



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

July 9, 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 COVID-19 case rate of 3,251 per 100,000 among US prisoners was 5.5-times higher than the US population case rate of 587 per 100,000 persons.** [More](#)
- **A large-scale analysis of the health care records of more than 17 million people in England linked to more than 10,000 COVID-19 deaths found a greater risk of death among men (aHR=1.6) and adults with other sociodemographic and health risk factors.** [More](#)
- **A targeted behavioral change campaign aimed at preventing SARS-CoV-2 transmission in the Netherlands that was disseminated through social media was associated with increased handwashing and improvements in physical distancing.** [More](#)

### Non-Pharmaceutical Interventions

- A targeted behavioral change campaign aimed at preventing SARS-CoV-2 transmission in the Netherlands that was promoted by a news platform and social media was associated with self-reported improvement in personal hygiene. Cross-sectional analysis of the post-campaign survey (n=17,189) found that that exposure to the video plus infographics (aOR=2.14) and to the infographics alone (aOR=1.31) were positively associated with washing hands.
- Exposure to the infographics alone and video plus infographics were associated with improvements in physical distancing when the participant had COVID-19 symptoms.

*Yousuf et al. (July 8, 2020). Association of a Public Health Campaign About Coronavirus Disease 2019 Promoted by News Media and a Social Influencer With Self-Reported Personal Hygiene and Physical Distancing in the Netherlands. JAMA Network Open.*

<https://doi.org/10.1001/jamanetworkopen.2020.14323>

### Geographic Spread

- Based on a 5-week longitudinal study, Tammes showed that COVID-19 incidence decreased more in the most densely populated administrative areas compared to less dense areas after the introduction of physical distancing measures by the UK government (March 16-22). In the last week of the study (April 13-19), the incidence was 22.4 per 100,000 persons (95% CI 16.9-28.0) in areas in the highest density quartile, which was lower than the rates in the three lower density quartiles (31.4 to 43.2 per 100,000 persons).

*Tammes. (July 7, 2020). Social Distancing, Population Density, and Spread of COVID-19 in England: A Longitudinal Study. BJGP Open. <https://doi.org/10.3399/bjgpopen20X101116>*



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- Northwell Health Laboratories tested 46,793 persons in the greater New York metropolitan area for SARS-CoV-2 from March 4 through April 10, showing that SARS-CoV-2 incidence emerged rapidly and almost simultaneously across a broad demographic population in the region, and finding that 57% (n=26,735) of people tested positive for SARS-CoV-2. The total hospitalization rate was 31% of positive persons (n=8,174). There was a broad range (greater than 10-fold) in the cumulative number of positive cases across individual zip codes following documented first case incidents. Test positivity was greater for persons living in zip codes with lower annual household income.

*Reichberg et al. (July 8, 2020). Rapid Emergence of SARS-CoV-2 in the Greater New York Metropolitan Area: Geolocation, Demographics, Positivity Rates, and Hospitalization for 46,793 Persons Tested by Northwell Health. Clinical Infectious Diseases.*

<https://doi.org/10.1093/cid/ciaa922>

- COVID-19 incidence significantly decreased in early April in counties in the northeastern US (estimated weekly percentage change: -16.6%), but continued increasing in the Midwest (+13.2%), South (+5.6%) and West Regions (+5.7%). There was a higher likelihood of clustering and higher incidence of COVID-19 in metropolitan compared to rural counties, counties closest to core airports, in the most populous counties, and in counties with the highest proportion of racial/ethnic minority populations. However, geographic differences in incidence have decreased since early April.

*Wang et al. (July 8, 2020). Spatiotemporal Characteristics of COVID-19 Epidemic in the United States. Clinical Infectious Diseases. <https://doi.org/10.1093/cid/ciaa934>*

### Clinical Characteristics and Health Care Setting

- Williamson et al. linked primary care records of 17,278,392 adults in England (40% of all patients nationally) to 10,926 COVID-19-related deaths and found that COVID-19-related death was associated with being male (HR=1.59; 95% CI 1.53-1.65), older age and lower socioeconomic status (both with a strong gradient), diabetes, severe asthma, and various other medical conditions. Compared to individuals with White ethnicity, those who were Black (HR=1.48; 95%CI 1.30-1.69) and South Asian (HR=1.44; 95% CI 1.32-1.58) individuals were at higher risk of death even after adjustment for other factors.

*Williamson et al. (July 8, 2020). OpenSAFELY: Factors Associated with COVID-19 Death in 17 Million Patients. Nature. <https://doi.org/10.1038/s41586-020-2521-4>*

- Based on a survey of 9,120 ICU clinicians across the US, Kleinpell et al. identified personal protective equipment, specifically N95 respirator availability, and ICU staffing as the most critical ICU needs. 31% of ICU clinicians reported that minimizing healthcare worker virus exposure during care was the most challenging aspect of COVID-19 patient care. Both nurses and ICU clinicians who had provided care to COVID-19 patients reported a high level of concern about exposing family members to SARS-CoV-2 (median score of 10 on 0-10 scale).

*Kleinpell et al. (July 2, 2020). Coronavirus Disease 2019 Pandemic Measures: Reports From a National Survey of 9,120 ICU Clinicians. Critical Care Medicine.*

<https://doi.org/10.1097/CCM.0000000000004521>

- A study of 147 patients in Italy who had recovered from COVID-19 found that 87% reported persistence of at least 1 symptom, particularly fatigue and dyspnea (difficulty breathing) at a mean of 60 days (SD 13.6) after onset of symptoms.

*Carfi et al. (July 9, 2020). Persistent Symptoms in Patients After Acute COVID-19. JAMA.*

<https://doi.org/10.1001/jama.2020.12603>

- A systematic review and meta-analysis (107 studies, 20,874 COVID-19 patients) shows that the severity of elevated liver chemistries is associated with the outcome of COVID-19; however, the presence of chronic liver disease does not alter the outcome of COVID-19. COVID-19 patients with elevated liver chemistries had increased risk of mortality (OR=3.46; 95%CI 2.42-4.95) and severe disease (OR=2.87; 95%CI 2.29-3.6) compared to patients without elevated liver chemistries. Chronic liver disease was not associated with developing severe COVID-19 (OR=0.81 (95% CI 0.31-2.09).  
*Kulkarni et al. (July 8, 2020). Systematic Review with Meta-Analysis: Liver Manifestations and Outcomes in COVID-19. Alimentary Pharmacology & Therapeutics.*  
<https://doi.org/10.1111/apt.15916>
- Based on a study of patients who required 911 emergency medical services (EMS) care for COVID-19 in King County, Washington (February 1 to March 18), screening based on conventional COVID-19 symptoms or examination findings of febrile respiratory illness may not be sufficiently sensitive to identify patients with COVID-19. Of 147 unique 911 encounters, 29% had no symptoms of fever, cough, or shortness of breath. Based on EMS examination findings, fever (51%), tachypnea (rapid breathing) (32%), or hypoxia (54%) were only present in a limited portion of cases. Patients received care associated with aerosol-generating procedures in 16% of encounters. As of June 1, mortality among the study cohort was 52% (n=65).  
*Yang et al. (July 8, 2020). Clinical Characteristics of Patients With Coronavirus Disease 2019 (COVID-19) Receiving Emergency Medical Services in King County, Washington. JAMA Network Open.* <https://doi.org/10.1001/jamanetworkopen.2020.14549>

## Mental Health and Personal Impact

- While the effect of COVID-19 on overall workplace absenteeism in March and April was minor, absenteeism was significantly higher than expected (based on the previous 5-years) among workers in job categories that contain a large proportion of workers who are part of the essential critical infrastructure workforce. These include the areas of personal care and service, healthcare support, and production occupations. Many essential critical infrastructure jobs inherently involve prolonged close contact with patients, the general public, or coworkers and require individuals to be physically present in their workplaces. Workers in these essential critical infrastructure occupations are likely to be at increased risk for occupational exposure to SARS-CoV-2.  
*Groenewold et al. (July 10, 2020). Increases in Health-Related Workplace Absenteeism Among Workers in Essential Critical Infrastructure Occupations During the COVID-19 Pandemic — United States, March–April 2020. MMWR.* <https://doi.org/10.15585/mmwr.mm6927a1>
- Based on a national survey of China conducted in February 2020 (n=4,607), after controlling for demographic variables, perceived severity of COVID-19 was associated with likelihood of mental health problems. Self-control (the ability to override or change one’s inner responses and to interrupt undesired behavioral tendencies) was found to moderate the association between perceived severity of COVID-19 and mental health problems. Compared to those with high self-control, Li et al. found that individuals with low self-control are more vulnerable and are more in need of psychological aids to maintain mental health during the pandemic.  
*Li et al. (July 4, 2020). Self-Control Moderates the Association Between Perceived Severity of Coronavirus Disease 2019 (COVID-19) and Mental Health Problems Among the Chinese Public. International Journal of Environmental Research and Public Health.*  
<https://doi.org/10.3390/ijerph17134820>

## Public Health Policy and Practice

- COVID-19 case rates have been substantially higher and are escalating much more rapidly in prisons than in the general US population. These findings are based on officially reported data across all 50 states, the District of Columbia, and the Federal Bureau of Prisons. The COVID-19 case rate of 3,251 per 100,000 prisoners was 5.5 times higher than the US population case rate of 587 per 100,000.
- The crude COVID-19 death rate in prisons was 39 deaths per 100,000 prisoners compared to the US population rate of 29 deaths per 100,000. It should be noted that individuals aged  $\geq 65$  years comprised a smaller share of the prison population than of the US population (3% vs 16%) and accounted for 81% of COVID-19 deaths in the US population.

*Saloner et al. (July 8, 2020). COVID-19 Cases and Deaths in Federal and State Prisons. JAMA. <https://doi.org/10.1001/jama.2020.12528>*

## Other Resources and Commentaries

- [Open for Outbreaks](#) – Nature Biotechnology (Apr 3)
- [Risk of Transmission of Infection to Healthcare Workers Delivering Supportive Care for Coronavirus Pneumonia; A Rapid GRADE Review](#) – medRxiv (July 8)
- [Providing Care for the 99.9% during the COVID-19 Pandemic: How Ethics, Equity, Epidemiology, and Cost per QALY Inform Healthcare Policy](#) – Healthcare Management Forum (July 8)
- [Social Determinants of Health and Inequalities in COVID-19](#) – European Journal of Public Health (July 8)
- [Effectiveness of Cloth Masks for Protection Against Severe Acute Respiratory Syndrome Coronavirus 2](#) – Emerging Infectious Diseases (July 22)
- [Pandemic Vaccines Are about to Face the Real Test](#) – Science (June 19)
- [COVID-19 Among African Americans: From Preliminary Epidemiological Surveillance Data to Public Health Action](#) – American Journal of Public Health (Aug 1)
- [Covid-19: Airborne Transmission Is Being Underestimated, Warn Experts](#) – BMJ (July 7)
- [A Snapshot of the Global Race for Vaccines Targeting SARS-CoV-2 and the COVID-19 Pandemic](#) – Frontiers in Pharmacology (June 19)
- [US Withdrawal from WHO Is Unlawful and Threatens Global and US Health and Security](#) – The Lancet (July 8)
- [Physician Burnout, Interrupted](#) – NEJM (June 25)
- [Systematic Profiling of ACE2 Expression in Diverse Physiological and Pathological Conditions for COVID-19/SARS-CoV-2](#) – Journal of Cellular and Molecular Medicine (July 8)
- [COVID-19 Guidelines for Sports and Physical Activity](#) – Missouri Medicine (May-June)
- [U.S. Academic Research Funding Stays Healthy despite Pandemic](#) – Science (June 19)
- [Can Phone Apps Slow the Spread of the Coronavirus?](#) – Science (June 19)
- [Pre-Existing Immunity to SARS-CoV-2: The Knowns and Unknowns](#) – Nature Reviews Immunology (July 7)
- [The COVID-19 Pandemic: A Watershed Moment to Strengthen Food Security Across the US Food System](#) – American Journal of Public Health (Aug 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*