



## 2019-nCoV Literature Situation Report (Lit Rep)

July 2, 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

- **The daily incidence of COVID-19 cases among adults aged 20-59 years and  $\geq 60$  years increased in Florida soon after the full Phase 1 reopening went into effect.** [More](#)
- **A mass screening for SARS-CoV-2 infection in long-term care facilities in Fulton County, Georgia, found a prevalence of 29% in facilities tested in response to a known case in the facility compared to 2% in facilities tested as part of routine prevention measures.** [More](#)
- **Nationwide surveillance data support the use of excess deaths to estimate the full COVID-19 burden and account for delayed reporting and misattribution of COVID-19 deaths in the US. Two- and three-month estimates of excess deaths were  $>87,000$  and  $>122,000$ , respectively, in two studies.** [More](#), [More](#)
- **A simulation model fit to King County, Washington shows that several low-economic impact interventions would reduce COVID-19 hospitalizations by less than 13% if implemented alone, but would reduce total hospitalizations by 48% if combined.** [More](#)

### Transmission

- *[pre-print, not peer reviewed]* Daily incidence of newly-reported COVID-19 cases among adults aged 20-59 years and  $\geq 60$  years increased in 16 counties in Florida soon after the full Phase 1 reopening went into effect.
- The author coupled this analysis with results from an SIR model, which supports the hypothesis that younger persons, having first acquired their infections through increasing social contact with their peers, then transmitted their infections to older, less socially mobile individuals.  
*Harris. (July 2, 2020). Data From the COVID-19 Epidemic in Florida Suggest That Younger Cohorts Have Been Transmitting Their Infections to Less Socially Mobile Older Adults. Pre-print downloaded July 2 from <https://doi.org/10.1101/2020.06.30.20143842>*
- All patients (n=46) and health care personnel (n=171) who participated in a point prevalence survey at Wyoming's state psychiatric hospital had negative PCR results for SARS-CoV-2 infection, despite admitting two patients with SARS-CoV-2 infection. The authors suggest that the hospital's expanded COVID-19 infection prevention and control procedures might have been effective in preventing the introduction and spread of SARS-CoV-2 infection.  
*Callaghan et al. (July 3, 2020). Screening for SARS-CoV-2 Infection Within a Psychiatric Hospital and Considerations for Limiting Transmission Within Residential Psychiatric Facilities - Wyoming, 2020. MMWR. <http://doi.org/10.15585/mmwr.mm6926a4>*



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## Geographic Spread

- Weinberger et al. report that there were approximately 122,300 more deaths (95%PI, 116,800-127,000) in the US from March to May 2020 than would typically be expected. There were approximately 781,000 total deaths identified in the US during this period, including 95,235 deaths officially attributed to COVID-19. The number of excess all-cause deaths was 28% higher than the official tally of COVID-19 deaths during that period. There was substantial variability between states in the difference between official COVID-19 deaths and the estimated burden of excess deaths.  
*Weinberger et al. (July 1, 2020). Estimation of Excess Deaths Associated With the COVID-19 Pandemic in the United States, March to May 2020. JAMA Internal Medicine.*  
<https://doi.org/10.1001/jamainternmed.2020.3391>
- Woolf et al. report a total of 505,059 deaths from all causes in the US between March 1-April 25, 2020. Of these, 87,001 (95%CI, 86,578-87,423) were considered excess deaths beyond what would normally be expected during this time period, and 56,246 (65%) of these were attributed to COVID-19, suggesting that the number of COVID-19 deaths reported in the first weeks of the pandemic captured only two-thirds of excess deaths. The 5 states with the most COVID-19 deaths experienced large proportional increases in deaths from non-respiratory underlying causes, including diabetes (96%), heart diseases (89%), Alzheimer disease (64%), and cerebrovascular diseases (35%).  
*Woolf et al. (July 1, 2020). Excess Deaths From COVID-19 and Other Causes, March-April 2020. JAMA.* <https://doi.org/10.1001/jama.2020.11787>

## Testing and Treatment

- *[pre-print, not peer reviewed]* A mass screening for SARS-CoV-2 infection in 28 long-term care facilities (5,671 residents and staff) in Fulton County, Georgia, revealed significantly higher prevalence of infection in 15 facilities that screened in response to a known infection compared to 13 facilities that screened as a prevention measure (i.e., no cases had yet been reported by the time of screening) (28.9% vs. 1.6%). Of the 1,085 individuals diagnosed with COVID-19, 18% (n=192) required hospitalization and 12% died (n=135). Facilities that tested in response to a known infection accounted for an overwhelming proportion of hospitalizations (186 of 191, 97%) and deaths (131 of 135, 97%).
- The authors conclude that these results provide support for active screening to identify cases early before extensive transmission occurs within long-term care facilities.  
*Telford et al. (July 2, 2020). Mass Screening for SARS-CoV-2 Infection among Residents and Staff in Twenty-Eight Long-Term Care Facilities in Fulton County Georgia. Pre-print downloaded July 2 from* <https://doi.org/10.1101/2020.07.01.20144162>

## Clinical Characteristics and Health Care Setting

- There was no significant degradation of mask filtration efficiency in tests of the effect of a heating protocol for sterilizing masks prior to reuse in a selection of N95 Filtering Facepiece Respirators. Three out of five models passed fit testing after heating, and the two models that did not pass fit testing also had low fit scores prior to heating.
- The authors conclude this heating protocol is practical for application inside healthcare facilities.  
*Anderegg et al. (July 1, 2020). A Scalable Method of Applying Heat and Humidity for Decontamination of N95 Respirators during the COVID-19 Crisis. PloS One.*  
<https://doi.org/10.1371/journal.pone.0234851>

- Abdel-Mannan et al. report that 4 previously-healthy children had neurological symptoms among 27 children with COVID-19 pediatric multisystem inflammatory syndrome admitted to a hospital in London, UK. All 4 children required intensive care unit admission.

*Abdel-Mannan et al. (July 1, 2020). Neurologic and Radiographic Findings Associated With COVID-19 Infection in Children. JAMA Neurology.*

<https://doi.org/10.1001/jamaneurol.2020.2687>

- In a retrospective cohort study of 11,580 contacts of COVID-19 cases in Guangdong, China the overall risk of SARS-CoV2-infection based on RT-PCR testing was 4.5% (515/11,580). Higher risk was seen among children (RR=2.6) and old people aged 60-69 years (RR=5.3) compared to young adults aged 20-29 years, higher among females than males (RR=1.66), and higher among family members of an index cases (spouse: RR=20.7; non-spouse family members: RR=9.6). Infection risk was higher for contacts exposed to an index case during the symptomatic period (RR=2.2) or to an index case with critically severe symptoms (RR=1.6).

*Liu et al. (July 1, 2020). Risk Factors Associated with COVID-19 Infection: A Retrospective Cohort Study Based on Contacts Tracing. Emerging Microbes & Infections.*

<https://doi.org/10.1080/22221751.2020.1787799>

## Modeling and Prediction

- *[pre-print, not peer reviewed]* Jackson estimated the impact of interventions chosen for their minimal disruption to economic and social activity on mitigating the SARS-CoV-2 epidemic in King County, Washington. Interventions considered were (a) encouraging telecommuting; (b) reducing contacts with seniors and nursing home residents; (c) modest reductions to contacts outside of the home; (d) encouraging self-isolation of persons with COVID-19 symptoms; (e) rapid testing and household quarantining.
- No individual intervention reduced COVID-19 hospitalizations by more than 12.7% (95%CI 12.0-13.3%). Combining interventions would reduce total hospitalizations by 48% (47-49%), with peak COVID-19 hospital occupancy of 70% of total beds. Targeted school closures could further reduce the peak occupancy.

*Jackson. (July 2, 2020). Low-Impact Social Distancing Interventions to Mitigate Local Epidemics of SARS-CoV-2. Pre-print downloaded July 2 from <https://doi.org/10.1101/2020.06.30.20143735>*

- *[pre-print, not peer reviewed]* Willem et al. adapted an individual-based model that accounts for repetitive leisure contacts in extended household settings (so called "household bubbles") to simulate interactions between the 11 million inhabitants of Belgium at the level of households, workplaces, schools and communities.
- They found that household bubbles have the potential to reduce the number of COVID-19 hospital admissions by up to 90%. The effectiveness of contact tracing depends on its timing, as it becomes futile more than 4 days after the index case develops symptoms. Assuming children (<18 years of age) to be half as susceptible as adults, (partial) school closure options have relatively little impact on COVID-19 burden.

*Willem et al. (July 2, 2020). The Impact of Contact Tracing and Household Bubbles on Deconfinement Strategies for COVID-19 an Individual-Based Modelling Study. Pre-print downloaded July 2 from <https://doi.org/10.1101/2020.07.01.20144444>*

## Other Resources and Commentaries

- [Maternal Death in Pregnancy Due to COVID-19](#) – Ultrasound in Obstetrics & Gynecology (July 1)
- [Accelerating Development of SARS-CoV-2 Vaccines - The Role for Controlled Human Infection Models](#) – The New England Journal of Medicine (July 1)
- [Covid-19: Admit Ethnic Minority Pregnant Women to Hospital Earlier, Says NHS England](#) – BMJ (June 30)
- [ABO Phenotype and Death in Critically Ill Patients with COVID-19](#) – British Journal of Haematology (July 1)
- [A Wave of Non-Communicable Diseases Following the COVID-19 Pandemic](#) – Diabetes & Metabolic Syndrome: Clinical Research & Reviews (June 26)
- [Drug Misuse Rose 30% in Past Decade and Covid-19 Could Worsen Situation, UN Report Warns](#) – BMJ (June 30)
- [Tribute to a Black Professor Lost to COVID-19](#) – Nature (June 26)
- [Covid-19 and the Future of Mental Health in Primary Care](#) – BMJ (June 30)
- [Lockdown Measures and Relative Changes in the Age-Specific Incidence of SARS-CoV-2 in Spain](#) – medRxiv (July 2)
- [Twin Epidemics of Covid-19 and Non-Communicable Disease](#) – BMJ (Clinical Research Ed.) (June 30)
- [Education: A Neglected Social Determinant of Health](#) – The Lancet Public Health (July 1)
- [Spotlight on Child Abuse and Neglect Response in the Time of COVID-19](#) – The Lancet Public Health (July 1)
- [Covid-19: Delays in Attending Emergency Departments May Have Contributed to Deaths of Nine Children](#) – BMJ (June 30)
- [Next-Generation Diagnostics Virus Capture Facilitates a Sensitive Viral Diagnosis for Epizootic and Zoonotic Pathogens Including SARS-CoV-2](#) – bioRxiv (July 1)

*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*