



## 2019-nCoV Literature Situation Report (Lit Rep)

July 27, 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

- **Analysis of PCR test results from a national reference laboratory found that the median age of people testing positive for SARS-CoV-2 in the US has declined from 41 years in April-May to 36 years in June-July.** [More](#)
- **A national survey of US parents (n=1,011) with at least one child under 18 years old showed nearly 1 in 10 families experienced both declining mental health of parents and declining behavioral health of children due to the COVID-19 pandemic.** [More](#)
- **A prospective multicenter study of pediatric patients in France found that a symptom-based SARS-CoV-2 testing strategy failed to identify 45% of hospitalized SARS-CoV-2 infected children at the time of admission.** [More](#)
- **An online social media survey showed that participants favored tests with a lower degree of contact and greater convenience (e.g. home-based tests) and that they would be more likely to test if there was a home testing option.** [More](#)

### Testing and Treatment

- A prospective multicenter study of pediatric patients in France (n=438) showed that a symptom-based SARS-CoV-2 testing strategy failed to identify 45% (95% CI 24%-68%) of hospitalized SARS-CoV-2 infected children at the time of hospital admission.  
*Poline et al. (July 25, 2020). Systematic SARS-CoV-2 Screening at Hospital Admission in Children: A French Prospective Multicenter Study. Clinical Infectious Diseases.*  
<https://doi.org/10.1093/cid/ciaa1044>
- *[Pre-print, not peer reviewed]* Using PCR test results from a national reference laboratory (n=277,601), Greene et al. compared the age distribution of positive SARS-CoV-2 test results between March-April and June-July and found that the median age of people testing positive has declined over time from 41 years (IQR 29.0-54.1) to 36 years (IQR 24.0-50.2).
- A sub-analysis showed that this trend was only observed for outpatient populations, while the minority of positive tests coming from inpatients (2%) showed an increase in age over time. Additionally, the test positivity rate increased among patients under 50 years old and decreased among patients over 50 years.  
*Greene et al. (July 24, 2020). Decreasing Median Age of COVID-19 Cases in the United States Changing Epidemiology or Changing Surveillance. Pre-print downloaded July 27 from*  
<https://doi.org/10.1101/2020.07.22.20160119>

- A randomized trial of hydroxychloroquine, alone or with azithromycin, for treatment of mild- to moderate COVID-19 found no effect on improving clinical status at 15 days after hospital admission. Cavalcanti et al. conducted a multicenter, randomized, open-label, three-arm controlled trial (n=504) in Brazil and found that the odds of having a higher score (worse clinical status) on a 7-point ordinal scale at 15 days was not affected by hydroxychloroquine alone (OR=1.21, 95% CI 0.69-2.11), or hydroxychloroquine and azithromycin (OR=0.99, 95% CI 0.57-1.73), compared to standard care.

*Cavalcanti et al. (July 23, 2020). Hydroxychloroquine with or without Azithromycin in Mild-to-Moderate Covid-19. New England Journal of Medicine. <https://doi.org/10.1056/NEJMoa2019014>*
- [Pre-print, not peer reviewed]* Based on PCR testing for SARS-CoV-2 among nursing home residents (n=16,966) and staff (n=15,514) with or without symptoms in Massachusetts (April 9 to June 9), 13% of residents and 4% of staff tested positive. Of those without symptoms, 13% of residents and 4% of staff tested positive, compared to 53% of residents and 18% of staff with symptoms. There was a statistical, though not meaningful, difference in viral loads between patients with and without symptoms (mean difference=0.71 cycles, p=0.006).

*Lennon et al. (July 26, 2020). Comparison of Viral Levels in Individuals with or without Symptoms at Time of COVID-19 Testing among 32480 Residents and Staff of Nursing Homes and Assisted Living Facilities in Massachusetts. Pre-print downloaded July 27 from <https://doi.org/10.1101/2020.07.20.20157792>*
- A multicenter cohort study based in the UK found that lateral flow point-of-care and ELISA tests for SARS-CoV-2 antibodies had good positive and negative predictive values when conducted among a carefully selected population with suspected SARS-CoV-2 infection. The authors conclude that these tests have potential for late case identification among healthcare workers with mild to moderate SARS-CoV-2 infection, but also discuss important limitations, including late development of bands on lateral flow assays that may limit their application.

*Pallett et al. (July 24, 2020). Point-of-Care Serological Assays for Delayed SARS-CoV-2 Case Identification among Health-Care Workers in the UK: A Prospective Multicentre Cohort Study. The Lancet Respiratory Medicine. [https://doi.org/10.1016/S2213-2600\(20\)30315-5](https://doi.org/10.1016/S2213-2600(20)30315-5)*
- Based on a retrospective cohort study of COVID-19 patients in Hubei, China (n=446), early administration of interferon- $\alpha$ 2b was associated with lower likelihood of in-hospital mortality versus no interferon (OR=0.05, 95% CI: 0.01-0.37), while late interferon therapy was associated with greater likelihood of mortality (OR=6.82, 95% CI: 1.14-40.8). This may indicate that the timing for interferon therapy may be important. Most of the patients in the study who received interferon also received the antiviral agents umifenovir or lopinavir boosted with ritonavir.

*Wang et al. (July 18, 2020). Retrospective Multicenter Cohort Study Shows Early Interferon Therapy Is Associated with Favorable Clinical Responses in COVID-19 Patients. Cell Host & Microbe. <https://doi.org/10.1016/j.chom.2020.07.005>*
- Wellinghausen et al. conducted a retrospective analysis of serum samples (n=158) from a German cohort of PCR confirmed COVID-19 outpatients and asymptomatic contact persons (n=158) and found that overall positivity rate for SARS-CoV-2-IgG was 81% among outpatients and 15% among asymptomatic contacts.
- Symptomatic outpatients had a higher viral load, based on PCR cycle counts, compared to asymptomatic contacts (5-7 threshold cycles). Viral load was also positively correlated with SARS-

CoV-2-IgG ratio. The authors hypothesize that the lower viral load in asymptomatic cases could explain the lower sero-prevalence in those without symptoms.

Wellinghausen et al. (July 6, 2020). SARS-CoV-2-IgG Response Is Different in COVID-19 Outpatients and Asymptomatic Contact Persons. *Journal of Clinical Virology*.  
<https://doi.org/10.1016/j.jcv.2020.104542>

## Mental Health and Personal Impact

- Halford et al. analyzed Google Trends data (March-April) representing searches in the US for terms related to suicide and known suicide risk factors and found that, while the proportion of suicide-related queries was lower than expected, queries representative of financial difficulty, help-seeking, and general mental health concerns were elevated, suggesting that the COVID-19 pandemic may have caused an increase in suicide risk factors.

Halford et al. (July 24, 2020). Google Searches for Suicide and Suicide Risk Factors in the Early Stages of the COVID-19 Pandemic. *PLOS ONE*. <https://doi.org/10.1371/journal.pone.0236777>

- A survey of a national sample of US parents with at least 1 child younger than 18 (n=1,011) found that 27% of parents reported worsening mental health for themselves, 14% reported worsening behavioral health for their children, and nearly 1 in 10 experienced both. A decrease in food security, employer-sponsored insurance, and regular childcare were also reported.

Patrick et al. (July 24, 2020). Well-Being of Parents and Children During the COVID-19 Pandemic: A National Survey. *Pediatrics*. <https://doi.org/10.1542/peds.2020-016824>

## Modeling and Prediction

- Using an age-structured agent-based model parametrized with demographics from Ontario, Canada, Abdollahi et al. found that increasing the duration of school closures from 3 to 16 weeks reduced the COVID-19 attack rate by 7%-13% when contacts among school children were restricted by 60-80%. Adding varying degrees of voluntary social isolation among mildly symptomatic persons further reduced the attack rate.

Abdollahi et al. (July 24, 2020). Simulating the Effect of School Closure during COVID-19 Outbreaks in Ontario, Canada. *BMC Medicine*. <https://doi.org/10.1186/s12916-020-01705-8>

## Public Health Policy and Practice

- Rodriguez-Diaz et al. compared counties with a greater proportion of Latino residents than the US average (n=443) and all other counties (n=2700) and found that COVID-19 cases were greater in Northeastern and Midwestern Latino counties (RR=1.42 and RR=1.70, respectively), while deaths were greater in Midwestern Latino counties (RR, 1.17, 95% CI 1.04-1.34).
- Factors such as greater monolingual Spanish speakers, employment rates, and less social distancing were associated with higher diagnostic rates, suggesting that structural factors may cause differences in risk among Latino populations.

Rodriguez-Diaz et al. (July 23, 2020). Risk for COVID-19 Infection and Death among Latinos in the United States: Examining Heterogeneity in Transmission Dynamics. *Annals of Epidemiology*.  
<https://doi.org/10.1016/j.annepidem.2020.07.007>

- Seigler et al. observed that participants surveyed using social media (n=1,435) were most willing to test for SARS-CoV-2 infection with a home saliva specimen (92%), followed by home swab (88%),

drive-through swab (71%), and clinic-collected swab (60%). Additionally, 68% of participants indicated they would be more likely to get tested if there was a home testing option.

*Siegler et al. (June 30, 2020). Willingness to Seek Diagnostic Testing for SARS-CoV-2 With Home, Drive-through, and Clinic-Based Specimen Collection Locations. Open Forum Infectious Diseases. <https://doi.org/10.1093/ofid/ofaa269>*

## Other Resources and Commentaries

- [The COVID-19 Pandemic and Human Fertility](#) – Science (July 24)
- [A Community-Led Approach to COVID-19](#) – Science (July 24)
- [A Social and Behavioral Research Agenda to Facilitate COVID-19 Vaccine Uptake in the United States](#) – Health Security (July 24)
- [Particle Sizes of Infectious Aerosols: Implications for Infection Control](#) – The Lancet Respiratory Medicine (July 24)
- [Insight into the Pediatric and Adult Dichotomy of COVID-19: Age-Related Differences in the Immune Response to SARS-CoV-2 Infection](#) – Pediatric Pulmonology (July 25)
- [On the Effect of Age on the Transmission of SARS-CoV-2 in Households Schools and the Community](#) – medRxiv (July 24)
- [The First Quarter of SARS-CoV-2 Testing: The University of Washington Medicine Experience](#) – Journal of Clinical Microbiology (July 23)
- [Offline: Preparing for a Vaccine against COVID-19](#) – The Lancet (July 25)
- [Rapid Decay of Anti-SARS-CoV-2 Antibodies in Persons with Mild Covid-19](#) – New England Journal of Medicine (July 21)
- [Scent Dog Identification of Samples from COVID-19 Patients – a Pilot Study](#) – BMC Infectious Diseases (Dec 23)
- [Disparities in the Recovery from Critical Illness Due to COVID-19](#) – The Lancet Psychiatry (July 27)
- [Global Quieting of High-Frequency Seismic Noise Due to COVID-19 Pandemic Lockdown Measures](#) – Science (July 23)
- [Disparities in COVID-19 Testing and Positivity in New York City](#) – American Journal of Preventive Medicine (June 25)
- [A Framework for SARS-CoV-2 Testing on a Large University Campus Statistical Considerations](#) – medRxiv (July 24)
- [Disability and COVID-19: Who Counts Depends on Who Is Counted](#) – The Lancet Public Health (July 21)
- [COVID-19 and the Environment: A Critical Review and Research Agenda](#) – Science of The Total Environment (July 17)
- [Rapid Scaling Up of Covid-19 Diagnostic Testing in the United States — The NIH RADx Initiative](#) – New England Journal of Medicine (July 22)
- [Preliminary Analysis of B- and T-Cell Responses to SARS-CoV-2](#) – Molecular Diagnosis & Therapy (July 24)
- [Monitoring Approaches for Health-Care Workers during the COVID-19 Pandemic](#) – The Lancet Infectious Diseases (July 23)

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