

Letters

RESEARCH LETTER

Leading Causes of Death in the US During the COVID-19 Pandemic, March 2020 to October 2021

In 2020, heart disease and cancer were the leading causes of death in the US, accounting for 1.29 million deaths, followed by COVID-19, accounting for 350 000 deaths.¹⁻³ The pandemic may also have indirectly led to increases in other causes of death, including heart disease, diabetes, Alzheimer disease, and unintentional injuries.^{2,4} We examined the leading causes of death in the US, overall and in various age groups, from March 2020 to October 2021.

Methods | We obtained final national death certificate data for 2020 and provisional data for 2021 from the Centers for Disease Control and Prevention (accessed May 5, 2022⁵). We excluded data more recent than October 2021 because they were incomplete. We determined the 5 leading causes of death by year and age group, and compared the period March to December 2020 with the period January to October 2021. Because the data are publicly available, the study did not require institutional review board review.

Results | From March 2020 to October 2021, heart disease (20.1%), cancer (17.5%), COVID-19 (12.2%), accidents (6.2%), and stroke (4.7%) were the most common causes of death in the US. There were 2.875 million deaths in March to December 2020 and 2.855 million deaths in January to October 2021; the 5 leading causes of death were the same in each year. Among those older than 1 year, the number of deaths increased across age groups.

Deaths from cancer, heart disease, and COVID-19 accounted for the largest number of deaths in every group aged 55 years and older (Table, Figure). The leading 3 causes of death in these age groups were the same in 2020 and 2021. Among people aged 85 years and older, COVID-19 was ranked as the second leading cause of death in 2020 (110 000 deaths, 12.8% of deaths), and third in 2021 (69 000, 8.9% of deaths). Among those aged 45 to 54 years, COVID-19 was the fourth leading cause of death in 2020 (17 000 deaths, 10.4% of deaths), following heart disease, cancer, and accidents; in 2021, however, it was the leading cause of death (30 000 deaths, 16.8% of deaths).

In both time periods, accidents accounted for the largest number of deaths in every age group 1 to 44 years. Compared with 2020, COVID-19 increased from the fifth (6100 deaths) to the second leading cause of death (13 000 deaths) among those aged 35 to 44 years in 2021, became the fourth leading cause of death in 2021 among those aged 25 to 34

years (5000 deaths), and those aged 15 to 24 years (1100 deaths).

Discussion | From March 2020 to October 2021, COVID-19 accounted for 1 in 8 deaths in the US and was a top 5 cause of death in every age group aged 15 years and older. Cancer and heart disease deaths exceeded COVID-19 deaths overall and in most age groups, whereas accidents were the leading cause of death among those aged 1 to 44 years. Compared with the 2020 time period, deaths from COVID-19 in the 2021 time period decreased in ranking among those aged 85 years or older but increased in ranking among those aged 15 to 54 years, and became the leading cause of death among those aged 45 to 54 years.

The increased ranking of COVID-19 as a leading cause of death in some age groups is consistent with a downward age shift in the distribution of COVID-19 deaths in the US in 2021 compared with 2020,⁶ perhaps driven by higher COVID-19 vaccination rates in 2021 in the oldest age groups.

The pandemic also has had indirect effects on other causes of death in the US. From 2019 to 2020, death rates increased for heart disease, accidents, stroke, Alzheimer disease, and diabetes.² Potential explanations are fear of accessing health care or misattribution of COVID-19 deaths to other causes.⁴ Accidental deaths (including drug overdoses and unintentional alcohol poisoning), assault, and suicide remain major causes of death in the US, particularly in younger age groups; the pandemic may have contributed to some of these deaths.

Our analysis was limited by potential misclassification of the cause of death and incomplete death data for 2021, although we included a lag of 6 months to increase the completeness of the provisional data. Moreover, because our analysis only extended through October 2021, it does not include deaths that occurred during the Omicron wave of the pandemic of late 2021 and early 2022.

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Table. Five Leading Causes of Death by Age Group From March to December 2020 and January to October 2021

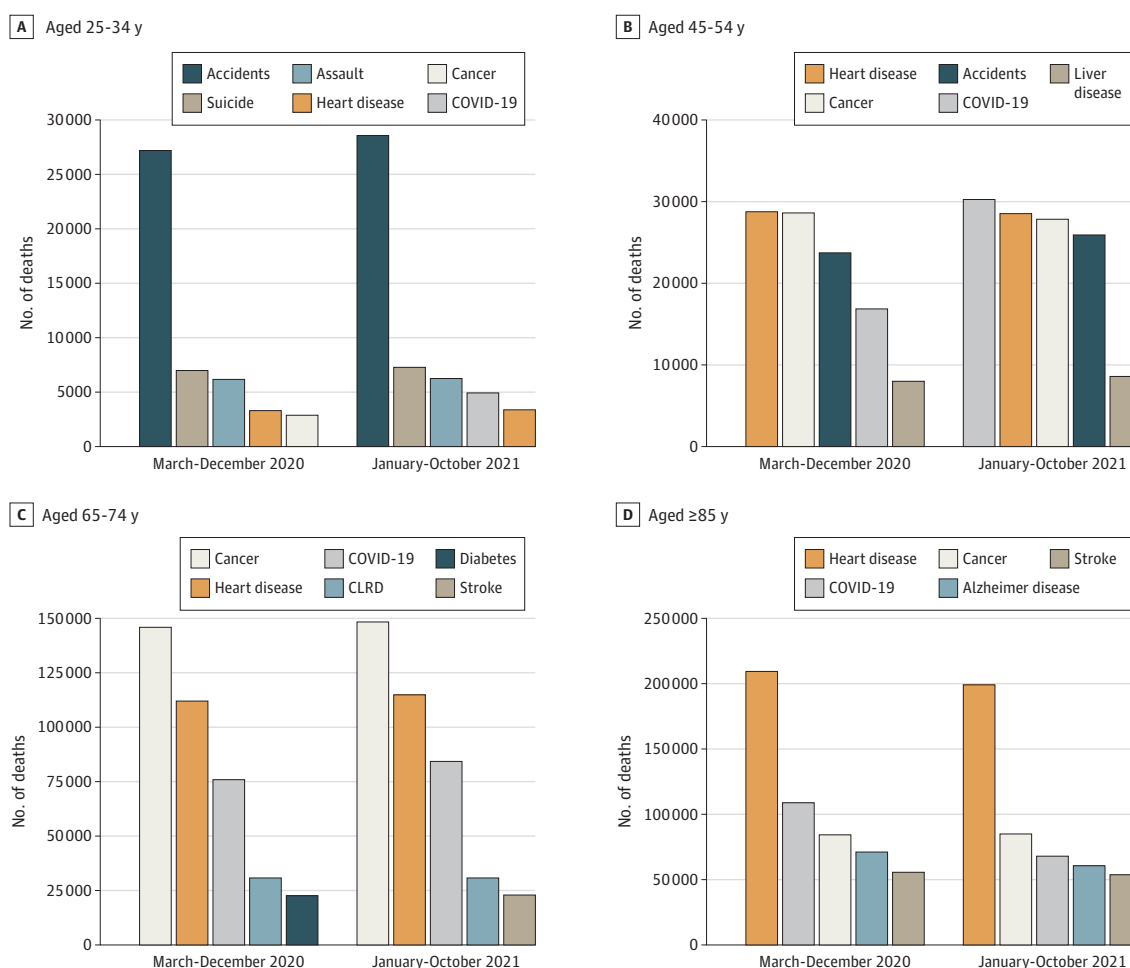
| March to December 2020 | | January to October 2021 | | | | |
|------------------------|--------------------------------|--------------------------|--------------------------|--------------------------------|--------------------------------|--------------------------|
| Age group | Total | Cause 1 | Cause 2 | Cause 3 | Cause 4 | Cause 5 |
| <1 y | | | | | | |
| Cause | Congenital malformations | Congenital malformations | Low birth weight | SIDS | Accidental deaths ^a | Pregnancy complications |
| No. | 16 000 | 3400 | 2600 | 1100 | 1000 | 910 |
| 1-4 y | | | | | | |
| Cause | Accidental deaths ^a | Congenital malformations | Heart disease | Assault | Cancer | Heart disease |
| No. | 2900 | 1000 | 300 | 250 | 250 | 100 |
| 5-14 y | | | | | | |
| Cause | Accidental deaths ^a | Cancer | Congenital malformations | Suicide | Assault | Congenital malformations |
| No. | 4700 | 1400 | 660 | 490 | 410 | 260 |
| 15-24 y | | | | | | |
| Cause | Accidental deaths ^a | Assault | Heart disease | Suicide | Accidental deaths ^a | Cancer |
| No. | 31 000 | 13 000 | 5600 | 5100 | 1100 | 730 |
| 25-34 y | | | | | | |
| Cause | Accidental deaths ^a | Suicide | Heart disease | Assault | Heart disease | Cancer |
| No. | 63 000 | 27 000 | 7100 | 6200 | 3400 | 3000 |
| 35-44 y | | | | | | |
| Cause | Accidental deaths ^a | Heart disease | COVID-19 | Cancer | Suicide | COVID-19 |
| No. | 90 000 | 27 000 | 10 000 | 8900 | 6100 | 6100 |
| 45-54 y | | | | | | |
| Cause | Heart disease | COVID-19 | Chronic liver disease | Accidental deaths ^a | COVID-19 | Chronic liver disease |
| No. | 163 000 | 29 000 | 29 000 | 24 000 | 17 000 | 8000 |
| 55-64 y | | | | | | |
| Cause | Cancer | Heart disease | CLRD | COVID-19 | Accidental deaths ^a | CLRD |
| No. | 375 000 | 92 000 | 74 000 | 42 000 | 25 000 | 15 000 |
| 65-74 y | | | | | | |
| Cause | Cancer | Heart disease | Diabetes | COVID-19 | CLRD | Diabetes |
| No. | 574 000 | 146 000 | 112 000 | 76 000 | 31 000 | 23 000 |
| 75-84 y | | | | | | |
| Cause | Heart disease | CLRD | Stroke | COVID-19 | CLRD | Stroke |
| No. | 699 000 | 139 000 | 136 000 | 97 000 | 40 000 | 36 000 |
| ≥85 y | | | | | | |
| Cause | Heart disease | COVID-19 | Stroke | Cancer | Alzheimer | Stroke |
| No. | 857 000 | 210 000 | 110 000 | 85 000 | 72 000 | 56 000 |
| Total | | | | | | |
| Cause | Heart disease | Cancer | COVID-19 | COVID-19 | Accidental deaths | Stroke |
| No. | 2 875 000 | 580 000 | 501 000 | 351 000 | 172 000 | 133 000 |

Abbreviations: CLRD, chronic lower respiratory disease; SIDS, sudden infant death syndrome.

^a Accidental deaths include transportation accidents, drug overdoses, alcohol-related deaths, and other

accidental deaths.

Figure. Leading Causes of Death in the US, March to December 2020 and January to October 2021



Bars indicate the number of deaths for each of the 5 most common causes of death by age group for those aged 25 to 34 years, 45 to 54 years, 65 to 74 years, and those aged 85 years and older. Colors are consistent by cause across age

groups; however, scales differ. COVID-19 indicates coronavirus disease 2019; CLRD: chronic lower respiratory disease.

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