

Young people make up greater proportion of COVID-19 deaths in 2021 compared to 2020

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Since March 2020, COVID-19-related deaths claimed over a million lives in the U.S. alone. In the pandemic's early phases, most deaths were among older adults, but in 2021, deaths in younger persons increased

while deaths in older persons decreased. A new study by two investigators from Brigham and Women's Hospital, a founding member of the Mass General Brigham healthcare system, addresses this unexpected shift in COVID-19 mortality to relatively younger Americans and finds an increase in years of life lost due to COVID-19. Looking at this trend more closely brings to light important questions on the COVID-19 pandemic, mortality trends, and public health. Their results are published in *Annals of Internal Medicine*.

Earlier in the COVID-19 pandemic, age and pre-existing conditions played a major role in developing public health advice. But by early 2021, the COVID-19 landscape had shifted completely; vaccines became available, treatments advanced, and people's behaviors changed. While 2020 COVID-19 [death](#) rates were high among older adults, those [older adults](#) exhibited a relatively higher vaccination rate and adhered more strictly to nonpharmaceutical interventions throughout 2021. Such systemic and [behavioral changes](#) in response to COVID-19 impacted [mortality rates](#) and determined what ages, in what years, were higher risk.

"There were a lot of changes between the first and second years of the COVID-19 pandemic," said corresponding author Mark Czeisler, Ph.D., [medical student](#) at Harvard Medical School, organizer of The COPE Initiative, and member of the Brigham's Department of Psychiatry. "Researchers have sought to understand the impacts of advances in COVID-19 treatments, immunity due to vaccinations and infections, and scientific knowledge of the COVID-19 virus and emerging variants. But prior to our study, there was less attention on quantifying premature mortality associated with COVID-19 in 2021 versus 2020."

Between March 2020 and October 2021, COVID-19 maintained a spot as one of the top-five causes of death for U.S. adults. Its specific rank within that top-five, however, changed based on age, demonstrating a

greater proportion of young people prematurely dying from COVID-19 in 2021. Researchers quantified this downward age-shift in COVID-19 deaths, using Years of Life Lost (YLL) rather than mortality. The team collected [relevant data](#) on COVID-19 deaths from two time intervals, March to December 2020 and 2021, using the CDC Wide-ranging ONline Data for Epidemiologic Research (WONDER) database. The 2017 World Population Prospects and World Health Organization Global Health Estimate were then used to estimate [average lifespan](#).

Using these resources, the team calculated percent of COVID-19 deaths and YLL per death. Despite 20.8-percent fewer COVID-19 deaths in 2021 versus 2020, YLL due to COVID-19 increased 7.4-percent. As the age distribution of deaths shifted downward, the median age of COVID-19 deaths decreased from 78 years in 2020 to 69 years in 2021. The researchers found that YLL per COVID-19 death increased by 35.7-percent; most of the other 15 other leading causes of death were stable across the time intervals, and YLL per death for these non-COVID-19 causes did not change more than 2.2-percent. Two secondary findings were also noted: Alzheimer's and Parkinson's deaths and YLL decreased, potentially due to misattribution of COVID-19 illness and reduced medical access in the earlier stages of the pandemic; and the number of deaths and YLL due to unintentional injury increased considerably, which the researchers did not directly explore in this analysis but attribute to the accelerating opioid epidemic and associated drug overdose deaths.

The study was limited by two primary factors: 2021 death records are not finalized until 12-months post-mortem; and individuals were not fully characterized for comorbidities, vaccination status, or any other determinants. The researchers are hopeful their insights will inform a greater story of mortality and loss during the COVID-19 pandemic, while inspiring further research into contributing factors to this trend.

"A shift in COVID-19 mortality to relatively younger people in the second pandemic year contributed to markedly increased premature [mortality](#) from this increasingly preventable death," said Czeisler.

"Understanding the factors that contribute to this age shift is critical as we continue developing our knowledge of the COVID-19 pandemic."

More information: Shifting mortality dynamics in the United States during the COVID-19 pandemic as measured by years of life lost, *Annals of Internal Medicine* (2022). [DOI: 10.7326/M22-2226](https://doi.org/10.7326/M22-2226)

Provided by Brigham and Women's Hospital

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