



2019-nCoV Literature Situation Report (Lit Rep)

August 3, 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

- **During the first month of the COVID-19 pandemic in 5 states in the US, there was a decrease (range 42%-64%) in emergency department (ED) visits, but an increase in hospital admission rates from the ED (range 22%-149%), indicating a lower overall volume but higher overall acuity of illness in ED visits occurring during the COVID-19 pandemic.**
- **Maine CDC enrolled >1600 contacts of persons with COVID-19 in an automated system to collect daily symptom information, and subsequently identified 190 contacts (nearly 12%) with COVID-19.**
- **Screening with PCR every 2 days, coupled with strict behavioral interventions, would maintain a controllable number of COVID-19 infections among a modeled cohort of residential college students.**

Transmission

- *[Preprint, not peer-reviewed]* Madewell et al. performed a meta-analysis of 40 studies of SARS-CoV-2 household secondary attack rate (SAR). Overall, the estimated mean SAR for household contacts was 19% (95%CI 15%–23%) and family contacts was 18% (13%–35%), both with significant heterogeneity. SARs were significantly higher from symptomatic index cases than asymptomatic index cases (20% vs. 1%), to adult contacts than to child contacts (31% vs. 16%), to spouses than other family contacts (43% vs. 18%), and in households with one contact than in households with three or more contacts (45% vs. 25%), though the authors note that the analysis does not adjust for household crowding. *[Editorial note: This analysis did not have strict temporal criteria for the identification of a case relative to other cases in the household, which may inflate the estimated SARs.]*

Madewell et al. (Aug 1, 2020). Household Transmission of SARS-CoV-2 a Systematic Review and Meta-Analysis of Secondary Attack Rate. Pre-print downloaded Aug 3 from <https://doi.org/10.1101/2020.07.29.20164590>

- Yang et al. described a case series of 12 people who likely acquired SARS-CoV-2 on a 5-hour flight carrying 325 passengers and crew members. All passengers and crew were asymptomatic and without fever at the time of boarding. A single passenger was found to be febrile on arrival in China and tested positive for SARS-CoV-2. Consequently, all passengers and crew were quarantined and monitored for 14 days. Eleven additional passengers subsequently tested positive for SARS-CoV-2;



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no crew were infected. Seat assignment was not described. The median age of cases was 33 years; 70% were female. The median incubation period (from flight to symptom onset) was 3 days. No patients were admitted to the intensive care unit, and no patients died in the initial month of observation.

Yang et al. (July 31, 2020). *In-Flight Transmission Cluster of COVID-19: A Retrospective Case Series*. *Infectious Diseases*. <https://doi.org/10.1080/23744235.2020.1800814>

Geographic Spread

- Among 2,640 individuals (61% White) in Louisiana, USA, the weighted SARS-CoV-2 exposure rate was 8%. Seroprevalence was highest (10%) in Black participants, followed by multiracial (7%), Asian (6%), and White (5%) participants. The infection fatality ratio was 1.6%, similar for White (1.6%), Black (1.7%), and multiracial (1.4%) persons, but was significantly lower for Asian persons (0.6%).

Feehan et al. (July 30, 2020). *Seroprevalence of SARS-CoV-2 and Infection Fatality Ratio, Orleans and Jefferson Parishes, Louisiana, USA, May 2020*. *Emerging Infectious Diseases*.

<https://doi.org/10.3201/eid2611.203029>

- Jeffery et al. examine daily emergency department (ED) visits and hospital admission rates of 24 EDs in Colorado (n=4), Connecticut (n=5), Massachusetts (n=5), New York (n=5), and North Carolina (n=5) from January 1 to April 30, 2020 and temporal associations with the onset of local COVID-19 case escalations. Compared to the annual ED volume before the COVID-19 pandemic, ED visits decreased, with a range from 42% in Colorado to 64% in New York. However, hospital admission rates from the ED increased, with a range from 22% in North Carolina to 149% in New York. In each setting, hospital admission rates remained stable until COVID-19 cases started increasing locally, at which point admission rates increased as well, suggesting lower ED volume but higher acuity of illness.

Jeffery et al. (Aug 3, 2020). *Trends in Emergency Department Visits and Hospital Admissions in Health Care Systems in 5 States in the First Months of the COVID-19 Pandemic in the US*. *JAMA Internal Medicine*. <https://doi.org/10.1001/jamainternmed.2020.3288>

Testing and Treatment

- There may be little benefit of repeat SARS-CoV-2 PCR testing within 7 days after a negative test in patients who present early in their illness in a low-prevalence setting. Among 275 patients with initially negative (94%) or inconclusive (6%) nasopharyngeal PCR tests in Omaha, Nebraska who were tested serially between March-April 2020, only 1 (1/275) was positive on the 2nd test, and only 1 (1/40) was positive on a 3rd test.

Rearigh et al. (Aug 3, 2020). *Utility of Repeat Testing for COVID-19: Lab Stewardship When the Stakes Are High*. *Infection Control and Hospital Epidemiology*.

<https://doi.org/10.1017/ice.2020.397>

- A network meta-analysis of 23 RCTs evaluating treatments for COVID-19 found that glucocorticoids were the only intervention with evidence for a reduction in mortality compared with standard care (risk difference 37 fewer per 1000 patients, 95%CI 11-63) and need for mechanical ventilation (31 fewer per 1000 patients, 95%CI 9-47). Three drugs might reduce symptom duration compared with standard care: hydroxychloroquine (mean difference -4.5 days), remdesivir (-2.6 days), and lopinavir-ritonavir (-1.2 days). Overall evidence of treatments for COVID-19 showed a low certainty of evidence due to lack of blinding and imprecision of estimates.

Siemieniuk et al. (July 30, 2020). *Drug Treatments for Covid-19: Living Systematic Review and Network Meta-Analysis*. *BMJ*. <https://doi.org/10.1136/bmj.m2980>

Clinical Characteristics and Health Care Setting

- Kotlyar et al. pooled results of from 38 studies with 936 neonates to investigate SARS-CoV-2 vertical transmission. They found that the proportion of vertical transmission based on RNA PCR results from infant nasopharyngeal swabs was 3.2% (95%CI 2.2-4.3%). The neonatal serology (IgM) was positive in 3.7% (3/82). The authors note that the majority of mothers in their sample were likely infected during the third trimester of pregnancy, and that the risk of vertical transmission as well as potential risk for consequent fetal morbidity and mortality may differ for pregnant women infected in early pregnancy.

Kotlyar et al. (July 30, 2020). Vertical Transmission of COVID-19: A Systematic Review and Meta-Analysis. American Journal of Obstetrics and Gynecology.

<https://doi.org/10.1016/j.ajog.2020.07.049>

Mental Health and Personal Impact

- Among 241 parents (92% mothers) of children with special educational needs and disabilities in the UK, many parents and children experienced loss, worry, and changes in mood and behavior as a result of the rapid social changes due to COVID-19. Suggestions from parents surveyed about the support that they would like in the COVID-19 pandemic included specialist professional advice for parents focused on how to meet their child's educational and mental health needs, setting appropriate tasks and resources for home learning, and providing opportunities to see familiar faces, even if connecting remotely.

Asbury et al. (July 31, 2020). How Is COVID-19 Affecting the Mental Health of Children with Special Educational Needs and Disabilities and Their Families? Journal of Autism and Developmental Disorders. <https://doi.org/10.1007/s10803-020-04577-2>

- Among an online sample of 641 predominantly Canadian mothers of children age 0-8 years, clinically-significant depression was indicated by 33%, 43%, and 43% of mothers of children age 0-18 months, 18 months to 4 years, and 5 to 8 years, respectively. Anxiety was 36%, 33%, and 30% for mothers across age groups, respectively. These proportions appear elevated relative to population values from pre-pandemic periods.

Cameron et al. (July 20, 2020). Maternal Psychological Distress & Mental Health Service Use during the COVID-19 Pandemic. Journal of Affective Disorders. <https://doi.org/10.1016/j.jad.2020.07.081>

Modeling and Prediction

- *[Preprint, not peer-reviewed]* Clifford et al. estimated that a quarantine period of eight days for air travelers arriving to the UK with a PCR test on day-7 can reduce the number of infectious arrivals released into the community by a median 94% when compared with no quarantine. This reduction is similar to the 99% median reduction achieved by a 14-day quarantine period. Without quarantine, the current high prevalence of SARS-CoV-2 in the US would result in up to 23 introductions of infectious travelers per week.

Clifford et al. (July 24, 2020). Strategies to Reduce the Risk of SARS-CoV-2 Re-Introduction from International Travellers. Pre-print downloaded Aug 3 from

<https://doi.org/10.1101/2020.07.24.20161281>

- Paltiel et al. conducted a modeling study with a hypothetical cohort of 5,000 residential college students including 10 (0.2%) with undetected, asymptomatic SARS-CoV-2 infection, and found that a symptom-based screening strategy was not sufficient to contain an outbreak in any model scenario.
- Screening every 1, 2, and 7 days resulted in a cumulative infection of 162, 243 or 1840, respectively, assuming an Rt of 2.5 and a test with 70% sensitivity and 98% specificity. Cost-effectiveness analysis showed that screening every 2 days coupled with strict behavioral interventions to keep Rt below 2.5, would maintain a controllable number of COVID-19 infections with an estimated cost of \$470 per student per semester.

Paltiel et al. (July 31, 2020). Assessment of SARS-CoV-2 Screening Strategies to Permit the Safe Reopening of College Campuses in the United States. JAMA Network Open.

<https://doi.org/10.1001/jamanetworkopen.2020.16818>

Public Health Policy and Practice

- During May 14, 2020 – June 26, 2020, Maine CDC enrolled 1,622 contacts of 614 COVID-19 patients through an automated symptom monitoring as a part of the state’s contact tracing program. Resources constraints prompted Maine CDC to implement an automated system for monitoring contacts. Enrolled contacts automatically received daily symptom questionnaires via their choice of e-mailed weblink, text message, texted weblink, or telephone call until completion of their quarantine. One-hundred ninety (11.7%) of the contacts monitored in the program developed COVID-19, highlighting the importance of identifying, quarantining, and monitoring contacts of COVID-19 patients to limit spread.

Krueger et al. (Aug 3, 2020). Characteristics and Outcomes of Contacts of COVID-19 Patients Monitored Using an Automated Symptom Monitoring Tool — Maine, May – June 2020. MMWR.

<https://doi.org/10.15585/mmwr.mm6931e2>

Other Resources and Commentaries

- [Mortality in COVID-19 Is Not Merely a Question of Resource Availability](#) – The Lancet Respiratory Medicine (July 28)
- [Reopening Colleges During the Coronavirus Disease 2019 \(COVID-19\) Pandemic—One Size Does Not Fit All](#) – JAMA Network Open (July 31)
- [The Indirect Impact of COVID-19 on Women](#) – The Lancet Infectious Diseases (Aug 1)
- [Pulling at the Heart: COVID-19, Race/Ethnicity and Ongoing Disparities](#) – Nature Reviews Cardiology (July 27)
- [Long-term Impact of COVID-19 on Disabled Children](#) – Developmental Medicine & Child Neurology (July 31)
- [Axes of Alienation: Applying an Intersectional Lens on the Social Contract during the Pandemic Response to Protect Sexual and Reproductive Rights and Health.](#) – International Journal for Equity in Health (July 31)
- [Will Losing Black Physicians Be a Consequence of the COVID-19 Pandemic?](#) – Academic Medicine (July 28)
- [The Multidimensional Challenge of Treating COVID-19: Remdesivir Is a Foot in the Door](#) – Clinical Infectious Diseases (July 31)
- [Covid-19: Remdesivir Probably Reduces Recovery Time, but Evidence Is Uncertain, Panel Finds.](#) – BMJ (Clinical Research Ed.) (July 30)
- [Lack of Nosocomial Transmission to Exposed Inpatients and Co-Workers in an Investigation of Five SARS-CoV-2 Infected Healthcare Workers](#) – Infection Control & Hospital Epidemiology (Aug 3)

- [Risk of COVID-19 among Front-Line Health-Care Workers and the General Community: A Prospective Cohort Study](#) – The Lancet Public Health (July 31)
- [Learning from Exemplars in Global Health: A Road Map for Mitigating Indirect Effects of COVID-19 on Maternal and Child Health](#). – BMJ Global Health (July 31)
- [Cellular Immune Responses to Covid-19](#) – BMJ (July 31)
- [Update on the COVID-19-associated Inflammatory Syndrome in Children and Adolescents; Paediatric Inflammatory Multisystem Syndrome-temporally Associated with SARS-CoV-2](#) – Journal of Paediatrics and Child Health (July 31)
- [Comorbidity Indices in People with HIV and Considerations for COVID-19 Outcomes](#). – AIDS (London, England) (July 23)

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