

2019-nCoV Literature Situation Report (Lit Rep)

December 10, 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

- **Results of the phase 3 trial for the BioNTech and Pfizer vaccine BNT162b2 (n=21,720 in vaccine group, 21,728 in placebo group) showed a vaccine efficacy of 95%, with 8 cases of COVID-19 in the vaccine group and 162 cases in the placebo group after 2 doses. [More](#)**
- **US emergency department visits related to child abuse and neglect during March-April 2020 decreased by 53% compared to 2019; yet, the weekly number of these visits ending in hospitalization remained stable, suggesting that injury severity from child abuse did not decrease. [More](#)**
- **While the majority of respondents in a survey of US parents of school-aged children conducted in July agreed that schools should reopen in fall 2020, parents from racial/ethnic minority groups more frequently expressed concerns about schools opening at full capacity, student mitigation compliance, and their child contracting COVID-19 from school and bringing it home. [More](#)**
- **Data from 14 states, including Washington, show that age-adjusted COVID-19-associated mortality among American Indians/Alaskan Natives was 1.8 times that among non-Hispanic whites, with persons aged 20-49 years experiencing the largest disparities in mortality rate. [More](#)**

Non-Pharmaceutical Interventions

- A questionnaire administered to 12,434 UK National Health Service users found that people who believe they had COVID-19 and recovered from it were 27% less likely to be willing to download a contact tracing app than people who do not believe they had COVID-19. While 60.3% were willing to participate, the authors report this proportion is insufficient for the app to be an effective intervention.

Bachtiger et al. (Nov 6, 2020). Belief of Having Had Unconfirmed Covid-19 Infection Reduces Willingness to Participate in App-Based Contact Tracing. Npj Digital Medicine.

<https://doi.org/10.1038/s41746-020-00357-5>

- An internet panel survey (n=858) conducted in July 2020 found parents of school-aged children who identified as members of racial and ethnic minority groups expressed more concerns about some aspects of school re-opening than their peers who identified as non-Hispanic white. Though the majority (56.5%) strongly or somewhat agreed that schools should reopen in fall 2020, non-Hispanic white parents were significantly more likely than Black or Hispanic parents to support school reopening. Minority racial/ethnic groups were also more likely to report concerns about schools

opening at full capacity, student mitigation compliance, and their child contracting COVID-19 from school and bringing it home.

Gilbert et al. (Dec 11, 2020). Racial and Ethnic Differences in Parental Attitudes and Concerns About School Reopening During the COVID-19 Pandemic — United States, July 2020. MMWR. Morbidity and Mortality Weekly Report. <https://doi.org/10.15585/mmwr.mm6949a2>

- Fitted filtration efficiency (FFE) of consumer-grade masks and improvised face coverings was similar to FFE of non-N95 respirator medical procedure masks with modifications to enhance fit, suggesting they are comparable in their ability to protect the wearer. FFE of consumer grade masks ranged from 26.5% to 79.5%. The highest performing consumer-grade mask was a 2-layer, woven nylon mask with optional aluminum nose bridge designed to be worn by an adult male without a beard, while FFE for medical procedure masks with modifications ranged from 38.5% (no modifications) up to 80.2%.

Clapp et al. (Dec 10, 2020). Evaluation of Cloth Masks and Modified Procedure Masks as Personal Protective Equipment for the Public During the COVID-19 Pandemic. JAMA Internal Medicine. <https://doi.org/10.1001/jamainternmed.2020.8168>

Transmission

- A high rate of SARS-CoV-2 infection was identified among residents in a large refugee shelter in Toronto in April 2020, with 25 (41.7%) of 60 adults testing positive. Only 5 (20%) residents were symptomatic at the time of testing, while 21 (87.5%) were symptomatic 14 days after testing. The authors state these results highlight the need for timely asymptomatic surveillance testing in congregate living settings.

Redditt et al. (Dec 8, 2020). Outbreak of SARS-CoV-2 Infection at a Large Refugee Shelter in Toronto, April 2020: A Clinical and Epidemiologic Descriptive Analysis. CMAJ Open. <https://doi.org/10.9778/cmajo.20200165>

- In a retrospective study of 28 COVID-19 patients in Japan, median viral load at initial sample collection was significantly higher in symptomatic than asymptomatic patients, and also higher among adults than children. Among symptomatic patients (n=18), median viral load was consistently higher in patients identified as household cluster index cases than in non-index cases up to 10 days after symptom onset. Viral load was also higher among index patients than in non-index patients among adults (both symptomatic and asymptomatic; n=21).

Kawasuji et al. (Dec 9, 2020). Transmissibility of COVID-19 Depends on the Viral Load around Onset in Adult and Symptomatic Patients. PLOS ONE. <https://doi.org/10.1371/journal.pone.0243597>

Testing and Treatment

- Evaluation of the Xpert Xpress SARS-CoV-2/Flu/RSV panel test showed high sensitivity and accuracy to distinguish SARS-CoV-2 from influenza and respiratory syncytial virus (RSV). Among 319 nasopharyngeal swab specimens (n=228 positive for SARS-CoV-2, influenza, or RSV; n=91 negative for all 3 infections), positive agreement for SARS-CoV-2 was 98.7% (n=74/75) and negative agreement was 100% (n=91), while all other pathogens showed 100% total agreement.

Mostafa et al. (Dec 9, 2020). Multi-Center Evaluation of the Cepheid Xpert® Xpress SARS-CoV-2/Flu/RSV Test. Journal of Clinical Microbiology. <https://doi.org/10.1128/JCM.02955-20>

Vaccines and Immunity

- A retrospective study juxtaposing longitudinal SARS-CoV-2 PCR positivity with IgG antibody seropositivity (n=851) found patients who seroconverted may still actively shed viral RNA. Out of 90 patients with positive IgG results (mean upper bound from initial PCR test = 37.8 days), 14 were actively shedding viral RNA (positive PCR test) between 0 and 64 days after an IgG positive test. Though PCR positivity does not imply infectiousness, the authors suggest longitudinally monitoring viral loads and neutralizing antibody titers to characterize the infection lifecycle.

Agarwal et al. (Dec 2, 2020). Long-Term SARS-CoV-2 RNA Shedding and Its Temporal Association to IgG Seropositivity. Cell Death Discovery. <https://doi.org/10.1038/s41420-020-00375-y>

- Results of the phase 3 double-blind, randomized, placebo-controlled trial for the BioNTech and Pfizer mRNA vaccine BNT162b2 (n=21,720 in vaccine group, and 21,728 in placebo group) showed a vaccine efficacy of 95% (95% CI 90.3-97.6), with 8 cases of COVID-19 (1 severe case) in the vaccine group and 162 cases (9 severe cases) in the placebo group. Efficacy was similar across subgroups defined by age, sex, race, ethnicity, body-mass index, and presence of co-existing conditions.
- Reactogenicity events were common among vaccine recipients, including arm pain, fatigue and headache. Fever (temperature $\geq 38^{\circ}\text{C}$) was reported after the second vaccine dose by 16% of participants <55 years old and 11% of participants >55. Few participants in either group had severe or serious adverse events, and the 6 deaths (2 in vaccine group, 4 in placebo group) were determined by investigators not to be related to the vaccine or placebo by investigators.
- Participants were included from 152 sites in 6 countries (130 sites in the US). The majority were aged 18-55 (58%), white (83%), and male (51%). 35% were obese and 21% had at least one coexisting condition.

Polack et al. (Dec 10, 2020). Safety and Efficacy of the BNT162b2 MRNA Covid-19 Vaccine. New England Journal of Medicine. <https://doi.org/10.1056/NEJMoa2034577>

Clinical Characteristics and Health Care Setting

- A retrospective and prospective observational study of all children in the UK under 16 diagnosed with cancer suggests that children with cancer do not appear to be at increased risk of severe SARS-CoV-2 infection compared to the general pediatric population. 54 cases were identified between March-July 2020 (3% estimated cumulative incidence); 5 (28%) were asymptomatic, 34 (63%) had mild infections, 5 (10%) had moderate, severe or critical infection, and no deaths were observed.

Millen et al. (Dec 10, 2020). Severity of COVID-19 in Children with Cancer: Report from the United Kingdom Paediatric Coronavirus Cancer Monitoring Project. British Journal of Cancer. <https://doi.org/10.1038/s41416-020-01181-0>

Mental Health and Personal Impact

- In an online survey of a culturally diverse sample of 3,273 adults in Quebec, mental health impacts of the COVID-19 pandemic varied significantly based on socioeconomic status and ethno-cultural group. Compared to other socioeconomic and ethno-cultural groups, participants with lower incomes and Arab participants reported higher psychological distress. Black participants exposed to COVID-19 (personal diagnosis or knew someone with diagnosis) or who reported discrimination reported higher mental distress.

Miconi et al. (Dec 9, 2020). Ethno-Cultural Disparities in Mental Health during the COVID-19 Pandemic: A Cross-Sectional Study on the Impact of Exposure to the Virus and COVID-19-Related

Modeling and Prediction

- Modeling based on King County, Washington State indicates that returning to a level of 75% of pre-COVID-19 physical interactions between May 15-July 15 was projected to result in 350 daily deaths by early September 2020. Maintaining less than 45% of pre-COVID-19 physical interactions was required to ensure low levels of daily infections and deaths. A combination of increased testing, isolation of symptomatic infections, and contact tracing permitted 60% of pre-COVID-19 physical interactions and allowed opening of schools with <15 daily deaths. [EDITORIAL NOTE: This manuscript was previously summarized as a pre-print on Aug. 16]

Bracis et al. (Nov 13, 2020). Widespread Testing, Case Isolation and Contact Tracing May Allow Safe School Reopening with Continued Moderate Physical Distancing: A Modeling Analysis of King County, WA Data. Infectious Disease Modelling. <https://doi.org/10.1016/j.idm.2020.11.003>

Public Health Policy and Practice

- Data from 14 states, including Washington, show that age-adjusted COVID-19-associated mortality was 1.8 times higher among American Indian/Alaskan Native (AI/AN) than non-Hispanic white individuals. People aged 20-29 years, 30-39 years, and 40-49 years experienced the largest disparities, with mortality rates 10.5, 11.6, and 8.2 times higher, respectively. Overall, AI/AN persons dying from COVID-19 were younger than their white peers, with 35.1% of AI/AN COVID-19-associated deaths among persons aged <60 years, compared with 6.3% of deaths among white persons. Mortality was higher among men for both AI/AN and white persons.

Arrazola et al. (Dec 11, 2020). COVID-19 Mortality Among American Indian and Alaska Native Persons — 14 States, January–June 2020. MMWR. Morbidity and Mortality Weekly Report. <https://doi.org/10.15585/mmwr.mm6949a3>

- Early in the pandemic during March-April 2020, the total number of US emergency department (ED) visits related to child abuse and neglect among individuals aged <18 years decreased by 53% compared to 2019, but the weekly number of these visits ending in hospitalization remained stable. As a result, the percentage of ED visits for child abuse and neglect resulting in hospitalization increased significantly for all age groups, from an overall 2.1% in 2019 to 3.2%. These findings suggest that while child-abuse related ED visits decreased during the pandemic, injury severity did not decrease.

Swedo et al. (Dec 11, 2020). Trends in U.S. Emergency Department Visits Related to Suspected or Confirmed Child Abuse and Neglect Among Children and Adolescents Aged <18 Years Before and During the COVID-19 Pandemic — United States, January 2019–September 2020. MMWR. Morbidity and Mortality Weekly Report. <https://doi.org/10.15585/mmwr.mm6949a1>

Other Resources and Commentaries

- [Audio Interview: SARS-CoV-2 Vaccination and Vulnerable Populations](#) – New England Journal of Medicine (Dec 10)
- [Prevalence and Neighborhood Geomapping of COVID-19 in an Underserved Chicago Pregnant Population](#) – American Journal of Perinatology Reports (Dec 3)

- [The Healthy Brain and Child Development Study—Shedding Light on Opioid Exposure, COVID-19, and Health Disparities](#) – JAMA Psychiatry (Dec 9)
- [Vital Signs Assessed in Initial Clinical Encounters Predict COVID-19 Mortality in an NYC Hospital System](#) – Scientific Reports (Dec 9)
- [#MoreThanAVisitor: Families as “Essential” Care Partners During COVID-19](#) – The Gerontologist (Dec 9)
- [Male Sex Identified by Global COVID-19 Meta-Analysis as a Risk Factor for Death and ITU Admission](#) – Nature Communications (Dec 9)
- [Low-Avidity CD4+ T Cell Responses to SARS-CoV-2 in Unexposed Individuals and Humans with Severe COVID-19](#) – Immunity (Nov 26)
- [COVID Vaccines: The World’s Medical Regulators Need Access to Open Data](#) – Nature (Dec 10)
- [Oxford COVID-Vaccine Paper Highlights Lingering Unknowns about Results](#) – Nature (Dec 8)
- [Food Worry in the Deaf and Hard-of-Hearing Population During the COVID-19 Pandemic](#) – Public Health Reports (Dec 9)
- [Financial, Food, and Housing Insecurity Due to Coronavirus Disease 2019 Among At-Risk People With Human Immunodeficiency Virus in a Nonurban Ryan White HIV/AIDS Program Clinic](#) – Open Forum Infectious Diseases (Oct 1)
- [Neutralizing Antibodies for the Treatment of COVID-19](#) – Nature Biomedical Engineering (Dec 8)
- [Rapid Deployment of National Guard Alternative Healthcare Facility With Isolation Unit Capabilities in Response to COVID-19](#) – Military Medicine (Dec 9)
- [Ensuring Equitable Access to COVID-19 Vaccines](#) – Bulletin of the World Health Organization (Dec 1)
- [A Step Backwards in the Fight against Global Vaccine Inequities](#) – The Lancet (Dec 10)
- [SARS-CoV-2 Vaccination — An Ounce \(Actually, Much Less\) of Prevention](#) – New England Journal of Medicine (Dec 10)
- [Deviations in Criminal Filings of Child Abuse and Neglect during COVID-19 from Forecasted Models: An Analysis of the State of Oklahoma, USA](#) – Child Abuse & Neglect (Dec 9)

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