

2019-nCoV Literature Situation Report (Lit Rep)

October 20, 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

- **Despite early enthusiasm for monoclonal antibodies directed against IL-6 (tocilizumab), two randomized, open-label trials did not demonstrate substantial clinical benefit, both reporting no effect on 28-day mortality. These findings, combined with two previously reported industry sponsored trials by the manufacturer of tocilizumab, indicate that tocilizumab may not be as efficacious as suggested by early observational data.** [More](#), [More](#), [More](#), and [More](#)
- **Families with adolescents with ADHD, particularly those with an individual development plan, report greater difficulties with distance learning.** [More](#)
- **Two out of three excess deaths (198,081 total deaths) in the United States between January and October, 2020 were attributed to COVID-19.** [More](#)
- **Breastfeeding was not associated with the development of SARS-CoV-2 infection in newborns after the first 72 hours of life in a meta-analysis of reported neonatal SARS-CoV-2 infections.** [More](#)
- **Veterans hospitalized for COVID-19 had an in-hospital mortality rate more than 5-fold higher than those hospitalized for influenza.** [More](#)

Transmission

- A systematic review and meta-analysis of neonatal case studies of SARS-CoV-2 infection (n=176) defined by at least one positive nasopharyngeal swab or presence of virus-specific IgM found that vertical transmission (mother-to-child) accounted for 70% SARS-CoV-2 infections and environmental exposure accounted for 30% of infections. 64% had abnormal lung imaging, 55% of neonates developed COVID-19, with fever as the most common symptom (44%). Not separating the mother and neonate at the time of birth was associated with a higher risk of late-onset neonatal SARS-CoV-2 infections (aOR=6.6), while breastfeeding was not significantly associated.

Raschetti et al. (Oct 15, 2020). Synthesis and Systematic Review of Reported Neonatal SARS-CoV-2 Infections. Nature Communications. <https://doi.org/10.1038/s41467-020-18982-9>

Testing and Treatment

- A randomized, open-label trial of patients with COVID-19 and pneumonia who required oxygen support but were not admitted to ICU found no statistically significant difference in mortality over 28 days between those receiving the immunomodulator tocilizumab (TCZ) (n=63) and those receiving standard of care (n=67). At day 14, the proportion of patients with noninvasive ventilation, intubation or death was observed in 24% in the TCZ group vs 36% in the standard care group

(posterior median HR=0.58; 90% Credibility Interval 0.33 to 1.00), suggesting a potential benefit. By day 28, there was no difference in death between the groups (aHR=0.92; 95%CI 0.33-2.53).

Hermine et al. (Oct 20, 2020). Effect of Tocilizumab vs Usual Care in Adults Hospitalized With COVID-19 and Moderate or Severe Pneumonia. JAMA Internal Medicine.

<https://doi.org/10.1001/jamainternmed.2020.6820>

- A randomized open-label trial of treatment with the immune modulator tocilizumab (TCZ) in patients with COVID-19 pneumonia found that the rate of clinical worsening (entry to ICU unit with intubation, death from all causes, or clinical aggravation) was not significantly different among patients receiving tocilizumab (TCZ) (n=60) and those receiving standard of care (n=66) (RR=1.05; 95%CI 0.59-1.86).

- This trial was halted after an interim analysis for futility.

Salvarani et al. (Oct 20, 2020). Effect of Tocilizumab vs Standard Care on Clinical Worsening in Patients Hospitalized With COVID-19 Pneumonia: A Randomized Clinical Trial. JAMA Internal Medicine.

<https://doi.org/10.1001/jamainternmed.2020.6615>

- A systematic review of case-control (n=2,285 patients) and single-arm studies (n=208 patients) found that treatment with the immunomodulator tocilizumab (TCZ) in COVID-19 patients was associated with a lower risk of admission to ICU, invasive ventilation, and mortality compared with standard treatment. Patients who received TCZ had changes of several clinical indicators that marked higher rates of clinical improvement.

Zhao et al. (Oct 13, 2020). Tocilizumab for Treating COVID-19: A Systemic Review and Meta-Analysis of Retrospective Studies. European Journal of Clinical Pharmacology.

<https://doi.org/10.1007/s00228-020-03017-5>

- Pooling naso- or oropharyngeal swab samples prior to RNA extraction was associated with 100% diagnostic accuracy, while pooling after individual-sample RNA extraction was associated with 91% diagnostic accuracy. Volpato et al. conclude that testing protocols should call for pooling swab samples before RNA extraction.

Volpato et al. (Oct 16, 2020). Pooling of Samples to Optimize SARS-CoV-2 Diagnosis by RT-QPCR: Comparative Analysis of Two Protocols. European Journal of Clinical Microbiology & Infectious Diseases.

<https://doi.org/10.1007/s10096-020-04071-8>

Vaccines and Immunity

- An international cross-sectional survey of 1,541 caregivers responsible for care of a child recruited from pediatric clinics conducted from March to May 2020 found that 65% had intentions to vaccinate their child against COVID-19. An intention to vaccinate was more common among caregivers with older children, children with no chronic illness, when fathers complete the survey, and among caregivers of children with an up-to-date vaccination schedule. The most common reasons supporting uptake of vaccine was to protect their child (62%), while the most common reason for refusing the vaccine was its novelty (52%).

Goldman et al. (Oct 10, 2020). Caregiver Willingness to Vaccinate Their Children against COVID-19: Cross Sectional Survey. Vaccine. <https://doi.org/10.1016/j.vaccine.2020.09.084>

Clinical Characteristics and Health Care Setting

- A meta-analysis of 7 case-control studies show 2.2-fold higher risk of COVID-19 infection among those with autoimmune diseases. Among the 2,766 patients in studies reporting clinical outcomes, use of glucocorticoids and conventional synthetic disease-modifying antirheumatic drugs were associated with increased risk of hospitalization and mortality.

Akiyama et al. (Oct 13, 2020). Prevalence and Clinical Outcomes of COVID-19 in Patients with Autoimmune Diseases: A Systematic Review and Meta-Analysis. Annals of the Rheumatic Diseases. <https://doi.org/10.1136/annrheumdis-2020-218946>

Mental Health and Personal Impact

- Families with adolescents with attention deficit hyperactivity disorder (ADHD) reported greater difficulties with remote learning practices, according to a recent survey. 31% of parents of adolescents with ADHD with an Individualized Education Program (IEP) or a 504 Plan report remote learning to be very challenging, compared to 18% of parents of adolescents with ADHD but no IEP/504 Plan and only 4% of parents of adolescents with neither ADHD nor an IEP/504 Plan.

Becker et al. (Oct 14, 2020). Remote Learning During COVID-19: Examining School Practices, Service Continuation, and Difficulties for Adolescents With and Without Attention-Deficit/Hyperactivity Disorder. Journal of Adolescent Health. <https://doi.org/10.1016/j.jadohealth.2020.09.002>

Public Health Policy and Practice

- Patients hospitalized for COVID-19 had an in-hospital mortality rate more than 5-fold higher than influenza patients (21% vs 4%), according to retrospective data from a Veterans Health Administration cohort. After adjusting for age, sex, race/ethnicity and underlying comorbidities, COVID-19 patients had 19-fold higher risk of developing acute respiratory distress syndrome. Risks for exacerbations of asthma and COPD were lower. Non-Hispanic Black and African American patients had a greater risk of developing respiratory, neurologic, and renal complications compared to white patients.

Cates et al. (Oct 20, 2020). Risk for In-Hospital Complications Associated with COVID-19 and Influenza — Veterans Health Administration, United States, October 1, 2018–May 31, 2020. MMWR. <https://doi.org/10.15585/mmwr.mm6942e3>

- Two out of three excess deaths in the United States during the period of January through October were attributed to COVID-19. An estimated 299,028 excess deaths occurred and there were two peaks of deaths, occurring during the weeks ending April 11 and August 8. Adults aged 25-44 years and Hispanic/Latino persons saw the largest percentage increase in in deaths compared to previous years (27% and 53% increase, respectively).

Rossen et al. (Oct 20, 2020). Excess Deaths Associated with COVID-19, by Age and Race and Ethnicity — United States, January 26–October 3, 2020. MMWR. <https://doi.org/10.15585/mmwr.mm6942e2>

- A model-based analysis of the SAS-CoV-2 infection rate in New York City from March to June found an estimated overall infection fatality risk (IFR) of 1.4%. Stratified by age, overall IFR for those with ages 25-44, 45-64, 65-74, and 75+ years were 0.1%, 0.9%, 4.9%, and 14.2%, respectively. The peak weekly IFR for adults ages 65-74 years and 75+ years were particularly high (6.7% and 19.1%, respectively), rates twice as high as previous estimates.

Yang et al. (Oct 19, 2020). *Estimating the Infection-Fatality Risk of SARS-CoV-2 in New York City during the Spring 2020 Pandemic Wave: A Model-Based Analysis*. *The Lancet Infectious Diseases*. [https://doi.org/10.1016/S1473-3099\(20\)30769-6](https://doi.org/10.1016/S1473-3099(20)30769-6)

- A case-control study determined that Black and multiracial people were three times as likely to be admitted to a hospital for COVID-19 treatment when compared to white people living in the same neighborhoods in London. Cases were defined as patients admitted to the hospital for COVID-19 and controls were drawn from an administrative database in the same area. After adjusting for comorbidities and socioeconomic status, the admission risk for COVID-19 remained 2.2 to 2.7-fold higher. Racial/ethnic minority patients were on average 10–15 years younger than white patients, but had a higher prevalence of comorbidities, such as diabetes, hypertension, and chronic kidney disease.

Zakeri et al. (Oct 9, 2020). *A Case-Control and Cohort Study to Determine the Relationship between Ethnic Background and Severe COVID-19*. *EClinicalMedicine*. <https://doi.org/10.1016/j.eclinm.2020.100574>

Other Resources and Commentaries

- [When Adolescents Are in School During COVID-19, Coordination Between School-Based Health Centers and Education Is Key](#) – Journal of Adolescent Health (Oct 12)
- [COVID-19 Recovery: Potential Treatments for Post-Intensive Care Syndrome](#) – The Lancet Respiratory Medicine (Oct 12)
- [Deciphering Vaccines for COVID-19: Where Do We Stand TODAY?](#) – Immunopharmacology and Immunotoxicology (Oct 14)
- [Immune Therapy, or Antiviral Therapy, or Both for COVID-19: A Systematic Review](#) – Drugs (Oct 17)
- [Potential Impact of COVID-19 on Recently Resettled Refugee Populations in the United States and Canada: Perspectives of Refugee Healthcare Providers](#) – Journal of Immigrant and Minority Health (Oct 16)
- [Shift in Racial Communities Impacted by COVID-19 in California](#) – Journal of Epidemiology and Community Health (Oct 16)
- [Pediatric Patients with SARS-CoV-2 Infection: Clinical Characteristics in the United States from a Large Global Health Research Network](#) – Cureus (Sept 12)
- [Indigenous People and the COVID-19 Pandemic: The Tip of an Iceberg of Social and Economic Inequities](#) – Journal of Epidemiology and Community Health (Oct 16)
- [What Reinfections Mean for COVID-19](#) – The Lancet. Infectious Diseases (Oct 12)
- [Clinical Risk Factors for Mortality in Patients with Cancer and COVID-19: A Systematic Review and Meta-Analysis of Recent Observational Studies](#) – Expert Review of Anticancer Therapy (Oct 14)
- [Postlicensure Evaluation of COVID-19 Vaccines](#) – JAMA (Oct 16)
- [SARS-CoV-2 Immunity: Review and Applications to Phase 3 Vaccine Candidates](#). – Lancet (London, England) (Oct 13)
- [What It's Really like to Do Science amid COVID-19](#). – Nature (Oct 15)
- [Will SARS-CoV-2 Become Endemic?](#) – Science (Oct 14)
- [COVID-19 Vaccine Trials: Duty of Care and Standard of Prevention Considerations](#). – Vaccine (Oct 9)
- [A Cross-Sectional Study Examining the Seroprevalence of Severe Acute Respiratory Syndrome Coronavirus 2 Antibodies in a University Student Population](#) – Journal of Adolescent Health (Oct 15)
- [Selection of Homemade Mask Materials for Preventing Transmission of COVID-19: A Laboratory Study](#) – PLOS ONE (Oct 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

