How Will COVID-19 Affect the Mortality of Older Adults?

Gal Wettstein, Nilufer Gok, Anqi Chen, and Alicia H. Munnell
Center for Retirement Research at Boston College

24th Annual Meeting of the Retirement and Disability Research Consortium
Virtual Event
August 4-5, 2022
Disclaimer

The research reported herein was pursuant to a grant from the U.S. Social Security Administration (SSA) funded as part of the Retirement and Disability Research Consortium. The findings and conclusions expressed are solely those of the authors and do not represent the views of SSA, any agency of the federal government, or Boston College. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of the contents of this report. Reference herein to any specific commercial product, process or service by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply endorsement, recommendation or favoring by the United States Government or any agency thereof.
COVID caused over 1 million deaths in the United States, concentrated among older populations.

![COVID Mortality Hazard Relative to Ages 50-64](image)

source: Centers for Disease Control (2022).
Minorities were also at disproportionately high risk of COVID mortality.

Source: Centers for Disease Control (2022).
Finally, deaths were highest among individuals with certain chronic health conditions.

Source: Authors’ review of the literature.
The question is, since high-mortality groups were more likely to die, will survivors have a lower mortality rate?

- The analysis estimates how existing SSA life tables might be adjusted to account for this selection effect.

- This adjustment can inform SSA about expected mortality patterns in the coming years.

- The decline in future mortality from selective COVID deaths is second order, and only modestly counteracts the large rise in mortality due to COVID’s direct impact.
The analysis proceeds in the following steps:

- characterizing the 2019 age 60+ population by demographics and health status;
- finding pre-COVID and COVID mortality hazards for each group from the literature;
- constructing the new 2021 population, without those who died from COVID, in terms of demographics and health status;
- and estimating life tables for this new population as of mid-2021.
- We assume (incorrectly) COVID will not directly impact mortality in coming years.
What dimensions of the population need to be considered?

- Since demographics and health play major roles in COVID mortality risk, we focus on these dimensions.

- Demographic groups are the intersection of male/female; Black/white; Hispanic/non-Hispanic; and 10-year age bins, starting at 60.

- The health statuses that have documented differential hazards of COVID mortality relative to “healthy” individuals are: cancer; cerebrovascular disease; lung disease; diabetes; heart disease; and obesity.
Characterizing the pre-COVID population:

- The analysis uses the 2019 *American Community Survey* to estimate the size of each demographic group before the pandemic.

- Using the HRS, each group is then partitioned into each of the health statuses and a “healthy” group that has none of the COVID-relevant conditions.
The first results are the partition of the 2019 population into demographic/health groups.

**Distribution of Conditions by Age Group**

**Men**

- 60-69: 34% Healthy, 23% Cancer, 11% Stroke, 18% Lung, 9% Diabetes, 22% Heart, 6% Obesity
- 70-79: 23% Healthy, 28% Cancer, 22% Stroke, 24% Lung, 7% Diabetes, 14% Heart, 6% Obesity
- 80-89: 5% Healthy, 6% Cancer, 6% Stroke, 11% Lung, 7% Diabetes, 2% Heart, 1% Obesity
- 90-99: 21% Healthy, 15% Cancer, 11% Stroke, 5% Lung, 8% Diabetes, 2% Heart, 4% Obesity

**Women**

- 60-69: 35% Healthy, 27% Cancer, 28% Stroke, 27% Lung, 6% Diabetes, 8% Heart, 11% Obesity
- 70-79: 23% Healthy, 18% Cancer, 16% Stroke, 19% Lung, 9% Diabetes, 22% Heart, 11% Obesity
- 80-89: 5% Healthy, 6% Cancer, 5% Stroke, 9% Lung, 8% Diabetes, 6% Heart, 5% Obesity
- 90-99: 21% Healthy, 18% Cancer, 15% Stroke, 11% Lung, 9% Diabetes, 15% Heart, 4% Obesity

**Source:** Authors’ calculations from the 2018 HRS.
Of those alive in 2019, who died by mid-2021?

• We use the *National Vital Statistics System*, which records all U.S. deaths in 2020 by cause of death.

• We know the demographics of each death, but not its associated chronic conditions.

• Therefore, for each demographic group, we assume that deaths of a cause related to one of the six health conditions come from individuals who have that condition.

• For example, if among Black men ages 60-69 there were 50 cancer-related deaths and 75 people with cancer, all cancer-related deaths are assigned to that group.
Allocation of COVID deaths relies on epidemiological literature.

- COVID deaths for each demographic group are allocated to each health status group within the demographic according to the health condition’s relative COVID risk.

- 2020 mortality rates are extrapolated to the first quarter of 2021 to estimate the April 2021 population.
After adjusting the population to reflect the lower mortality of the survivors, modest declines in mortality should be anticipated, particularly at older ages.

Change in 10-Year Mortality Rates, Post-COVID

Source: Authors’ calculations.
COVID was selective in its victims – mortality will decline by over half as much as maximally possible.

Change in 10-Year Mortality Rates Post-COVID, Estimated and Maximal

<table>
<thead>
<tr>
<th>Percentage points</th>
<th>Estimated change</th>
<th>Maximum potential change</th>
</tr>
</thead>
<tbody>
<tr>
<td>-3%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-2%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-1%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Authors’ calculations.
Conclusion

• COVID led to over a million deaths, concentrated in populations with otherwise high mortality rates.

• Consequently, survivors are likely to have modestly lower mortality rates going forward.
  o This assumes COVID itself will not be a large driver of mortality, a conservative assumption for Social Security finances.

• Particularly among those over 80, where the toll of COVID was heaviest, the findings suggest large deviations from pre-pandemic mortality expectations.