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# The COVID-19 pandemic adds another 200,000 deaths (50%) to the annual toll of excess mortality in the United States

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In “Excess Mortality in the United States in the 21st Century,” Samuel Preston and Yana Vierboom (1) bring attention to the magnitude of “excess mortality” in the United States. They show that there would have been 400,700 fewer deaths in this country in 2017 had the US sex- and age-specific death rates been comparable to those of five large European countries. To put this number in perspective, they remind us that this is more than the number of the US deaths that have been ascribed to COVID-19 in 2020 by the Centers for Disease Control and Prevention (CDC).

While this comparison with COVID-19 deaths efficiently conveys the magnitude of the annual toll of excess mortality, the impact of the SARS-CoV-2 epidemic on US mortality is more than a benchmark for excess mortality measurement. The epidemic’s impact substantially contributes to excess mortality in the United States as well.

Using a counterfactual approach similar to Preston and Vierboom’s, Heuveline and Tzen (2) show that in many countries the number of COVID-19 deaths reported in 2020 is only a fraction of the expected number had other countries’ sex- and age-specific death rates from COVID-19 been those of the United States. That fraction, labeled “National COVID-19 ratio,” is shown for Preston and Vierboom’s five European countries in Table 1, column 1. Their average (weighted by national population size) indicates that 35% of the US deaths ascribed to COVID-19 in 2020 can also be thought of as “excess deaths,” adding about 132,200 deaths to the annual total for 2020 (“Excess deaths,” column 1).

As the number of COVID-19 deaths has continued to grow into the first quarter of 2021, both in the United States and in Europe, the proportion of the US deaths ascribed to COVID-19 that can be interpreted as excess deaths hardly changed (“National COVID-19 ratio,” column 2). By March 31, 2021, the proportion for the previous 12 mo was 36%, adding about 190,900 deaths to the death toll of excess mortality on the period (“Excess deaths,” column 2).

These results suggest the annual toll of excess mortality in the United States might have increased by close to 50% between the 12-mo period ending on March 31, 2021, and the previous 12-mo period. This estimate is based on official numbers that might underestimate the actual numbers of COVID-19 deaths, especially in the first months of the pandemic while testing capacity was ramped up. With respect to this likely undercount, the United States does not particularly stand out, however, faring worse than some of its European peers, but better than some others (e.g., Italy, Spain) (3, 4).

Excess mortality in the United States from COVID-19 and earlier in the 21st century can hardly be interpreted as coincidental. Comorbidities known to increase COVID-19 case fatality rate, such as obesity (5), already contributed to excess mortality before the pandemic (6). In turn, the pandemic seems to have contributed to an increase in other causes of mortality, such as drug overdose (7), that have contributed to excess mortality in the United States relative to European countries (8).

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**Table 1. Estimates of annual excess deaths from COVID-19 in the United States, 12-mo periods ending on December 31, 2020, and March 31, 2021**

Country	12-mo period ending	
	December 31, 2020 (1)	March 31, 2021 (2)
National COVID-19 ratio		
France	0.69	0.65
Germany	0.28	0.39
Italy	0.76	0.64
Spain	0.77	0.64
United Kingdom	0.91	0.96
Five-country average	0.65	0.64
US COVID-19 deaths		
Total deaths	382,073	536,764
Excess deaths	132,173	190,867

Sources: National COVID-19 ratios are from Heuveline and Tzen (2) and subsequent updates (9); five-country average is a weighted average with mid-2020 total population size from United Nations (10) as weights; US COVID-19 total deaths are from CDC (11), yearly 2020, all sexes, all ages, for 12-mo period ending on December 31, 2020, and monthly April 2020 to monthly March 2021, all sexes, all ages, for 12-mo period ending on March 31, 2021; excess deaths = total deaths  $\times$  (1 – “five-country average”).

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