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BRIEF19

A daily review of covid-19 research and policy

BREAKING RESEARCH BRIEFING

Excess Deaths in the United States among the worst when compared to similar nations

One measurement of the toll of the covid-19 pandemic is the excess number of deaths from all causes. The term *excess deaths* refers to the difference between the expected number of deaths estimated from previous data and the observed number of deaths. Excess deaths counts not just the number of deaths attributed to a particular cause (such as SARS-CoV-2, the virus that causes covid-19), but to all causes. This allows epidemiologists to measure the impact of an outbreak even in the absence of adequate testing. However, when deaths from a particular cause of interest closely parallel the number of all cause deaths, as they have in the United States this year, it is highly likely that the excess deaths are simply a better window into the number of fatalities caused by the illness of interest, rather than other causes such as a decrease in medical care for other reasons.

In a previous brief, we discussed an article in the *JAMA Internal Medicine* that estimated that between March 1 to May 30, 2020 there were 122,000 excess deaths in the United States. In a Research Letter published today, the same authors extend their analysis through July 30. They found 225,530 excess deaths of which 150,541 (67 percent) were directly attributed to covid-19. Heart disease during March and April and complications from dementia during June and July drove the remaining deaths, largely concentrated in areas where the largest covid-19 outbreaks occurred. Most excess deaths were in the Northeast in the spring and in Texas, Florida, and Arizona during the last two months, rather than spread out evenly among the rest of the country where decreases in emergency care were seen, regardless of whether covid-19 surges occurred.

Another Research Letter in the published today reports that an United States all cause excess death rate of 65 more deaths per 100,000 people, approximately 100 times worse than South Korea. The United States has the worst death rate (27 per 100,000) since June 7 of the countries analyzed in the study. The authors note that a perfect comparison between the US and other countries is difficult because the US population is younger but has more chronic medical conditions (diabetes, high blood pressure, heart disease, kidney disease) than other countries. There will soon be enough data to isolate the effect of the most common pre-existing conditions.

Covid-19 has exposed inequities in our healthcare system that reinforce social determinants of health and put entire groups at higher risk of death. We previously remarked on the racial disparities in hospitalizations. The Financial Times columnist Anjana Anhuja labelled covid-19 a *syndemic* this week (paywall), referring to how the infectivity of the virus may synergize with pre-existing conditions to be especially lethal to certain groups. Pre-existing conditions reflect a combination of genetic predisposition, lifestyle, and, most crucially, social determinants of chronic health that affect health outcomes during acute crises.

These updated analyses suggest that the United States is performing more poorly than countries it considers comparably developed and that it continues to underperform. Pre-existing conditions and a lack of preparation may have led to excess death early in the pandemic. Meandering political actions and geographically varying responses to science-based policy may have also prevented effective action. However, neither paper covered here were able to include the increases in cases reported in many European countries that have occurred in the last few weeks.

—Michael Chary, MD PhD

POLICY BRIEFING

FDA issues EUA for first multiplexed diagnostic test.

Late last week GenMark Diagnostics, a laboratory test manufacturer, was granted an Emergency Use Authorization (EUA) from the US Food and Drug Administration (FDA) for its ePlex Respiratory Antigen Panel 2, a new rapid molecular test that can distinguish between over twenty viruses and bacterias, including the coronavirus SARS-CoV-2 that causes covid-19.

In explaining the decision, the FDA acknowledged that there were other products that test for these same pathogens, but currently no multiplexed tests for "simultaneous qualitative detection and differentiation of nucleic acids" and that a need for such differentiation existed.

Like many other coronavirus tests, this one uses a nasopharyngeal swab sample collected by a healthcare provider and analyzed in a special medium. Because of the method of evaluation, this device is not intended to be a point-of-care product; this means that tests will be run in centralized laboratories that have samples delivered to them. This process can leads to substantial delays between the acquisition of a test and the results. *The Food and Drug Administration.*

—Joshua Lesko, MD