2019-nCoV Literature Situation Report (Lit Rep)

November 24, 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

➢ **Convalescent plasma infusion did not lead to a significant difference in 30-day clinical outcomes or death in a randomized, placebo-controlled trial among patients with severe COVID-19.** More

➢ **In a cohort of 136,000 US pediatric patients tested for SARS-CoV-2, 4% tested positive, with a case fatality proportion of 0.2%. Black, Hispanic, and Asian race/ethnicity and chronic illnesses were associated with increased risk of testing positive.** More

➢ **Among 1,409 COVID-19 survivors admitted to home health care after hospitalization, 94% were discharged within an average of 1 month, with most patients experiencing significant improvements in symptoms and function.** More

➢ **Among pregnant and post-partum women in the US surveyed in May to August 2020, 36% reported clinically significant levels of depression, 22% reported generalized anxiety, and 10% reported PTSD. Women with pre-existing mental health diagnoses, COVID-19 related health worries, and high levels of grief were at increased risk for mental health symptoms.** More

Non-Pharmaceutical Interventions

• Behavior-specific beliefs about mask use and physical distancing were more predictive of actual protective behaviors related to COVID-19 than beliefs in misinformation (e.g., rumors about the origins of the viral outbreak). Findings were based on a two-wave nationally representative survey of US adults (T1 n=1,074; T2 n=889). Though belief in misinformation was negatively associated with mask use and physical distancing, these associations disappear after adjusting for behavior-specific beliefs. Meanwhile, associations between behavior-specific beliefs and protective behaviors persisted as predictors. The authors recommend that health information campaigns should aim to promote protective behaviors and emphasize the benefits of these behaviors rather than focus on debunking unrelated false claims.

  Hornik et al. (Nov 22, 2020). Association of COVID-19 Misinformation with Face Mask Wearing and Social Distancing in a Nationally Representative US Sample. Health Communication. https://doi.org/10.1080/10410236.2020.1847437

• Among countries and US states implementing stay-at-home mandates between April and May 2020, a longer period of time between the first reported case and implementation of mandates was associated with a longer time to reach peak daily case and death counts. For US states, each additional day between first case and mandate implementation predicted an extra 1.1 days and 1.0 days to reach peak cases and deaths, respectively. However, among states in the latest 10% to

implement mandates, this effect predicted an extra 35.3 days and 38.3 days to reach peak cases and deaths, respectively.

> *Medline et al. (Dec 23, 2020). Evaluating the Impact of Stay-at-Home Orders on the Time to Reach the Peak Burden of Covid-19 Cases and Deaths: Does Timing Matter? BMC Public Health.* https://doi.org/10.1186/s12889-020-09817-9

Transmission

- A systematic review and meta-analysis (n=78 studies) found that laboratories had the highest proportion of surfaces test positive for SARS-CoV-2 while household surfaces had the lowest. In assessing surface stability using infectivity, half-life of SARS-CoV-2 on stainless steel, plastic, and nitrile was 2.3-17.9 hours, and decreased at higher temperature and humidity. Disinfection studies with SARS-CoV-2 or surrogate viruses indicated that sunlight, ultraviolet light, ethanol, hydrogen peroxide, and hypochlorite can attain 99.9% reduction in infectivity.

  > *Bedrosian et al. (Nov 23, 2020). A Systematic Review of Surface Contamination, Stability, and Disinfection Data on SARS-CoV-2 (Through July 10, 2020). Environmental Science & Technology.* https://doi.org/10.1021/acs.est.0c05651

- *[Pre-print, not peer reviewed]* Examining SARS-CoV-2 transmission risk via fomites using the Quantitative Microbial Risk Assessment framework suggests risks posed by contacting surfaces are low in communities with infection prevalence ranging from 0.2%-5%. Compared to surface disinfection, hand disinfection reduced the relative risk of transmission independent of community prevalence and frequency of contact, even at low to moderate compliance levels.

  > *Pitol et al. (Nov 23, 2020). Community Transmission of SARS-CoV-2 by Fomites Risks and Risk Reduction Strategies. Pre-print downloaded Nov 24 from* https://doi.org/10.1101/2020.11.20.20220749

Geographic Spread

- A pooled estimate of global SARS-CoV-2 seroprevalence was 3.4% in a systematic review and meta-analysis (n=47 studies) of data from 23 countries published through August 2020. Seroprevalence in general population studies varied from 0.4% to 22%. The lowest regional seroprevalence was observed in South America (1.5%), while the highest was in Northern Europe (5%). The authors estimate that 263.5 million individuals had been infected at the time of the study.

  > *Rostami et al. (Oct 23, 2020). SARS-CoV-2 Seroprevalence Worldwide: A Systematic Review and Meta-Analysis. Clinical Microbiology and Infection.* https://doi.org/10.1016/j.cmi.2020.10.020

Testing and Treatment

- A randomized placebo-controlled trial of convalescent plasma (CP) infusion for patients with severe COVID-19 (n=228) found no significant difference between the treatment and placebo groups in the improvement in clinical status measured at 30 days using an ordinal scale (OR=0.83, 95%CI 0.52 – 1.35). Overall mortality was 11% in the CP group and 11.4% in the placebo group. Adverse events were similar in the two groups. The infused CP had a median titer of 1:3200 of total SARS-CoV-2 antibodies.

  > *Simonovich et al. (Nov 24, 2020). A Randomized Trial of Convalescent Plasma in Covid-19 Severe Pneumonia. New England Journal of Medicine.* https://doi.org/10.1056/NEJMoa2031304

- *[Pre-print, not peer reviewed]* Surveillance for SARS-CoV-2 at wastewater facilities in Ottawa identified resurgence of positive cases and hospitalizations in late July 2020 with a 48-hour and 96-

hour lead time, respectively. When daily percent positivity was being reported below 1%, increases of >400% in normalized SARS-CoV-2 RNA signal in wastewater were identified 48 hours before a >300% increases in cases was reported and 96 hours before a >160% increase in community hospitalizations.

> *D'Aoust et al. (Nov 23, 2020). Catching a Resurgence Increase in SARS-CoV-2 Viral RNA Identified in Wastewater 48 Hours before COVID-19 Clinical Tests and 96 Hours before Hospitalizations. Pre-print downloaded Nov 24 from* https://doi.org/10.1101/2020.11.22.20236554

Vaccines and Immunity

- A quota-sampled online survey of 788 US adults found that 60% of participants were either definitely willing or probably willing to receive a future COVID-19 vaccine and 25% were either definitely willing or probably willing to receive the vaccine if it were approved under an Emergency Use Authorization (EUA). Significant predictors of COVID-19 vaccine uptake intent with and without EUA included high perceived susceptibility to COVID-19, high perceived benefits of the vaccine, and scoring low on barriers to the vaccine. Willingness to take a vaccine approved under an EUA was more common among respondents who were older and who identified as white race. Uptake intent and willingness to get the vaccine with EUA appeared to be reduced by concerns about rushed vaccine development.

> *Guidry et al. (Nov 19, 2020). Willingness to Get the COVID-19 Vaccine with and without Emergency Use Authorization. American Journal of Infection Control.* https://doi.org/10.1016/j.ajic.2020.11.018

- *[Pre-print, not peer reviewed]* Longitudinal analysis of 210 Spanish patients followed for up to 242 days showed that individuals with mild or asymptomatic SARS-CoV-2 infection experienced a negligible decay in neutralizing antibody activity that persisted for six months after symptom onset, while hospitalized individuals showed an initial rapid decline in neutralizing titers that significantly slowed down after day 80. Despite this rapid decline, neutralizing titers among hospitalized patients remained higher at six months compared to titers among mild or asymptomatic individuals.

> *Pradenas et al. (Nov 23, 2020). Stable Neutralizing Antibody Levels Six Months after Mild and Severe COVID-19 Episode. Pre-print downloaded Nov 24 from* https://doi.org/10.1101/2020.11.22.389056

Clinical Characteristics and Health Care Setting

- In a cohort of US pediatric patients (n=135,794; mean age=8.8), 5,374 (4%) tested positive for SARS-CoV-2, of whom 359 (7%) were hospitalized and 8 died (case fatality proportion = 0.2%). Despite lower rates of testing compared with White patients, participants of Black, Hispanic, and Asian race/ethnicity were more likely to have positive test results. Older age, public payer insurance status, outpatient testing, and emergency testing were associated with increased risk of infection, as were chronic illnesses including cardiac disorders, endocrine disorders, and gastrointestinal orders.

> *Bailey et al. (Nov 23, 2020). Assessment of 135 794 Pediatric Patients Tested for Severe Acute Respiratory Syndrome Coronavirus 2 Across the United States. JAMA Pediatrics.* https://doi.org/10.1001/jamapediatrics.2020.5052

- A retrospective observational cohort study of COVID-19 survivors admitted to home health care (HHC) post-hospitalization in New York City (n=1,409) found that after an average of 32 days in HHC, most patients experienced significant improvements in symptoms and function. 94% were discharged from HHC. Risk of rehospitalization or death (137 rehospitalizations, 11 deaths) was associated with being male, white, having heart failure, diabetes with complications, and 2 or more emergency department visits.

Bowles et al. (Nov 24, 2020). Surviving COVID-19 After Hospital Discharge: Symptom, Functional, and Adverse Outcomes of Home Health Recipients. Annals of Internal Medicine. https://doi.org/10.7326/M20-5206

- A systematic review and meta-analysis (n=47 studies) found that compared to healthy children, children with comorbidities had a 1.8-fold increase in risk for sever COVID-19. Underlying conditions and obesity were also associated with higher risk of COVID-19-associated mortality.
  Tsankov et al. (Nov 20, 2020). Severe COVID-19 Infection and Pediatric Comorbidities: A Systematic Review and Meta-Analysis. International Journal of Infectious Diseases. https://doi.org/10.1016/j.ijid.2020.11.163

Mental Health and Personal Impact

- A cross-sectional survey of 1,123 pregnant and postpartum women in the US (second trimester of pregnancy through 6 months after delivery) conducted from May to August 2020 found that 36% reported clinically significant levels of depression, 23% reported generalized anxiety, and 10% reported PTSD. Self-reported pre-existing mental health diagnoses increased the likelihood of scoring above the clinical threshold for depression, anxiety, and PTSD. Women who reported high levels of COVID-19-related health worries (18%) and high levels of grief (9%) were also at higher risk of scoring above the clinical threshold for mental health symptoms.
  Liu et al. (Nov 4, 2020). Risk Factors for Depression, Anxiety, and PTSD Symptoms in Perinatal Women during the COVID-19 Pandemic. Psychiatry Research. https://doi.org/10.1016/j.psychres.2020.113552

- A nationally representative longitudinal survey of US adults (n=1,337) found 13% of respondents reported serious psychological distress in July 2020, relative to 14% in April 2020. At both time points, levels of reported serious distress were highest among adults aged 18-29 years, those with income less than $35,000, and Hispanic individuals. Among those with serious distress, the most common stressors reported were concerns about contracting COVID-19 (66%), pandemic effects on employment (65%), and finances (61%).
  McGinty et al. (Nov 23, 2020). Psychological Distress and COVID-19–Related Stressors Reported in a Longitudinal Cohort of US Adults in April and July 2020. JAMA. https://doi.org/10.1001/jama.2020.21231

Public Health Policy and Practice

- An analysis of US county-level COVID-19 data and a Distressed Communities Index (DCI) score (n=3,127 counties) found that severely distress counties (DCI score >75) had a small total number of COVID-19 deaths but more deaths per capita. Socio-economic determinants of health most associated with higher per capita cases and fatalities were the percentage of adults without a high school degree and proportion of Black residents. The percentage of the population aged older than 65 years was also strongly associated with higher per capita fatalities.
  Hawkins et al. (Oct 17, 2020). Socio-Economic Status and COVID-19–Related Cases and Fatalities. Public Health. https://doi.org/10.1016/j.puhe.2020.09.016

Other Resources and Commentaries

- Influenza Control during the COVID-19 Pandemic – The Lancet (Oct 22)
- Effect of COVID-19 on Maternal and Neonatal Services – The Lancet Global Health (Nov 20)
- SARS-CoV-2 and the Human-Animal Interface: Outbreaks on Mink Farms – The Lancet Infectious Diseases (Nov 20)
- COVID-19 and Preterm Birth – The Lancet Global Health (Nov 20)

- [Covid-19: Oxford Vaccine Is up to 90% Effective, Interim Analysis Indicates](#) – BMJ (Nov 23)
- [Leadership to Prevent COVID-19: Is It the Most Important Mitigation Factor?](#) – Travel Medicine and Infectious Disease (Nov 20)
- [The Role of Epidemiologists in SARS-CoV-2 and COVID-19 Research](#) – Public Health (Oct 17)
- [Diagnosis, Management, and Pathophysiology of Arterial and Venous Thrombosis in COVID-19](#) – JAMA (Nov 23)
- [The COVID-19 Pandemic and Mental Health of Refugees, Asylum Seekers, and Migrants](#) – Journal of Affective Disorders (Nov 10)
- [Organizational Health Literacy: Opportunities for Patient-Centered Care in the Wake of COVID-19](#) – Quality Management in Health Care (Nov 18)
- [Real Time Communication: Creating a Path to COVID-19 Public Health Activism in Adolescents Using Social Media (Preprint)](#) – Journal of Medical Internet Research (Nov 23)

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