

2019-nCoV Literature Situation Report (Lit Rep)

May 11, 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

- **COVID-19 patients with type 2 diabetes were at a greater than 2-fold elevated risk of COVID-19-related hospitalization, admission to ICU, and death compared to age- and sex- matched controls in a nationwide study in Sweden. COVID-19 patients with type 1 diabetes were at similarly increased risk when compared to matched controls, but unlike type 2 diabetes, there was no independent risk after adjustment for sociodemographic factors, pharmacological treatment, and comorbidities.** [More](#)
- **US patients diagnosed with COVID-19 (n=537,913) had 6.6-fold higher risk of being diagnosed with cerebral venous thrombosis (CVT) and 7.7-fold higher risk of portal vein thrombosis (PVT) within two weeks of COVID-19 diagnosis compared to age-, sex-, and race-matched individuals vaccinated with COVID-19 mRNA vaccines (n=366,869). COVID-19 patients were also at elevated risk for CVT and PVT compared to matched influenza patients.** [More](#)
- **79% of US adults over age 65 have received at least 1 dose of a COVID-19 vaccine as of April 10, 2021. On average, counties with low vaccination initiation rates had higher proportions of socially vulnerable adults compared with counties with high vaccination rates.** [More](#)

Transmission

- Only 1% (n=212) of over 16,000 frontline workers developed detectable anti-SARS-CoV-2 antibodies during screening in Italy from May to June 2020. Among antibody-positive individuals, only one tested positive for SARS-CoV-2 RNA under a protocol that required antibody-positive participants to be given a PCR test. The authors suggest that performing a PCR test on antibody-positive participants to assess infectivity may be redundant for epidemiological surveys, particularly for largely asymptomatic populations.

Antonelli et al. (May 2021). Asymptomatic Individuals Positive for Anti-SARS-CoV-2 Antibodies Negative on Molecular Swab. The Lancet Microbe. [https://doi.org/10.1016/S2666-5247\(21\)00083-5](https://doi.org/10.1016/S2666-5247(21)00083-5)

- *[Pre-print, not peer-reviewed]* Genomic surveillance of SARS-CoV-2 cases from Dane County, Wisconsin did not find evidence of onward community transmission from an outbreak at the University of Wisconsin (UW)-Madison that occurred during the first weeks of school reopening. During the outbreak, a large cluster of cases were identified in two residence halls, after which UW-Madison initiated multiple prevention efforts including quarantining the residence halls. During

August to October 2020, a total of 3,485 students tested positive, including 856 of 6,162 students living in residence halls.

Currie et al. (May 10, 2021). Description of a University COVID-19 Outbreak and Interventions to Disrupt Transmission Wisconsin August - October 2020. Pre-print downloaded May 11 from <https://doi.org/10.1101/2021.05.07.21256834>

Testing and Treatment

- *[Pre-print, not peer-reviewed]* Patients confirmed by viral sequencing to be infected with a novel SARS-CoV-2 variant first described in France (assigned lineage B.1.616) (n=34) were less likely to test positive on their first PCR test (15% vs 97%) and more likely to die within 28 days (44% vs 16%) compared to patients infected with variants of concern (VOC) B.1.1.7 and B.1.351. The B.1.616 variant was also associated with severe disease (HR=4.2) independent of baseline characteristics and comorbidities compared to other VOCs. Additionally, during the study period from January to March 2021, 32 nosocomial infections associated with the B.1.616 variant were identified among 108 exposed patients corresponding to an incidence of 41 cases per 1,000-patient days. The B.1.616 is characterized by 9 amino acid changes and one deletion in the S protein, with other mutations in structural and non-structural proteins relative to the parent strain from Wuhan. Notably, it possesses the amino acid substitution V483A in the receptor binding domain, close to the E484K change which is linked to reduced neutralization.

Fillatre et al. (May 10, 2021). A New SARS-CoV-2 Variant Poorly Detected by RT-PCR on Nasopharyngeal Samples with High Lethality. Pre-print downloaded May 11 from <https://doi.org/10.1101/2021.05.05.21256690>

- Overall sensitivity of the Panbio rapid antigen test was 71.8% and the sensitivity of the Orient Gene rapid antigen tests was 79.5% for the detection of 156 PCR-confirmed SARS-CoV-2 positive samples. Tested against a panel of PCR-confirmed negative samples, the Panbio test achieved 100% specificity (130 of 130 negative samples) and the Orient Gene test achieved 79.5% specificity (131 of 176 negative samples). Both tests had improved sensitivities (>88%) for samples with cycle threshold values < 25. For samples with culturable virus, the Panbio and Orient Gene tests had sensitivities of 94.1% and 97.1%, respectively.

Nordgren et al. (Apr 24, 2021). SARS-CoV-2 Rapid Antigen Test: High Sensitivity to Detect Infectious Virus. Journal of Clinical Virology. <https://doi.org/10.1016/j.jcv.2021.104846>

Vaccines and Immunity

- *[Pre-print, not peer-reviewed]* Risk of diagnosis for cerebral venous thrombosis (CVT) and portal vein thrombosis (PVT) within 2 weeks of a COVID-19 diagnosis was 6.6-fold higher and 7.4-fold higher, respectively, compared to receiving a COVID-19 mRNA vaccine according to a retrospective study of administrative data in the US. Researchers compared patients with a COVID-19 diagnosis between January 2020 to March 2021 (n=537,913) with age-, sex-, and race-matched vaccinated individuals (n=366,869). Risk of CVT and PVT within 2 weeks of a COVID-19 diagnosis was also 3.8-fold higher and 1.4-fold higher, respectively, when COVID-19 patients were compared with an age-sex-, and race-matched cohort of individuals diagnosed with influenza (n=392,424).

Taquet et al. (May 11, 2021). Cerebral Venous Thrombosis and Portal Vein Thrombosis a Retrospective Cohort Study of 537913 COVID-19 Cases. Pre-print downloaded May 11 from <https://doi.org/10.1101/2021.04.27.21256153>

- 79% of US older adults (aged ≥ 65 years, $n > 42$ million) have received at least 1 dose of a COVID-19 vaccine as of April 10, 2021. On average, counties with low vaccination rates ($< 50\%$ of older adults) compared with counties with high vaccination rates ($\geq 75\%$ of older adults) had higher percentages of older adults who do not own a computer (25% vs 19%), have no internet access (10% vs 7%), report living alone (14% vs 12%), and live below the federal poverty line (10% vs 8%). The proportion of residents who belong to a racial/ethnic minority group was similar in low and high vaccination rate counties, although race/ethnicity was missing in 42% of records among recipients of at least one dose.

Whiteman et al. (May 11, 2021). *Demographic and Social Factors Associated with COVID-19 Vaccination Initiation Among Adults Aged ≥ 65 Years — United States, December 14, 2020–April 10, 2021*. *MMWR*. <https://doi.org/10.15585/mmwr.mm7019e4>

Clinical Characteristics and Health Care Setting

- Neurological manifestations were found in 82% of patients hospitalized with COVID-19 in a cohort study across 2 consortia of patients from 13 countries ($n = 3,744$). The most common self-reported symptoms included headache (37%) and loss of smell or taste (26%), while the most prevalent neurological signs and/or syndromes were acute encephalopathy (49%), coma (17%), and stroke (6%). After adjusting for study site, age, sex, race, and ethnicity, patients with clinically captured neurologic signs and/or syndromes had a 6-fold higher risk of in-hospital death. Patients with preexisting neurological disorders had a 2.2-fold higher risk of developing neurological signs and/or syndromes with COVID-19.

Chou et al. (May 11, 2021). *Global Incidence of Neurological Manifestations Among Patients Hospitalized With COVID-19—A Report for the GCS-NeuroCOVID Consortium and the ENERGY Consortium*. *JAMA Network Open*. <https://doi.org/10.1001/jamanetworkopen.2021.12131>

- The 30-day readmission rate for patients admitted to hospital with COVID-19 among patients who belong to an integrated healthcare system (Kaiser Permanente) was 8% ($n = 166$) in a retrospective cohort of 2,180 patients between April to July 2020. 58% of readmissions were respiratory-related and occurred a median of 5 days after discharge. Chronic pulmonary disease and being discharge with home health services were significantly associated with 30-day readmission. The 30-day mortality rate in the cohort was 1% ($n = 19$).

Huang et al. (May 8, 2021). *Characteristics of Patients Discharged and Readmitted after COVID-19 Hospitalisation within a Large Integrated Health System in the United States*. *Infectious Diseases*. <https://doi.org/10.1080/23744235.2021.1924398>

- Type 2 diabetes was associated with increased risk of COVID-19-related hospitalization (HR=2.22), admission to ICU (HR=2.49), and death (HR=2.19) in a nationwide study in Sweden that compared adult patients with type 2 diabetes ($n = 44,639$) to age- and sex-matched controls. Risks for COVID-19 related outcomes remained independently associated with type 2 diabetes after further adjustment for sociodemographic factors, pharmacological treatment, and comorbidities. In contrast to type 2 diabetes, there was no independent risk persisting for type 1 diabetes after adjustment for confounding factors.

Rawshani et al. (Apr 30, 2021). *Severe COVID-19 in People with Type 1 and Type 2 Diabetes in Sweden: A Nationwide Retrospective Cohort Study*. *The Lancet Regional Health - Europe*. <https://doi.org/10.1016/j.lanepe.2021.100105>

Public Health Policy and Practice

- Reported cases of gonorrhea and syphilis decreased by 5-22% in King County, Washington from January to July 2020 compared to January to July 2019. Mean weekly case counts of gonorrhea, male urethral gonorrhea, and early latent syphilis decreased during statewide lockdowns in late March, but returned to pre-lockdown levels after reopening in June. The authors note that decreases in reported STIs could reflect true declines in sexually transmitted infections, but they argued that larger decreases in asymptomatic infection compared to symptomatic disease (for example, a steeper decline in early latent syphilis versus primary and secondary syphilis) suggests that observed declines are more likely due to decreased screening.

Berzkalns et al. (May 6, 2021). Decreases in Reported Sexually Transmitted Infections during the Time of COVID-19 in King County, WA. Sexually Transmitted Diseases.

<https://doi.org/10.1097/OLQ.0000000000001463>

- The prevalence of anti-spike SARS-CoV-2 antibodies in England was 5% by the end of September 2020 (prior to the onset of vaccination campaigns), according to three cross-sectional national surveys with non-overlapping random samples undertaken between late June to September (n>365,000). The prevalence of detectable antibodies over the three rounds was 6%, 5%, and 4%. The highest prevalence and smallest overall decline (15% decline) in antibody positivity was in the youngest age group (18-24 years), while lowest prevalence and largest decline (39% decline) was observed in the oldest group (>74 years). Prevalence declined by 64% among those who did not report prior SARS-CoV-2 infection and by 22% among those with PCR-confirmed infection.

Ward et al. (May 2, 2021). Prevalence of Antibody Positivity to SARS-CoV-2 Following the First Peak of Infection in England: Serial Cross-Sectional Studies of 365,000 Adults. The Lancet Regional Health - Europe. <https://doi.org/10.1016/j.lanepe.2021.100098>

Other Resources and Commentaries

- [A Review of the Global Impact of the COVID-19 Pandemic on Public Mental Health, with a Comparison Between the USA, Australia, and Poland with Taiwan and Thailand](#) – Medical Science Monitor (May 11)
- [Covid-19: Study Claims Real Global Deaths Are Twice Official Figures](#) – BMJ (May 10)
- [Predictive Performance of International COVID-19 Mortality Forecasting Models](#) – Nature Communications (Dec 10)
- [Dataset: Local Government Mask Orders Preceding Statewide Orders by US States](#) – F1000Research (Jan 8)
- [Vaccine Hesitance and Vaccine Access in Minority Communities](#) – Cleveland Clinic Journal of Medicine (May 9)
- [Covid-19: Don't Abandon Mask Wearing in Schools, Say Health Experts](#) – BMJ (Clinical Research Ed.) (May)
- [Structural Consequences of Variation in SARS-CoV-2 B.1.1.7](#) – Journal of Cellular Immunology (2021)
- [Carceral-Community Epidemiology, Structural Racism, and COVID-19 Disparities](#) – Proceedings of the National Academy of Sciences of the United States of America (May)
- [Interferon Antagonism by SARS-CoV-2: A Functional Study Using Reverse Genetics](#) – The Lancet. Microbe (May)
- [COVID-19 Mass Vaccination Involves Unusual Venues](#) – American Journal of Health-System Pharmacy (May 10)

- [Self-Sampling versus Health Care Professional-Guided Swab Collection for SARS-CoV-2 Testing – Infection \(May 10\)](#)
- [The Intersection of COVID-19 and Autoimmunity: What Is Our Current Understanding – Pathogens & Immunity \(2021\)](#)

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