2019-nCoV Literature Situation Report (Lit Rep)

September 17, 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

- **One-quarter of the pregnant women who were hospitalized with symptomatic COVID-19 had a severe disease course, including ICU admission, mechanical ventilation, or death.** More
- **A study among 105 pregnant women with COVID-19 reported the prevalence of pre-pregnancy obesity and gestational diabetes were significantly higher among those hospitalized for COVID-19–related illness than among those originally admitted for obstetric reasons.** More
- **An open-ended survey reported that 35% of participating US youth (n=950) experienced difficulty accessing essential resources due to COVID-19.** More
- **There was a 61% decrease in the number of respiratory specimens sent for influenza testing and a 98% decrease in test positivity during the COVID-19 pandemic period (March 1–May 16), which may indicate that COVID-19 mitigation measures can prevent influenza in the US, but the authors emphasize that influenza vaccination remains very important.** More

Non-Pharmaceutical Interventions

- Wearing a facemask at all times when in contact with someone with COVID-19 was associated with a significantly lower risk of SARS-CoV-2 infection (aOR=0.23) among close contacts of people with COVID-19 in Thailand. The case-control study (211 cases and 839 controls) also found that maintaining physical distance (aOR=0.15), shorter duration of contact (aOR=0.24), and handwashing (aOR=0.33) were also independently associated with lower risk of infection.

  Doung-ngern et al. (Sept 14, 2020). Case-Control Study of Use of Personal Protective Measures and Risk for Severe Acute Respiratory Syndrome Coronavirus 2 Infection, Thailand. Emerging Infectious Diseases. https://doi.org/10.3201/eid2611.203003

- Eyeglass wearers were underrepresented among COVID-19 patients, providing some evidence that eyeglasses could provide some protection against SARS-CoV-2 infection. A cohort study of COVID-19 patients conducted in Suizhou, China found that 6% of patients wore eyeglasses for extended periods. In comparison, a previous study estimated that 32% of the general population wore glasses.

  Zeng et al. (Sept 16, 2020). Association of Daily Wear of Eyeglasses With Susceptibility to Coronavirus Disease 2019 Infection. JAMA Ophthalmology. https://doi.org/10.1001/jamaophthalmol.2020.3906

Transmission

- Many people with mild or asymptomatic COVID-19 (n=300) had prolonged SARS-CoV-2 RNA positivity with intermittent negative tests in a study in Korea. 23% had SARS-CoV-2 detected more than 3 weeks after the initial positive RT-PCR test, and 14% had positive results for more than 4 weeks. Overall, 37% (152/405) of negative results were positive or indeterminate in the next day's test, and 43% (123/283) of negative results were followed by a positive or indeterminate result within 3 weeks of diagnosis.

  Kim et al. (Sept 16, 2020). Prolonged SARS-CoV-2 Detection and Reversed RT-PCR Results in Mild or Asymptomatic Patients. Infectious Diseases. https://doi.org/10.1080/23744235.2020.1820076

Testing and Treatment

- *[Pre-print, not peer reviewed]* Self-collected saline mouth rinse/gargle samples and saliva samples had a sensitivity of 98% (39/40) and 79% (26/33), respectively, compared to healthcare worker (HCW)-collected nasopharyngeal swab samples among 40 people with SARS-CoV-2. Both types of self-collected samples showed stable viral RNA detection after 2 days of storage at room temperature and demonstrated higher user acceptability ratings than HCW-collected NP swabs.

  Goldfarb et al. (Sept 14, 2020). Self-Collected Saline Gargle Samples as an Alternative to Healthcare Worker Collected Nasopharyngeal Swabs for COVID-19 Diagnosis in Outpatients. Pre-print downloaded Sept 18 from https://doi.org/10.1101/2020.09.13.20188334

- Anti-SARS-CoV-2 antibody levels declined over 60 days among all 19 health care personnel in Tennessee who had anti–SARS-CoV-2 antibodies at baseline. In 11 (58%), antibody levels declined substantially enough that they tested negative at 60 days, while 8 (42%) remained seropositive after 60 days. The authors conclude that cross-sectional seroprevalence studies may underestimate rates of prior infections because antibodies may only be transiently detectable following infection.

  Patel et al. (Sept 17, 2020). Change in Antibodies to SARS-CoV-2 Over 60 Days Among Health Care Personnel in Nashville, Tennessee. JAMA. https://doi.org/10.1001/jama.2020.18796

Clinical Characteristics and Health Care Setting

- Among 598 pregnant women hospitalized with COVID-19 during March 1–August 22, 2020 in the US, 272 (45%) were symptomatic at admission, among whom 69 (25%) had severe illness during COVID-19-related hospitalizations, including ICU admissions (n=44), mechanical ventilation (n=23), and death (n=2). Ten women (7 symptomatic and 3 asymptomatic) experienced pregnancy losses.

  Delahoy et al. (Sept 16, 2020). Characteristics and Maternal and Birth Outcomes of Hospitalized Pregnant Women with Laboratory-Confirmed COVID-19 — COVID-NET, 13 States, March 1–August 22, 2020. MMWR. https://doi.org/10.15585/mmwr.mm6938e1

- Prevalence of pre-pregnancy obesity and gestational diabetes were higher among pregnant women hospitalized for COVID-19–related illness than among women admitted for obstetric reasons and later found to have COVID-19 (44% vs. 31%, and 26% vs. 8%, respectively). These findings were among 105 pregnant women hospitalized with SARS-CoV-2 in the US from March 1–May 30, 2020.

  Panagiotakopoulos et al. (Sept 16, 2020). SARS-CoV-2 Infection Among Hospitalized Pregnant Women: Reasons for Admission and Pregnancy Characteristics — Eight U.S. Health Care Centers, March 1–May 30, 2020. MMWR. https://doi.org/10.15585/mmwr.mm6938e2

- Older age (≥70 years) and a high serum lactate dehydrogenase (LDH) level significantly predicted mortality among hospitalized COVID-19 patients with diabetes in South Korea. Diabetes was present in 55 (17%) of 324 patients who were hospitalized with COVID-19 at two tertiary healthcare facilities. The mortality rate was much higher among patients with diabetes than among those without (20% vs 5%). The authors suggest that COVID-19 patients with diabetes should be closely considered at high risk of COVID-19 mortality.

  Acharya et al. (Sept 13, 2020). Mortality Rate and Predictors of Mortality in Hospitalized COVID-19 Patients with Diabetes. Healthcare. https://doi.org/10.3390/healthcare8030338

- Female gender, being a nurse, reporting a shortage of ICU nurses and powered air-purifying respirators, as well as poor communication from supervisors were found to be positively associated with emotional distress or burnout among healthcare providers (n=2,700) for critically ill patients with COVID-19. These results were obtained from an electronic 41-question survey administered to health care workers in 77 countries during April 23-May 7, 2020. In addition, 16% of respondents reported limiting mechanical ventilation and 66% reported changes in cardiopulmonary resuscitation practices. The authors addressed a need for targeted interventions to support HCPs on the front lines.

  Wahlster et al. (Sept 11, 2020). The COVID-19 Pandemic's Impact on Critical Care Resources and Providers: A Global Survey. Chest. https://doi.org/10.1016/j.chest.2020.09.070

- During April–June 2020, serial facility-wide testing at two Minnesota skilled nursing facilities (SNFs) identified COVID-19 cases among 64% of residents (N=259) and 33% of health care personnel (N=341). Genetic sequencing found facility-specific clustering of viral genomes from healthcare professionals' and residents' specimens, suggesting intra-facility transmission.

  Taylor et al. (Sept 18, 2020). Serial Testing for SARS-CoV-2 and Virus Whole Genome Sequencing Inform Infection Risk at Two Skilled Nursing Facilities with COVID-19 Outbreaks — Minnesota, April–June 2020. MMWR. https://doi.org/10.15585/mmwr.mm6937a3

- There was a considerably higher proportion of positive SARS-CoV-2 test results among residents and staff in long-term care facilities when testing was conducted in response to an initial confirmed case of COVID-19 compared to preventive testing done before cases were detected.
- In Fulton County, Georgia, testing in response to an initial case in long-term care facilities (n=15) resulted in positive tests in 28% of residents and 7% of staff, increasing to 42% of residents and 12% of staff at 4-week follow-up testing. By comparison, when testing was conducted preventively (n=13 facilities), only 1% of residents and staff tested positive, increasing to 2% after 4 weeks. The authors conclude that proactive testing for residents and staff members might prevent large COVID-19 outbreaks through early identification and timely response. *[EDITORIAL NOTE: A version of this article was previously summarized as a pre-print on July 2, 2020]*

  Telford et al. (Sept 18, 2020). Preventing COVID-19 Outbreaks in Long-Term Care Facilities Through Preemptive Testing of Residents and Staff Members — Fulton County, Georgia, March–May 2020. MMWR. https://doi.org/10.15585/mmwr.mm6937a4

Mental Health and Personal Impact

- A sizable proportion of US youth reported experiencing unmet needs and negative emotions due to COVID-19. An open-ended survey conducted in March 2020 among 950 US youth (age 14-24 years) found that 35% reported difficulty accessing or unavailability of essential resources (e.g., food, household supplies, cleaning supplies, money/work). One-fifth of respondents reported symptoms

of anxiety and depression. Commonly reported coping strategies included staying connected and maintaining positivity.

Waselewski et al. (Sept 12, 2020). Needs and Coping Behaviors of Youth in the U.S. During COVID-19. Journal of Adolescent Health. https://doi.org/10.1016/j.jadohealth.2020.07.043

- Perceived vulnerability to COVID-19 was positively related to COVID-19-related worries, social isolation, and traumatic stress, and both COVID-19-related worries and social isolation were significant mediators of the relationship between perceived vulnerability to COVID-19 and traumatic stress. These associations were reported in a study including 747 US adults recruited through an online survey during March 26-April 6, 2020.

  Boyraz et al. (Sept 8, 2020). COVID-19 and Traumatic Stress: The Role of Perceived Vulnerability, COVID-19-Related Worries, and Social Isolation. Journal of Anxiety Disorders. https://doi.org/10.1016/j.janxdis.2020.102307

Public Health Policy and Practice

- There was a 61% decrease in the US in the number of respiratory specimens submitted for influenza testing during the COVID-19 pandemic (49,696 per week during September 29, 2019–February 29, 2020 vs. 19,537 during March 1–May 16, 2020). The rate of test positive decreased by 98% (19% vs. 0.3%) and has remained at historically low inter-seasonal levels (0.2% in 2020 vs. 1–2% in 2017-2019). The authors state that some of the mitigation measures for the COVID-19 pandemic might have a role in preventing influenza in future seasons, but that influenza vaccination of all persons aged ≥6 months remains especially important in the United States this fall and winter when SARS-CoV-2 and influenza virus might co-circulate.

  Olsen et al. (Sept 18, 2020). Decreased Influenza Activity During the COVID-19 Pandemic — United States, Australia, Chile, and South Africa, 2020. MMWR. https://doi.org/10.15585/mmwr.mm6937a6

- An online survey (n=11,242) found that US adults used an average of 6.1 sources for COVID-19 information, with 91% using traditional media and 70% using mainstream media during March-April 2020. A larger number of sources used was reported by men (vs women), those aged 40-59 or ≥60 (vs 18-38 years), those not working (vs working), and Republican (vs Democrat). Respondents with higher educational attainment reported using fewer sources. Government websites were reported to be the largest individual information source (88%). Men and elder people (aged 40-59 and ≥60 years) were less likely to trust government websites.

  Ali et al. (Sept 16, 2020). Trends and Predictors of COVID-19 Information Sources and Their Relationship with Knowledge and Beliefs Related to the Pandemic: A Nationwide Cross-Sectional Study (Preprint). JMIR Public Health and Surveillance. https://doi.org/10.2196/21071

Other Resources and Commentaries

- The Science of Persuasion Offers Lessons for COVID-19 Prevention – JAMA (Sept 16)
- Researchers Highlight 'Questionable' Data in Russian Coronavirus Vaccine Trial Results – Nature (Sept 15)
- COVID-19 and the "Film Your Hospital" Conspiracy Theory: Social Network Analysis of Twitter Data. – Journal of Medical Internet Research (Sept 16)
- A Pandemic within a Pandemic — Intimate Partner Violence during Covid-19 – NEJM (Sept 16)

- Eye Protection and the Risk of Coronavirus Disease 2019: Does Wearing Eye Protection Mitigate Risk in Public, Non–Health Care Settings? – JAMA Ophthalmology (Sept 16)
- Occupational Safety and Health Administration (OSHA) and Worker Safety During the COVID-19 Pandemic – JAMA (Sept 16)
- Suboptimal US Response to COVID-19 Despite Robust Capabilities and Resources – JAMA (Sept 16)
- Audio Interview: Operation Warp Speed and Covid-19 Therapeutics – NEJM (Sept 17)
- Investigating Whether Blood Type Is Linked to COVID-19 Risk – JAMA (Sept 16)

Report prepared by the UW MetaCenter 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