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

- A nationally-representative study in England found broad acceptability and reliability of results from home-based self-testing for SARS-CoV-2 antibodies, but found some challenges with the usability of the evaluated kits. [More](#)
- French nursing homes in which staff voluntarily confined themselves to the facility had a markedly lower likelihood of COVID-19 cases and deaths among residents than facilities in which staff did not self-confine. [More](#)
- A national survey in the US found that 49% of parents would probably or definitely send their children to school if their school opened in the fall, while 31% probably or definitely would keep their children home. Lower income, unemployment, and job flexibility were all positively associated with plans to keep children home. [More](#)
- A study of close contacts of SARS-CoV-2 cases in China found an overall attack rate of 4%, with a higher rate in households than in healthcare settings or on public transportation. Secondary attack rate was positively associated with severity of the index case’s disease. [More](#)
- A study of obstetrical patients in Boston found no evidence that the number of in-person healthcare visits was associated with risk of SARS-CoV-2 infection. [More](#)

Non-Pharmaceutical Interventions

- Zens et al. report findings from the COVID-19 Symptom Tracker study, an app-based daily self-reporting study. Between April 8 and May 15, 22,327 individuals living in Germany installed the app, of which 11,829 (59%) completed the symptom questionnaire at least once. Of the 291 participants who received a SARS-CoV-2 PCR test, 22% were positive. Untested participants reported a mean of 0.8 symptoms compared to 5.6 symptoms among tested participants. Chills, fever, loss of smell, nausea, vomiting, and shortness of breath were the strongest predictors of SARS-CoV-2 infection. Diabetes and chronic heart disease were significant risk factors for positivity.
  
  Zens et al. (July 2020). App-Based Tracking of Self-Reported COVID-19 Symptoms. Journal of Medical Internet Research. [https://doi.org/10.2196/21956](https://doi.org/10.2196/21956)

Schools

- A national survey in the US in early June (n=730 parents) found 31% of participants indicated they would probably or definitely keep their child home this fall if their school opened for in-person instruction, while 49% reported they would probably or definitely send their child to school. Lower income, being unemployed, and having a flexible job were associated with greater likelihood of planning to keep children home. Those who reported fear of COVID-19 or multi-system
inflammatory syndrome were more likely to plan to keep children home, while those who reported confidence in schools and challenges with homeschool were less likely to plan to keep children home. Race and ethnicity were not significantly associated with plans to keep children home.


Transmission

- French nursing homes in which staff voluntarily confined themselves to the facility (n=17 facilities corresponding to 794 staff and 1,250 residents) experienced COVID-19 cases in only 6% of facilities compared to 48% of facilities in which staff did not self-confine (n=9,513 facilities corresponding to 385,290 staff and 695,060 residents). Among residents in facilities with self-confine only 0.4% had confirmed COVID-19 and none had possible COVID-19, compared with 4% and 5% among facilities without. Self-confinement of staff was associated with a 78% lower odds of death among residents. Incidence of confirmed or possible COVID-19 among staff was 1.6% with self-confinement versus 8% versus without.


- A study of SARS-CoV-2 infection among 3,410 close contacts of 391 confirmed SARS-CoV-2 cases in Guangzhou, China found a secondary attack rate of 4%. Close contact was defined as contact without effective protection starting 2 days before symptom onset or 2 days before testing for asymptomatic cases. Eight percent of index cases were asymptomatic, 16% had mild symptoms, 69% had moderate symptoms, and 9% had severe/critical illness. Secondary attack rates were highest in household settings (10%) and lower in healthcare settings (1%) and on public transportation (0.1%).


Geographic Spread

- US data from January 22-July 15 were analyzed to detect “hotspot” counties. No hotspots were identified prior to March 7, but 818 counties (corresponding to 80% of the US population) met hotspot criteria for one or more days between from March 8 to July 15. The number of hotspot counties peaked in early April, decreased, and then increased again in late June.


Testing and Treatment

- A nationally-representative survey of adults in England assessed acceptability of two SARS-CoV-2 antibody home self-tests (n=10,600 and n=3,800), including pilot testing in 315 volunteers to optimize usability. Pilot testing revealed high levels of acceptability but limitations to usability, particularly use of included materials, clarity of instructions, and guidance on result interpretation.
In the main study, over 97% of participants completed their assigned tests, reporting improvements in clarity of instructions but remaining difficulties in use of the test kits. Over 90% obtained a valid result, and there was substantial concordance between participant and clinician-interpreted results.


Vaccines

- Mulligan et al. report safety, tolerability, and immunogenicity findings from an ongoing placebo-controlled observer-blinded dose escalation study among 45 healthy adults randomized to receive an anti-SARS-CoV-2 vaccine that targets the spike glycoprotein receptor-binding domain (two doses 21 days apart). Local reactions and systemic events were generally mild, dose-dependent, and transient. Exceptions included one report of severe pain for a high-dose participant, two reports of grade 3 fever, and one report of sleep disturbance. No serious adverse events were reported.


- IgG concentrations and neutralizing titers increased with dose level and after a second dose; however, the difference between medium- and high-dose after the first vaccination was not meaningful. As a result, a second high-dose vaccination was not administered. Neutralizing titers were 1.9 to 4.6 times that of a panel of COVID-19 convalescent human sera.


Clinical Characteristics and Health Care Setting

- A nested case-control study among obstetrical patients delivering at four hospitals in Boston found that there was no meaningful difference between the number of in-person visits for case patients with SARS-CoV-2 versus controls (mean 3.3 visits versus 3.1). All patients in the study were tested for SARS-CoV-2 on admission. Cases were matched with up to 5 controls on gestational age, race/ethnicity, insurance type, and SARS-CoV-2 incidence in the patient’s zip code of residence (n=2,968 deliveries). Results were adjusted for age, BMI, and essential worker occupation, with imputation for missing variables.


- A review of patients with confirmed COVID-19 in Houston, Texas during the initial peak and resurgence of COVID-19 (up to July 7) found that during the resurgence, patients were younger, more likely to be Hispanic, more likely to reside in a zip code with lower median income, and less likely to have general and specific comorbidities, compared to patients in the initial peak. Patients during the resurgence were more likely to receive remdesivir and enoxaparin. The analysis included 774 patients from the initial peak and 2,130 from the resurgence period.
ICU admission was significantly less common for patients during the resurgence (20% vs 38%), hospital stay was significantly shorter (4.8 versus 7.1 days), and in-hospital mortality was significantly lower (5% versus 12%). Morality among ICU-treated patients was unchanged.


A cross-sectional analysis of the COVID-19 Surveillance and Outcomes Registry, which captures data for a large healthcare system in the Houston area, reported a 7% test positivity. After adjustment for confounders, compared to non-Hispanic whites, test positivity was higher among non-Hispanic Black individuals (OR=2.2) and those of Hispanic ethnicity (OR=1.95). Using structural equation modeling, the authors demonstrated a significant indirect effect of race and ethnicity mediated by population density in zip code of residence.


A study of all adults registered with a general practice in England (n=61,414,470) found a 2.9-fold higher likelihood of in-hospital COVID-19 related death among those with for type 1 diabetes and 1.8-fold higher likelihood among those with type 2 diabetes compared to other patients, after adjustment for confounders. The unadjusted risk difference for COVID-19 related mortality was 111 per 100,000 for type 1 diabetes and 233 per 100,000 for type 2 diabetes.


Mental Health and Personal Impact

An analysis of patients at a Boston hospital found a 1.8-fold higher incidence of intimate partner violence during the early COVID-19 pandemic (March 11 to May 3, 2020) (n=26), compared to the same period over the past three years (n=42). The severity of abuse also increased. Abuse victims were more likely to be ethnically white (65% during 2020 versus 26% during the reference period).


Modeling and Prediction

Kraay et al. used a transmission modeling approach to simulate fomite transmission of SARS-CoV-2 (via contaminated surfaces) under a variety of settings, surface types and cleaning frequencies. Unknown parameter values were derived from other pathogens with similar properties to SARS-CoV-2. Fomite $R_0$ ranged from 2 in low risk venues (offices) to 20 in high-risk settings (daycares) and was higher than that of both influenza and rhinovirus. The model indicates that hourly cleaning and disinfection alone could bring the fomite $R_0$ below 1 in some office settings, but not in daycares or schools. Cloth and other porous surfaces were unlikely to sustain transmission, suggesting cleaning and disinfection focus on non-porous surfaces.

Other Resources and Commentaries

- **Ten Key Points about COVID-19 in Children: The Shadows on the Wall** – Pediatric Pulmonology (Aug 13)
- **Incentivized Public Service Response to COVID-19 in Rural and Marginalized Urban Communities** – American Journal of Public Health (Sept)
- **Addressing the Disproportionate Impacts of the COVID-19 Pandemic on Sexual and Gender Minority Populations in the United States: Actions Toward Equity** – LGBT Health (Aug 13)
- **A Need for Open Public Data Standards and Sharing in Light of COVID-19** – The Lancet Infectious Diseases (Aug 10)
- **Patient-Reported Outcomes: Central to the Management of COVID-19** – The Lancet (Aug 10)
- **Treatment of COVID-19 with Convalescent Plasma: Lessons from Past Coronavirus Outbreaks** – Clinical Microbiology and Infection (Aug 11)
- **Invited Editorial: Despite COVID-19, Influenza Must Not Be Relegated to “Only the Sniffles”** – Vaccines (Aug 7)
- **13 States Make Contact Tracing Data Public. Here’s What They’re Learning** – NPR (Aug 14)
- **Covid-19 Misinformation Sparks Threats and Violence against Doctors in Latin America** – BMJ (Aug 11)

*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*