



2019-nCoV Literature Situation Report (Lit Rep) September 23, 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

- **Spending time in an emergency department at the same time as someone with COVID-19 did not appear to increase the risk of acquiring SARS-CoV-2 infection, based on a case-control study among 39 emergency departments in the western United States.** [More](#)
- **Contact with someone with COVID-19 outside of work may have accounted for a substantial proportion of SARS-CoV-2 infections among Veterans Affairs Healthcare System employees.** [More](#)
- **There was a shift in the age distribution of people affected by COVID-19 in the US between the period of January-May and June-August 2020, with a larger proportion of younger age groups affected in the later period.** [More](#)
- **A nationwide study during February-July, 2020 showed that US veterans who identified as Black or Hispanic were more likely to be tested for SARS-CoV-2 and more likely to test positive than white veterans.** [More](#)
- **A modeling study indicates that prioritization of COVID-19 vaccine in the US to older essential workers, followed by seniors and school age children could reduce deaths, years of life lost, or infections, by 17-18%.** [More](#)

Transmission

- Spending time in an emergency department (ED) at the same time as someone with COVID-19 did not appear to increase the risk of acquiring SARS-CoV-2 infection. These findings are based on a case-control study across 39 EDs in the western US including 102 cases who tested positive for SARS-CoV-2 following an ED encounter unrelated to COVID-19 symptoms and 201 controls who visited the same ED within 6 days of the case patient and subsequently tested negative.
Ridgway and Robicsek. (Sept 23, 2020). Risk of Covid-19 Acquisition among Emergency Department Patients: A Retrospective Case Control Study. Infection Control & Hospital Epidemiology. <https://doi.org/10.1017/ice.2020.1224>
- There was a shift in the age distribution of people affected by COVID-19 in the US between the period of January-May and June-August 2020, with a larger proportion of younger age groups affected in the later period. The authors conclude that this report provides preliminary evidence that younger adults contributed to community transmission of SARS-CoV-2 to older adults, based on the observation that in June, the increase in SARS-CoV-2 cases among younger adults preceded the increase among older adults by 4–15 days. [EDITORIAL NOTE. A lag in the increase in SARS-CoV-2

cases among older adults could also be explained by delays in presentation for testing among older versus young people]

Boehmer et al. (Sept 23, 2020). *Changing Age Distribution of the COVID-19 Pandemic — United States, May–August 2020*. *MMWR*. <https://doi.org/10.15585/mmwr.mm6939e1>

- A meta-analysis of 94 studies reported that 20% of people who become infected with SARS-CoV-2 remain asymptomatic throughout the infection. The meta-analytic estimate showed a non-significantly lower secondary attack rate in contacts of people with asymptomatic infection compared to those with symptomatic infection (RR=0.35, 95%CI 0.10-1.27). The authors conclude that a combination of prevention measures, with enhanced hand hygiene, masks, contact tracing and testing, isolation strategies, and social distancing, will continue to be needed.

Buitrago-Garcia et al. (Sept 22, 2020). *Occurrence and Transmission Potential of Asymptomatic and Presymptomatic SARS-CoV-2 Infections: A Living Systematic Review and Meta-Analysis*. *PLOS Medicine*. <https://doi.org/10.1371/journal.pmed.1003346>

- [Pre-print, not peer-reviewed] The SARS-CoV-2 lineage carrying the amino acid change D614G has become the dominant variant in the global COVID-19 pandemic. A study using epidemiological data and phylogenetic data (35,377 sequences) estimated that the G614 mutant of SARS-CoV-2 is 31% more transmissible than the D614 wildtype.

Leung et al. (Sept 23, 2020). *Empirical Transmission Advantage of the D614G Mutant Strain of SARS-CoV-2*. Pre-print downloaded Sept 23 from <https://doi.org/10.1101/2020.09.22.20199810>

- A cohort study including 509 people in Milan, Italy found an IgG seroprevalence for SARS-CoV-2 was 23% and was positively associated with increasing age. The authors note that the lower seroprevalence among children could be due to lower exposure to the infection among school age children because schools were among the first institutions to be closed in Italy, starting on March 5.

Pagani et al. (Sept 19, 2020). *Seroprevalence of SARS-CoV-2 Significantly Varies with Age: Preliminary Results from a Mass Population Screening*. *Journal of Infection*.

<https://doi.org/10.1016/j.jinf.2020.09.021>

- [Pre-print, not peer-reviewed] SARS-CoV-2 was not found in samples tested by RT-PCR from dogs presenting with pneumonia (n=40) nor among healthy dogs living in households with a COVID-19 case (n=20) in Spain (April to June 2020). Antibodies against SARS-CoV-2 were identified in 1 of 17 (6%) sick dogs that did not come from a COVID-19 household and 5 out of 20 (25%) health dogs living in households with a COVID-19 case.

Perise-Barríos et al. (Sept 22, 2020). *Humoral Response to SARS-CoV-2 by Healthy and Sick Dogs during COVID-19 Pandemic in Spain*. Pre-print downloaded Sept 23 from

<https://doi.org/10.1101/2020.09.22.308023>

Testing and Treatment

- Receiving methyl-prednisolone pulses (MP) during the second week of COVID-19 disease was associated with lower risk of death or intubation in a study among 242 patient with severe COVID-19 pneumonia admitted at a university hospital in Spain (aHR=0.34, 95%CI 0.1-0.8).

Ruiz-Irastorza et al. (Sept 22, 2020). *Second Week Methyl-Prednisolone Pulses Improve Prognosis in Patients with Severe Coronavirus Disease 2019 Pneumonia: An Observational Comparative Study Using Routine Care Data*. *PLOS ONE*. <https://doi.org/10.1371/journal.pone.0239401>

- Pooling 5 nasopharyngeal or oropharyngeal samples during PCR testing would offer a reduction of laboratory turn-around time by 66% and the cost of diagnosis by 68%. However, the sensitivity was compromised, with 5 of the 109 pools showing discordant results when compared with individual results. Single samples with Ct value ≥ 34 were likely to be missed in the pool. The negative predictive value of qRT-PCR on pooled samples was around 96%.

Singh et al. (Sept 22, 2020). Evaluation of Pooled Sample Analysis Strategy in Expediting Case Detection in Areas with Emerging Outbreaks of COVID-19: A Pilot Study. PLOS ONE.

<https://doi.org/10.1371/journal.pone.0239492>

Clinical Characteristics and Health Care Setting

- Among Veterans Affairs Healthcare System employees (n=2,900), those who reported direct contact with someone with COVID-19 outside of work were more likely to have SARS-CoV-2 antibodies. Facility-wide testing (June 8 to July 8, 2020) identified 5% of employees (n=1,476) of a Veterans Affairs Healthcare System tested positive for SARS-CoV-2 IgG antibodies, of whom 29% reported no history of symptoms for SARS-CoV-2 infection. Those who reported exposure to someone with known COVID-19 outside of work had a significantly higher seroprevalence compared to those who did not (15% vs. 4%).

Dimcheff et al. (Sept 23, 2020). Seroprevalence of Severe Acute Respiratory Syndrome Coronavirus-2 (SARS-CoV-2) Infection Among VA Healthcare System Employees Suggests Higher Risk of Infection When Exposed to SARS-CoV-2 Outside of the Work Environment. Infection Control & Hospital Epidemiology.

<https://doi.org/10.1017/ice.2020.1220>

- An elevated level of red blood cell distribution width (RDW, >14.5%) at hospital admission was associated with an increased mortality risk among 1,461 patients diagnosed with SARS-CoV-2 infection in Boston (RR=2.7). In addition, patients whose RDW increased during hospitalization had higher mortality compared with those whose RDW did not change (6% vs 24% among 1,173 patients with normal RDW at admission and 22% vs 40% among 468 patients with an elevated RDW).

Foy et al. (Sept 23, 2020). Association of Red Blood Cell Distribution Width With Mortality Risk in Hospitalized Adults With SARS-CoV-2 Infection. JAMA Network Open.

<https://doi.org/10.1001/jamanetworkopen.2020.22058>

- In a national cohort of 88,747 veterans in the US, 11% tested positive for SARS-CoV-2 from February to May 2020. Veterans with positive PCR results were predominantly male (91%) with a mean age of 64 (SD=16) years. Positive patients had increased rates of 30-day hospitalization (aHR=1.1), mechanical ventilation (aHR=4.2), and death (aHR=4.4). Among positive patients, characteristics significantly associated with mortality included older age, high regional COVID-19 disease burden, higher Charlson comorbidity index score, fever, shortness of breath, and abnormalities in certain blood tests.

Ioannou et al. (Sept 23, 2020). Risk Factors for Hospitalization, Mechanical Ventilation, or Death Among 10 131 US Veterans With SARS-CoV-2 Infection. JAMA Network Open.

<https://doi.org/10.1001/jamanetworkopen.2020.22310>

- [Pre-print, not peer-reviewed] Pooled results from 5 studies (median sample size 55 [IQR 35-115]) showed that people living with HIV had a 1.9-fold higher risk of COVID-19 mortality (95%CI 1.6-2.3) compared to people without HIV. Two studies reported that tenofovir-based antiretroviral therapy regimens were associated with a lower risk of adverse COVID-19 outcomes, but the associations

were confounded by comorbidities. The authors suggest further research to assess the role of antiretroviral therapy regimen, degree of immunosuppression, and viral load on COVID-19 outcomes for people living with HIV in diverse settings.

Mellor et al. (Sept 23, 2020). Risk of Adverse COVID-19 Outcomes for People Living with HIV a Rapid Review and Meta-Analysis. Pre-print downloaded Sept 23 from <https://doi.org/10.1101/2020.09.22.20199661>

Modeling and Prediction

- [Pre-print, not peer-reviewed] A modeling study reported that prioritizing a limited supply of SARS-CoV-2 vaccines to certain population groups resulted in 17-18% fewer deaths, infections, and years of life lost compared to a non-prioritized strategy. The optimal strategies consistently prioritized older essential workers, though the model allowed the priority groups to vary over time.
- Optimal group prioritization over the first 3 months starts with essential workers, then progresses to seniors, and school age children. As vaccination rates rise, precise prioritization becomes less critical and targeting widens to a larger set of groups.

Buckner et al. (Sept 23, 2020). Optimal Dynamic Prioritization of Scarce COVID-19 Vaccines. Pre-print downloaded Sept 23 from <https://doi.org/10.1101/2020.09.22.20199174>

Public Health Policy and Practice

- A nationwide sample collected from February to July, 2020 showed that US veterans who were Black or Hispanic were more likely to be tested for SARS-CoV-2 than white veterans (Black: 60%, Hispanic: 53%, white 39%), and more likely to test positive (Black vs white: OR=1.9; Hispanic vs white: OR=1.8). The disparity between Black and white individuals in testing positive for COVID-19 was stronger in the Midwest (OR=2.7) than the West (OR=1.2). The disparity in testing positive for COVID-19 between Hispanic and white individuals was consistent across region, calendar time, and outbreak pattern.

Rentsch et al. (Sept 22, 2020). Patterns of COVID-19 Testing and Mortality by Race and Ethnicity among United States Veterans: A Nationwide Cohort Study. PLoS Medicine. <https://doi.org/10.1371/journal.pmed.1003379>

- [Pre-print, not peer-reviewed] A nationwide study among 310,000 healthcare workers in Scotland reported that sharing a household with young children (aged 0 to 11 years) was associated with a lower risk of testing positive for SARS-CoV-2 (aHR=0.89 per child). Sharing a household with young children had a non-significantly lower risk of severe COVID-19 requiring hospitalization (aHR=0.89, 95%CI 0.74-1.06).

Wood et al. (Sept 22, 2020). Sharing a Household with Children and Risk of COVID-19 a Study of over 300000 Adults Living in Healthcare Worker Households in Scotland. Pre-print downloaded Sept 23 from <https://doi.org/10.1101/2020.09.21.20196428>

Other Resources and Commentaries

- [The Online Anti-Vaccine Movement in the Age of COVID-19](#) – The Lancet Digital Health (Oct 1)
- [Toxicity of Chloroquine and Hydroxychloroquine Following Therapeutic Use or Overdose](#) – Clinical Toxicology (Sept 22)
- [Pooled Saliva Samples for COVID-19 Surveillance Programme](#) – The Lancet Respiratory Medicine (Sept 22)
- [High Prevalence of SARS-CoV-2 Antibodies in Pets from COVID-19+ Households](#) – bioRxiv (Sept 22)

- [Collective Response to the Media Coverage of COVID-19 Pandemic on Reddit and Wikipedia](#) (Preprint) – Journal of Medical Internet Research (Sept 22)
- [Anti-Science Extremism in America: Escalating and Globalizing](#) – Microbes and Infection (Sept 19)
- [Constructing and Communicating COVID-19 Stigma on Twitter: A Content Analysis of Tweets during the Early Stage of the COVID-19 Outbreak](#) – International Journal of Environmental Research and Public Health (Sept 19)
- [Impact of COVID-19 on Nurses' Mental Health](#) – Issues in Mental Health Nursing (Oct 2)
- [Psychiatry and COVID-19](#) – JAMA (Sept 22)
- [Protecting the Editorial Independence of the CDC From Politics](#) – JAMA (Sept 22)

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