

COVID-19 Evidence Digest 10/30/20

[Effect of Timing of and Adherence to Social Distancing Measures on COVID-19 Burden in the United States](#) (Annals of Internal Medicine)

Bottom Line: In this modeling study assessing the impact of social distancing measures on SARS-CoV-2 transmission in urban areas of the US, delayed introduction of, lower adherence to, and premature lifting of such measures led to an increased number of infections, though the magnitude of this effect varied by region.

Details: This study looked at the effect of social distancing measures using a mathematical model applied to Dane County and the Milwaukee metropolitan area in Wisconsin and New York City (NYC) on the number of confirmed SARS-CoV-2 cases. In particular, the model was used to assess the effect of adherence to, timing of, and lifting of measures on transmission. Population density, estimates of social networks and in-person interactions, population demographics, testing availability, imported infections, asymptomatic transmission, and age-specific adherence to social distancing measures, calibrated by region, were factored into the model. In NYC, the model demonstrated that implementing social distancing measures one week earlier would have reduced the number of cases from 203,261 to 41,366 by the end of May, while implementing them a week later would have increased the number of cases to 1,407,600. Of note, the impact of implementing of social distancing measures one week earlier on SARS-CoV-2 cases varied by region (46% in Dane County, 52% in Milwaukee, and 80% in NYC). Although premature easing of social distancing measures and lower adherence to such measures increased cases in urban regions, the magnitude was different across the different areas. In addition, high adherence to social distancing after measures were lifted impacted the number of cases, suggesting that regions should continue to encourage residents to maintain behaviors that mitigate SARS-CoV-2 transmission, such as wearing masks. This study did not take into consideration differences in the rate of transmission between symptomatic and asymptomatic patients and the possible effects of climate on transmission.

Key Takeaways:

- This model demonstrated accuracy in predicting SARS-CoV-2 outbreaks and estimating the impact of lifting social distancing measures on the number of infections in specified regions of the US.
- Adherence to behaviors that reduce SARS-CoV-2 transmission after lifting social distancing measures impacts the number of cases, demonstrating the importance of encouraging communities to maintain behaviors like mask wearing once measures are lifted.
- Given variation in the effect's magnitude across regions, context and region-specific policies are needed when introducing and lifting social distancing measures.

[Characterization of Myocardial Injury in Patients With COVID-19](#) (Journal of the American College of Cardiology)

Bottom Line: Of 305 hospitalized patients with COVID-19 and heart injury who had cardiac ultrasounds, 62.6% had structural abnormalities of the heart. There was a

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higher rate of in-hospital death associated with heart injury, which was highest when structural abnormalities were present.

Details: In this study, researchers examined cardiac ultrasound (transthoracic echocardiographic, or TTE, and electrocardiographic, or ECG) images of 305 adults hospitalized with COVID-19 who had elevated levels of troponin, a protein released in the heart when the muscle becomes damaged. 67.2% of patients were men, and the median age was 63 years. Of 305 patients, 190 (62.6%) had evidence of heart injury; of those, 118 had the injury at the time of hospital admission and 72 developed the injury during hospitalization. Patients with heart injury had more structural abnormalities seen on ECG and TTE and higher markers of inflammation than patients without heart injury. Structural abnormalities included those associated with pulmonary embolism and severe respiratory failure (26.3%), heart attacks (23.7%), heart failure (18.4%), diastolic dysfunction (a condition resulting in stiffer heart chambers) (13.2%), and pericardial effusion (extra fluid around the heart) (7.2%). The in-hospital death rate was 5.2% in patients without heart injury, 18.6% in patients with heart injury but no TTE abnormalities, and 31.7% in patients with heart injury and TTE abnormalities. After adjusting for COVID-19 complications (e.g., cardiocirculatory shock, acute respiratory distress syndrome), heart injury with TTE abnormalities was associated with a higher risk of death (adjusted OR 3.87, 95% CI 1.27-11.80).

Key Takeaways:

- Almost 2/3rds of patients with COVID-19 and heart injury in this study had various potentially fatal heart conditions.
- Evaluation with a point-of-care cardiac ultrasound may be appropriate for use in COVID-19 patients with elevated levels of troponin to understand the mechanism underlying heart injury, assess risk, and guide clinical management.

[COVID-19–Associated Hospitalizations Among Health Care Personnel — COVID-NET, 13 States, March 1–May 31, 2020 \(MMWR\)](#)

Bottom Line: Data from 13 US hospital settings indicate that 5.9% of adults hospitalized with COVID-19 from 3/1-5/31 were healthcare personnel, of which 36.3% were in nursing occupations.

Details: Prior reports have demonstrated risk of SARS-CoV-2 exposure among healthcare personnel (HCP). In this report, data from the COVID-19-Associated Hospitalization Surveillance Network (COVID-NET), reflecting 13 hospitals, were analyzed to assess HCP status among adults hospitalized with COVID-19. Of 6,760 adults hospitalized from 3/1-5/31 for whom HCP status was documented, 5.9% (n=438) were HCP. 36.3% of HCP were in nursing-related occupations (27.8% nurses and 8.5% certified nursing assistants). The median age among this group was 49; 71.9% were female, 52% were non-Hispanic Black, 27.4% were non-Hispanic White, and 8.6% were Hispanic/Latino persons. 89.8% had at least underlying condition, most commonly obesity (72.5%), hypertension (40.6%), and diabetes (30.9%). Upon admission to a hospital, the majority (96.6%) reported symptoms of COVID-19, most commonly shortness of breath (79%), cough (76.6%), and fever or chills (73.9%). Of HCP hospitalized with COVID-19 in this sample, for which the median length of stay was 4

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days, over 1/4th (27.5%) were admitted to an ICU and 15.8% required invasive mechanical ventilation. 56.7% and 42.9% of HCP received a discharge diagnosis of pneumonia and acute respiratory failure, respectively. 4.2% died during hospitalization.

Key Takeaways:

- In this analysis, the largest proportion of healthcare personnel (HCP) hospitalized with COVID-19 was nurses. Compared to previous reports, however, HCP in this analysis were older and a larger proportion were Black.
- CDC continues to recommend universal use of face masks among HCP in health care facilities, and in areas with community transmission of SARS-CoV-2, eye protection in all patient encounters.