



2019-nCoV Literature Situation Report (Lit Rep)

June 23, 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

- **Surgical mask use reduced the proportion of droplets and aerosols with detectable virus among patients infected with seasonal coronavirus and influenza virus, but not among those with rhinovirus infection (common cold).** [More](#)
- **Preliminary results from the RECOVERY trial indicate dexamethasone use was associated with a lower mortality, and that this effect was strongest in more severe cases. There was a non-significant increased risk of death (17% vs 13%) among those who did not require respiratory support at the time of randomization.** [More](#)
- **Patients with HIV and SARS-CoV-2 co-infection in New York had a non-significantly higher risk of adverse outcomes compared with matched SARS-CoV-2 patients without HIV.** [More](#)

Non-Pharmaceutical Interventions

- Use of a surgical mask significantly reduced the proportion of droplets and aerosols with detectable virus among children and adults with confirmed seasonal coronavirus and seasonal influenza infection. Among 17 patients with seasonal coronavirus, virus was detected in 30% of droplets and 40% of aerosols among those randomized to not wear a surgical mask compared to 0% detection in both droplets and aerosols of those randomized to wear a surgical mask.
- Similar results were found for the effect of surgical masks worn by patients with seasonal influenza, but there was no effect of wearing a surgical mask among those with a rhinovirus infection.

Leung et al. (May 2020). Respiratory Virus Shedding in Exhaled Breath and Efficacy of Face Masks. Nature Medicine. <https://doi.org/10.1038/s41591-020-0843-2>

Transmission

- Carraturo et al. reviewed the survival of SARS-CoV-2 in the environment and found that survival of the virus is likely to be very low in contaminated food, on inanimate surfaces, and in water, wastewater, sludge, or bio-solid waste contaminated by feces. They note that while transmission risks may be higher for some occupational groups (e.g., wastewater treatment workers), with appropriate PPE use and disinfection protocols this risk becomes very low.

Carraturo et al. (June 2020). Persistence of SARS-CoV-2 in the Environment and COVID-19 Transmission Risk from Environmental Matrices and Surfaces. Environmental Pollution. <https://doi.org/10.1016/j.envpol.2020.115010>



METACENTER
for PANDEMIC PREPAREDNESS
UNIVERSITY OF WASHINGTON



START CENTER
STRATEGIC ANALYSIS, RESEARCH & TRAINING CENTER

Updated 6/23/2020

Testing and Treatment

- *[pre-print, not peer reviewed]* Horby et al. present preliminary results from the open-label randomized RECOVERY trial that found reduced mortality among COVID-19 patients treated with oral dexamethasone (6mg once daily for up to 10 days). Patients in the dexamethasone arm had a 17% lower rate of death by 28 days than those in the control arm (aRR=0.83; 95%CI 0.74, 0.92), with the strongest effect in patients receiving invasive mechanical ventilation (RR=0.65, 95% CI 0.51, 0.82), followed by patients receiving oxygen without invasive mechanical ventilation (RR=0.80, 95% CI 0.70, 0.92). Among patients not receiving respiratory support at randomization, the rate of death was non-significantly higher in the dexamethasone arm (RR 1.22, 95% CI 0.93, 1.61).

Horby et al. (June 22, 2020). Effect of Dexamethasone in Hospitalized Patients with COVID-19 Preliminary Report. Preprint downloaded June 23 from <https://doi.org/10.1101/2020.06.22.20137273>

- A meta-analysis (n=23 studies, 1 RCT and 22 cohort studies; 13,815 patients) found the use of glucocorticoid steroids was associated with a non-significant increase in mortality (RR=2.00, 95%CI 0.69, 5.75) and duration of hospitalization (increase of 2.4 days, 95%CI 1.4, 3.4) but significantly lower duration of fever (-3.23 days, 95%CI -3.56, -2.90). Heterogeneity was high across the included studies (I² 84.6% to 97.9%), likely due to differences in patient characteristics and glucocorticoid protocols, suggesting pooled effect estimates should be interpreted with caution. [EDITORIAL NOTE: While the authors used a technique to downweight the contribution of studies with higher potential for bias (e.g., due to confounding), they do not discuss the potential for confounding by indication, whereby the sickest patients may have been more likely to receive glucocorticoid treatment]

Lu et al. (May 2020). Effectiveness and Safety of Glucocorticoids to Treat COVID-19: A Rapid Review and Meta-Analysis. Annals of Translational Medicine. <https://doi.org/10.21037/atm-20-3307>

Clinical Characteristics and Health Care Setting

- A retrospective cohort study that matched 21 HIV-positive COVID-19 patients (median CD4 count 298/uL, <200/uL for 6 patients; all on HAART) to 42 HIV-negative COVID-19 patients hospitalized at New York University Langone Health found those with HIV co-infection had a non-significantly higher risk of changes on chest CT (91% vs 64%), ICU admission (29% vs 17%), mechanical ventilation (24% vs 12%), death or transfer to hospice (29% vs 24%), and peak values for most inflammatory markers. There was no difference in frequency of thrombotic events or myocardial infarction.

Karmen-Tuohy et al. (June 2020). Outcomes among HIV-Positive Patients Hospitalized with COVID-19. Journal of Acquired Immune Deficiency Syndromes (2020).

<https://doi.org/10.1097/QAI.0000000000002423>

- A multi-center study found admissions for acute coronary syndrome among COVID-19 negative patients dropped by 41% during March/April 2020 (n=67), compared with the same period in 2019 (n=113). A greater proportion of patients with non-ST elevation myocardial infarction presented >24 hours after onset of symptoms in 2020 than in 2019 (36% vs. 27%, p=0.033). The authors conclude that if this decline is due to patients avoiding potentially beneficial cardiac care, this could indicate an increase in future complications of myocardial infarctions. As the total number of patients seen in each year was small some of this could be explained by normal year-to-year variation.

Braiteh et al. (May 2020). Decrease in Acute Coronary Syndrome Presentations during the COVID-19 Pandemic in Upstate New York. American Heart Journal.

<https://doi.org/10.1016/j.ahj.2020.05.009>

- In the 10 weeks following the COVID-19 emergency declaration in the US (March 15–May 23, 2020), emergency department visits reported in the National Syndromic Surveillance Program declined by 23% for heart attacks, 20% for strokes, and 10% for hyperglycemic crisis compared with the previous 10-week period. The authors report that this system captures an estimated 73% of emergency department visits nationwide. The authors conclude that there is a potential for adverse health outcomes if these declines are due to avoidance of potentially beneficial medical care.

Lange et al. (June 22, 2020). Potential Indirect Effects of the COVID-19 Pandemic on Use of Emergency Departments for Acute Life-Threatening Conditions — United States, January–May 2020. MMWR. <https://doi.org/10.15585/mmwr.mm6925e2>

Modelling and Prediction

- *[pre-print, not peer reviewed]* Lau et al. use surveillance, geolocation, and aggregate mobility data from five counties in Georgia (US) to estimate unobserved parameters, including date of infection and transmission pathway. They estimate R_0 to be 2.88 (95%CI 1.85, 4.9) before a state-wide shelter-in-place order, and <1 two weeks after the order.
- They estimate that 2% of cases may have resulted in 20% of infections, suggesting the presence of super-spreading events, with those younger than 60 years of age more than twice as likely to transmit as those 60 years or older.

Lau et al. (June 22, 2020). Characterizing Super-Spreading Events and Age-Specific Infectivity of COVID-19 Transmission in Georgia USA. Preprint downloaded June 23 from <https://doi.org/10.1101/2020.06.20.20130476>

- Manca et al. present a tool based on a simple model that can be used by physicians and decision makers to forecast bed allocation, residence time, doubling time, dates at which thresholds are exceeded, and other key indicators.

Manca et al. (Sept 2020). A Simplified Math Approach to Predict ICU Beds and Mortality Rate for Hospital Emergency Planning under Covid-19 Pandemic. Computers & Chemical Engineering. <https://doi.org/10.1016/j.compchemeng.2020.106945>

Public Health Policy and Practice

- *[pre-print, not peer reviewed]* A comparison of four online COVID-19 trackers found the New York Times reported more cases than USAFacts, Johns Hopkins University, and the COVID Tracking Project. The COVID Tracking Project has reported fewer deaths than any of the other three trackers.

Smith. (June 22, 2020). Comparison of COVID-19 Case and Death Counts in the United States Reported by Four Online Trackers January 22-May 31 2020. Preprint downloaded June 23 from <https://doi.org/10.1101/2020.06.20.20135764>

- In this commentary, Franco-Paredes et al. review conditions that promote transmission of COVID-19 in jails and prisons and describe known COVID-19 clusters in this population in several countries. They furthermore compare the results of four initiatives compiling data on COVID-19 cases and deaths among staff and prisoners in correctional institutions in the US.

Franco-Paredes et al. (June 2020). COVID-19 in Jails and Prisons: A Neglected Infection in a Marginalized Population. PLoS Neglected Tropical Diseases. <https://doi.org/10.1371/journal.pntd.0008409>

- Lee et al. report outcomes among patients with SARS-CoV-2 infection who had mild or no COVID-19 symptoms and were isolated and monitored in community treatment centers in South Korea (n=632). Among this population, 12% had symptoms at admission, 29% were initially asymptomatic but later developed symptoms, and 59% remained asymptomatic. Three percent were transferred to hospitals, and 94% entered virologic remission (after a mean of 20 days) and were discharged. The time until virologic remission was longer in symptomatic patients than asymptomatic patients, and 20% remained in isolation 4 weeks after diagnosis.

Lee et al. (June 2020). Clinical Course of Asymptomatic and Mildly Symptomatic Patients with Coronavirus Disease Admitted to Community Treatment Centers, South Korea. Emerging Infectious Diseases. <https://doi.org/10.3201/eid2610.201620>

- The Irish Prison Service National Infection Control Team, in collaboration with other national agencies, have implemented a program to develop and train contact tracing teams in prisons run by prison staff. All prisons in Ireland now have fully-functional contact tracing teams, and each team has responded to at least one case of COVID-19.

Clarke et al. (June 2020). Establishing Prison-Led Contact Tracing to Prevent Outbreaks of COVID-19 in Prisons in Ireland. Journal of Public Health. <https://doi.org/10.1093/pubmed/fdaa092>

Other Resources and Commentaries

- [The Hidden Disaster of COVID-19: Intimate Partner Violence](#) – Psychological Trauma (June 22)
- [Reordering Gender Systems: Can COVID-19 Lead to Improved Gender Equality and Health?](#) – The Lancet (June 19)
- [US Policies Increase Vulnerability of Immigrant Communities to the COVID-19 Pandemic](#) – Annals of Global Health (June 10)
- [Which Interventions Work Best in a Pandemic?](#) – Science (June 5)
- [Public Health Education for Parents during the Outbreak of COVID-19: A Rapid Review](#) – Annals of Translational Medicine (May)
- [COVID 19 Era: A Beginning of Upsurge in Unwanted Pregnancies, Unmet Need for Contraception and Other Women Related Issues](#) – The European Journal of Contraception & Reproductive Health Care (June 22)
- [Breastmilk and COVID-19: What Do We Know?](#) – Clinical Infectious Diseases (June 21)
- [Hand Hygiene Among Health Care Workers During COVID-19 Pandemic: Challenges and Recommendations](#) – Dermatitis (June 19)
- [Paediatric COVID-19 Admissions in a Region with Open Schools during the Two First Months of the Pandemic](#) – Acta Paediatrica (June 21)
- [Health Equity and Distributive Justice Considerations in Critical Care Resource Allocation](#) – The Lancet Respiratory Medicine (June 22)
- [The Comparative Politics of COVID-19: The Need to Understand Government Responses](#) – Global Public Health (June 20)
- [Hand Sanitizers: A Review of Ingredients, Mechanisms of Action, Modes of Delivery, and Efficacy Against Coronaviruses](#) – American Journal of Infection Control (June 18)
- [Transmission of COVID-19 Virus by Droplets and Aerosols: A Critical Review on the Unresolved Dichotomy](#) – Environmental Research (June 13)

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