



2019-nCoV Literature Situation Report (Lit Rep)

April 16, 2021

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

- ❑ **An estimated 545,600 to 660,200 excess deaths occurred in the US between January 2020 and February 2021, of which 75% to 88% were directly associated with COVID-19.** [More](#)
- ❑ **SARS-COV-2 infection risk was 82% lower among US Marine recruits who were seropositive at baseline compared to seronegative recruits. Over a 6-week period, 19 of 189 (10%) seropositive recruits had at least one positive SARS-CoV-2 PCR test compared to 1,079 of 2,247 (48%) seronegative recruits.** [More](#)
- ❑ **Two separate studies, one of which was conducted among nursing home patients, found that individuals who had a history of SARS-CoV-2 infection showed strong immune responses following a first dose of an mRNA vaccine (Pfizer-BioNTech or Moderna), while vaccine recipients with no history of SARS-CoV-2 infection required a second vaccine dose to reach similar levels of immunologic activity.** [More](#) and [More](#)

Non-Pharmaceutical Interventions

- *[Pre-print, not peer-reviewed]* Closure of indoor dining venues was associated with approximately 43% lower COVID-19 incidence over 4 weeks in an ecological study comparing 11 US cities from March to October 2020. The study included 4 "treatment" cities in which restaurants were allowed to reopen but indoor dining remained closed and 7 "comparison" cities in which restaurants were allowed to reopen and state government legislation allowed indoor dining to reopen, preempting indoor dining closures that would otherwise have been required by the cities. The results suggest that keeping indoor dining closed averted an average of 91 daily cases per city, and that approximately 28,000 cases would have been averted over the 4-week period had all cities kept indoor dining closed.

Schnake-Mahl et al. (Apr 16, 2021). Evaluating the Impact of Keeping Indoor Dining Closed on COVID-19 Rates among Large US Cities a Quasi-Experimental Design. Pre-print downloaded Apr 16 from <https://doi.org/10.1101/2021.04.12.21251656>

Vaccines and Immunity

- US Marine recruits who were seropositive for SARS-CoV-2 antibodies at baseline were 82% less likely than seronegative individuals to have a PCR-confirmed SARS-CoV-2 infection during a 6-week long cohort study. The study population consisted of predominantly male US Marine recruits aged 18-20 years (n=3,076). At baseline, all participants were PCR-negative. During the



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study period, 19 of 189 seropositive participants (10%) had at least one positive PCR test compared to 1,079 of 2,247 seronegative participants (48%) (1.1 vs 6.2 cases per person-year). Among seropositive participants, infection was less likely among those with higher baseline IgG titers. Higher baseline neutralizing titers were more frequently detected in seropositive participants who remained uninfected than those who were infected (83% vs 32%).

Letizia et al. (Apr 15, 2021). SARS-CoV-2 Seropositivity and Subsequent Infection Risk in Healthy Young Adults: A Prospective Cohort Study. The Lancet Respiratory Medicine.

[https://doi.org/10.1016/S2213-2600\(21\)00158-2](https://doi.org/10.1016/S2213-2600(21)00158-2)

- Nursing home residents with a past history of COVID-19 were far more likely than those without a history of COVID-19 to mount an antibody response to the first dose of the Pfizer-BioNTech vaccine. Among a cohort of nursing home residents in France, all 36 residents with prior COVID-19 were seropositive for anti-spike (S) IgG antibodies after one Pfizer-BioNTech vaccine dose compared to 29 (48%) of 60 residents without prior COVID-19. The participants were tested for anti-S IgG just prior to receiving the second dose. The anti-S IgG median titer of participants with prior COVID-19 were much higher than of those without prior COVID-19 ($\geq 40,000$ vs 48 AU/mL). Prior to testing, 72% of participants with prior COVID-19 were seropositive for anti-nucleocapsid (N) IgG.

Blain et al. (Apr 15, 2021). Spike Antibody Levels of Nursing Home Residents With or Without Prior COVID-19 3 Weeks After a Single BNT162b2 Vaccine Dose. JAMA.

<https://jamanetwork.com/journals/jama/fullarticle/2778926>

- A single dose of an mRNA vaccine (Moderna or Pfizer-BioNTech) administered to SARS-CoV-2 naïve individuals produced neutralizing activity against the D614G variant in 50% of recipients and against the B.1.351 variant in 16% of recipients (n=33). Neutralizing activity improved to 100% against the D614G variant and 96% against the B.1.351 variant following a second dose. Two doses of the vaccine were also required to achieve levels of SARS-CoV-2 RBD-specific memory B cells that were comparable to what is seen in non-vaccinated individuals who have recovered from COVID-19.
- By contrast, neutralizing antibody activity and antigen-specific memory B cell levels in individuals who had recovered from a SARS-CoV-2 infection were significantly boosted after the first vaccine dose and did not significantly change after the second dose.

Goel et al. (Apr 15, 2021). Distinct Antibody and Memory B Cell Responses in SARS-CoV-2 Naïve and Recovered Individuals Following mRNA Vaccination. Science Immunology.

<https://doi.org/10.1126/sciimmunol.abi6950>

- Observed safety and reactogenicity to 2 doses of mRNA vaccines (Moderna and Pfizer-BioNTech) was similar to that reported in clinical trials among a cohort of US solid organ transplant recipients recruited through social media (n=741). Local site reactions were reported by 85% and 78% of participants and systemic reactions were reported by 49% and 69% of participants following the first and second doses, respectively. Younger participants were more likely to develop systemic reactions following either dose. No anaphylaxis, neurologic diagnoses, or SARS-CoV-2 diagnoses were reported.

Ou et al. (Apr 9, 2021). Safety and Reactogenicity of 2 Doses of SARS-CoV-2 Vaccination in Solid Organ Transplant Recipients. Transplantation. <https://pubmed.ncbi.nlm.nih.gov/33859151>

Mental Health and Personal Impact

- Weekly prescriptions for opioid analgesics to new patients were at 66% of the level that would have been normally projected during the initial phase of the COVID-19 pandemic from March to May 2020, but rebounded to 100% by August, according to a cross-sectional study (>90 US million patients). Weekly prescriptions for buprenorphine for opioid use disorder (OUD) to new patients were at 82% of projected levels, but rebounded to 90% by August. For existing users, prescriptions for both opioid analgesics and buprenorphine for opioid use disorder largely followed pre-pandemic trends.

Currie et al. (Apr 15, 2021). Prescribing of Opioid Analgesics and Buprenorphine for Opioid Use Disorder During the COVID-19 Pandemic. JAMA Network Open.

<https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2778564>

- Odds of past 30-day e-cigarette use among US youth were significantly lower following widespread stay-at-home orders in mid-March 2020 compared to the pre-pandemic period (ages 15-17, OR=0.72; ages 18-20, OR=0.65), according to a weekly online cross-sectional survey (n=5,752) conducted from January to June 2020. In a subsample analysis among current e-cigarette users (n=779), reduced access to retail environments increased odds of reporting reduced e-cigarette use by 51%.

Kreslake et al. (Apr 15, 2021). E-Cigarette Use Among Youths and Young Adults During the COVID-19 Pandemic: United States, 2020. American Journal of Public Health.

<https://doi.org/10.2105/AJPH.2021.306210>

Public Health Policy and Practice

- An estimated 545,600 to 660,200 excess deaths occurred in the US during January 2020 to February 2021 according to data from the National Vital Statistics System (NVSS). Excess deaths peaked during the weeks ending April 11, 2020, August 1, 2020, and January 2, 2021. Approximately 75-88% of excess deaths were directly associated with COVID-19. Excess deaths were estimated using mortality data from 2013 through February 2021.

Rossen et al. (Apr 16, 2021). Notes from the Field: Update on Excess Deaths Associated with the COVID-19 Pandemic — United States, January 26, 2020–February 27, 2021. MMWR.

<https://doi.org/10.15585/mmwr.mm7015a4>

- *[Pre-print, not peer-reviewed]* An analysis of the distribution of SARS-CoV-2 cases and the number of people vaccinated in Massachusetts indicated that communities with increased socioeconomic vulnerability and higher proportions of Black/Latinx residents had fewer people vaccinated per cumulative number of individuals infected, measured by the vaccination-to-infection risk (VIR) ratio. Improved VIRs were associated with higher community proportion of residents aged ≥ 65 years. The authors estimate that 330,000 vaccination courses would need to be diverted to communities with lower VIRs to achieve equity.

Dryden-Peterson et al. (Apr 15, 2021). Disparities in SARS-CoV-2 Vaccination-to-Infection Risk Massachusetts 2020-2021. Pre-print downloaded Apr 16 from

<https://doi.org/10.1101/2021.04.14.21255467>

- An estimated 9,000 people in the US died from drug overdose in May 2020, representing a 58% increase over May 2019. The largest number of deaths occurred in West Virginia, Kentucky, and

Tennessee. Monthly deaths and pandemic-related spikes were estimated by disaggregating provisional CDC data that were aggregated into 12-month rolling sums.

Friedman and Akre. (Apr 15, 2021). COVID-19 and the Drug Overdose Crisis: Uncovering the Deadliest Months in the United States, January-July 2020. American Journal of Public Health. <https://doi.org/10.2105/AJPH.2021.306256>

- Between June 2020 and March 2021, emergency department (ED) visits for influenza accounted for less than 0.1% of all visits in approximately 71% of US facilities in all states except Hawaii. By contrast, influenza visits reached 3.1% of all ED visits in February 2018 and 5% of all ED visits in February 2019 alone. ED visits for COVID-19 accounted for 2.8% of ED visits in early July 2020, then peaked at 7.2% in early January 2021.

Gates et al. (Apr 16, 2021). COVID-19 Stats: COVID-19 and Influenza Discharge Diagnoses as a Percentage of Emergency Department (ED) Visits, by Year — United States, June 2018–March 2021. MMWR. <https://doi.org/10.15585/mmwr.mm7015a7>

- No statistical differences in obstetric or neonatal outcomes were observed between SARS-CoV-2 positive and negative individuals in a cohort study of predominantly Black pregnant women in Brooklyn (n=335). On admission, most (86%) patients who tested positive for SARS-CoV-2 were asymptomatic, and remained asymptomatic throughout their time in the hospital. Rates of preterm birth, cesarean delivery, vaginal delivery, vaginal birth after cesarean, birthweight, APGAR scores, and percentage of neonates requiring resuscitation were similar between the two groups. Prevalence of comorbidities between the two groups were also similar.

Liu et al. (Apr 15, 2021). Effect of SARS-CoV-2 Infection on Pregnancy Outcomes in an Inner-City Black Patient Population. Journal of Community Health. <https://doi.org/10.1007/s10900-021-00988-z>

- SARS-CoV-2 infections were reported by 665 Federal Bureau of Prisons (FOB) staff across 60% of institutions from March to June 2020, corresponding to a case rate of 1,767 per 100,000. Among institutions that experienced outbreaks, the staff case rate was 4,813 per 100,000. Infections among staff working in lower security prisons and detention centers that typically employ dorm-style housing were up to 6-times as likely compared to medium security prisons. Staff working in high security prisons, which are more characterized with cell-based housing, had lower likelihood of infection.

Toblin et al. (Apr 15, 2021). SARS-CoV-2 Infection Among Correctional Staff in the Federal Bureau of Prisons. American Journal of Public Health. <https://doi.org/10.2105/AJPH.2021.306237>

- Adolescents motivated by preventing others from getting sick were more likely to engage in physical distancing to prevent SARS-CoV-2 transmission, according to over 6,000 assessments from a national sample of US adolescents (n=444, aged 13-18 years). Daily social support from friends, connectedness with friends via technology, and practical knowledge on preventing transmission of SARS-CoV-2 predicted participants' same- and next-day engagement with physical distancing. Responses were collected using focus group and daily-diary approaches during a 2-week period at the onset of the COVID-19 pandemic (March 2020).

Wang et al. (Apr 12, 2021). Safely Social: Promoting and Sustaining Adolescent Engagement in Social Distancing During the COVID-19 Pandemic. Journal of Adolescent Health. <https://doi.org/10.1016/j.jadohealth.2021.03.014>

Other Resources and Commentaries

- [The COVID-19 Pandemic: Effects on Civil Registration of Births and Deaths and on Availability and Utility of Vital Events Data](#) – American Journal of Public Health (Apr 15)
- [Access to and Equitable Distribution of COVID-19 Vaccine in Low-Income Countries](#) – Npj Vaccines (Apr 14)
- [Vaccination of Front-Line Workers with the AstraZeneca COVID-19 Vaccine: Benefits in the Face of Increased Risk for Prothrombotic Thrombocytopenia](#) – MedRxiv (Apr 15)
- [How Are Emerging Data Translated Into Clinical Practice? A Mixed Methods Investigation of Coronavirus Disease 2019 Institutional Treatment Protocols](#) – Open Forum Infectious Diseases (Apr 1)
- [Ten Urgent Priorities Based on Lessons Learned From More Than a Half Million Known COVID-19 Cases in US Prisons](#) – American Journal of Public Health (Apr 15)
- [A Guideline to Limit Indoor Airborne Transmission of COVID-19](#) – Proceedings of the National Academy of Sciences (Apr 27)
- [Beyond COVID-19—Will Self-Sampling and Testing Become the Norm](#) – The Lancet Infectious Diseases (Apr 12)
- [Variation in Reporting of the Race and Ethnicity of COVID-19 Cases and Deaths Across US States: April 12, 2020, and November 9, 2020](#) – American Journal of Public Health (Apr 15)
- [Genomics and Epidemiology of the P.1 SARS-CoV-2 Lineage in Manaus, Brazil](#) – Science (Apr 14)
- [Job Type, Neighborhood Prevalence, and Risk of COVID-19 Among Healthcare Workers in New York City](#) – Infection Control & Hospital Epidemiology (Apr 15)
- [Analysis of Mobility Data to Build Contact Networks for COVID-19](#) – PLOS ONE (Apr 15)
- [Mental Health Policy: Protecting Community Mental Health during the COVID-19 Pandemic](#) – Journal of Public Health Research (Apr 14)
- [Maintaining Treatment and Prevention Programs for Opioid Use Disorders during the Coronavirus Disease 2019 Pandemic](#) – Current Opinion in Psychiatry (Apr 14)
- [COVID-19 Air Travel Restrictions and Vaccine Passports: An Ongoing Debate](#) – Travel Medicine and Infectious Disease (Apr 12)
- [Stay-at-Home Orders, Mobility Patterns, and Spread of COVID-19](#) – American Journal of Public Health (Apr 15)
- [The Effect of Eviction Moratoria on the Transmission of SARS-CoV-2](#) – Nature Communications (Apr 15)
- [COVID-19—The Case for Rethinking Health and Human Rights in Prisons](#) – American Journal of Public Health (Apr 15)
- [Covid-19 Early Evening Curfews Are Not Effective and May Backfire](#) – MedRxiv (Apr 15)
- [The Importance of Federal Waivers and Technology in Ensuring Access to WIC During COVID-19](#) – American Journal of Public Health (Apr 15)
- [Fundors, Now Is the Time to Invest Big in COVID Drugs](#) – Nature (Apr 15)

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