Mortality and Longevity

Quarterly Mortality Monitoring Report for the U.S. Population

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April 2025

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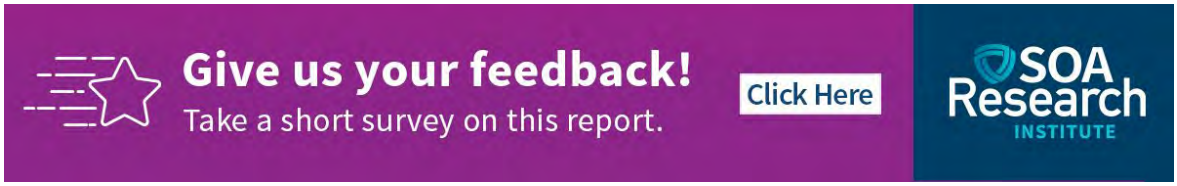

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Executive Summary

The Society of Actuaries Research Institute (SOA) periodically issues reports that provide a statistical summary of the mortality experience of the general population of the United States (U.S.). These reports include "U.S. Historical Population Mortality Rates", "Mortality Improvement Update", and "U.S. Population Mortality Observations", each of which is released on an annual basis. To supplement these annual reports, the SOA is launching a new report series – the Quarterly Mortality Monitoring Report (QMMR) – to be released every three months. Each QMMR will reflect the latest U.S. mortality data, facilitating the analysis of mortality trends as they unfold each year.

This report is the first of the QMMR series, focusing on mortality data through July 2024. The report also examines data from August to December 2024, although death count data for this period is not yet complete. To offset this concern, historical patterns of data maturation ("completion" in the parlance of actuaries) were used to adjust the incomplete data upwards to enable reasonable estimates of total deaths to be produced.

To quantify the impact of the pandemic on U.S. mortality, this analysis compares age-standardized (or "age-adjusted") death rates for rolling 12-month periods with corresponding death rates for 2019. Key findings are as follows:

- After the pandemic led to roughly a 20% increase in national age-standardized death rates, its effects on mortality began to dissipate in 2022. From August 2022 onwards, the 12-month trailing death rates have steadily declined. For the period from August 2023 through July 2024, the national death rate was only 0.8% greater than the level observed in 2019.
- The estimated death rate for January through December 2024 (which includes five months of data adjusted with completion rates) was 1.1% *below* the level observed in 2019. Thus, for the U.S. population in the aggregate, the death rate is now about equal to its pre-pandemic level.
- This aggregate result masks differences by age. Roughly speaking, death rates for ages below 50 remain about 5% to 10% elevated relative to their 2019 levels, while death rates above age 50 are close to or slightly below their 2019 levels.
- Although death rates under age 50 remain elevated, they have downward momentum, suggesting that convergence with their 2019 levels could potentially occur soon, but with no guarantee of near-term convergence.

Along with this report, the SOA has released an Excel/VBA workbook that contains the data used for the analysis. Each quarter, an updated QMMR workbook will be released, reflecting the latest available mortality data. The QMMR dataset runs from 2000 to the present, disaggregated by sex, single age, and 14 broad categories of mortality causes. The workbook provides several tools to facilitate the analysis of mortality trends, including interactive, parameterized graphs that make it easy to visualize trends in the data.

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Overview

This report presents a high-level examination of recent U.S. general population mortality experience. The first three sections focus on data through July 2024. This data is effectively complete. Section four of the report extends the analysis to cover the period from August to December 2024. Because the data for this period is not yet complete (i.e., some deaths have not yet been reported), the analysis uses completion factors to adjust the August-December 2024 data to estimate fully developed rates.

Section one focuses on data for the U.S. population as a whole; section two disaggregates the data by sex and broad age group; and section three disaggregates the data into 14 broad categories of death causes. Section four extends the analysis to include results from August through December 2024, focusing on the total U.S. population and broad age groups.

Those seeking greater detail than the results offered in this report may use the QMMR workbook to perform a granular analysis. The workbook can be downloaded from this report's web page. In addition, the web page has a link to a short instructional video that provides an overview of how to use the workbook.

The death count data used for the QMMR analysis are derived from the CDC WONDER database ("Centers for Disease Control and Prevention"). This data is available with merely a week's time lag; however, recent data is only partially complete. Completeness increases with the passage of time. Based on a comparison of CDC datasets downloaded at various dates throughout 2024, the SOA estimates that CDC death counts lagged by two months relative to the download date are 99% complete, and death counts lagged by six months are 99.9% complete.

To insulate the analysis from the effects of incomplete data, each QMMR report focuses primarily on data that is at least six months old relative to the date on which the data was downloaded. The data for this QMMR report was downloaded on February 6, 2025; therefore, the analysis presented in sections one, two, and three uses data through the end of July 2024. However, recognizing actuaries' need for timely data, section four provides results that extend through December 2024.

To compute crude death rates, death counts are divided by exposure estimates (by age and sex). The QMMR workbook contains two exposure datasets: (1) population estimates produced by the Human Mortality Database (HMD) project and (2) population estimates produced by the Social Security Administration (SSA). Users of the QMMR workbook may select either of these two datasets via a toggle switch. Relative to the HMD data, the SSA data uses a slightly broader definition of the population, leading to slightly lower estimates of crude mortality rates. However, the two datasets produce similar (but not identical) estimates for mortality improvement rates. For readers seeking more information about these datasets, please refer to the Appendix.

A third possible source for population counts are those produced by the U.S. Census Bureau. However, the Census Bureau has not yet released the final version of population counts from 2011 through 2019. The presently available data has not been calibrated to reflect information gathered in the 2020 Census; consequently, discontinuities may exist between the 2019 and 2020 data. For this reason, the Census

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dataset was not included in the QMMR workbook.[1] After the Census Bureau has finalized the 2011-to-2019 data, the Census dataset will be added.

Note that the HMD and SSA population datasets depend on Census data – that is, Census data is one of the inputs used to construct the HMD and SSA datasets. However, HMD and SSA implemented various adjustments to the data to enhance its internal consistency; therefore, these datasets were selected for inclusion in the QMMR.

Section 1: Recent Mortality Data for the Total U.S. Population

Figure 1 presents total monthly deaths across the U.S. resident population, from January 2017 through July 2024, as well as deaths excluding those for which COVID was the underlying cause (the rates net of COVID deaths include those whose cause may not have been attributed correctly or where COVID was a secondary cause).

Figure 1
Monthly Death Counts (in 1000s) from January 2017 through July 2024

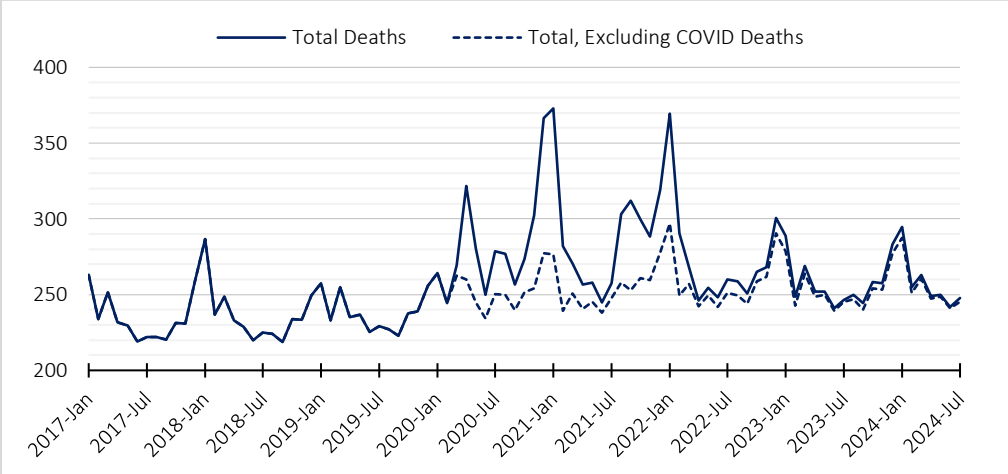

Figure 2 presents age-standardized (or "age-adjusted") national-level death rates for 12-month trailing periods, calculated using CDC Wonder death counts and HMD population data as exposure counts. As explained in the Appendix, age-standardization eliminates the "noise" imparted by shifts in the population's age structure. The vertical axis on the right side of Figure 2 shows the annual death rate expressed per 100,000 persons, while the axis on the left side shows the death rate as a percent of the level observed in 2019.

[1] Although the Census population counts are not included in the QMMR workbook, the SOA Research Institute recently published a study of U.S. population mortality through 2022 by Jerome Holman (FSA, MAAA) that uses modified Census population estimates for exposure. For the report, Census data was adjusted to enhance its longitudinal consistency.

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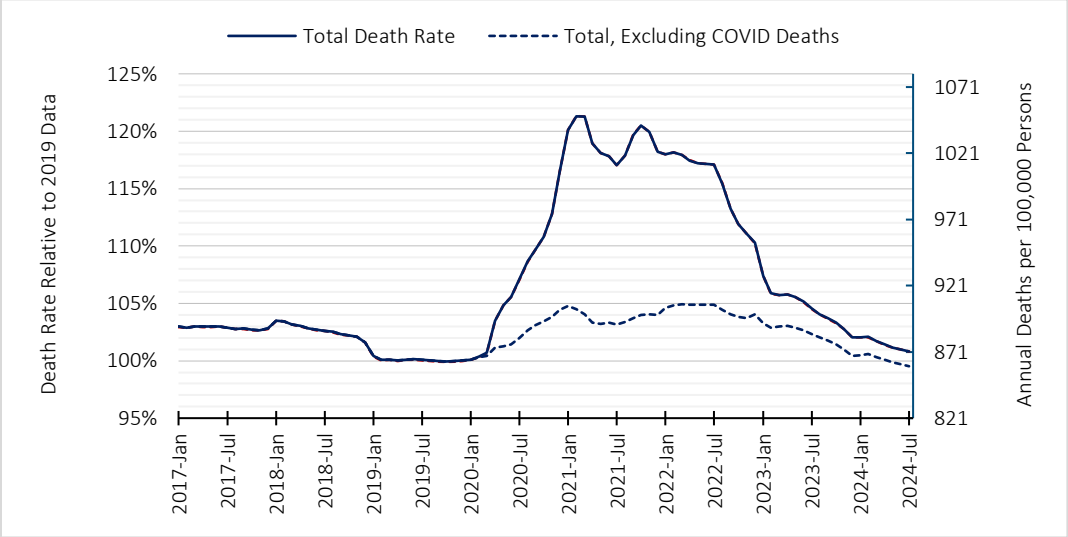
Figure 2

Age-Standardized U.S. Death Rate for Trailing 12-Month Periods, from Jan 2017 through July 2024



These results are age-standardized using 2019 HMD population counts as the standard population.

Section 2: Recent U.S. Population Mortality Data by Sex and Age Group

Tables 1 and 2 present death rates by sex and broad age group as a percentage of the corresponding rates observed in 2019. To compute death rates, CDC death counts (by sex and single age) were divided by the HMD's population estimates, yielding death rates by sex and single age. These results were aggregated into 10-year age groups. Within each age group, age standardization (with 2019 HMD population counts serving as the standard) was used to remove the effects of shifts in the population's age structure. In the final calculation step, the resulting death rates were divided by the corresponding rates for 2019. By design, the results for 2019 are equal to 100%.

Table 1

Death Rates by Age Group and Year, as a % of 2019 Death Rates: Females

Age	2019	2020	2021	2022	2023	Aug 2023 to Jul 2024
0 to 9	100.0%	95.3%	102.0%	106.1%	103.4%	102.9%
10 to 19	100.0%	109.7%	121.6%	119.4%	114.6%	109.0%
20 to 29	100.0%	120.8%	133.3%	120.9%	107.3%	98.9%
30 to 39	100.0%	118.8%	138.0%	121.2%	110.4%	105.6%
40 to 49	100.0%	119.1%	139.3%	120.1%	110.0%	107.3%
50 to 59	100.0%	115.0%	127.2%	110.6%	99.5%	97.2%
60 to 69	100.0%	116.3%	125.4%	113.1%	104.1%	103.2%
70 to 79	100.0%	115.9%	118.3%	110.2%	100.8%	100.1%
80 to 89	100.0%	116.2%	112.3%	110.3%	104.0%	104.2%
90 to 99	100.0%	113.9%	104.7%	104.8%	99.0%	98.8%
20 to 64	100.0%	116.4%	129.9%	114.0%	103.5%	100.8%
65 to 99	100.0%	115.5%	113.0%	109.1%	101.9%	101.7%

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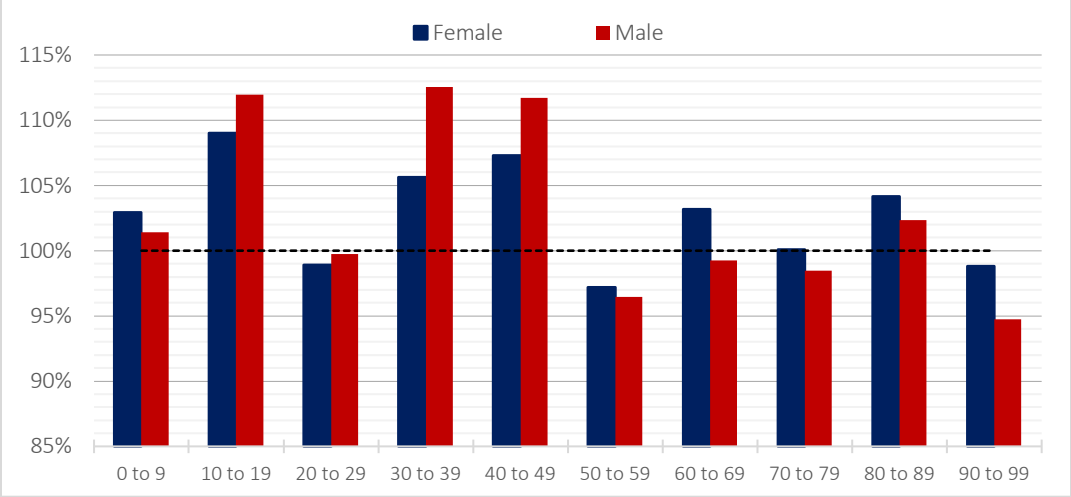
Table 2
Death Rates by Age Group and Year, as a % of 2019 Death Rates: Males

Age	2019	2020	2021	2022	2023	Aug 2023 to Jul 2024
0 to 9	100.0%	95.6%	99.1%	105.2%	102.6%	101.4%
10 to 19	100.0%	118.4%	125.3%	119.6%	119.3%	111.9%
20 to 29	100.0%	123.0%	132.7%	119.4%	109.3%	99.8%
30 to 39	100.0%	125.7%	143.7%	130.2%	120.4%	112.6%
40 to 49	100.0%	124.2%	143.3%	124.7%	116.6%	111.7%
50 to 59	100.0%	117.8%	129.0%	110.1%	99.8%	96.5%
60 to 69	100.0%	117.5%	123.4%	109.7%	100.7%	99.2%
70 to 79	100.0%	117.9%	118.6%	108.9%	99.2%	98.5%
80 to 89	100.0%	116.5%	114.0%	110.0%	102.7%	102.4%
90 to 99	100.0%	113.3%	105.1%	102.9%	95.4%	94.7%
20 to 64	100.0%	119.9%	131.7%	115.0%	105.3%	101.2%
65 to 99	100.0%	116.7%	115.4%	108.5%	100.2%	99.5%

Figure 3 presents the same data shown in the rightmost column of Tables 1 and 2. This data captures mortality experience from August 2023 to July 2024, the most recent 12-month period of effectively complete data available in the dataset.

Figure 3
Death Rates Using Data from August 2023 to July 2024, as a % of 2019 Death Rates



Section 3: Recent U.S. Population Mortality Data by Cause of Death

The QMMR workbook can disaggregate death data into 14 mutually exclusive cause-of-death categories. Together, these categories sum to total deaths. Using the workbook, disaggregation by cause can be applied to total U.S. deaths or to deaths within user-defined sex and age groups. In Table 3, the age-standardized U.S. death rates (shown earlier in Figure 2) are disaggregated by cause of death. The death rates in Table 3 are expressed per 100,000 persons. As in earlier exhibits, 2019 HMD population counts were used for age standardization. Note that if an earlier year had been used for the standard population (for example, 2000 instead of 2019), the resulting death rates would have been lower because the U.S. population was younger in the past. However, the choice of the standardization year does not affect the basic pattern of the results across time.

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The final two columns in Table 3 cover the period from August 2023 to July 2024. The final column compares the age-standardized death rates for this period against the corresponding rates in 2019.

Table 3

Total U.S. Population: Age-Standardized Annual Death Rates per 100,000 Persons

Category	2019	2020	2021	2022	2023	Aug 2023 to July 2024	Aug 2023 to July 2024, as % 2019
Alz/Dem	36.2	39.5	35.2	34.9	32.5	32.5	89.8%
Cancer	183.1	180.4	178.7	176.5	174.1	173.2	94.5%
COVID	0.0	104.5	123.3	54.1	14.3	11.4	NA
Diabetes	26.8	30.6	30.5	29.4	27.1	26.8	100.1%
Flu/Pneum	15.2	16.0	12.5	13.8	13.0	13.9	91.6%
Heart	198.8	206.3	204.1	203.2	193.2	191.5	96.4%
Hypertension	11.0	12.4	12.6	12.5	12.0	12.0	108.3%
Liver	13.5	15.5	16.8	16.1	15.2	15.0	111.0%
Pulmonary	48.1	45.9	42.3	42.9	41.4	41.1	85.4%
Stroke	45.4	47.7	48.1	48.1	46.4	46.7	102.9%
Accidents	52.0	59.9	66.6	66.6	65.5	60.5	116.4%
Assault	5.9	7.5	7.9	7.5	6.9	6.4	107.5%
Suicide	14.4	13.8	14.3	14.6	14.7	14.4	100.2%
Other	214.1	227.3	229.4	233.0	225.7	226.2	105.6%
Total	864.6	1007.3	1022.3	953.3	882.1	871.6	100.8%
Exclude COVID	864.6	902.8	899.0	899.2	867.8	860.2	99.5%

Recall from Figure 3 that total death rates remain significantly elevated (relative to 2019 data) for some age groups, including ages 40 to 49. It may be useful, therefore, to disaggregate the data for this age group by cause of death, as shown in Table 4.

Table 4

Population Aged 40 to 49: Age-Standardized Annual Death Rates per 100,000 Persons

Category	2019	2020	2021	2022	2023	Aug 2023 to July 2024	Aug 2023 to July 2024, as % 2019
Alz/Dem	0.30	0.30	0.30	0.30	0.30	0.40	118.3%
Cancer	47.40	46.70	46.70	46.00	46.60	46.80	98.8%
COVID	0.00	25.70	60.20	14.40	2.20	2.00	NA
Diabetes	8.90	11.20	11.20	10.90	9.50	9.60	108.6%
Flu/Pneum	3.20	3.50	2.60	2.90	2.80	3.10	98.6%
Heart	44.70	50.10	50.70	48.50	45.30	44.50	99.5%
Hypertension	2.50	2.40	2.60	2.50	2.50	2.60	104.2%
Liver	12.50	16.00	18.30	17.20	16.00	15.70	125.0%
Pulmonary	3.30	3.30	3.10	2.80	2.60	2.50	76.0%
Stroke	7.10	7.80	8.50	8.30	7.90	7.90	110.6%
Accidents	54.40	68.20	78.20	79.70	78.90	69.60	128.0%
Assault	6.30	7.60	8.30	8.30	8.00	7.50	120.0%
Suicide	18.70	17.20	17.60	18.50	19.20	18.80	100.5%
Other	58.50	67.10	71.40	68.80	63.40	63.60	108.7%
Total	267.60	327.20	379.50	329.10	305.30	294.50	110.1%
Exclude Covid	267.60	301.60	319.30	314.70	303.10	292.50	109.3%

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Section 4: U.S. Population Mortality Data through December 2024

Sections one through three focus on the period through July 2024. The data for this period is effectively complete – that is, no material change to the reported death counts is anticipated. In contrast, data from August to December 2024 is not yet mature. The reported death counts for this period will increase in the coming weeks and months. Based on a comparison of CDC datasets downloaded at various dates throughout 2024, the SOA developed estimates of completion rates that differ as a function of the maturity of reported data: the greater the maturity of the data, the greater the completion rate. The completion rates also vary by age – in general, data for younger ages becomes complete at a slower rate than data for older ages.

To account for the incompleteness of recent data, the August-to-December 2024 data was divided by the corresponding completion rates, yielding estimates of total deaths. These estimates, in turn, were used to produce estimated death rates, as summarized in Table 5.

Table 5

Age-Standardized Death Rates for Rolling 12-Month Periods, as a % of 2019 Death Rates

Data Completeness	Start of 12-Month Period	End of 12-Month Period	Total Population	Ages 20 to 49	Ages 50 to 64	Ages 65+
Effectively Complete	2023 Jan	2023 Dec	102.0%	113.9%	100.1%	101.1%
	2023 Feb	2024 Jan	102.0%	113.2%	100.0%	101.2%
	2023 Mar	2024 Feb	102.1%	112.8%	99.9%	101.3%
	2023 Apr	2024 Mar	101.7%	111.9%	99.5%	101.0%
	2023 May	2024 Apr	101.4%	111.1%	98.9%	100.8%
	2023 June	2024 May	101.1%	110.1%	98.5%	100.7%
	2023 July	2024 June	101.0%	109.2%	98.2%	100.6%
	2023 Aug	2024 July	100.8%	107.9%	97.8%	100.6%
Incomplete; therefore, adjusted using completion factors	2023 Sept	2024 Aug	100.6%	106.7%	97.4%	100.6%
	2023 Oct	2024 Sept	100.4%	105.6%	97.0%	100.5%
	2023 Nov	2024 Oct	100.1%	104.7%	96.7%	100.3%
	2023 Dec	2024 Nov	99.5%	103.7%	96.2%	99.8%
	2024 Jan	2024 Dec	98.9%	102.7%	95.4%	99.2%

This report has focused primarily on 12-month rolling periods. Mortality data for shorter periods is more volatile (due to seasonal fluctuations of mortality rates), making it more difficult to discern trends. However, for completeness, Table 6 presents 2023 and 2024 mortality data by quarter (January to March, April to June, July to September, and October to December). Each quarter of data is compared against the corresponding quarter in 2019.

The "final" data in Tables 5 and 6 is not set in stone. Although the CDC death data through August 2024 is effectively complete, the exposure estimates (which serve as the denominators for computing death rates) are subject to future revision. The population of the United States is constantly changing, and developing estimates for recent population changes is challenging. Each year, the Census Bureau, SSA, and HMD add the most recent year to their population estimates and, in addition, revise data for prior years (for example, the Census Bureau intends to adjust its 2011-to-2019 estimates to reflect data gathered in the 2020 Census). These revisions are sometimes significant; consequently, the results presented throughout this report should be viewed as estimates subject to some uncertainty.

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Table 6

Age-Standardized Death Rates for 3-Month Periods, as a % of the Corresponding 3-Month Period in 2019

Period	Total Population	Ages 20 to 49	Ages 50 to 64	Ages 65+
2023-Q1	101.86%	117.66%	99.53%	100.66%
2023-Q2	100.69%	116.05%	100.16%	99.00%
2023-Q3	102.87%	114.41%	101.27%	101.80%
2023-Q4	102.66%	107.75%	99.66%	102.71%
2024-Q1	100.46%	109.56%	96.98%	100.21%
2024-Q2	97.88%	105.18%	95.05%	97.67%
2024-Q3	100.40%	99.93%	96.23%	101.37%
2024-Q4	96.93%	96.47%	93.39%	97.73%

Note: because death count data for 2024-Q3 and 2024-Q4 is not effectively complete, the data was divided by completion rates estimated by the SOA. The results for these two quarters have greater uncertainty than the results for earlier quarters presented in this table.

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Appendix

CALCULATION OF AGE-STANDARDIZED DEATH RATES

To neutralize the effects of changes in the population's age structure, the death rates presented in this report are standardized by age. Age-standardized results are easy to interpret because the effects of changes in age structure are eliminated. If an age-standardized death rate increases (decreases) across time, this implies that age-specific death rates also increased (decreased).

This report used 2019 HMD population counts as weights for age standardization. In effect, this "freezes" the population's age structure at 2019 levels. Aggregate death rates are computed as the weighted average of age-specific death rates, using weights derived from 2019 population counts. For example, to compute the age-standardized death rate in 2023 for ages 60 to 69, the following calculation is employed:

$$\left(\sum_{x=60}^{69} \frac{\text{Deaths}(x)_{2023}}{\text{Population}(x)_{2023}} * \text{Population}(x)_{2019}\right) \div \sum_{x=60}^{69} \text{Population}(x)_{2019}$$

For presentational simplicity, the prior equation shows death and population data in annual time units. However, the underlying death data is monthly rather than annual, and the calculation process is adjusted accordingly. The population data consists of mid-year (July 1) estimates; to calculate estimates for other calendar months, the population at each age is assumed to vary linearly across the period between each of the mid-year estimates. Monthly death and population data facilitate calculations for rolling 12-month periods that straddle adjacent calendar years—for example, the period from July 2022 to June 2023.

DATA SOURCES

The death count data used for this report was downloaded from the CDC WONDER database on February 6, 2025. The interface for downloading CDC Wonder data is located here:

https://wonder.cdc.gov/mcd.html

While the downloaded data extends through January 2025, recent data is only partially complete. Roughly speaking, data that is more than six months old (relative to the date of download) is effectively complete. Therefore, the analysis in this report uses data through July 2024.

Note that the time lag required for CDC data completeness varies by cause of death. For accidents, assaults, and suicides, the lag is about six months. For other causes of death, a shorter lag is sufficient for data completeness. Individuals using the QMMR workbook should be mindful of these reporting lags.

The CDC data covers deaths across the U.S. resident population. According to the CDC Wonder website, the mortality data are "based on information from all death certificates filed in the 50 states and the District of Columbia", and "deaths of nonresidents (e.g., nonresident aliens, nationals living abroad, residents of Puerto Rico, Guam, the Virgin Islands, and other territories of the U.S.) and fetal deaths are excluded".

The population count data used for this report was downloaded from the Human Mortality Database (HMD) webpage on November 19, 2024. The URL for downloading the data is as follows (note that access to this file requires setting up an HMD account):

https://www.mortality.org/File/GetDocument/hmd.v6/USA/STATS/Population.txt

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The population counts in this dataset are for the U.S. resident population as of July 1 of each year. For the analysis presented in this report, population data for the intervening months was determined via linear interpolation. For example, data for August-1-2022 was calculated by interpolating between the July-1-2022 data and the July-1-2023 data.

SENSITIVITY OF RESULTS TO THE DATA SOURCE USED FOR POPULATION ESTIMATES

As explained earlier in this report, estimates of the size of the U.S. population (by year, sex, and age) are somewhat uncertain. Because population estimates differ across datasets, the estimation of mortality trends is affected by which dataset is used, as illustrated in the table below which compares A/E ratios computed using two different sources of population data.

Table 7

Death Rates by Age Group and Year, as a % of 2019 Death Rates: Males and Females Combined

Age	Exposure Data	2019	2020	2021	2022	2023	Aug 2023 to Jul 2024
0 to 19	HMD	100.00%	102.20%	108.30%	110.22%	107.92%	105.05%
0 to 19	SSA	100.00%	102.50%	109.45%	110.38%	107.83%	104.97%
20 to 64	HMD	100.00%	118.61%	131.06%	114.61%	104.60%	101.05%
20 to 64	SSA	100.00%	119.35%	132.70%	116.13%	105.89%	102.29%
65 to 99	HMD	100.00%	116.07%	114.15%	108.81%	101.05%	100.64%
65 to 99	SSA	100.00%	116.08%	113.31%	107.82%	100.13%	99.74%
0 to 99	HMD	100.00%	102.20%	108.30%	110.22%	107.92%	105.05%
0 to 99	SSA	100.00%	102.50%	109.45%	110.38%	107.83%	104.97%

Note: like other results presented in this report, these results are age-standardized using 2019 as the base year.

COMPLETION FACTORS

As explained earlier in this report, death count data from August through December of 2024 were adjusted upward using completion factors. The completion factors were developed for this report by comparing CDC datasets downloaded at various dates throughout 2024. The completion factors apply to deaths summed across all causes (note that completion rates for various subcategories of death may differ from completion rates for all causes of death).

Table 8

Completion Factors as a Function of Age Group and Month in Which Death Occurred

Age	Dec 2024	Nov 2024	Oct 2024	Sept 2024	Aug 2024
0 to 9	0.856	0.914	0.933	0.966	0.976
10 to 19	0.892	0.960	0.972	0.981	0.990
20 to 29	0.892	0.961	0.978	0.990	0.996
30 to 39	0.907	0.964	0.975	0.990	0.994
40 to 49	0.930	0.974	0.978	0.990	0.996
50 to 59	0.946	0.982	0.981	0.992	0.997
60 to 69	0.963	0.980	0.984	0.994	0.998
70 to 79	0.977	0.993	0.995	0.996	0.999
80 to 89	0.985	0.995	0.996	0.997	0.999
90 to 99	0.989	0.995	0.997	0.998	0.999

Note: these factors are applicable to data downloaded from CDC WONDER on February 6, 2025.

The factors increase from left to right across each row of the table, reflecting the maturation of data with the passage of time -- that is, the longer the time interval between the date the data was downloaded

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(February 6, 2025) and the month in which deaths were observed, the greater the completeness of the data. The factors also increase from top to bottom of each column, because data for older ages matures more quickly than data for younger ages.

MAPPING OF ICD CODES TO 14 CATEGORIES OF DEATH

Section three of this report disaggregates death data into 14 mutually exclusive cause-of-death categories. Note that 'Accidents' include drug overdose deaths. These categories correspond to the following ICD-10 codes:

Table 9

Mapping of ICD Codes to the Broad Categories of Death Used in this Report

	Category	ICD Codes
1	Alzheimer's/Dementia	G30
2	Cancer	C00-C97
3	COVID	U071
4	Diabetes	E10-E14
5	Flu/Pneumonia	J09-J18
6	Heart Disease	I00-I09, I11, I13, I20-I51
7	Hypertension	I10, I12, I15
8	Chronic Liver Disease & Cirrhosis	K70, K73-K74
9	Pulmonary	J40-J47
10	Stroke	I60-I69
11	Accidents	V01-X59, Y85-Y86
12	Assault	U01-U02, X85-Y09, Y87.1
13	Suicide	U03, X60-X84, Y87.0
14	Other	All other ICD codes
	Total	All ICD Codes

Although some death certificates reflect multiple causes of death, one cause is identified as the primary or "underlying" cause. This report used the underlying cause to disaggregate deaths into the 14 categories shown in the preceding table.

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