

Demographers put COVID-19 death toll into perspective

August 25 2020, by Yasmin Anwar



Colorized scanning electron micrograph of a cell (blue) heavily infected with SARS-CoV-2 virus particles (red), isolated from a patient sample. Image captured at the NIAID Integrated Research Facility (IRF) in Fort Detrick, Maryland. Credit: NIAID

With over 170,000 COVID-19 deaths to date, and 1,000 more each day, America's life expectancy may appear to be plummeting. But in estimating the magnitude of the pandemic, University of California, Berkeley, demographers have found that COVID-19 is likely to shorten the average U.S. lifespan in 2020 by only about a year.

Seeking to put current COVID-19 mortality rates into historic, demographic and economic perspective, UC Berkeley demographers Ronald Lee and Joshua Goldstein calculated the consequences of U.S. lives lost to COVID-19 in 2020 using two scenarios. One was based on a projection of 1 million deaths for the year, the other on the more likely projection of 250,000 deaths.

Their findings, published online last week in the *Proceedings of the National Academy of Sciences* journal, conclude that 1 million deaths in 2020 would cut three years off the average U.S. [life expectancy](#), while 250,000 deaths would reduce lifespans by about a year.

That said, without the societal efforts that have occurred to lessen the impact of COVID-19, there could have been 2 million deaths projected by the end of 2020, a reduction of the average U.S. lifespan by five years, the researchers pointed out.

Their estimated drop in life expectancy is modest, in part, because 250,000 deaths is not a large increase on top of the 3 million non-COVID-19 deaths expected for 2020, and because older people, who typically have fewer remaining years of life than others do, represent the most COVID-19 fatalities, the study notes.

Still, while COVID-19 mortality rates remain lower than those of the 1918 Spanish flu pandemic, the [coronavirus](#) epidemic could be just as

devastating as the longer-lasting HIV and opioid epidemics if mitigation efforts fail, the researchers said.

"The [death](#) toll of COVID-19 is a terrible thing, both for those who lose their lives and for their family, friends, colleagues and all whom their lives touched. Those are [real people](#), not abstract statistics," said Lee, a UC Berkeley professor emeritus of demography and associate director of the campus's Center for the Economics and Demography of Aging.

"But the population perspective helps put this tragedy in a broader context. As we work to contain this epidemic, it is important to know that we have been through such mortality crises before," he added.

Goldstein's and Lee's measures are based on factors that include a current U.S. population of 330 million, age-specific death rates and the economic valuation of saved lives.

Among their other findings:

- One million COVID-19 deaths in the U.S. in 2020 would be the equivalent of U.S. mortality levels in 1995, adding three years to each American's biological age, albeit temporarily.
- The age gap (old versus young) for people dying from COVID-19 is marginally wider than during pre-pandemic times, while the male-female gap is slightly narrower. The researchers found similar death-by-age patterns across several countries.
- The economic cost of lives lost to COVID-19 in the U.S. is in the trillions of dollars. According to standard government measures, the demographers estimated that the loss of 1 million lives in 2020 would amount to between \$10.2 and \$17.5 trillion, while the amount for 250,000 deaths would range from \$1.5 to \$2.5 trillion.

More information: Joshua R. Goldstein et al, Demographic perspectives on the mortality of COVID-19 and other epidemics, *Proceedings of the National Academy of Sciences* (2020). [DOI: 10.1073/pnas.2006392117](https://doi.org/10.1073/pnas.2006392117)

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