

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

- **A meta-analysis found that of 213 SARS-CoV-2 transmission clusters from 12 countries, 3.8% had a pediatric index case. The secondary attack rate was lower among pediatric than adult household contacts (RR=0.62).** [More](#)
- **54% of 220 patients who recovered from COVID-19 had abnormal lung function 10 weeks after diagnosis in a study using chest CT, pulmonary function testing, and COVID-19 symptoms.** [More](#)
- **On December 3rd, the US passed the cumulative number of COVID-19 deaths (275,000) that would lower the life expectancy at birth for 2020 by one full year.** [More](#)
- **A study in India found that 28.4% of study participants (n = 201) who tested positive for SARS-CoV-2 retained IgG antibodies at 45-65 days follow-up.** [More](#)

Non-Pharmaceutical Interventions

- A longitudinal ecological study found that cumulative mortality during the first wave of the pandemic was lower across 37 Organization for Economic Cooperation and Development (OECD) countries when bans on mass gatherings and school closures were implemented early in SARS-CoV-2 epicenters. A one-day delay in implementation of a mass gatherings ban was on average associated with an adjusted increase in cumulative mortality of 7%, while the same delay in school closures was associated with an increase of 4.4%. The study estimated that if each country had enacted both interventions one week earlier, COVID-19 cumulative mortality may have been reduced by an average of 44.1%.

Piovani et al. (Nov 30, 2020). Effect of Early Application of Social Distancing Interventions on COVID-19 Mortality over the First Pandemic Wave: An Analysis of Longitudinal Data from 37 Countries. Journal of Infection. <https://doi.org/10.1016/j.jinf.2020.11.033>

Transmission

- A systematic review of 28 studies intended to inform safety protocols for handling blood products from people with COVID-19 found there were low levels of detectable SARS-CoV-2 RNA in a minority of serum samples (pooled estimate 10%) collected during acute infection.
- In an associated laboratory analysis, the authors also performed RT-PCR in serum samples from a clinical cohort of people who recovered from COVID-19 (n=212 samples from 167 patients), and 12.7% had RNA detected by RT-PCR. Across all samples collected ≥28 days post-symptom onset, 0/494 had viral RNA. PCR-positive sera inoculated into cell culture did not produce any cytopathic effect or yield an increase in detectable SARS-CoV-2 RNA.

Andersson et al. (Oct 12, 2020). SARS-CoV-2 RNA Detected in Blood Products from Patients with COVID-19 Is Not Associated with Infectious Virus. Wellcome Open Research. <https://doi.org/10.12688/wellcomeopenres.16002.1>

- A meta-analysis of the role of children in SARS-CoV-2 household transmission identified 213 transmission clusters from 12 countries, and found that only 8 clusters (3.8%) had a pediatric index case. Asymptomatic index cases were associated with a lower secondary attack rate in contacts than symptomatic index cases (RR 0.17). The secondary attack rate was also lower among pediatric than adult household contacts (RR, 0.62).

Zhu et al. (Dec 6, 2020). A Meta-Analysis on the Role of Children in SARS-CoV-2 in Household Transmission Clusters. *Clinical Infectious Diseases*. <https://doi.org/10.1093/cid/ciaa1825>

- [Pre-print, not peer-reviewed] A study of SARS-CoV-2 household transmission found that household crowding and having children in the home were both independent risk factors for being hospitalized with COVID-19 early in the pandemic in the US. COVID-19 hospitalization for households with children (versus without) was higher among study participants living in multi-unit (aOR=10.5) vs single unit dwellings (aOR=2.2). Among participants living in multi-unit dwellings, the aOR for COVID-19 hospitalization among participants with more than 4 persons in their household (versus 1 person) was 2.5, and 0.8 among those living in single unit dwellings.

Nash et al. (Dec 4, 2020). Household Factors and the Risk of Severe COVID-like Illness Early in the US Pandemic. Pre-print downloaded Dec 6 from <https://doi.org/10.1101/2020.12.03.20243683>

Vaccines and Immunity

- Survey results from 759 adults in Turkey indicated that 49.7% of respondents said they would get a SARS-CoV-2 vaccine, and 38.4% said they would have their children vaccinated. Respondents cited the importance of protecting themselves, their children, and the people around them as the most common reasons they would get a vaccine. Common concerns about the vaccine were related to potential side effects, vaccine reliability, and fears that COVID-19 was a biological weapon.

Akarsu et al. (Dec 5, 2020). While Studies on Covid-19 Vaccine Is Ongoing; the Public's Thoughts and Attitudes to the Future Covid-19 Vaccine. *International Journal of Clinical Practice*. <https://doi.org/10.1111/ijcp.13891>

- A prospective study of IgG antibody concentrations among 201 individuals in India who tested positive for SARS-CoV-2 found that only 28.4% of participants retained IgG antibody responses at 45-65 days follow-up. The authors highlight the need for future studies that use quantitative antibody assays and measure neutralizing antibody to assess risk of reinfection.

Nag et al. (Dec 2, 2020). A Prospective Study on Rapidly Declining SARS-CoV-2 IgG Antibodies Within One to Three Months of Testing IgG Positive: Can It Lead to Potential Reinfections? *Cureus*. <https://doi.org/10.7759/cureus.11845>

Clinical Characteristics and Health Care Setting

- 54% of 220 patients who recovered from COVID-19 had abnormal lung function 10 weeks after diagnosis in a study using chest CT, pulmonary function testing, and COVID-19 symptoms in Belgium. Restrictive pulmonary impairment was the most common type of lung function impairment observed (38%) and was associated with longer hospital stay (8 vs 6 days), admission to the intensive care unit (27% vs 13%), and invasive mechanical ventilation (10% vs 0.7%), but not with symptom score or CT abnormality score at baseline and follow-up, compared to those without restrictive pulmonary impairment.

Smet et al. (Jan 2021). Clinical Status and Lung Function 10 Weeks after Severe SARS-CoV-2 Infection. *Respiratory Medicine*. <https://doi.org/10.1016/j.rmed.2020.106276>

Mental Health and Personal Impact

- An analysis of longitudinal data on the rise and fall of psychological distress during the early months of the COVID-19 pandemic in the US showed that mediating factors accounted for 70% of the increase in distress between March 10th-18th and April 1st-14th, and 46.4% of the decline in distress between April 1st-14th and early June. Mediating factors included perceived infection and death risk, perceived financial risk, lifestyle changes, perceived discrimination related to the virus, and changes in employment and substance use. Changes in perceived health risks were most important in explaining changes in distress, followed by lifestyle changes and perceived financial risks.
Robinson and Daly. (Dec 5, 2020). Explaining the Rise and Fall of Psychological Distress during the COVID-19 Crisis in the United States: Longitudinal Evidence from the Understanding America Study. British Journal of Health Psychology. <https://doi.org/10.1111/bjhp.12493>
- *[Pre-print, not peer-reviewed]* An anonymous, online, cross-sectional survey of pregnant and postpartum women (n= 6,894) in 64 countries between May and June found that substantial proportions of women scored at or above the cut-offs for elevated posttraumatic stress (43%), anxiety/depression (31%), and loneliness (53%). Excessive information seeking (5 or more times per day from any source) and worries related to child and medical care were associated with clinically significant symptoms. The most commonly reported worries were family being unable to visit after delivery (59%), the baby contracting COVID-19 (59%), lack of a support person during delivery (55%), and COVID-19 causing changes to the delivery plan (41%).
Basu et al. (Dec 4, 2020). A Cross-National Study of Factors Associated with Perinatal Mental Health and Wellbeing during the COVID-19 Pandemic. Pre-print downloaded Dec 6 from <https://doi.org/10.1101/2020.12.03.20243519>

Modeling and Prediction

- *[Pre-print, not peer-reviewed]* A study modeling impacts of a test-trace-isolate-quarantine (TTIQ) strategy on SARS-CoV-2 transmission showed that finding and isolating positive individuals quickly after symptom onset had the largest effects on reducing cases, and that contact tracing may mitigate suboptimal test coverage or delays. Overall, TTIQ was found to be effective in controlling epidemics with R = 1.5 or below.
Ashcroft et al. (Dec 7, 2020). Quantifying the Impact of Test-Trace-Isolate-Quarantine (TTIQ) Strategies on COVID-19 Transmission. Pre-print downloaded Dec 6 from <https://www.medrxiv.org/content/10.1101/2020.12.04.20244004v1>

Public Health Policy and Practice

- A retrospective cohort study of 9722 patients tested for SARS-COV-2 in New York City found that Black and Hispanic patients were more likely than white patients to test positive (OR 1.3 and OR 1.5, respectively). Odds of hospitalization were similar for Black, Hispanic, and white individuals, but higher for Asian and multiracial individuals (OR 1.6 and OR 1.4, respectively). Among hospitalized patients, Black patients were less likely to experience severe illness (OR 0.6), or to die or be discharged to hospice (HR 0.7), than white patients. The authors suggest that existing structural determinants in Black and Hispanic communities may explain the disproportionately high out-of-hospital deaths in these populations.
Ogedegbe et al. (Dec 4, 2020). Assessment of Racial/Ethnic Disparities in Hospitalization and Mortality in Patients With COVID-19 in New York City. JAMA Network Open. <https://doi.org/10.1001/jamanetworkopen.2020.26881>
- *[Pre-print, not peer-reviewed]* A randomized controlled trial with 1744 UK participants evaluated test interpretation and guidance from public health websites by giving hypothetical test results and randomizing participants to either receive no more information or information on the interpretation of test results from a public health website from the UK, US, or New Zealand. Most participants who were told the test was positive thought patients should self-isolate (mean 86 on a 0-100 scale), as

did those who saw a negative result (mean 51). The proportion of participants who thought symptomatic patients with negative results should not self-isolate was highest among those reading UK websites (17.4%) and lowest among those using websites in New Zealand (3.8%) and the US (5.1%).

Recchia et al. (Dec 4, 2020). How Do the Public Interpret COVID-19 Swab Test Results Comparing the Impact of Official Information about Results and Reliability Used in the UK US and New Zealand a Randomised Controlled Trial. Pre-print downloaded Dec 6 from <https://doi.org/10.1101/2020.12.04.20243840>

- *[Pre-print, not peer-reviewed]* Based on data from the Johns Hopkins University online dashboard, the US passed the cumulative number of COVID-19 deaths (275,000) that would lower the life expectancy at birth (LEB) for 2020 by one full year on December 3rd. By comparison, the opioid crisis led to an average 0.1 year decline in LEB annually from 2014 to 2017, and at its peak, the HIV epidemic reduced the U.S. LEB by 0.3 year in a single year from 1992 to 1993. Currently, US LEB is expected to revert to 2010 levels.

Heuveline et al. (Dec 4, 2020). Covid-19 Will Reduce US Life Expectancy at Birth by More Than One Year in 2020. Pre-print downloaded Dec 6 from <https://doi.org/10.1101/2020.12.03.20243717>

- *[Pre-print, not peer-reviewed]* An analysis of 9.8 million cases and 234,000 deaths from 2,990 US counties comprising 99.8% of the total US population through November 8th found that COVID-19 racial and ethnic health disparities were partially explained by previously reported social determinants of health and pre-existing comorbid conditions. After adjusting for these variables, significant unexplained racial and ethnic health disparities persisted at the county level.

Li et al. (Dec 4, 2020). Unraveling US National COVID-19 Racial Ethnic Disparities Using County Level Data Among 328 Million Americans. Pre-print downloaded Dec 6 from <https://doi.org/10.1101/2020.12.02.20234989>

Other Resources and Commentaries

- [Implementing Mitigation Strategies in Early Care and Education Settings for Prevention of SARS-CoV-2 Transmission — Eight States, September–October 2020](#) – MMWR (Dec 7 2020)
- [Model for evaluating cost-effectiveness of surveillance testing for SARS-CoV-2](#) – MedRxiv (Dec 4 2020)
- [Contamination of inert surfaces by SARS-CoV-2: Persistence, stability and infectivity. A review](#) – Environmental Research (Feb 2021)
- [T Cells: Warriors of SARS-CoV-2 Infection](#) – Trends in Immunology (Nov 13 2020)
- [New vaccine production platforms used in developing SARS-CoV-2 vaccine candidates](#) – Vaccine (Nov 24 2020)
- [Determining the infectious potential of individuals with positive RT-PCR SARS-CoV-2 tests](#) – Clinical Infectious Diseases (Dec 4 2020)
- [Handwashing and disinfection precautions taken by U.S. adults to prevent coronavirus disease 2019, Spring 2020](#) – BMC Research Notes (Dec 4 2020)
- [Covid-19: Air travelers should not be considered high risk, says European guidance](#) – BMJ (Dec 4 2020)
- [COVID-19 vaccine development: a pediatric perspective](#) – Current Opinion in Pediatrics (Dec 4 2020)
- [The Contributions of Immigrant Nurses in the U.S. During the COVID-19 Pandemic: A CGFNS International Study](#) – Nurse Leader (Nov 25 2020)
- [The "sex gap" in COVID-19 trials: a scoping review](#) – EClinicalMedicine (Nov 30 2020)
- [Impact of non-pharmaceutical interventions targeted at COVID-19 pandemic on influenza burden - a systematic review](#) – The Journal of Infection (Dec 3 2020)
- [Covid-19: Safety of lateral flow tests questioned after they are found to miss half of cases](#) – BMJ (Dec 4 2020)

- [Antibiotic prescribing in general practice during COVID-19](#) – The Lancet Infectious Diseases (Dec 1 2020)
- [Evidence of exposure to SARS-CoV-2 in cats and dogs from households in Italy](#) – Nature Communications (Dec 4 2020)

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