7 as discharged with normal activities) 14 days following randomization (aOR 1.0, 95% CI 0.7-1.4), nor mortality 28 days following randomization (aOR 1.1, 95% CI 0.5-2.1). The trial had a planned enrollment of 510 patients but was stopped early for futility.

Self et al. (Nov 9, 2020). Effect of Hydroxychloroquine on Clinical Status at 14 Days in Hospitalized Patients With COVID-19: A Randomized Clinical Trial. JAMA. <https://doi.org/10.1001/jama.2020.22240>

- A study evaluating two commercially available SARS-CoV-2 serological assays (Virotech, VT-assays and Euroimmun, EI-assays) among using 116 COVID-19 cases (51 inpatients and 65 outpatients) reported the sensitivity of the VT-assay against IgA and IgG was markedly lower among outpatients than inpatients (IgA: 6% vs. 64%; IgG: 86% vs. 96%). The sensitivity of the EI-assay against IgA and IgG was comparable between outpatients (IgA: 97% vs. 96%; IgG: 99% vs. 92%).

Wolf et al. (Nov 5, 2020). Differences of SARS-CoV-2 Serological Test Performance between Hospitalized and Outpatient COVID-19 Cases. Clinica Chimica Acta; International Journal of Clinical Chemistry. <https://doi.org/10.1016/j.cca.2020.10.035>

Vaccines and Immunity

- [Press release, not peer-reviewed] Pfizer and BioNTech announced that the BNT162b2 mRNA vaccine had 90% efficacy in preventing COVID-19 in an interim analysis of an ongoing Phase 3 trial. This is the first SARS-CoV-2 vaccine trial to release Phase 3 efficacy data. The trial includes 43,538 participants, 94 of whom developed COVID-19. The press release did not indicate the number of cases accrued in the vaccine versus placebo groups. No serious adverse events have been reported for this two-dose vaccine. A *Nature* news article also covered the announcement.

Press release downloaded Nov. 9 from <https://www.businesswire.com/news/home/20201109005539/en/>

Callaway. (Nov 9, 2020). What Pfizer's landmark COVID vaccine results mean for the pandemic. Nature. <https://doi.org/10.1038/d41586-020-03166-8>

- Using flow cytometry, SARS-CoV-2 spike glycoprotein (S)-reactive IgG antibodies were detected in 6 of 65 SARS-CoV-2-uninfected individuals (5 with RT-qPCR-confirmed seasonal human coronaviruses [HCoV] infection and 1 without recent HCoV infection). The authors conclude that this may suggest the presence of cross-reactive immunological memory from preexisting infection rather than de novo immunity.

Ng et al. (Nov 6, 2020). Preexisting and de Novo Humoral Immunity to SARS-CoV-2 in Humans. Science. <https://doi.org/10.1126/science.abe1107>

Clinical Characteristics and Health Care Setting

- In a cohort of 2,714 travelers returning to Bahrain by air between February 25th and March 14th, 2020, 136 were SARS-CoV-2 positive on arrival, 68% of whom were asymptomatic. A further 52 became SARS-CoV-2 positive during the mandatory 14-day quarantine following arrival, 46% of whom remained asymptomatic until viral clearance.
Al-Qahtani et al. (Nov 2, 2020). The Prevalence of Asymptomatic and Symptomatic COVID-19 Disease in a Cohort of Quarantined Subjects. International Journal of Infectious Diseases. <https://doi.org/10.1016/j.ijid.2020.10.091>
- An inpatient geriatric psychiatry unit in King County, Washington reported a SARS-CoV-2 outbreak between March 11-18, 2020, with 9 inpatients and 7 staff members with confirmed SARS-CoV-2 infection. Enhanced infection prevention interventions and engagement of frontline psychiatric care staff following the outbreak effectively contained the outbreak, with no further patients and only one staff member testing positive for SARS-CoV-2 over the subsequent 2 months.
Constantino-Shor et al. (Nov 6, 2020). Containment of a COVID-19 Outbreak in an Inpatient Geriatric Psychiatry Unit. Journal of the American Psychiatric Nurses Association. <https://doi.org/10.1177/1078390320970653>
- *[Preprint, not peer-reviewed]* A retrospective cohort study among 1,080 COVID-19 patients conveyed by ambulance to the hospital in the UK found that oxygen saturation measurements at first point of contact in the community were the most predictive of 30-day COVID-19 mortality or ICU admission, with an area under receiver operator curve (AUROC) of 0.8. This was followed by a standard score system identifying composite risk of deterioration (NEWS2), patient age, and respiration rate.
Inada-Kim et al. (Nov 7, 2020). Validation of Home Oxygen Saturations as a Marker of Clinical Deterioration in Patients with Suspected COVID-19. Pre-print downloaded Nov 9 from <https://doi.org/10.1101/2020.11.06.20225938>
- Among 106,543 patients discharged after hospitalization for COVID-19 in the US between March–July 2020, 9,504 (9%) experienced at least one readmission to the same hospital within 2 months of discharge, including 1,667 (2%) who were readmitted more than once. The median interval from discharge to first readmission was 8 days (IQR 3–20 days). Risk factors for readmission included white race, age ≥65 years, presence of certain chronic conditions, hospitalization within 3 months preceding initial hospitalization, and discharge to a skilled nursing facility or with home health care.
Lavery et al. (Nov 9, 2020). Characteristics of Hospitalized COVID-19 Patients Discharged and Experiencing Same-Hospital Readmission — United States, March–August 2020. MMWR. <https://doi.org/10.15585/mmwr.mm6945e2>

Modeling and Prediction

- *[Preprint, not peer-reviewed]* A susceptible-exposed-infectious-removed (SEIR) model based on composite wastewater samples from sewersheds tested for SARS-CoV-2 RNA (a method to estimate the number of infected individuals in a sewershed per day) in South Carolina during June-August 2020 estimated the unreported rate for COVID-19 was 12 times (95%CI 6-19) higher than the rate for confirmed cases identified for the same time period and geographic area.
McMahan et al. (Nov 7, 2020). COVID-19 Wastewater Epidemiology A Model to Estimate Infected Populations. Pre-print downloaded Nov 9 from <https://doi.org/10.1101/2020.11.05.20226738>

Public Health Policy and Practice

- A qualitative study with 61 clinicians involved in institutional planning during the COVID-19 pandemic in the US between April-May 2020 described their experience providing care in settings with limited resources. While clinician leaders planned to avoid decision-making at bedside, unanticipated forms of resource limitations could compromise care and require difficult allocation decisions. The need to limit in-person interactions, the rapid pace of change, and the dearth of scientific evidence were additional challenges to caring for patients and communicating with families. The cohort were mostly white (65%) attending physicians (75%) practicing in large academic centers (85%), and more heavily sampled from areas with the highest rates of COVID-19 infection at the time of interview.

Butler et al. (Nov 6, 2020). US Clinicians' Experiences and Perspectives on Resource Limitation and Patient Care During the COVID-19 Pandemic. JAMA Network Open. <https://doi.org/10.1001/jamanetworkopen.2020.27315>

- *[Preprint, not peer-reviewed]* No COVID-19 infections occurred during the 12-week period following resumption of the Austrian national male association football league with COVID-19 monitoring. A pre-defined monitoring concept, including (1) health diaries of potential COVID-19 symptoms; (2) PCR results, body temperature and oxygen saturation; and (3) geo-tracking data of players' movement outside the training/competition facilities (using a smartphone app), was evaluated among 146 players from five clubs from May 15, 2020 to the end of the football season on July 5, 2020. There were few implementation barriers reported relating to health parameters. Implementation of the smartphone app was challenging due to technical problems and reluctance to use.

Zee-Neuen et al. (Nov 8, 2020). Team Contact Sports in Times of the COVID-19 Pandemic- a Scientific Concept for the Austrian Football League. Pre-print downloaded Nov 9 from <https://doi.org/10.1101/2020.11.06.20226977>

Other Resources and Commentaries

- [Pandemic Diseases Preparedness and Response in the Age of COVID-19—a Symposium Report](#) – Annals of the New York Academy of Sciences (Nov 5)
- [The Unpreparedness of the Healthcare System for the Management of COVID-19 Pandemic Leading to the Mistreatment of the Elderly: A Newly Emerging Moral Dilemma](#) – The Journal of Nutrition, Health & Aging (June 6)
- [COVID-19 Contact Tracing Apps: A Technologic Tower of Babel and the Gap for International Pandemic Control](#). – JMIR MHealth and UHealth (Nov 6)
- [COVID-19, Public Health, and the Politics of Prevention](#) – Sociology of Health & Illness (Nov 6)
- [Recent Advances in Vaccine and Immunotherapy for COVID-19](#) – Human Vaccines & Immunotherapeutics (Nov 6)
- [First It Was Masks; Now Some Refuse Testing for SARS-CoV-2](#) – JAMA (Nov 6)
- [Unintended Consequences of Infection Prevention and Control Measures during COVID-19 Pandemic](#). – American Journal of Infection Control (Nov 2)

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