2019-nCoV Literature Situation Report (Lit Rep)

September 28, 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

- **The prevalence of antibodies against SARS-CoV-2 was higher in US neighborhoods that have residents who predominantly identify as non-Hispanic Black or Hispanic and in more densely populated communities. Counties that reduced workplace visits by at least 5% in early March had lower antibody prevalence in July, 2020 compared to counties that did not reduce mobility.** More
- **The incidence of SARS-CoV-2 infection in school-age children in the US peaked in July and August (34-38 cases per 100,000), followed by a decline in September (23-26 per 100,000). These estimates provide a baseline to monitor transmission as schools reopen for in-person learning in some districts around the country.** More
- **A total of 218 COVID-19 cases were reported among 85,861 members of US youth soccer clubs that had restarted in-person activities (incidence 2.5 per 1,000). No cases resulted in hospitalization or death. Youth soccer clubs universally report implementing risk reduction procedures.** More

Transmission

- The act of speaking, particularly during a conversation, can create air currents that can transport exhaled breath in a directed pattern out to 2 meters (6 feet), and potentially further, during a 30 second conversation.

  Abkarian et al. (Sept 25, 2020). Speech Can Produce Jet-like Transport Relevant to Asymptomatic Spreading of Virus. Proceedings of the National Academy of Sciences. https://doi.org/10.1073/pnas.2012156117

Geographic Spread

- In a large sample of US adults who received dialysis (n=28,503), the seroprevalence of antibodies against SARS-CoV-2 was 8.0%, ranging from 3.5% in the west to 27.2% in the northeast. Seropositivity was higher in neighborhoods with predominantly non-Hispanic Black (OR=3.9) and Hispanic (OR=2.3) residents (vs white) and neighborhoods in the highest population density quintile (OR=10.3) (vs lowest quintile). Counties with mobility restrictions reducing workplace visits by at least 5% in early March, 2020 had lower seropositivity in July, 2020 than counties with reductions of less than 5% (OR=0.4).

  Anand et al. (Sept 25, 2020). Prevalence of SARS-CoV-2 Antibodies in a Large Nationwide Sample of Patients on Dialysis in the USA: A Cross-Sectional Study. The Lancet. https://doi.org/10.1016/S0140-6736(20)32009-2

Testing and Treatment

- A cross-sectional study in the New York City region reported that 99.5% patients with PCR-confirmed SARS-CoV-2 infection (n=624) and 37% patients with suspected SARS-CoV-2 infection (n=719) showed evidence of seroconversion with anti-SARS-CoV-2 spike antibodies detected 4 weeks after the illness. PCR positivity was detected up to 28 days from symptom resolution.

  Wajnberg et al. (Sept 25, 2020). Humoral Response and PCR Positivity in Patients with COVID-19 in the New York City Region, USA: An Observational Study. The Lancet Microbe. https://doi.org/10.1016/S2666-5247(20)30120-8

- A study that conducted mass screening for SARS-CoV-2 among two cohorts of asymptomatic persons in Japan, a contact tracing cohort (n=161) and an airport quarantine cohort (n=1,763), reported the overall sensitivity of RT-PCR testing with nasopharyngeal (NP) swabs was 86% and saliva samples was 92%, with specificity for both samples >99.9%. Due to the lack of a "gold standard" a Bayesian latent class model was used to estimate the test parameters. The true concordance probability between the NP and saliva tests was estimated at 99.8% in a setting with a prevalence of 0.3%.

  Yokota et al. (Sept 25, 2020). Mass Screening of Asymptomatic Persons for SARS-CoV-2 Using Saliva. Clinical Infectious Diseases. https://doi.org/10.1093/cid/ciaa1388

Clinical Characteristics and Health Care Setting

- The risk of vertical transmission of SARS-CoV-2 was very low in a multinational cohort of 250 neonates born to pregnant women with COVID-19, with only 1 infant (0.4%) testing positive by RT-PCR of pharyngeal swabs performed after delivery. The infant who tested positive was asymptomatic and had a negative RT-PCR test after 14 days of life. Overall, 7% experienced a composite adverse fetal outcome (6 miscarriage, 10 with intrauterine growth restriction, and 5 neonatal death).

  Di Mascio et al. (Sept 25, 2020). Risk Factors Associated with Adverse Fetal Outcomes in Pregnancies Affected by Coronavirus Disease 2019 (COVID-19): A Secondary Analysis of the WAPM Study on COVID-19. Journal of Perinatal Medicine. https://doi.org/10.1515/jpm-2020-0355

- The incidence of SARS-CoV-2 infection in school-age children increased from March and peaked in July and August, followed by a decline in September. During March 1–September 19, 2020, the US reported a total of 277,285 laboratory-confirmed cases of COVID-19 in school-aged children. The average weekly COVID-19 incidence among adolescents aged 12–17 years was approximately 2-fold higher than among children aged 5–11 years (37.4 vs. 19.0 per 100,000). The weekly incidence increased to a peak of 34-38 per 100,000 in July and August and decreased with a slight rebound to 23-26 per 100,000 in early September. Trends in incidence were similar among both age groups.
- The authors note that these estimates provide a baseline to monitor transmission among school age children as schools reopen for in-person learning in some districts around the country.

  Leeb et al. (Sept 28, 2020). COVID-19 Trends Among School-Aged Children — United States, March 1–September 19, 2020. MMWR. https://doi.org/10.15585/mmwr.mm6939e2

- During 2 weeks in March in Milwaukee, Wisconsin, COVID-19 incidence was higher among Black residents (vs. White: OR=5.4). Adjusting for zip code of residence, Black race (aOR=1.8) and poverty

(aOR=3.8) were associated with a greater likelihood of have COVID-19, but only poverty was associated with COVID-19 ICU admission (aOR=3.6).

Muñoz-Price et al. (Sept 25, 2020). Racial Disparities in Incidence and Outcomes Among Patients With COVID-19. JAMA Network Open. https://doi.org/10.1001/jamanetworkopen.2020.21892

- Using national-level surveillance data from April to August in Italy, Signorelli and Odone reported the case fatality of COVID-19 varied significantly by age (ranging from 0.1-2.8% in people <60 years up to 29-35% in people ≥80 years). However, the age-specific rates were similar over time, as estimated at 2, 4 and 6 months since the onset of the epidemic. The authors conclude that the less severe COVID-19 clinical outcomes reported recently in Italy and other European sites may be due an increasing proportion of infections occurring in younger age groups.

  Signorelli and Odone. (Sept 25, 2020). Age-Specific COVID-19 Case-Fatality Rate: No Evidence of Changes over Time. International Journal of Public Health. https://doi.org/10.1007/s00038-020-01486-0

Public Health Policy and Practice

- *[Pre-print, not peer-reviewed]* Youth soccer clubs in the US involving 85,861 players that had restarted in-person activities reported 218 COVID-19 cases among their members. None of the cases resulted in hospitalization or death. The authors used these cases to estimate the incidence of COVID-19 among youth soccer athletes and concluded that it was lower than the overall national rate for children in the US (254 vs 477 cases per 100,000). No relationship was identified between club COVID-19 incidence and phase of return to soccer. Youth soccer clubs universally report implementing risk reduction procedures.

  Watson et al. (Sept 27, 2020). COVID-19 in Youth Soccer. Pre-print downloaded Sept 28 from https://doi.org/10.1101/2020.09.25.20201616

- *[Pre-print, not peer-reviewed]* In a national longitudinal survey in Australia (April-June), 49% of people strongly agreed they would get tested if they had COVID-19 symptoms and 96% agreed to some extent that they would get tested. Common barriers to testing were the belief that testing is painful (11%), not knowing how to get tested (7%), and worry about getting infected at the testing center (5%).

  Bonner et al. (Sept 25, 2020). Behavioural Barriers to COVID-19 Testing in Australia. Pre-print downloaded Sept from 28 from https://doi.org/10.1101/2020.09.24.20201236

- Despite a higher incidence of COVID-19 and a higher proportion of positive test results, non-Hispanic Black and Hispanic patients with COVID-19 had slightly lower risk of death than their non-Hispanic white counterparts (aHR=0.8, p=0.03 for Non-Hispanic Black and aHR=0.7, p=0.002 for Hispanic patients). These findings were based on a cohort study conducted at a medical center in New York City between March 14 and April 15, 2020 with 9,268 patients tested for SARS-CoV-2.

  Kabarriti et al. (Sept 25, 2020). Association of Race and Ethnicity With Comorbidities and Survival Among Patients With COVID-19 at an Urban Medical Center in New York. JAMA Network Open. https://doi.org/10.1001/jamanetworkopen.2020.19795

- *[Pre-print, not peer-reviewed]* A systematic review of 12 studies found that receiving seasonal influenza vaccination was not associated with greater risk of SARS-CoV-2 infection or disease severity in any studies. Several studies found that influenza vaccination was associated with lower risk of SARS-CoV-2 infection, while others found no relationship (7 studies, 242,323 patients).

Similarly, several studies found that influenza vaccination was associated with reduced severity of COVID-19 severity, while others found no relationship (5 studies, 111,820).

Riccio et al. (Sept 27, 2020). The Association between Influenza Vaccination and the Risk of SARS-CoV-2 Infection Severe Illness and Death a Systematic Review of the Literature. Pre-print downloaded Sept 28 from https://doi.org/10.1101/2020.09.25.20201350

Other Resources and Commentaries

- Deficient Response to COVID-19 Makes the Case for Evolving the Public Health System – American Journal of Preventive Medicine (Aug 26)
- It's Time to Put Children and Young People First During the Global COVID-19 Pandemic – JAMA Pediatrics (Sept 25)
- How Will COVID-19 Impact on the Governance of Global Health in the 2030 Agenda Framework? The Opinion of Experts – Healthcare (Sept 23)
- In-Flight Transmission of SARS-CoV-2: A Review of the Attack Rates and Available Data on the Efficacy of Face Masks – Journal of Travel Medicine (Sept 25)
- Covid-19: Learn from Other Countries about Easing Lockdown, Researchers Urge – BMJ (Sept 25)
- COVID-19 and the 'Rediscovery' of Health Inequities – International Journal of Epidemiology (Sept 24)
- Racism, Not Race, Drives Inequity Across the COVID-19 Continuum – JAMA Network Open (Sept 25)
- Misalignment between Coronavirus Financial Aid and Public Health Policies: Negative Incentives for Outpatient Clinics in the United States – Journal of Public Health Policy (Sept 25)
- Minimum Sizes of Respiratory Particles Carrying SARS-CoV-2 and the Possibility of Aerosol Generation – International Journal of Environmental Research and Public Health (Sept 23)
- COVID-Vaccine Results Are on the Way — and Scientists' Concerns Are Growing – Nature (Sept 25)
- Covid-19: App to Track Close Contacts Is Launched in England and Wales – BMJ (Sept 25)
- COVID-19 and Pandemic Planning in the Context of Rural and Remote Homelessness – Canadian Journal of Public Health (Sept 24)
- Why COVID-19 Is Less Frequent and Severe in Children: A Narrative Review – World Journal of Pediatrics (Sept 25)

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