

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

- **The Advisory Committee on Immunization Practices announced 4 ethical principles in developing strategies for the initial allocation of a SARS-CoV-2 vaccine: 1) maximizing benefits and minimizing harms; 2) promoting justice; 3) mitigating health inequities; and 4) promoting transparency.** [More](#)
- **An at-home finger-prick dried blood spot collection kit demonstrated 100% sensitivity and specificity in detecting SARS-CoV-2 antibodies against S1 protein in 111 self-collected samples.** [More](#)
- **A single-blind, randomized control, phase 2/3 trial in the UK reported a chimpanzee adenovirus-vectored vaccine, ChAdOx1 nCoV-19, could induce antibody responses against the SARS-CoV-2 spike protein and maintain the response for 28 days. None of 13 serious adverse events were considered to be related to either study vaccine or control.** [More](#)

Non-Pharmaceutical Interventions

- A meta-analysis with 67 pre-COVID-19 trials reported no significant reduction in respiratory viral infection with the use of medical/surgical masks during influenza season (9 trials; 3507 participants), and no clear differences between the use of medical/surgical masks versus N95/P2 respirators in healthcare workers (5 trials; 8407 participants). Hand hygiene was associated with an 11% relative reduction of respiratory illness (7 trials; 44,129 participants) but with low-certainty evidence and high heterogeneity.

Jefferson et al. (Nov 20, 2020). Physical Interventions to Interrupt or Reduce the Spread of Respiratory Viruses. The Cochrane Database of Systematic Reviews. <https://doi.org/10.1002/14651858.CD006207.pub5>

Transmission

- Genetic sequencing among 6 patients who retested positive for SARS-CoV-2 via rRT-PCR after recovery from initial infection identified one reinfection with a subtype of SARS-CoV-2 strain in the spike protein D614G substitution, that was genetically distinct from the initial infection. The positive test with the new strain occurred 26 days after the initial positive test and was associated with worsening respiratory symptoms. The participant tested positive in a third episode with viral fragments that matched the initial strain. The authors conclude that SARS-CoV-2 infection may not confer immunity against a different SARS-CoV-2 strain.

Lee et al. (Nov 21, 2020). Evidence of Severe Acute Respiratory Syndrome Coronavirus 2 Reinfection After Recovery from Mild Coronavirus Disease 2019. *Clinical Infectious Diseases*. <https://doi.org/10.1093/cid/ciaa1421>

- Inoculation of SARS-CoV-2 or MERS-CoV into 5 poultry species (chickens, turkeys, ducks, quail, and geese; 10 birds of each species included) did not show clinical signs of disease, virus replication in oropharyngeal and cloacal swabs, nor serum antibody response in serum at 14 days post-challenge. The authors suggest that poultry are unlikely to support replication of either virus.

Suarez et al. (Nov 23, 2020). Lack of Susceptibility to SARS-CoV-2 and MERS-CoV in Poultry. *Emerging Infectious Diseases*. <https://doi.org/10.3201/eid2612.202989>

- Older age was associated with a longer duration of SARS-CoV-2 viral shedding among a cohort of 384 patients admitted from January 11, 2020 to March 24, 2020 in Wuhan, China (adjusted OR=1.02, 95%CI=1.01-1.04; p=0.003). The median duration of viral RNA shedding was 32 days (range 4-111 days).

Zhou et al. (Nov 15, 2020). Impact of Age on Duration of Viral RNA Shedding in Patients with COVID-19. *Aging*. <https://doi.org/10.18632/aging.104114>

Testing and Treatment

- A home-based finger-prick dried blood spot collection kit demonstrated 100% sensitivity and 100% specificity in detecting SARS-CoV-2 antibodies against S1 protein in 111 specimens collected at home from 31 patients with COVID-19 and 80 healthy participants. The authors conclude such methods may facilitate the test within hard-to reach-populations and help reduce the sample collection burden of serological testing on both health care systems and individuals.

Karp et al. (Nov 19, 2020). A Serological Assay to Detect SARS-CoV-2 Antibodies in at-Home Collected Finger-Prick Dried Blood Spots. *Scientific Reports*. <https://doi.org/10.1038/s41598-020-76913-6>

- Pooling strategies for SARS-CoV-2 RT-PCR screening showed low sensitivity compared to single sample testing in medical staff in a hospital in Germany. Among 280 samples tested (8 positive, 3%), the sensitivity was 29% in pooling with 10 samples (2/7 pools) and 76% in pooling with 5 samples (13/17 pools). In contrast to other studies, the majority of samples were from throat washes (247/280, 88%), and a minority were 32/280 (11%) were from swabs, owing to a lack of available swabs. Samples were prospectively tested both individually and in pools to make the comparisons.

Lüsebrink et al. (Nov 20, 2020). Pooling Is an Insufficient Strategy to Avoid Health Care Staff to Patient Transmission of SARS-CoV-2. *Infection Control & Hospital Epidemiology*. <https://doi.org/10.1017/ice.2020.1340>

Vaccines and Immunity

- The Advisory Committee on Immunization Practices announced 4 ethical principles, in addition to scientific data and implementation feasibility, to assist in developing implementation strategies for the initial allocation of a SARS-CoV-2 vaccine: 1) maximizing benefits and minimizing harms; 2) promoting justice; 3) mitigating health inequities; and 4) promoting transparency.

McClung et al. (Nov 23, 2020). The Advisory Committee on Immunization Practices' Ethical Principles for Allocating Initial Supplies of COVID-19 Vaccine — United States, 2020. *MMWR*. <https://doi.org/10.15585/mmwr.mm6947e3>

- A novel chimpanzee adenovirus-vectored vaccine, ChAdOx1 nCoV-19, was reported to be safe and well tolerated with reduced reactogenicity in healthy adults aged ≥ 18 years. A single-blind, randomized phase 2/3 trial in UK (n=552) found that compared to adults who received a control vaccine for meningitis, adults who received ChAdOx1 nCoV-19 developed antibody responses against the SARS-CoV-2 spike protein and sustained them at 28 days after booster vaccination. T-cell immune responses were also induced and peaked at day 14 after vaccination. Results were similar across age groups (18–55 years, 56–69 years, and ≥ 70 years). As of Oct 26, 2020, 13 serious adverse events occurred during the study period, none of which were considered to be related to either study vaccine.

Ramasamy et al. (Nov 18, 2020). Safety and Immunogenicity of ChAdOx1 NCoV-19 Vaccine Administered in a Prime-Boost Regimen in Young and Old Adults (COV002): A Single-Blind, Randomised, Controlled, Phase 2/3 Trial. Lancet. [https://doi.org/10.1016/S0140-6736\(20\)32466-1](https://doi.org/10.1016/S0140-6736(20)32466-1)

Clinical Characteristics and Health Care Setting

- In a cohort of 48 university student athletes who recovered from SARS-CoV-2 infection and returned to campus in July 2020 in West Virginia (30% asymptomatic), more than 1 in 3 showed signs of resolving heart inflammation on imaging studies. 27 student athletes (56%) had cardiac abnormalities, including 19 students with late enhancement of the pericardium and associated pericardial effusion. No student athlete showed specific imaging features of ongoing myocardial inflammation.

Brito et al. (Nov 4, 2020). High Prevalence of Pericardial Involvement in College Student Athletes Recovering From COVID-19. JACC. Cardiovascular Imaging. <https://doi.org/10.1016/j.jcmg.2020.10.023>

- A case-control study of women hospitalized with severe or critical COVID-19 in New York City and Philadelphia reported that pregnant women (n=38) were more likely to experience severe outcomes, including death and need for intubation or ventilation, when compared to the non-pregnant (n=94) women (34% vs. 15%, aOR=4.6). Pregnant patients also experienced higher rates of ICU admission than non-pregnant patients (39% vs. 17%, aOR=5.2). The mean age and BMI were significantly higher among women in the non-pregnant group.

DeBolt et al. (Nov 19, 2020). Pregnant Women with Severe or Critical COVID-19 Have Increased Composite Morbidity Compared to Non-Pregnant Matched Controls. American Journal of Obstetrics and Gynecology. <https://doi.org/10.1016/j.ajog.2020.11.022>

- 50% of long-term care workers (LTC) in the US are at increased risk of severe illness from COVID-19 due to age >65 , obesity, or medical co-morbidities based on data from the 2017 and 2018 National Health Interview Surveys and risk categories developed by the CDC. Severe illness was defined as hospitalization, intubation, or death. A greater proportion of LTC workers were Black, female and low income compared to the general population.

Greene and Gibson. (Nov 19, 2020). Workers at Long-Term Care Facilities and Their Risk for Severe COVID-19 Illness. Preventive Medicine. <https://doi.org/10.1016/j.ypmed.2020.106328>

- A meta-analysis (n = 96 studies) of the clinical characteristics of SARS-CoV-2 in children (mean age 6.5 years) reported that 90% had household contact with an individual with SARS-CoV-2, 23% were asymptomatic, 27% had at least one comorbidity, and 29% had a co-infection, such as with mycoplasma or influenza. The pooled incubation period was 9.6 days and SARS-CoV-2 viral shedding

in the upper respiratory tract lasted 11.4 days. The discharge rate was 79% and the death rate was 1%.

Li et al. (Nov 2, 2020). Epidemiological and Clinical Characteristics of COVID-19 in Children: A Systematic Review and Meta-Analysis. Frontiers in Pediatrics. <https://doi.org/10.3389/fped.2020.591132>

- A study following patients (n = 124) for 3 months after they were discharged from the hospital following recovery from COVID-19 in the Netherlands reported that a substantial proportion reported severe problems in several health domains including functional impairment (64%), fatigue (69%) and quality of life (72%) after recovery from acute COVID-19.
van den Borst et al. (Nov 21, 2020). Comprehensive Health Assessment Three Months after Recovery from Acute COVID-19. Clinical Infectious Diseases. <https://doi.org/10.1093/cid/ciaa1750>

Modeling and Prediction

- *[Preprint, not peer-reviewed]* A modeling study based on a scenario of one million individuals in Ontario, Canada predicted that school reopening would result in a small change in COVID-19 case numbers among students and teachers in a setting with community-based prevention measures. The model showed that the increase was driven mostly by acquisition in the community, and fewer than 5% of infections among students and teachers were acquired within schools. It also indicated that implementation of community-based prevention measures would reduce 39,355 COVID-19 incident cases by October 31, 2020, while school closure vs. reopening on September 15 would reduce 2,040 cases.
Naimark et al. (Nov 21, 2020). The Potential Impact of School Closure Relative to Community-Based Non-Pharmaceutical Interventions on COVID-19 Cases in Ontario Canada. Pre-print downloaded Nov 23 from <https://doi.org/10.1101/2020.11.18.20234351>

Other Resources and Commentaries

- [Update to Living WHO Guideline on Drugs for Covid-19.](#) – BMJ (Clinical Research Ed.) (Nov 20)
- [Age and Frailty in COVID-19 Vaccine Development](#) – The Lancet (Nov 18)
- [Second Job Holding Among Direct Care Workers and Nurses: Implications for COVID-19 Transmission in Long-Term Care.](#) – Medical Care Research and Review (Nov 19)
- [Why Methodology Is Important: Coffee as a Candidate Treatment for COVID-19?](#) – Journal of Clinical Medicine (Nov 17)
- [Successful Interruption of Seasonal Influenza Transmission under the COVID-19 Rapid Response in Zhejiang Province, China.](#) – Public Health (Oct 20)
- [Covid-19: What Now for Remdesivir?](#) – BMJ (Nov 19)
- [Immediate Impact of COVID-19 on Mental Health and Its Associated Factors among Healthcare Workers: A Global Perspective across 31 Countries](#) – Journal of Global Health (Aug 23)
- [Ct Values and Infectivity of SARS-CoV-2 on Surfaces](#) – The Lancet Infectious Diseases (Nov 19)
- [Uncertainty Risks and Strategic Reaction of Restaurant Firms amid COVID-19: Evidence from China.](#) – International Journal of Hospitality Management (Nov 15)

- [New Pathogen, Same Disparities: Why COVID-19 and HIV Remain Prevalent in U.S. Communities of Colour and Implications for Ending the HIV Epidemic.](#) – Journal of the International AIDS Society (Oct 28)
- [Disparate Disruptions: Intersectional COVID-19 Employment Effects by Age, Gender, Education, and Race/Ethnicity.](#) – Work, Aging and Retirement (Sep 12)
- [Nursing Homes in the Crosshairs](#) – American Journal of Nursing (Dec 1)
- [Dynamic Metrics for Public Health Surveillance Are Imperative to Gain Control of the COVID-19 Pandemic in America: Longitudinal Trend Analysis.](#) – Journal of Medical Internet Research (Nov 20)
- [Policy Makers Must Act on Incomplete Evidence in Responding to COVID-19](#) – Cochrane Database of Systematic Reviews (Nov 20)
- [The COVID-19 Trial Finder.](#) – Journal of the American Medical Informatics Association (Nov)
- [International Survey of COVID-19 Management Strategies.](#) – International Journal for Quality in Health Care (Nov 20)
- [Livestock Plants and COVID-19 Transmission.](#) – PNAS (Nov 19)
- [Why Oxford’s Positive COVID Vaccine Results Are Puzzling Scientists.](#) – Nature (Nov 23)

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