

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 nationally representative longitudinal survey (n=8,167) found that self-reported likelihood of getting a COVID-19 vaccine declined from 74% in early April to 56% in early December. Significant declines in the likelihood of vaccine uptake were observed in all gender, age, racial/ethnic, and education subgroups. [More](#)**
- **Healthcare workers with no prior SARS-CoV-2 infection were more likely than those with a confirmed infection during the first wave to present for symptomatic testing (21% vs 12%) and were more likely to test positive (14% vs 0%) during the second wave of the pandemic 6 months later. [More](#)**
- **Individuals who purchased a firearm during the COVID-19 pandemic more frequently endorsed suicidal ideation when compared to individuals who do not own firearms or purchased firearms prior to the pandemic. [More](#)**

### Non-Pharmaceutical Interventions

- With the exception of N95 masks, face coverings would not offer complete protection for a susceptible person exposed to coughing or sneezing of an infected person within 6 feet according to droplet flow visualization experiments. While no potentially virus-carrying particles were observed to leak through N95 masks when worn as protection, enough particles were found to leak through other face coverings, such as surgical and double-layer cloth masks, to expose the wearer to a sufficiently infectious dose.

*Akhtar et al. (Dec 22, 2020). Can Face Masks Offer Protection from Airborne Sneeze and Cough Droplets in Close-up, Face-to-Face Human Interactions?—A Quantitative Study. Physics of Fluids. <https://doi.org/10.1063/5.0035072>*

### Testing and Treatment

- Among 3,302 persons tested for SARS-CoV-2 by BinaxNOW Rapid SARS-CoV-2 antigen detection assay in a community setting with 7.2% prevalence, rapid assay sensitivity was 100%, 98.5%, and 89% using RT-PCR Ct thresholds of 30, 35 and none, respectively. The assay maintained high sensitivity performance across ages and those with and without symptoms. Assay specificity was 99.9%. The median time from on-site registration to electronic results notification of a positive rapid antigen test was 62 minutes (IQR: 47-82 minutes).

Pilarowski et al. (Dec 26, 2020). Field Performance and Public Health Response Using the BinaxNOW Rapid SARS-CoV-2 Antigen Detection Assay during Community-Based Testing. *Clinical Infectious Diseases*. <https://doi.org/10.1093/cid/ciaa1890>

## Vaccines and Immunity

- In a retrospective cohort study of healthcare workers (HCW) (n=17,126) in the UK, HCW without confirmed SARS-CoV-2 infection (negative PCR and serology) during the first wave experienced higher rates of symptomatic testing and PCR test positivity rates in the second wave 6 months later than HCW with confirmed SARS-CoV-2 infection during the first wave. Only 12.3% of HCW with previous infection presented for symptomatic testing, compared to 20.8% of HCW without previous infection. No positive PCR tests were returned among HCW with previous infection, whereas HCW with no previous infection had a 13.7% test positivity rate.

Hanrath et al. (Dec 26, 2020). Prior SARS-CoV-2 Infection Is Associated with Protection against Symptomatic Reinfection. *Journal of Infection*. <https://doi.org/10.1016/j.jinf.2020.12.023>

- A nationally representative longitudinal survey (n=8,167) found that self-reported likelihood of getting a COVID-19 vaccine declined from 74% in early April to 56% in early December. Declines were observed in likelihood of vaccine uptake for both women and men and in all age, racial/ethnic, and education subgroups. As of December, the self-reported likelihood of vaccine uptake was lower among women than men (51% vs 62%) and Black than white individuals (38% vs 59%). Likelihood of vaccine uptake was higher among adults aged  $\geq 65$  years than those 18-49 years (69% vs 51%), and among individuals with at least a bachelor's degree compared to those with a high school education or less (70% vs 48%).

Szilagyi et al. (Dec 29, 2020). National Trends in the US Public's Likelihood of Getting a COVID-19 Vaccine—April 1 to December 8, 2020. *JAMA*. <https://doi.org/10.1001/jama.2020.26419>

## Clinical Characteristics and Health Care Setting

- Among 175 people living with HIV in the UK, US, and Spain, a current CD4 T-cell count of  $< 350$  cells/ $\mu\text{L}$  was independently associated with a 2.85-fold risk for developing severe COVID-19. A lower nadir CD4 T-cell count of  $< 200$  cells/ $\mu\text{L}$  was associated with mortality. No significant differences in risk of severe or critical COVID-19 were detected by gender, ethnicity, obesity, detectable HIV RNA, prior AIDS-defining illness, tenofovir, or protease inhibitor use in the current antiretroviral treatment.

Hoffmann et al. (Dec 27, 2020). Immune Deficiency Is a Risk Factor for Severe COVID-19 in People Living with HIV. *HIV Medicine*. <https://doi.org/10.1111/hiv.13037>

- In a prospective study of 2,351 people with COVID-19 SARS in Brazil, those with previous symptomatic dengue (n=1177) had a lower risk of death after a median follow-up of 60 days (adjusted HR = 0.44). History of other previous infections, including malaria, Zika, and chikungunya, were not associated with mortality. The authors suggest that dengue might induce a degree of immunological protection against SARS-CoV-2 infection.

Silvestre et al. (Dec 29, 2020). Previous Dengue Infection and Mortality in COVID-19. *Clinical Infectious Diseases*. <https://doi.org/10.1093/cid/ciaa1895>

- Long-term care facilities (LTCF) with greater implementation of infection prevention and control (IPC) had a lower prevalence of COVID-19, according to analysis of 24 facilities in Fulton County, GA. Specifically, significant differences were observed in prevalence of implementation of IPCs belonging to the social distancing category (high prevalence LTCF, 54% vs low prevalence LTCFs, 74%) and to the personal protective equipment category (high prevalence LTCF, 41% vs low prevalence LTCFs, 72%). Overall prevalence of COVID-19 in the facilities analyzed was 39%.

Telford et al. (Dec 28, 2020). COVID-19 Infection Prevention and Control Adherence in Long-term Care Facilities, Atlanta, Georgia. *Journal of the American Geriatrics Society*. <https://doi.org/10.1111/jgs.17001>

## Mental Health and Personal Impact

- In a cross-sectional online survey of an Amazon Mechanical Turk sample (n=907), nearly half of participants endorsing general past-month suicidal ideation reported their thoughts were linked to COVID-19. Physical safety concerns and general distress due to COVID-19 were significantly associated with general past-month suicidal ideation. A small proportion (7%) reported intentionally exposing themselves to COVID-19 with suicidal intent.

Ammerman et al. (Dec 15, 2020). Preliminary Investigation of the Association between COVID-19 and Suicidal Thoughts and Behaviors in the U.S. *Journal of Psychiatric Research*. <https://doi.org/10.1016/j.jpsychires.2020.12.037>

- Individuals who purchased a firearm during the COVID-19 pandemic more frequently reported suicidal ideation than individuals who do not own firearms or purchased firearms prior to the pandemic in a quota-sampled cross-sectional survey (n=3,500). Regardless of suicidal ideation, safety and protection at home were the most frequently endorsed reasons for firearm acquisition.

Anestis et al. (Nov 16, 2020). Suicidal Ideation Among Individuals Who Have Purchased Firearms During COVID-19. *American Journal of Preventive Medicine*. <https://doi.org/10.1016/j.amepre.2020.10.013>

- A meta-analysis found the prevalence of pandemic-associated anxiety and depression was 33% and 30%, respectively. In an analysis of 68 studies comprising 288,830 participants from 19 countries, women, younger adults (<35 years), those living in rural areas, and those with lower socioeconomic status had higher odds of experiencing anxiety. All factors except residential area were also associated with higher odds of depression. In addition, those with higher COVID-19 infection risk (living in hotspots, having pre-existing conditions) and longer media exposure had a higher odds of anxiety and depression.

Wang et al. (Dec 28, 2020). Factors Associated with Psychological Distress during the Coronavirus Disease 2019 (COVID-19) Pandemic on the Predominantly General Population: A Systematic Review and Meta-Analysis. *PLOS ONE*. <https://doi.org/10.1371/journal.pone.0244630>

## Modeling and Prediction

- Interventions that specifically target superspreading events while partially relaxing social distancing could be a viable alternative to blanket policies, according to a transmission model incorporating a variety of non-pharmaceutical interventions parametrized to a variety of settings. Removing the top 1% of individual transmission rates (essentially, superspreading events that connect a single infectious person to large numbers of people) with 75% efficiency could suppress epidemic growth.

Kain et al. (Dec 21, 2020). Chopping the Tail: How Preventing Superspreading Can Help to Maintain COVID-19 Control. *Epidemics*. <https://doi.org/10.1016/j.epidem.2020.100430>

## Public Health Policy and Practice

- A history of substance use disorder (SUD) and drug overdose is a risk factor for adverse outcomes in patients diagnosed with COVID-19 in New York City. In a retrospective review of the medical records from 188,653 patients diagnosed with COVID in the NYU system, both SUD and drug overdose were associated with hospitalization, ICU admission, and death. Specifically, alcohol use disorder was associated with a 6.7-fold risk for hospitalization, overdose with a 5-fold risk for ICU admission, and overdose with a 3-fold risk for death.

Allen et al. (Dec 26, 2020). Association of Substance Use Disorders and Drug Overdose with Adverse COVID-19 Outcomes in New York City: January–October 2020. *Journal of Public Health*. <https://doi.org/10.1093/pubmed/fdaa241>

- Patients scheduled for telemedicine visits who were older, Asian, non-English-speaking and on Medicaid had lower uptake of telemedicine visits during the early phase of the pandemic in a retrospective cohort study of 148,402 patients in Pennsylvania. Patients who were older, female, Black, Latinx, and those with income <\$50,000 had less video use. No significant differences were found across medical specialties.

Eberly et al. (Dec 29, 2020). Patient Characteristics Associated With Telemedicine Access for Primary and Specialty Ambulatory Care During the COVID-19 Pandemic. *JAMA Network Open*. <https://doi.org/10.1001/jamanetworkopen.2020.31640>

## Other Resources and Commentaries

- [Covid-19: Tests on Students Are Highly Inaccurate, Early Findings Show](#) – BMJ (Dec 23)
- [The Importance and Challenges of Identifying SARS-CoV-2 Reinfections](#) – Journal of Clinical Microbiology (Dec 23)
- [Parents’ and Guardians’ Views and Experiences of Accessing Routine Childhood Vaccinations during the Coronavirus \(COVID-19\) Pandemic: A Mixed Methods Study in England](#) – PLOS ONE (Dec 28)
- [COVID-19 Vaccines: The Status and Perspectives in Delivery Points of View](#) – Advanced Drug Delivery Reviews (Dec 24)
- [Masks and Face Coverings for the Lay Public](#) – Annals of Internal Medicine (Dec 29)
- [Anticipating the Impacts of the COVID-19 Pandemic on Wildlife](#) – Frontiers in Ecology and the Environment (Dec 1)
- [Mandating COVID-19 Vaccines](#) – JAMA (Dec 29)
- [COVID-19 Vaccines and Women’s Security](#) – The Lancet (Dec 22)
- [COVID-19 Testing in Slovakia](#) – The Lancet Infectious Diseases (Jan 1)
- [What the Data Say about Border Closures and COVID Spread](#) – Nature (Dec 22)
- [Artificial Intelligence Predicts the Immunogenic Landscape of SARS-CoV-2 Leading to Universal Blueprints for Vaccine Designs](#) – Scientific Reports (Dec 23)
- [Women and the Weight of a Pandemic: A Survey of Four Western US States Early in the Coronavirus Outbreak](#) – Gender, Work & Organization (Dec 8)
- [Early Use of Nitazoxanide in Mild Covid-19 Disease: Randomised, Placebo-Controlled Trial](#) – The European Respiratory Journal (Dec 4)
- [Children’s Emotion Inferences from Masked Faces: Implications for Social Interactions during COVID-19](#) – PloS One (Dec 23)
- [Unexpected Lessons from the COVID-19 Lockdowns in France: Low Impact of School Opening on Common Communicable Pediatric Airborne Diseases](#) – Clinical Infectious Diseases (Dec 29)
- [One Year Later, How Does COVID-19 Affect Children?](#) – JAMA Pediatrics (Dec 28)
- [Risk Perception of COVID-19 Infection and Adherence to Preventive Measures among Adolescents and Young Adults](#) – Children (Dec 21)

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