

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

- **During March 1–December 12, 2020, a total of 2,871,828 laboratory-confirmed cases of COVID-19 in young people aged 0–24 years were reported in the United States, with the majority (57%) occurring among those aged 18–24 years. Temporal incidence patterns suggest that young adults might contribute more to community transmission than do younger children. [More](#)**
- **Hospitalized adults who received a transfusion of convalescent plasma with high antibody titers were less likely to die than those who received a low titer transfusion, and the difference was limited to patients who were not mechanically ventilated. [More](#)**
- **A retrospective cohort study of 4,613 patients hospitalized with COVID-19 in New York between March 10 and May 11, 2020 found that people living with HIV had an increased risk of intubation (aHR=1.73) but similar frequency of acute kidney injury and in-hospital death compared to those without HIV. [More](#)**

Transmission

- A study of 129 hospitalized individuals who had been diagnosed with COVID-19 by RT-PCR detected infectious virus shedding by viral culture in 23 patients (18%), with infectious virus shedding for a median of 8 days after onset of symptoms. Multivariate analyses identified viral loads above 7 log₁₀ RNA copies/mL as independently associated with isolation of infectious SARS-CoV-2 from the respiratory tract (OR = 14.7). A serum neutralizing antibody titer of at least 1:20 was independently associated with a lack of infectious SARS-CoV-2 shedding (OR = 0.01).
van Kampen et al. (Dec 11, 2021). Duration and Key Determinants of Infectious Virus Shedding in Hospitalized Patients with Coronavirus Disease-2019 (COVID-19). Nature Communications.
<https://doi.org/10.1038/s41467-020-20568-4>
- *[Pre-print, not peer-reviewed]* A prospective study of 801 healthcare workers (HCW) conducted from May-June 2020 found that SARS-CoV-2 incidence was highest in HCW working in COVID-19 patient care (13%), as compared with non-COVID-19 patient care (7%, HR=2.2) and not working in patient care (4%, HR=3.9). Within the group caring for COVID-19 patients, SARS-CoV-2 cumulative incidence was highest among those working on COVID-19 wards (26%), as compared to ICUs (7%, HR=3.6), and the emergency room (8%, HR=3.3). Phylogenetic analyses on COVID-19 wards identified multiple potential HCW-to-HCW transmission clusters, while no patient-to-HCW transmission clusters were identified.
Sikkens et al. (Jan 12, 2021). Serologic Surveillance and Phylogenetic Analysis of SARS-CoV-2 Infection in Hospital Health Care Workers. Pre-print downloaded Jan 13 from <https://medrxiv.org/cgi/content/short/2021.01.10.21249440>

Testing and Treatment

- Among hospitalized adults treated with convalescent plasma, death within 30 days occurred in 115 of 515 (22%) patients in the group that received a product with a high titer of anti-spike IgG antibodies, 549 of 2006 (27%) patients in the medium-titer group, and 166 of 561 (30%) patients in the low-titer group. The relationship differed by mechanical ventilation status. Participants who were not mechanically ventilated had a lower risk of death in the high-titer group versus the low-titer group (aRR=0.66, 95%CI 0.48-0.91), but there was no significant difference among patients who were receiving mechanical ventilation (aRR=1.02, 95% CI 0.78-1.32). Additionally, participants who received convalescent plasma within 3 days of diagnosis had lower risk of death than those who were transfused later. The analysis is based on a national registry.

Joyner et al. (Jan 13, 2021). *Convalescent Plasma Antibody Levels and the Risk of Death from Covid-19*. *New England Journal of Medicine*. <https://doi.org/10.1056/NEJMoa2031893>

- [Pre-print, not peer-reviewed] An evaluation of the Abbott BinaxNOW COVID-19 Ag Card in a drive-through community testing site in Massachusetts using anterior nasal swab RT-PCR for clinical testing found that BinaxNOW had very high specificity in both adults and children (100% for both) and very high sensitivity in newly symptomatic adults (96.5% within 7 days of symptoms). Sensitivity and specificity in asymptomatic adults were 70.2% and 99.6%, respectively, and in asymptomatic children were 65.4% and 99.0%, respectively. Overall, 95.8% sensitivity was observed with Ct ≤30.

Pollock et al. (Jan 12, 2021). *Performance and Implementation Evaluation of the Abbott BinaxNOW Rapid Antigen Test in a High-Throughput Drive-through Community Testing Site in Massachusetts*. Pre-print downloaded Jan 13 from <https://www.medrxiv.org/content/10.1101/2021.01.09.21249499v1>

Vaccines and Immunity

- [Pre-print, not peer-reviewed] A cross-sectional online survey of US adults (n=2,650) conducted between Dec 13 and 23, 2020 found that respondents who reported experiences of racial discrimination had 21% increased odds of higher vaccine hesitancy compared to those who did not report such experience. Vaccine hesitancy was measured using a scale ranging from 1 (low hesitancy) to 6 (high hesitancy).

Savoia et al. (Jan 13, 2021). *Predictors of COVID-19 Vaccine Hesitancy Socio-Demographics Co-Morbidity and Past Racial Discrimination*. Pre-print downloaded Jan 13 from <https://www.medrxiv.org/content/10.1101/2021.01.12.21249152v1>

Clinical Characteristics and Health Care Setting

- COVID-19 cases in children, adolescents, and young adults increased since summer 2020, with weekly incidence higher in each successively increasing age group. During March 1–December 12, 2020, a total of 2,871,828 laboratory-confirmed cases of COVID-19 in young people aged 0–24 years were reported in the United States, with the majority (57%) occurring among those aged 18–24 years. 52% of all cases occurred in females. Among the 1,504,165 (52%) young people with COVID-19 with complete information on race/ethnicity, 50% were non-Hispanic white, 27% were Hispanic/Latino, and 12% were non-Hispanic Black.
- The authors note that the data do not indicate that increases in incidence in adults were preceded by increases among preschool- or school-aged children and adolescents. In contrast, incidence among young adults (aged 18–24 years) was higher than that in other age groups throughout the summer and fall, with peaks that preceded increases among other age groups, suggesting that young adults might contribute more to community transmission than do younger children.

Leidman et al. (2021). *COVID-19 Trends Among Persons Aged 0 – 24 Years — United States*. *MMWR*. <https://www.cdc.gov/mmwr/volumes/70/wr/pdfs/mm7003e1-H.pdf>

- A retrospective cohort study of 4,613 patients positive for SARS-CoV-2 admitted to a hospital in New York City between March 10 and May 11, 2020 found that people living with HIV had increased risk of intubation (aHR=1.73) but similar rates of acute kidney injury and in-hospital death as those without HIV. Most patients were either non-Hispanic Black (36%) or Hispanic (37%), and 2% were living with HIV (n=100), among whom 15 had a detectable HIV viral load.
Patel et al. (Feb 1, 2021). Clinical Outcomes and Inflammatory Markers by HIV Serostatus and Viral Suppression in a Large Cohort of Patients Hospitalized With COVID-19. Journal of Acquired Immune Deficiency Syndromes. <https://pubmed.ncbi.nlm.nih.gov/33433966>
- A systematic review and meta-analysis (n = 38 studies, 8,407 patients) of COVID-19 gastrointestinal symptoms found that 16% of all patients had at least one GI symptom. The pooled prevalence of nausea/vomiting was 8% and diarrhea was 12%. Patients with diarrhea as one of their presenting symptoms were more likely to have severe disease (OR=1.63).
Ghimire et al. (Jan 6, 2021). Diarrhea Is Associated with Increased Severity of Disease in COVID-19: Systemic Review and Meta-analysis. SN Comprehensive Clinical Medicine. <https://doi.org/10.1007/s42399-020-00662-w>
- *[Pre-print, not peer-reviewed]* A single center retrospective observational cohort study of SARS-CoV-2-positive adult residents (n = 977) of the Bronx hospitalized between March-May 2020 found that residing in the South Bronx (OR=1.8), age > 60 years (OR=2.5) and critical COVID-19 (OR=14.6) were significantly associated with mortality. There was no observed difference in 30-day mortality by race/ethnicity among those with COVID-19.
Miller et al. (Jan 12, 2021). Impact of Residential Neighborhood and Race/Ethnicity on Outcomes of Hospitalized Patients with COVID-19 in the Bronx. Pre-print downloaded Jan 13 from <https://www.medrxiv.org/content/10.1101/2021.01.09.21249515v1>
- Epidemiologic data collected between June and September 2020 from more than 480,000 outpatients with RT-PCR-confirmed SARS-CoV-2 infection in Mexico indicated that there was a high incidence of COVID-19 among working-age people (41%), with young adults (aged 20-40 years) the most affected. More than half of the people who tested positive (53%) had contact with SARS-CoV-2 positive individuals, mostly family members (56%) and co-workers (29%). People who worked as deliverers (OR=1.4) or informal traders (OR=1.3) had a higher risk of COVID-19. 13% of SARS-CoV-2 infections were detected in presymptomatic patients.
Fernández-Rojas et al. (Jan 2021). Epidemiology of COVID-19 in Mexico, Symptomatic Profiles and Presymptomatic People. International Journal of Infectious Diseases. <https://doi.org/10.1016/j.ijid.2020.12.086>

Mental Health and Personal Impact

- A study using domestic violence data from Chicago found that during the COVID-19 pandemic, cases of domestic violence with arrests were 20% less likely and cases of domestic violence at residential locations were 22% more likely compared to the pre-pandemic period. During the shelter-in-place period, domestic violence cases at residential locations were 64% more likely and cases with child victims were 67% less likely. The authors highlight the need for new ways to understand and respond to children's experiences at home given the lack of access to mandated reporters like teachers and social workers.
McLay. (Jan 7, 2021). When "Shelter-in-Place" Isn't Shelter That's Safe: A Rapid Analysis of Domestic Violence Case Differences during the COVID-19 Pandemic and Stay-at-Home Orders. Journal of Family Violence. <https://doi.org/10.1007/s10896-020-00225-6>
- A cross-sectional study of the impacts of the COVID-19 pandemic on the mental health of undergraduates (n=641) in a heavily impacted area in the US (New Jersey) found that nearly half (46%) of the students reported elevated psychological distress, including health anxiety (30%),

general anxiety (22%), and depression (25%). Clinically-elevated general anxiety was associated with more common among females (OR=2.2), those with a COVID-19 case in their immediate social network (OR=2.3), students with underlying medical vulnerabilities (OR=2.0), and those with a recent experience of ≥ 3 viral symptoms (OR=3.4). Vigilance to viral symptoms and worry about coronavirus were also factors associated with more severe psychological distress.

Kibbey et al. (Jan 12, 2021). Anxiety, Depression, and Health Anxiety in Undergraduate Students Living in Initial US Outbreak "Hotspot" during COVID-19 Pandemic. Cognitive Behaviour Therapy. <https://pubmed.ncbi.nlm.nih.gov/33433271>

- *[Pre-print, not peer-reviewed]* An analysis of data from participants in the UK (n=26,740) found that about 45% of people reported talking to friends or family members to support their mental health during the COVID-19 pandemic, 43% engaged in self-care activities, 20% took medication, 9% spoke to mental health professionals, 8% talked to a general practitioner or other health professional, and another 8% used helpline or online services. Gender, education, living status, loneliness, pre-existing mental health conditions, general depression and anxiety, coping, and personality were all associated with the use of mental health support.

Bu et al. (Jan 13, 2021). Rates and Predictors of Uptake of Formal and Informal Mental Health Support during the COVID-19 Pandemic an Analysis of 26740 Adults in the UK in Lockdown. Pre-print downloaded Jan 13 from <https://medrxiv.org/cgi/content/short/2021.01.11.21249509>

Modeling and Prediction

- *[Pre-print, not peer-reviewed]* A study combining historical and current mortality data, a statistical testing model, and an SIR epidemic model found that average excess deaths across the US were 13% higher than reported COVID-19 deaths. In some areas, such as New York City, the number of weekly deaths was about eight times higher than in previous years. Countries such as Russia, Ecuador, and Spain had excess deaths that were around three time higher than their reported COVID-19 deaths, while few excess deaths were identified in Denmark, Norway, or Germany. The authors argue that use of excess deaths as a standard mortality measure may provide more accurate estimates of COVID-19 deaths than infection or case fatality ratios.

Boettcher et al. (Jan 12, 2021). Using Excess Deaths and Testing Statistics to Improve Estimates of COVID-19 Mortalities. Pre-print downloaded Jan 13 from <https://www.medrxiv.org/content/10.1101/2021.01.10.21249524v1>

Other Resources and Commentaries

- [Can COVID-19 cause diabetes?](#) – Nature Metabolism (Jan 11 2021)
- [Health Workers' Antibody Levels Wane After SARS-CoV-2 Infection](#) – JAMA (Jan 2021)
- [Could new COVID variants undermine vaccines? Labs scramble to find out](#) – Nature (Jan 14 2021)
- [The Association Between Chronic Disease and Serious COVID-19 Outcomes and Its Influence on Risk Perception: Survey Study and Database Analysis](#) – JMIR Public Health and Surveillance (Jan 2021)
- [Association of homelessness with COVID-19 positivity among individuals visiting a testing center](#) – medRxiv (Jan 12 2021)
- [The 2020 SARS-CoV-2 epidemic in England key epidemiological drivers and impact of interventions](#) – medRxiv (Jan 13 2021)
- [National interest may require distributing COVID-19 vaccines to other countries](#) – medRxiv (Jan 2021)
- [COVID-19 Precautions Hamper Breastfeeding Support](#) – JAMA (Jan 2021)

Report prepared by the UW Alliance for Pandemic Preparedness and Global Health Security and the START Center in collaboration with and on behalf of WA DOH COVID-19 Incident Management Team