

29 June 2020

BRIEF19

A daily review of covid-19 research and policy.

RESEARCH BRIEFING

Income Inequality and covid-19 in the USA.

A recent [paper](#) in the *Journal of General Internal Medicine* looked at the association between U.S. state-level income inequality and the number of cases and deaths from covid-19. The researchers assessed for this correlation using the Gini index—an economic measure of income distribution—while covid-19 data was ascertained from the Johns Hopkins University covid-19 dashboard for each of the 50 U.S. states between January 22 and April 13. The Gini index for each state was positively correlated with the number of covid-19 cases (correlation coefficient=0.38, p=0.006) and covid-19 deaths (correlation coefficient=0.44, p=0.002). The authors also adjusted for various potential confounding variables—the proportion of those living below the poverty line, age older than 65, gender and race, median household income, number of covid-19 tests performed per capita, doctors per capita, beds per capita and whether a state had a stay-at-home or shelter-in-place policy. Even after adjusting for these factors, states with a higher Gini index (indicating greater income inequality in that state) had a relatively higher number of covid-19 deaths. The findings were statistically significant. However, higher scores on the index were only marginally associated with the number of covid-19 cases, and not statistically significant. While there were some important limitations to this study—the use of state level-data precluded any inferences about individual-level outcomes and the use of observational data meant that the researchers had to use complicated statistical methods to adjust for the aforementioned confounding variables—the data strongly suggest that income inequality is at least a modest predictor of mortality resulting from SARS-CoV-2 infection. This adds to a growing body of evidence that at the population level, income inequality is not only a surrogate for poor chronic health, but also a potential harbinger for morbidity and mortality in pandemics of emerging infectious diseases such as SARS-CoV-2.

–Joshua Niforatos MD

Finger on the pulse. Do home oxygen monitors help? Some patients with covid-19 have low oxygen levels despite experiencing no difficulty with breathing. Healthcare professionals call this “hypoxemia out of proportion to respiratory effort” or “silent hypoxemia.” Pulse oximetry—the routine use of oxygen sensors placed on the fingers in order to measure oxygen levels—is often done in healthcare settings. However, prior to the covid-19 pandemic, the use of these technologies at home was uncommon and had not been studied. A [new study](#) appearing in *Academic Emergency Medicine* assessed 77 outpatients who were tested (and subsequently found to be positive) for SARS-CoV-2, given portable pulse oximeters, and sent home. Of these patients, most (79 percent) were enrolled from an emergency department (ED). Patients were instructed to record their oxygen levels three times daily and to return to the ED for levels under 92 percent. Among the patients, 25 percent had at-home oxygen saturations of less than 92 percent and 36 percent eventually returned to the ED. Of the returnees, 79 percent were hospitalized and 29 percent to intensive care units. A substantial number of patients, 29 percent, returned solely because of the oxygen levels (i.e. not because symptoms worsened). Unfortunately, inconsistencies in how subjects collected their data and the small numbers of patients enrolled in the study render the conclusions difficult to rely on. Therefore, the overall benefit in the use of these at-home devices in suspected but unconfirmed covid-19 patients remains unclear. However, given that 10 percent of these

outpatients were later admitted to the ICU and 2.6 percent had died by the time the study concluded, pulse oximetry is an enticing low-risk intervention which seems to help identify outpatients with covid-19 at risk of progressing from mild or moderate to severe or critical disease.

–Lauren Westafer DO, MPH

POLICY BRIEFING

New restrictions for Naval forces in North America.

This past week the US Navy [released](#) a new fragmentary order (FRAGO) outlining new restrictions for active duty Naval personnel stationed in North America. Despite easing of restrictions in some parts of the country, the Navy will continue to maintain strict guidelines to prevent the spread of covid-19 within their ranks. Citing the need to maintain a deployment-ready fleet, the memo states, "The easing of community restrictions is not aligned with the Navy imperative to maintain Covid infection as low as possible across the force." In addition to guidelines for their own service members, the FRAGO strongly encourages civilian employees of the Navy, such as contractors and family members, to abide by the same guidelines in order to limit the possible spread of coronavirus within the Navy community. In a system that is analogous to the Defense Readiness Conditions (DEFCON), the Department of Defense uses Health Protection Condition (HPCON) levels in response to public health emergencies. With the release of the current FRAGO, all North American forces are now under "HPCON Charlie minus," which details the following restrictions. On installations (Navy bases, stations and schools) all unit and installation sponsored events, as well as large group gatherings are cancelled. Virtual work opportunities are to be maximized. Personal behavior guidelines instruct service members to maintain six feet of separation when around individuals for fifteen minutes or greater; to wear masks to the maximum extent possible if unable to maintain six feet during these interactions; to the maximum extent possible, limit gatherings to no more than ten people; limitation of travel to and from home and work to essential business. Among the list of things service members are prohibited from participating or visiting include recreational swimming pools, gyms, fitness centers, exercise classes, saunas, spas, salons, tattoo/piercing parlors, barbershops, hair and/or nail salons, massage parlors, theaters, participation in team/organized sports, dine-in restaurants, bars, night clubs, casinos, conferences, sporting events, concerts, public celebrations, parades, public beaches, amusement parks, indoor religious services, outdoor recreation areas with common equipment if six feet of separation cannot be assured and shopping malls. While conducting essential tasks, service members are to practice social distancing and wear cloth masks. Covered activities include, but are not limited to mass transit, auto repair, maintenance and annual inspection, curbside and drive through service, banking, pet care, in-home service, post office and laundry. While all North American facilities have been placed at HPCON Charlie minus simultaneously, reduction to lower statuses can occur asynchronously based on local coronavirus restrictions. *Department of the Navy.*

–Joshua Lesko, MD

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Brief19 is a daily executive summary of covid-19-related medical research, news, and public policy. It was founded and created by frontline emergency medicine physicians with expertise in medical research critique, health policy, and public policy.