



2019-nCoV Literature

Situation Report (Lit

Rep)

November 10, 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

- **Public health measures to reduce SARS-CoV-2 transmission may have had unintended benefits on other respiratory viruses, shown by a faster decline in the reproductive number (R_t) in the 2019-2020 seasons of influenza A&B and respiratory syncytial virus, compared to the 5 past seasons.** [More](#)
- **Nursing home crowding in Canada was associated with increased incidence of infection among residents and higher risk of COVID-19 mortality, and simulations suggest reducing residents per bedroom could have averted up to 19% cases and 18% of deaths.** [More](#)
- **SARS-CoV-2 was found to be stable on human skin for up to 14 days at 4 Celsius, compared to at least 96 hours at 22 Celsius under laboratory conditions. The virus also exhibited greater stability on paper currency and clothing at colder temperatures.** [More](#)
- **A national prospective study in the UK reported a low incidence for neonatal SARS-CoV-2 infection (5.6 per 10,000 live births). Only 3% were possible cases of vertical transmission among the 66 infected babies identified during the study period, supporting continued guidance to avoid separation of mother and baby.** [More](#)

Non-Pharmaceutical Interventions

- Public health measures implemented to reduce SARS-CoV-2 transmission may have reduced the transmission of other seasonal respiratory viruses. In a retrospective review of medical records from health systems in Atlanta and Boston, average reproductive number (R_t) was found to remain above 1 for much longer in the past 5 seasons for influenza A, influenza B, and respiratory syncytial virus (RSV) compared to the September 2019-May 2020 season, which coincided with the COVID-19 pandemic. Declines in R_t in both locations in 2020 seemed to coincide with implementation of non-pharmaceutical interventions.

Sherman et al. (Nov 8, 2020). The Effect of SARS-CoV-2 Mitigation Strategies on Seasonal Respiratory Viruses: A Tale of Two Large Metropolitan Centers in the United States. Clinical Infectious Diseases. <https://doi.org/10.1093/cid/ciaa1704>

Transmission

- In households with a SARS-CoV-2 positive case, 10 out of 47 (21%) cats and dogs were seropositive for antibodies against SARS-CoV-2, compared to 1 out of 38 (3%) cats and dogs in households without a person with known SARS-CoV-2 infection. Seroprevalence was not associated with the



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number of pets per household, which the authors suggest indicates that human-to-pet transmission was more likely than pet-to-pet.

Fritz et al. (Nov 4, 2021). High Prevalence of SARS-CoV-2 Antibodies in Pets from COVID-19+ Households. *One Health*. <https://doi.org/10.1016/j.onehlt.2020.100192>

- A national prospective study in the UK found low incidence (5.6 per 10,000 live births) of neonatal SARS-CoV-2 infection. Of the 66 babies identified with SARS-CoV-2 during the study period, 17 (26%) babies were born to mothers with known perinatal SARS-CoV-2 infection, and only 2 (3%) were considered to have possible vertically acquired infection. The authors indicate that these findings support guidelines to avoid separating mother and baby after birth in situations where the mother has suspected or confirmed SARS-CoV-2 infection.

Gale et al. (Nov 9, 2020). Characteristics and Outcomes of Neonatal SARS-CoV-2 Infection in the UK: A Prospective National Cohort Study Using Active Surveillance. *The Lancet Child & Adolescent Health*. [https://doi.org/10.1016/S2352-4642\(20\)30342-4](https://doi.org/10.1016/S2352-4642(20)30342-4)

- Harbourt et al. exposed SARS-CoV-2 to human skin, paper currency, and clothing in a lab setting under various temperatures and found that the virus was more stable in colder conditions. At 22°C, the virus was stable on human skin, a \$1 bill, and on clothing, for at least 96 hours, 8 hours, and 4 hours, respectively. At lower temperature (4°C) the duration of viral stability increased to up to 14 days, at least 96 hours, and at least 96 hours, respectively.

Harbourt et al. (Nov 9, 2020). Modeling the Stability of Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) on Skin, Currency, and Clothing. *PLOS Neglected Tropical Diseases*. <https://doi.org/10.1371/journal.pntd.0008831>

- [Pre-print, not peer reviewed] A systematic review and meta-analysis of 22 studies on the role of children in the SARS-CoV-2 transmission chain confirms that children are able to be infected and transmit SARS-CoV-2 in a variety of settings, with potentially different dynamics depending upon age. Transmission chains in which the index case was a child were more frequently seen in household settings than school settings, although the authors recognize the limited number of studies within their review.

Suk et al. (Nov 9, 2020). The Role of Children in the Transmission Chain of SARS-CoV-2 a Systematic Review and Update of Current Evidence. Pre-print downloaded Nov 11 from <https://doi.org/10.1101/2020.11.06.20227264>

Vaccines and Immunity

- A longitudinal analysis of 1,349 serum samples collected up to 168 days post symptom onset from 427 individuals with PCR-confirmed COVID-19 found that IgM seroconversion occurs earlier than IgG, but that IgM levels decline to a greater extent over time. The median duration of time for IgM seroconversion was 10 days, but seroprevalence declined steadily 4-5 weeks after symptom onset down to a 31% positive after 3 months. Meanwhile, median IgG seroconversion time was 11.5 days, and despite an initial decline, is observed in 92% of patients 3-6 months after symptom onset.

Maine et al. (Oct 27, 2020). Longitudinal Characterization of the IgM and IgG Humoral Response in Symptomatic COVID-19 Patients Using the Abbott Architect. *Journal of Clinical Virology*. <https://doi.org/10.1016/j.jcv.2020.104663>

Clinical Characteristics and Health Care Setting

- Among 618 nursing homes in Canada, those that were crowded were more likely to experience COVID-19 outbreaks with worse outcomes. Nursing homes were classified according to a crowding index defined as the mean number of residents per bedroom and bathroom. While the likelihood of

SARS-CoV-2 introduction did not differ between homes with a low or high crowding index, each 1-point increase in the crowding index was associated with a 1.7-fold increase in incidence and 1.7-fold increase in mortality. Simulations suggest that converting all 4-bed rooms to 2-bed rooms would have averted 19% of cases and 18% of deaths.

Brown et al. (Nov 9, 2020). Association Between Nursing Home Crowding and COVID-19 Infection and Mortality in Ontario, Canada. JAMA Internal Medicine. <https://doi.org/10.1001/jamainternmed.2020.6466>

Mental Health and Personal Impact

- A retrospective review of a large US electronic health record system (n=62,354 COVID-19 patients) suggests the association between COVID-19 and psychiatric disorders may be bidirectional. In patients with no prior psychiatric history, diagnosis of COVID-19 was associated with increased incidence of a first psychiatric diagnosis in the following 14 to 90 days compared to other health events such as influenza or skin infection. Conversely, a psychiatric diagnosis in the previous year was associated with a 1.7-fold increase in the risk of a COVID-19 diagnosis, although this relationship may be confounded by socioeconomic factors.

Taquet et al. (Nov 9, 2020). Bidirectional Associations between COVID-19 and Psychiatric Disorder: Retrospective Cohort Studies of 62 354 COVID-19 Cases in the USA. The Lancet Psychiatry. [https://doi.org/10.1016/S2215-0366\(20\)30462-4](https://doi.org/10.1016/S2215-0366(20)30462-4)

- In three studies, researchers found that people classified as “psychologically entitled” (defined as someone who feels more deserving of positive outcomes than other people) are less likely to comply with health guidelines to prevent the transmission of COVID-19 and that they are more likely to say that they have already contracted it. They were also less likely to report being concerned about the potential to harm others by infecting them. Telling participants that others might think less of them for not following suggested guidelines did not encourage more entitled people to be more likely to follow them.

Zitek and Schlund. (Oct 29, 2020). Psychological Entitlement Predicts Noncompliance with the Health Guidelines of the COVID-19 Pandemic. Personality and Individual Differences. <https://doi.org/10.1016/j.paid.2020.110491>

Public Health Policy and Practice

- A retrospective study comparing Philadelphia County trauma patients before (n=357) and after (n=480) stay-at-home orders were implemented found that while there was a decrease in non-intentional trauma and daily emergency department visits, patients presenting with intentional injury increased. In particular, there was an increase in injuries likely caused by firearms.

Abdallah et al. (Nov 6, 2020). Increased Firearm Injury During the COVID-19 Pandemic: A Hidden Urban Burden. Journal of the American College of Surgeons. <https://doi.org/10.1016/j.jamcollsurg.2020.09.028>

- The financial burden of non-fatal COVID-19 cases as of July 27, 2020 was estimated to be \$2.2 trillion (or about \$46,000 per case), compared to the total valuation of \$1.6 trillion for all 147,000 COVID-19 fatalities. Using CDC forecast data, the authors further estimate that this figure will rise to \$5.7 trillion (roughly 30% of GDP) through November 2020.

Kniesner and Sullivan. (Nov 4, 2020). The Forgotten Numbers: A Closer Look at COVID-19 Non-Fatal Valuations. Journal of Risk and Uncertainty. <https://doi.org/10.1007/s11166-020-09339-0>

Other Resources and Commentaries

- [US President-Elect Joe Biden Must Quickly Restore Science to Government](#) – Nature (Nov 9)

- [Ethical Challenges in Clinical Research During the COVID-19 Pandemic](#) – Journal of Bioethical Inquiry (Nov 9)
- [What Pfizer’s Landmark COVID Vaccine Results Mean for the Pandemic](#) – Nature (Nov 9)
- [Real-Time Interactive Website for US-County Level Covid-19 Event Risk Assessment](#) – MedRxiv (Nov 9)
- [Just Societies: A New Vision for Health Equity in the Americas after COVID-19](#) – Revista Panamericana de Salud Pública (Oct 29)
- [Sex Differences in COVID-19 Case Fatality: Do We Know Enough?](#) – The Lancet Global Health (Nov 5)
- [The Impact of Extreme Reuse and Extended Wear Conditions on Protection Provided by a Surgical-Style N95 Filtering Facepiece Respirator](#) – Journal of Occupational and Environmental Hygiene (Nov 9)
- [Covid-19: Denmark to Kill 17 Million Minks over Mutation That Could Undermine Vaccine Effort](#) – BMJ (Nov 9)
- [Offline: Managing the COVID-19 Vaccine Infodemic](#) – The Lancet (Nov 7)
- [Covid-19 Vaccines: Should We Allow Human Challenge Studies to Infect Healthy Volunteers with SARS-CoV-2?](#) – BMJ (Nov 9)
- [Why Will It Never Be Known If Convalescent Plasma Is Effective for COVID-19](#) – Journal of Translational Autoimmunity (Nov 4)
- [The Public’s Role in COVID-19 Vaccination: Human-Centered Recommendations to Enhance Pandemic Vaccine Awareness, Access, and Acceptance in the United States](#) – Vaccine (Oct 29)
- [COVID Vaccination Logistics: Five Steps to Take Now](#) – Nature (Nov 9)
- [COVID-19 and Vaccination of Children and Adolescents: Prospects and Challenges](#) – The Journal of Pediatrics (Nov 5)

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