

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 interim analysis of ongoing phase 2/3 trials for the Oxford–AstraZeneca vaccine ChAdOx1 nCoV-19 showed overall vaccine efficacy was 70.4%, with no COVID-19-related hospital admissions occurring in vaccine recipients and 10 occurring in the control group.** [More](#)
- **A randomized placebo-controlled trial among PCR-negative close contacts of persons with confirmed SARS-CoV-2 infection found no difference in SARS-CoV-2 acquisition by day 14 between those receiving hydroxychloroquine post-exposure prophylaxis or placebo (HR = 1.10).** [More](#)
- **A retrospective study at 2 Philadelphia hospitals found no significant or clinically relevant changes between pre-pandemic and pandemic rates of preterm births and stillbirths.** [More](#)
- **Immunization rates in Colorado dropped by 31% for children aged 0-2 years, by 78% among those 3-9 years, and by 82% for those age 10-17 years following the release of social distance guidance in March 2020.** [More](#)
- **Prior infection with a seasonal coronavirus was not associated with the risk of SARS-CoV-2 infection, suggesting that past seasonal coronavirus infection does not provide subsequent protection against SARS-CoV-2 infection.** [More](#)

Transmission

- It may be possible to effectively mitigate the risk of mother-to-infant transmission of SARS-CoV-2 infection, based on findings from a multi-cohort study of mother-infant dyads (n=62 neonates, 61 mothers) in Italy that found no positive results among neonates 24 hours after birth despite a 95% breastfeeding rate. Infected mothers observed contact precautions such as handwashing and mask use while breastfeeding. At follow-up until age 3 weeks, only 1 infant was diagnosed as having SARS-CoV-2 infection.

Ronchi et al. (Dec 7, 2020). Evaluation of Rooming-in Practice for Neonates Born to Mothers With Severe Acute Respiratory Syndrome Coronavirus 2 Infection in Italy. JAMA Pediatrics. <https://jamanetwork.com/journals/jamapediatrics/fullarticle/2773311>

Geographic Spread

- *[Pre-print, not peer reviewed]* Residual clinical samples from 763 Seattle-area adults collected during March 5-April 1, 2020 show a seroprevalence of antibodies to SARS-CoV-2 of 1.2%, which was 11 times greater than the number of confirmed cases in King County as of April 1. The authors note, however, that participant sampling in the study may not be generalizable to the general population.

Testing and Treatment

- In a US household-randomized, double-blind, placebo-controlled trial among PCR-negative close contacts of persons with confirmed SARS-CoV-2 infection (n=689), no difference in SARS-CoV-2 acquisition by day 14 was observed between those receiving hydroxychloroquine post-exposure prophylaxis or placebo (HR = 1.10, 95% CI = 0.73-1.66). More participants in the hydroxychloroquine group experienced adverse events, including gastrointestinal symptoms and rash, compared to the control group (16.2% vs 10.9%, p = 0.026).

Barnabas et al. (Dec 8, 2020). Hydroxychloroquine as Postexposure Prophylaxis to Prevent Severe Acute Respiratory Syndrome Coronavirus 2 Infection. Annals of Internal Medicine. <https://doi.org/10.7326/M20-6519>

- Being critically ill was an independent risk factor of longer PCR-confirmed viral positivity in a retrospective study of 2,142 COVID-19 patients in Wuhan, China. The observed median duration of PCR-confirmed viral positivity was 24 days among critically ill patients and 18 days among non-critically ill-patients, with 20% of samples remaining positive after 5 weeks. Seroconversion rates peaked within 4 to 5 weeks, but low IgM titers were observed among those with persistent viral positivity.

Fu et al. (Dec 8, 2020). Dynamics and Correlation Among Viral Positivity, Seroconversion, and Disease Severity in COVID-19. Annals of Internal Medicine. <https://doi.org/10.7326/M20-3337>

Vaccines and Immunity

- An interim analysis of two of the four ongoing phase 2/3 trials for the Oxford–AstraZeneca chimpanzee adenovirus vectored vaccine ChAdOx1 nCoV-19 (n=7,548 in UK trial, n=4,088 in Brazil trial) showed a vaccine efficacy of 62.1% (95%CI 41.0-75.7%) among participants who received the planned two standard doses (27 COVID-19 cases among 4,440 in the vaccine group and 71 COVID-19 cases among 4,455 in the placebo group).
- A smaller number of participants (n=1367 in the vaccine group and 1374 in the placebo group) erroneously received a low initial dose followed by a standard second dose. The observed vaccine efficacy for the low-dose/standard dose combination was 90.0% (95% CI 67.4-97.0) (3 of 1,367 in the vaccine group vs 30 of 1,374 in the placebo group). All of the participants who received the low-dose/standard dose combination were age 18-55, while 16% of those that received two standard doses were >55 years old.
- The overall vaccine efficacy against symptomatic COVID-19 was 70.4% (95.8% CI 54.8-80.6%), with no COVID-19-related hospital admissions occurring in vaccine recipients and 10 occurring in the control group at least 14 days after the second dose.
- The majority of participants included in this interim analysis were aged 18-55 (88%), white (83%), and female (61%)

Voysey et al. (Dec 8, 2020). Safety and Efficacy of the ChAdOx1 NCoV-19 Vaccine (AZD1222) against SARS-CoV-2: An Interim Analysis of Four Randomised Controlled Trials in Brazil, South Africa, and the UK. The Lancet. [https://doi.org/10.1016/S0140-6736\(20\)32661-1](https://doi.org/10.1016/S0140-6736(20)32661-1)

- [Pre-print, not peer reviewed] Similar SARS-CoV-2 infection rates were observed between people with a prior PCR test for seasonal coronavirus that was positive (3.3%) or negative (3.1%) in a retrospective study among individuals with documented PCR testing for seasonal coronavirus and a subsequent PCR result for SARS-CoV-2 (n=2,768). The authors suggest this finding implies that past

infection with seasonal coronavirus does not provide immunity from nor modulate the severity of a subsequent SARS-CoV-2 infection.

Gombar et al. (Dec 7, 2020). SARS-CoV-2 Infection and COVID-19 Severity in Individuals with Prior Seasonal Coronavirus Infection. Pre-print downloaded Dec 8 from <https://doi.org/10.1101/2020.12.04.20243741>

- Analysis of 983 longitudinal plasma samples from 254 SARS-CoV-2 infected individuals with varying disease severity show that compared to severely ill patients, outpatients with mild illness had higher titers of IgG antibodies targeting the S1 domain or receptor binding domain (RBD) of the SARS-CoV-2 spike protein than of those targeting the nucleocapsid antigen. Neutralization assays correlated well with patient IgG titers to the RBD.

Röltgen et al. (Dec 7, 2020). Defining the Features and Duration of Antibody Responses to SARS-CoV-2 Infection Associated with Disease Severity and Outcome. Science Immunology. <https://doi.org/10.1126/sciimmunol.abe0240>

Clinical Characteristics and Health Care Setting

- A retrospective study at 2 Philadelphia hospitals did not detect significant changes between pre-pandemic and pandemic rates of adverse birth outcome. The adjusted difference between pre-pandemic and pandemic preterm births and stillbirths were -0.8% and -0.03 per 1,000 births, respectively. Spontaneous preterm birth among non-Hispanic white patients declined during the pandemic (4.5% vs 2.9%), but no other racial/ethnic groups had significant changes in outcomes.

Handley et al. (Dec 7, 2020). Changes in Preterm Birth Phenotypes and Stillbirth at 2 Philadelphia Hospitals During the SARS-CoV-2 Pandemic, March-June 2020. JAMA. <https://doi.org/10.1001/jama.2020.20991>

- In a follow-up study of 76 COVID-19 survivors, most participants reported symptoms including fever, sputum production, fatigue, diarrhea, and chest tightness on exertion three months after hospital discharge. Pulmonary high-resolution CT was normal for 82% of participants, though 42% had mild pulmonary function abnormalities. 13% of participants were seronegative for IgG and 72% were seronegative for IgM.

Liang et al. (Dec 2020). Three-Month Follow-Up Study of Survivors of Coronavirus Disease 2019 after Discharge. Journal of Korean Medical Science. <https://doi.org/10.3346/jkms.2020.35.e418>

- Investigation of 4 healthcare-associated SARS-CoV-2 outbreaks at a hospital in Germany resulting in 24 infected people suggests healthcare worker (HCW)-to-HCW transmission as the primary mechanism of spread rather than patient-to-HCW transmission. Further investigation showed multiple unprotected contacts between infected HCWs, and no further outbreaks were reported after implementation of contact tracing, testing, physical distancing and mandatory mask use among HCWs and staff.

Schneider et al. (Dec 7, 2020). SARS-Coronavirus-2 Cases in Healthcare Workers May Not Regularly Originate from Patient Care: Lessons from a University Hospital on the Underestimated Risk of Healthcare Worker to Healthcare Worker Transmission. Antimicrobial Resistance & Infection Control. <https://doi.org/10.1186/s13756-020-00848-w>

- A multicenter retrospective study focusing on middle-aged (40-59 years) patients (n=119) without comorbidities who were hospitalized with COVID-19 found that 18 of 119 (15%) required mechanical ventilation and 5 of 119 (4%) died. The most common complications were acute respiratory distress syndrome (22%), acute liver injury (13%), and septic shock (4%).

Wang et al. (Dec 7, 2020). Risk Factors for Severe COVID-19 in Middle-Aged Patients without Comorbidities: A Multicentre Retrospective Study. *Journal of Translational Medicine*. <https://doi.org/10.1186/s12967-020-02655-8>

Public Health Policy and Practice

- Among US counties, a 10% higher proportion of Black residents was associated with an increase of 324.7 COVID-19 cases and 14.5 COVID-19 deaths per 100,000 population. A 10% higher proportion of Latino residents was associated with an increase of 293.5 COVID-19 cases and 7.6 COVID-19 deaths per 100,000 population. After adjusting for other independent predictors of cases and deaths, such as average household size and proportion of individuals with a high school diploma, associations with the Latino population were attenuated while those with the Black population largely persisted.

Figueroa et al. (Nov 21, 2021). Association of Race, Ethnicity, and Community-Level Factors with COVID-19 Cases and Deaths across U.S. Counties. *Healthcare*. <https://doi.org/10.1016/j.hjdsi.2020.100495>

- Immunization rates for children and adolescents in Colorado declined following the issuing of social distance guidance on March 15th, 2020. Comparing the time periods January 5 - March 15 and March 15 - April 25, mean immunization rates dropped by 31%, 78% and 82% for individuals aged 0-2 years, 3-9 years, and 10-17 years, respectively.

O'Leary et al. (Dec 7, 2020). Number of Childhood and Adolescent Vaccinations Administered Before and After the COVID-19 Outbreak in Colorado. *JAMA Pediatrics*. <https://jamanetwork.com/journals/jamapediatrics/fullarticle/2773308>

Other Resources and Commentaries

- [Oxford–AstraZeneca COVID-19 Vaccine Efficacy](#) – The Lancet (Dec 8)
- [On the Effects of Misclassification in Estimating Efficacy With Application to Recent COVID-19 Vaccine Trials](#) – MedRxiv (Dec 7)
- [Racing to Immunity: Journey to a COVID-19 Vaccine and Lessons for the Future](#) – British Journal of Clinical Pharmacology (Dec 1)
- [COVID-19 Clusters](#) – Nature Medicine (Dec 7)
- [Extrapulmonary SARS-CoV-2 Manifestations](#) – Nature Medicine (Dec 7)
- [Interferon Linked to COVID-19 Severity](#) – Nature Medicine (Dec 7)
- [A Nursing Researcher's Experience in a COVID-19 Vaccine Trial](#) – JAMA Internal Medicine (Dec 7)
- [The UK Has Approved a COVID Vaccine - Here's What Scientists Now Want to Know](#) – Nature (Dec 3)
- [Facemasks as a COVID-19 Barrier: A Window into the Overlooked Experience of Chronic Dyspnoea?](#) – The Lancet Respiratory Medicine (Oct 23)
- [COVID-19: What Health Experts Could and Could Not Predict](#) – Nature Medicine (Dec 7)
- [Stillbirths During the COVID-19 Pandemic in England, April-June 2020](#) – JAMA (Dec 7)
- [Hindsight Is 2020 Vision: A Characterisation of the Global Response to the COVID-19 Pandemic](#) – BMC Public Health (Dec 7)

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