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Mortality and Longevity

U.S. Population Mortality Observations Preview of 2020 Experience - June 2021 Update

June 2021

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U.S. Population Mortality Observations

Preview of 2020 Experience - June 2021 Update

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U.S. Population Mortality Observations

Preview of 2020 Experience – June 2021 Update

Executive Summary

The COVID-19 (COVID) pandemic has increased the demand for data and analysis on the impact of COVID on U.S. population mortality. In response, the Society of Actuaries (SOA) has reviewed the most recently released 2020 mortality data from the U.S. Centers for Disease Control and Prevention (CDC) and summarized observations obtained from this review into this report.

This report is an update of the U.S. Population Mortality Observations – Preview of 2020 Experience released in May 2021. This update is based on 2020 provisional death data released by the CDC. Data for calendar year 2020 was available for the overall, sex, and age-group analyses and some causes of death (CODs). The cause of death (COD) provisional death data was available only through the third quarter of 2020 for the suicide, assault and accident CODs. Data for drug overdoses was only available through the second quarter of 2020.

It is important to understand the potential limitations around the provisional aspects of the data used in this report. Delays in death reporting may result in data that is more incomplete for the most recent months and the final COD may not be available at the time the provisional estimates are available.[1] Finally, the assignment of COD can be somewhat subjective with the potential for misclassification[2]. Some CODs other than COVID may have been directly or indirectly due to COVID.

Key observations from the review of the provisional mortality data include:

- The overall age-adjusted mortality rate for 2020 was 830.5 deaths per 100,000 of population. This rate was 16.1% greater than the 2019 overall age-adjusted mortality rate. This level of mortality was last seen in the U.S. in 2003.
- The number of deaths coded as COVID-reported (COVID) deaths[3] increased each quarter in 2020 and the overall COVID mortality rate in 2020 was 83.6 deaths per 100,000 of population.
- If deaths coded as COVID[4] were excluded, the overall age-adjusted 2020 mortality rate would have been 746.9 per 100,000 or 4.4% higher than the 2019 rate. This increase excluding COVID deaths is also noteworthy because it reverses the two previous calendar years of decreasing mortality; however, some may be due to the misclassification of CODs as discussed in Section 6.
- 2020 mortality rates increased in both sexes, with the male rates increasing more than the female rates. The differences in the increases between males and females were 2.6 percentage points when all CODs are included and 0.9 percentage points when COVID deaths are excluded.
- The slope of the 2020 COVID mortality curve by age group is not as steep as the slope for non-COVID deaths.

[1] https://www.cdc.gov/nchs/nvss/vsrr/mortality-technical-notes.htm
[2] https://www.cdc.gov/nchs/nvss/vsrr/covid19/tech_notes.htm
[3] The COD used in this report is determined from the single underlying cause of death as identified on the death certificate, as opposed to one of the multiple causes of death on a death certificate. See Section 6 for more information.
[4] The COD used in this report is determined from the single underlying cause of death as identified on the death certificate, as opposed to one of the multiple causes of death on a death certificate. See Section 6 for more information.

- In the review of the 2020 total mortality rates by age group, the highest percentage increases were in the younger adult ages (15-54), not at the very old ages. When COVID deaths were removed, ages 15-44 saw the largest increases in mortality rates.
- Almost all the increases in 2020 mortality rates for ages 55+ were due to COVID deaths, while the increases in mortality rates for ages 15-44 were due to non-COVID CODs. For ages 55+, the fourth quarter had the largest increases, at 5.5% or greater, for all CODs. Mortality rates for ages under five decreased in 2020, with COVID having little impact on the 2020 change in mortality for those ages.
- Deaths from heart disease increased by 3.4% in 2020, which is notable given heart disease's long-term trends over the past 20 years of generally decreasing rates of mortality.
- Of the CODs analyzed in detail, cancer saw a 1.7% improvement in 2020, but the mortality rates for diabetes, liver, hypertension and Parkinson's all increased by more than 11%, with diabetes having the greatest increase of 16.8%.
- Increases in deaths due to accidents and assaults were up significantly in the first three quarters of 2020, as were drug overdoses in the first half of 2020.

Section 1: Introduction

The Society of Actuaries (SOA) developed this report to provide insights into the level of U.S. population mortality in 2020. This information can be viewed together with the SOA's 'U.S. Population Mortality Observations - Updated with 2019 Experience' report[5], released in January 2021, to obtain a more comprehensive understanding of historical and current trends in U.S. population mortality[6].

This report is based on estimates from the most recent National Center for Health Statistics (NCHS) National Vital Statistics System (NVSS) Rapid Release Quarterly Provisional Estimates[7] (CDC Rapid Release), and historical experience from 1999 to 2019 from the Centers for Disease Control and Prevention's (CDC) Wide-ranging Online Data for Epidemiologic Research (CDC WONDER) database[8]. Final mortality rates for 2020 are expected to be released by the CDC by the end of 2021 or in early 2022.

The report begins with an analysis of overall population mortality, followed by analyses of mortality by age groups and COD. The report uses data from CDC WONDER for historical rates back to 1999 and the CDC Rapid Release estimates for any 12-month mortality rates ending in calendar quarters for 2020. The COD section includes analyses for 15 of the physiological CODs and three of the external CODs available in the CDC Rapid Release. The COD section also includes details on the changes in 12-month mortality rates ending in the first three or four quarters of 2020 for ten selected CODs. The CDC Rapid Release provided data through the third quarter of 2020 for the external CODs included in this report, and data through the fourth quarter of 2020 for the physiological CODs included in this report.

The overall population and age-group analyses show results both with and without COVID deaths in 2020. It is important to understand that the death rates provided by the CDC and used in this report are provisional estimates. Delays in death reporting may result in data that is more incomplete for the most recent months and the final COD may not be available at the time the provisional estimates are available.[9] Finally, the assignment of COD can be somewhat subjective, resulting in the potential for misclassification[10].

Unless otherwise noted, all mortality rates shown are per 100,000 of population and annual rates over the 12-month period ending as of the date indicated. All mortality rates in this report, except for age-group mortality rates, are age-adjusted rates, as opposed to crude rates, and are based on the 2000 U.S. standard[11] population basis. Section 6 contains details on the methodologies and assumptions underlying the data used in this report.

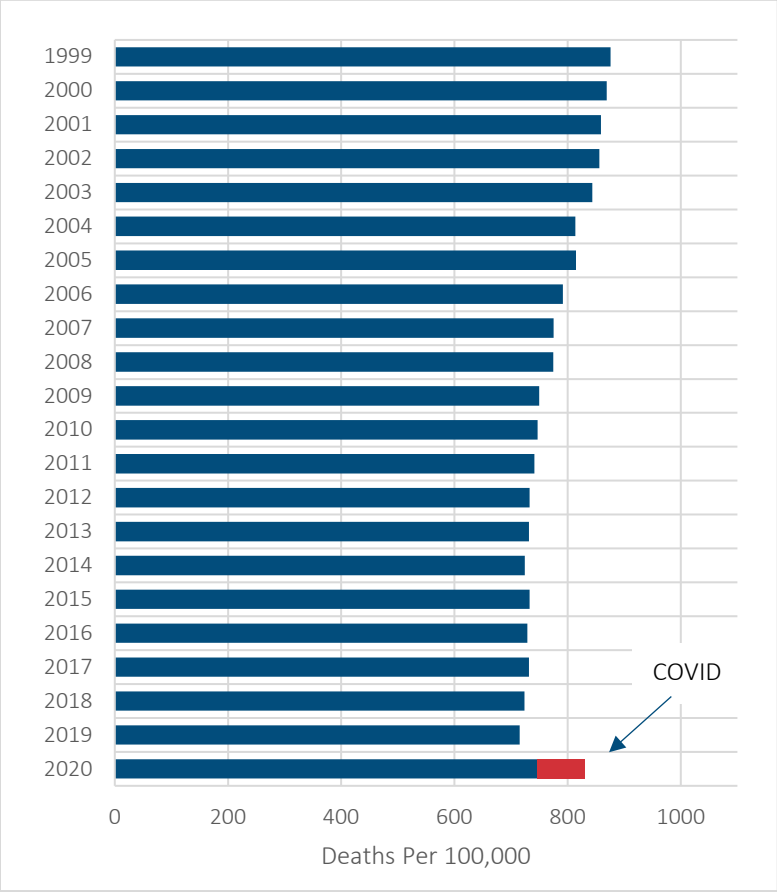
[5] https://www.soa.org/resources/research-reports/2021/us-population-mortality/
[6] Age adjusted mortality rates in the 'U.S. Population Mortality Observations - Updated with 2019 Experience' report may differ from age-adjusted rates in this report because the former uses the "Non-Standard" population of 2010 to determine age-adjusted rates and this report uses the default 2000 standard population.
[7] https://www.cdc.gov/nchs/nvss/vsrr/mortality.htm
[8] https://wonder.cdc.gov/
[9] https://www.cdc.gov/nchs/nvss/vsrr/mortality-technical-notes.htm
[10] https://www.cdc.gov/nchs/nvss/vsrr/covid19/tech_notes.htm
[11] In WONDER, the user may choose the population distribution used for calculating age-adjusted rates. Several "Standard" populations, including the default 2000 standard population, are available. As an alternative, the user can select a "Non-Standard" population, such as 2010, for the population distribution in the age adjustment.

Section 2: 2020 U.S. Population Mortality – Overall Population Analysis

Historical U.S. population mortality rates are shown in Figure 1. The mortality rate for 2020 was 16.1% higher than in 2019 and at a level not seen since 2003. COVID accounted for about 73% of this increase. Without COVID, the U.S. would have seen a 4.4% increase in mortality in 2020.[12] The 2020 increase, either with or without COVID, offset the emerging trend of improving mortality seen in 2018 and 2019.

Figure 1

1999 – 2020 U.S. POPULATION MORTALITY RATES – OVERALL POPULATION



Year	Deaths per 100,000	Change from Prior Year
1999	875.6	n/a
2000	869.0	-0.8%
2001	858.8	-1.2%
2002	855.9	-0.3%
2003	843.5	-1.4%
2004	813.7	-3.5%
2005	815.0	0.2%
2006	791.8	-2.8%
2007	775.3	-2.1%
2008	774.9	-0.1%
2009	749.6	-3.3%
2010	747.0	-0.3%
2011	741.3	-0.8%
2012	732.8	-1.1%
2013	731.9	-0.1%
2014	724.6	-1.0%
2015	733.1	1.2%
2016	728.8	-0.6%
2017	731.9	0.4%
2018	723.6	-1.1%
2019	715.2	-1.2%
2020	**830.5**	**16.1%**
2020 w/o COVID	**746.9**	**4.4%**

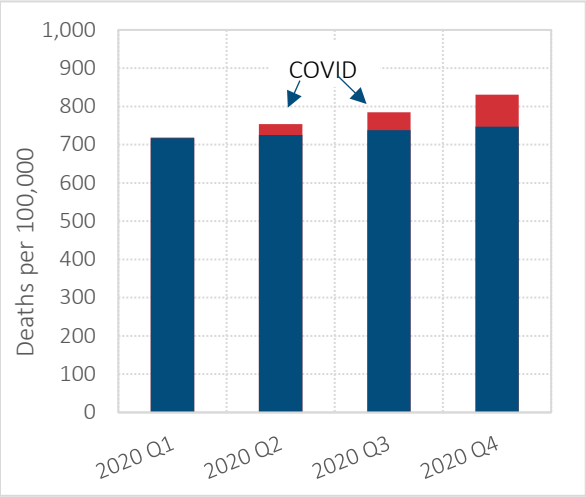
CDC WONDER; CDC Rapid Release.

[12] See Section 5 for caveats related to the classification of CODs in the provisional estimates used in this report.

Figure 2 shows the overall mortality rate for the 12-month period ending in each quarter of 2020. The overall quarter-ending mortality rate, including COVID deaths, increased each quarter with the highest increase of 5.9% in the fourth quarter-ending rate. If COVID deaths were excluded, the second, third, and fourth quarter-ending rates would have increased by about 1-2%, while the first quarter-ending rate was relatively level.

Figure 2

2020 U.S. POPULATION MORTALITY RATES AND CHANGES IN MORTALITY RATES – OVERALL POPULATION



CDC Rapid Release.

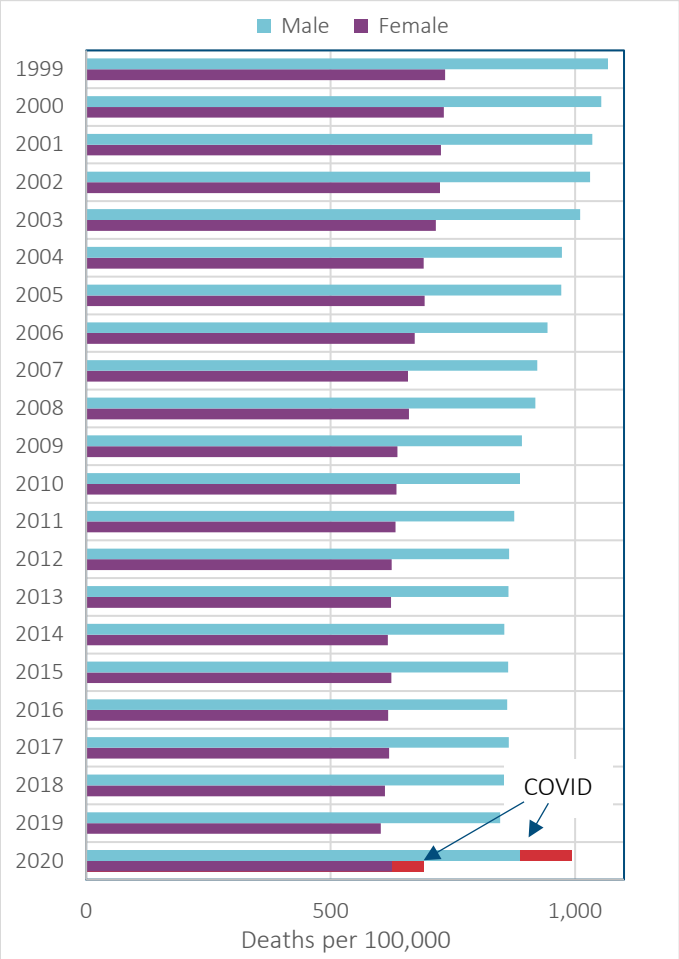
Quarter-Ending	Total		Without COVID	
	Deaths per 100,000	Change from Prior Quarter	Deaths per 100,000	Change from Prior Quarter
Q1	719.0	0.5%	717.3	0.3%
Q2	754.1	4.9%	725.1	1.1%
Q3	784.6	4.0%	738.2	1.8%
Q4	830.5	5.9%	746.9	1.2%

Section 3: 2020 U.S. Population Mortality – Analysis by Sex

Historical U.S. population mortality rates by sex are shown in Figure 3. Female mortality rates were about 70% of male rates between 1999 and 2020. The increase in mortality in 2020 was 17.2% for males and 14.6% for females. COVID accounted for 73-74% of this increase[13]. Excluding COVID deaths, the 2020 mortality rate increases were noteworthy, at 4.7% for males and 3.8% for females. The 2020 male and female mortality rates, excluding COVID, would have been at a level not seen for nine to ten years.

Figure 3

1999 - 2020 U.S. POPULATION MORTALITY RATES BY SEX



CDC WONDER; CDC Rapid Release.

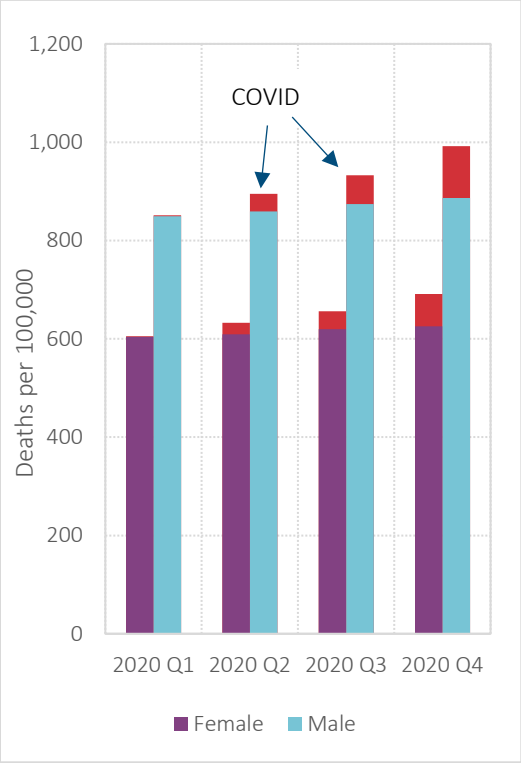
Year	Female		Male	
	Deaths per 100,000	Change from Prior Year	Deaths per 100,000	Change from Prior Year
1999	734.0	n/a	1,067.0	n/a
2000	731.4	-0.4%	1,053.8	-1.2%
2001	725.6	-0.8%	1,035.4	-1.7%
2002	723.6	-0.3%	1,030.6	-0.5%
2003	715.2	-1.2%	1,010.3	-2.0%
2004	690.5	-3.5%	973.3	-3.7%
2005	692.3	0.3%	971.9	-0.1%
2006	672.2	-2.9%	943.5	-2.9%
2007	658.1	-2.1%	922.9	-2.2%
2008	659.9	0.3%	918.8	-0.4%
2009	636.8	-3.5%	890.9	-3.0%
2010	634.9	-0.3%	887.1	-0.4%
2011	632.4	-0.4%	875.3	-1.3%
2012	624.7	-1.2%	865.1	-1.2%
2013	623.5	-0.2%	863.6	-0.2%
2014	616.7	-1.1%	855.1	-1.0%
2015	624.2	1.2%	863.2	0.9%
2016	617.5	-1.1%	861.0	-0.3%
2017	619.7	0.4%	864.5	0.4%
2018	611.3	-1.4%	855.5	-1.0%
2019	602.7	-1.4%	846.7	-1.0%
2020	**690.9**	**14.6%**	**992.2**	**17.2%**
2020 w/o COVID	**625.4**	**3.8%**	**886.3**	**4.7%**

[13] See Section 5 for caveats related to the classifications of COD in the provisional estimates used in this report.

Figure 4 shows the male and female mortality rates for the 12-month period ending in each quarter of 2020. For both males and females, the quarter-ending mortality rate increased each quarter, with each male increase exceeding its corresponding female increase. The fourth quarter-ending rates had the greatest increases of 5.3% for females and 6.4% for males. If COVID deaths were excluded, similar to the overall results in Section 2, the second, third, and fourth quarter-ending rates would have increased by about 1-2%.

Figure 4

2020 U.S. POPULATION MORTALITY RATES AND CHANGES IN MORTALITY BY SEX



Sex	Quarter-Ending	All CODs		Without COVID	
		Deaths per 100,000	Change from Prior Quarter	Deaths per 100,000	Change from Prior Quarter
Female	Q1	605.4	0.4%	604.3	0.3%
	Q2	632.5	4.5%	609.5	0.9%
	Q3	656.3	3.8%	619.7	1.7%
	Q4	690.9	5.3%	625.4	0.9%
Male	Q1	851.5	0.6%	849.2	0.3%
	Q2	895.0	5.1%	858.9	1.1%
	Q3	932.5	4.2%	874.3	1.8%
	Q4	992.2	6.4%	886.3	1.4%

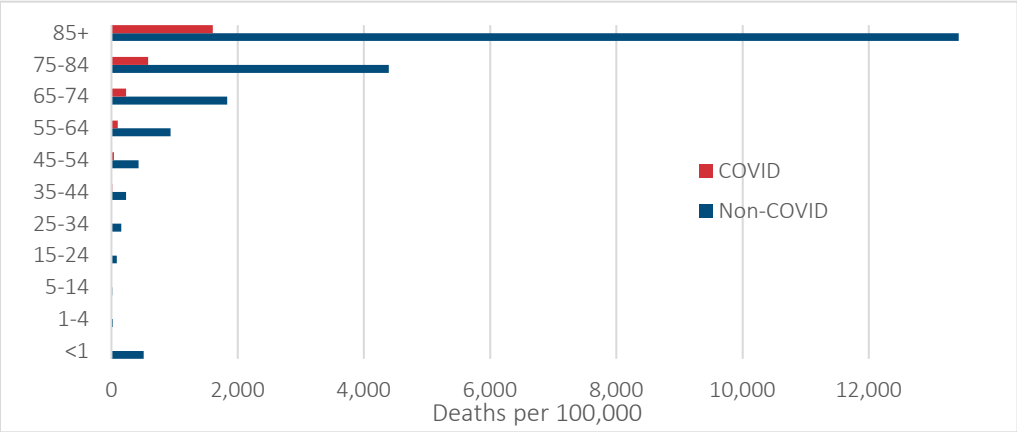
CDC Rapid Release.

Section 4: 2020 U.S. Population Mortality – Age Group Analysis

Figure 5 contains the 2020 mortality rates for COVID and non-COVID deaths and shows how the COVID mortality rate curve was not as steep as the non-COVID curve.

Figure 5

2020 U.S. POPULATION MORTALITY RATES BY AGE GROUP



CDC Rapid Release.

The increase of the 2020 mortality rate over 2019 by age group is shown in Table 1. It is interesting to note how the younger adult age groups had the highest percentage increases. Including all CODs, ages 25-44 had the highest increases at around 23-24%. Excluding COVID deaths, the highest increases ranged between 17% and 19% for ages 15-44. Non-COVID CODs were the main drivers of mortality increases in ages under 44. COVID was the main driver influence of increased mortality for ages above 55. Children ages 5-14 saw small increases in mortality in 2020 and the mortality for ages under five showed large improvements, ranging from 3.4% to 7.3%.

The overall 16.1% increase in mortality in 2020 and the 4.4% increase excluding COVID deaths can be broken down and attributed by age group as shown in the two far right columns in Table 1. It is interesting to note that, excluding COVID, the attribution by age is flatter than the attribution including COVID. This supports the relatively large influence of non-COVID CODs on younger ages in 2020.

Table 1

2020 U.S. POPULATION MORTALITY RATES AND CHANGES IN MORTALITY RATES BY AGE GROUP

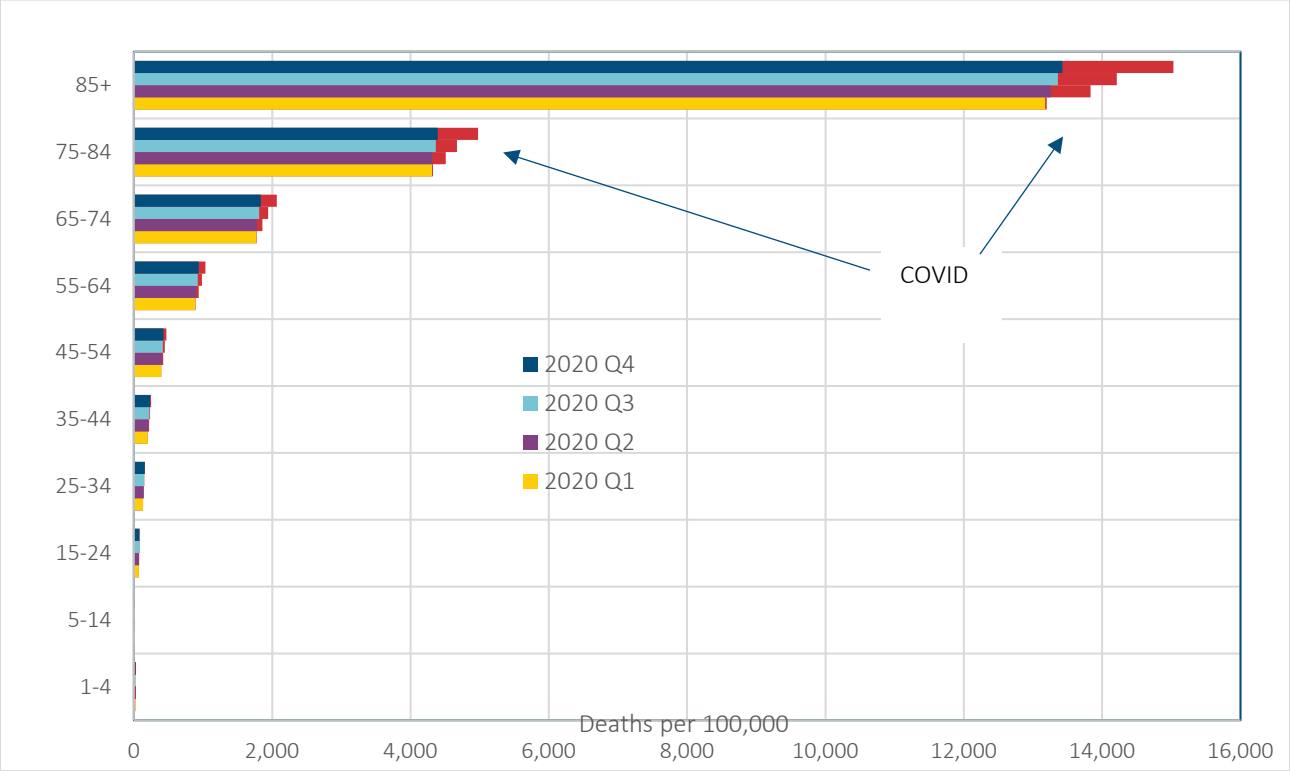
Age Group	2020 Deaths per 100,000		Change from Prior Year		Attribution of Change	
	All CODs	Excl COVID	All CODs	Excl COVID	All CODs	Excl COVID
<1	514.5	512.8	-7.0%	-7.3%	-0.1%	-0.1%
1-4	22.5	22.4	-3.4%	-3.9%	0.0%	0.0%
5-14	13.7	13.6	2.2%	1.5%	0.0%	0.0%
15-24	83.9	82.7	20.4%	18.7%	0.3%	0.3%
25-34	159.1	154.2	23.5%	19.7%	0.6%	0.5%
35-44	247.2	232.8	24.1%	16.9%	1.1%	0.8%
45-54	472.2	430.7	20.3%	9.8%	1.5%	0.7%
55-64	1,036.3	938.1	17.3%	6.2%	1.9%	0.7%
65-74	2,066.1	1,834.9	17.1%	4.0%	2.8%	0.6%
74-84	4,976.0	4,395.2	15.5%	2.0%	4.2%	0.5%
85+	15,030.6	13,424.4	13.6%	1.5%	3.9%	0.4%
Total	**830.5**	**746.9**	**16.1%**	**4.4%**	**16.1%**	**4.4%**

CDC WONDER.

Figure 6 shows the relative magnitude of the 12-month mortality rates ending in each quarter of 2020, both with and without COVID, by age group. This graph also shows how the absolute level rates increased each quarter in 2020.

Figure 6

2020 U.S. POPULATION MORTALITY RATES BY AGE GROUP



CDC Rapid Release.

Table 2 shows the 12-month mortality rates ending in each quarter of 2020 from Figure 6 and the percentage change in those mortality rates from quarter to quarter. Mortality rates and their changes for all CODs and for all CODs excluding COVID are provided.

For all CODs, mortality rates increased in 2020 for almost all age groups in all quarters. Ages 1-4 were the only age group with improving mortality in most quarters. For ages 5-14, quarters three and four saw small increases. The second and third quarters were the worst for younger adult ages, while the fourth quarter was the worst for the older ages. The second and third quarters saw the largest increases of around 6.5-7.5% in the middle age groups, between ages 25-44 for all CODS, and ages 15-44 had the largest increases of about 5.0-6.5% for all CODs excluding COVID. For ages 55+, the fourth quarter had the largest increases, above 5.5% for all CODs. Ages 65+ had relatively small increases in fourth quarter mortality if COVID deaths were excluded.

Table 2

2020 U.S. POPULATION MORTALITY RATES AND CHANGES IN MORTALITY RATES BY AGE GROUP

Ages	Quarter-Ending	Total		Without COVID		Ages	Quarter-Ending	Total		Without COVID	
		Deaths per 100,000	Change from Prior Quarter	Deaths per 100,000	Change from Prior Quarter			Deaths per 100,000	Change from Prior Quarter	Deaths per 100,000	Change from Prior Quarter
1-4	Q1	23.8	2.1%	23.8	2.1%	45-54	Q1	396.4	1.0%	395.2	0.7%
	Q2	23.1	-2.9%	23.0	-3.4%		Q2	422.2	6.5%	407.0	3.0%
	Q3	22.9	-0.9%	22.8	-0.9%		Q3	447.0	5.9%	421.1	3.5%
	Q4	22.5	-1.7%	22.4	-1.8%		Q4	472.2	5.6%	430.7	2.3%
5-14	Q1	13.4	0.0%	13.4	0.0%	55-64	Q1	891.5	0.9%	889.2	0.7%
	Q2	13.4	0.0%	13.4	0.0%		Q2	936.6	5.1%	901.9	1.4%
	Q3	13.6	1.5%	13.5	0.7%		Q3	982.2	4.9%	923.6	2.4%
	Q4	13.7	0.7%	13.6	0.7%		Q4	1,036.3	5.5%	938.1	1.6%
15-24	Q1	71.6	2.7%	71.6	2.7%	65-74	Q1	1,776.4	0.7%	1,771.6	0.4%
	Q2	75.5	5.4%	75.1	4.9%		Q2	1,859.3	4.7%	1,780.6	0.5%
	Q3	80.8	7.0%	80.0	6.5%		Q3	1,941.5	4.4%	1,811.3	1.7%
	Q4	83.9	3.8%	82.7	3.4%		Q4	2,066.1	6.4%	1,834.9	1.3%
25-34	Q1	132.7	3.0%	132.5	2.9%	75-84	Q1	4,322.6	0.3%	4,311.6	0.1%
	Q2	142.5	7.4%	140.6	6.1%		Q2	4,508.2	4.3%	4,314.9	0.1%
	Q3	151.8	6.5%	148.5	5.6%		Q3	4,673.0	3.7%	4,364.0	1.1%
	Q4	159.1	4.8%	154.2	3.8%		Q4	4,976.0	6.5%	4,395.2	0.7%
35-44	Q1	204.0	2.4%	203.5	2.2%	85+	Q1	13,198.3	-0.2%	13,174.0	-0.4%
	Q2	218.8	7.3%	213.5	4.9%		Q2	13,830.7	4.8%	13,256.9	0.6%
	Q3	234.2	7.0%	224.8	5.3%		Q3	14,213.5	2.8%	13,361.6	0.8%
	Q4	247.2	5.6%	232.8	3.6%		Q4	15,030.6	5.7%	13,424.4	0.5%

CDC Rapid Release.

Section 5: 2020 U.S. Population Mortality – Cause of Death Analysis

5.1 CHANGES IN 2020 U.S. POPULATION MORTALITY RATES – BY CAUSE OF DEATH

Table 3 shows the changes in mortality from 2019 to 2020 by COD and how the overall 16.1% increase in mortality in 2020 can be broken down and attributed by COD. COVID was, by far, the largest component of the overall 2020 increase in mortality, contributing 73% of the 16.1% increase. Taking the difference between 16.1% and 11.7% equals 4.4%, or the increase in 2020 mortality excluding COVID, also shown in Sections 1 and 2.

Heart disease increased by 3.4% in 2020. This was only the second time that heart disease mortality increased since 1999. Cancer rates improved by 1.7% in 2020. Mortality rates for diabetes, liver, hypertension and Parkinson's all increased by more than 11% in 2020. The 'Other' COD includes accidents, drug overdoses, suicides, and assaults and could not be broken down because fourth quarter 2020 data is not yet available for accidents, drug overdoses, suicides, and assaults. However, as covered in Section 5.3, accidents, drug overdoses, and assaults saw large increases in the first two or three quarters of 2020.

Table 3

CHANGES IN 2020 U.S. POPULATION MORTALITY RATES AND ATTRIBUTION OF OVERALL CHANGE BY CAUSE OF DEATH

Cause of Death	2019 Age-Adjusted Mortality Rate	2020 Age-Adjusted Mortality Rate	2019 to 2020 Change in Mortality	Attribution to Cause of Death
Heart	161.5	167.0	3.4%	0.8%
Cancer	146.2	143.7	-1.7%	-0.3%
COVID	0.0	83.6	∞	11.7%
Stroke	37.0	38.6	4.3%	0.2%
Pulmonary	38.2	36.2	-5.2%	-0.3%
Alzheimer's	29.8	32.2	8.1%	0.3%
Diabetes	21.6	24.6	13.9%	0.4%
Liver	11.3	13.2	16.8%	0.3%
Influenza/ pneumonia	12.3	13.0	5.7%	0.1%
Kidney	12.7	12.7	0.0%	0.0%
Hypertension	8.9	10.0	12.4%	0.2%
Parkinson's	8.8	9.8	11.4%	0.1%
Septicemia	9.5	9.7	2.1%	0.0%
Pneumonitis	4.7	4.4	-6.4%	0.0%
HIV	1.4	1.4	0.0%	0.0%
Other	372.8	397.4	6.6%	3.4%
Total	**715.2**	**830.5**	**16.1%**	**16.1%**

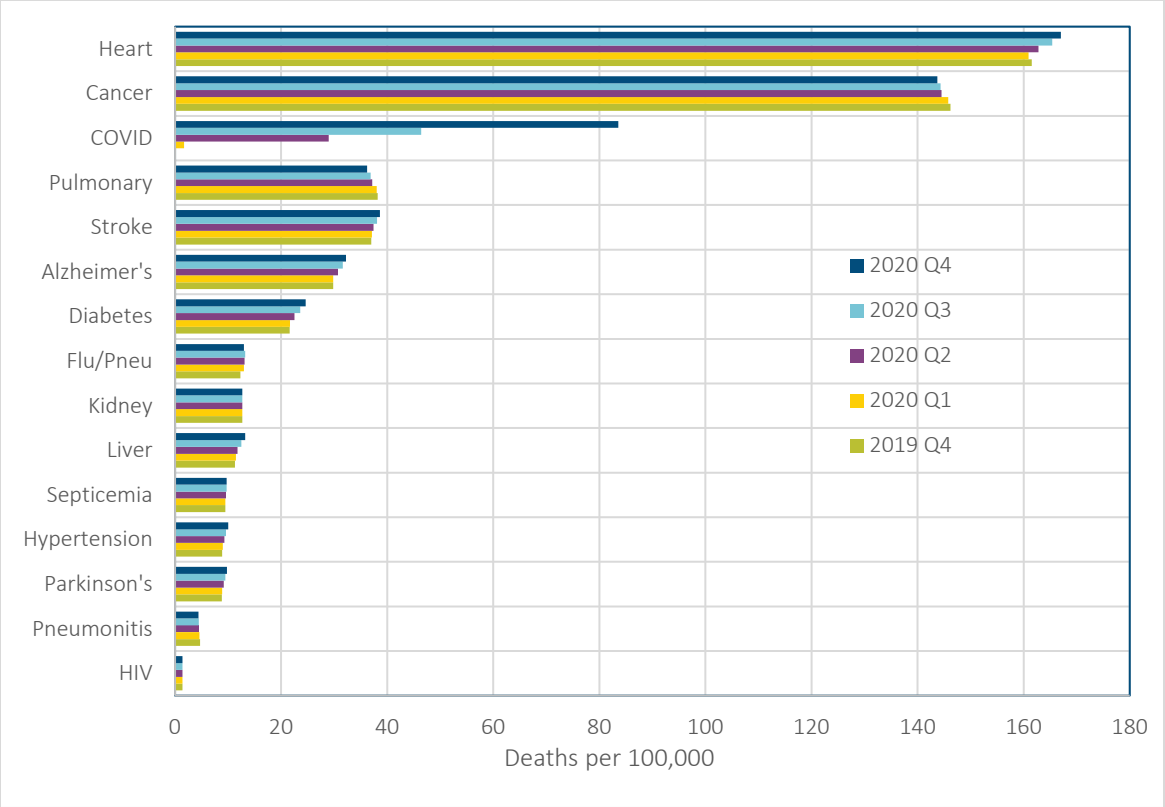
CDC WONDER; CDC Rapid Release.

5.2 2020 U.S. POPULATION MORTALITY RATES – PHYSIOLOGICAL CAUSES OF DEATH

The 12-month mortality rates ending in each of the four quarters of 2020 for 15 physiological CODs are shown in Figure 7 and provide context around the relative size of these 15 physiological CODs. The values in Figure 7 and the percentage changes in mortality from quarter to quarter are shown in Table 5.

Figure 7

2020 U.S. POPULATION MORTALITY RATES BY CAUSE OF DEATH – PHYSIOLOGICAL



CDC Rapid Release.

Physiological or natural CODs include the largest CODs for older ages. Across all age groups, heart disease and cancer continued to dominate in each quarter of 2020, about 4-5 times the rate of the next largest COD, excluding COVID. COVID took over as the number three killer in the third quarter of 2020, being about one-quarter the size of heart disease in the third quarter and one-half the size of heart disease in the fourth quarter. Pulmonary, stroke, Alzheimer's and diabetes continued to be the next largest CODs in 2020. Additional analysis of the changes in the top eight physiological CODs are included in Sections 5.4-5.10 and 5.13.

These 15 physiological CODs represented about 72% of all deaths in the U.S. in 2019 and the second, third and fourth quarter-ending rates increased by about 4.5-7.5% as shown in Table 4. Excluding COVID, their aggregate increases ranged between 0.6% and 1.2% in the final three quarters of 2020.

Table 4

2020 U.S. POPULATION MORTALITY RATES AND CHANGES IN MORTALITY RATES BY CAUSE OF DEATH - PHYSIOLOGICAL

Cause of Death	Quarter - Ending	Deaths per 100,000	Change from Prior Quarter	Cause of Death	Quarter - Ending	Deaths per 100,000	Change from Prior Quarter
Heart	Q1	160.9	-0.4%	Kidney	Q1	12.7	0.0%
	Q2	162.8	1.2%		Q2	12.7	0.0%
	Q3	165.4	1.6%		Q3	12.7	0.0%
	Q4	167.0	1.0%		Q4	12.7	0.0%
Cancer	Q1	145.8	-0.3%	Liver	Q1	11.5	1.8%
	Q2	144.5	-0.9%		Q2	11.8	2.6%
	Q3	144.3	-0.1%		Q3	12.5	5.9%
	Q4	143.7	-0.4%		Q4	13.2	5.6%
COVID	Q1	1.7	n/a	Septicemia	Q1	9.5	0.0%
	Q2	29.0	1605.9%		Q2	9.6	1.1%
	Q3	46.4	60.0%		Q3	9.7	1.0%
	Q4	83.6	80.2%		Q4	9.7	0.0%
Pulmonary	Q1	38.0	-0.5%	Hypertension	Q1	9.0	1.1%
	Q2	37.2	-2.1%		Q2	9.3	3.3%
	Q3	36.9	-0.8%		Q3	9.6	3.2%
	Q4	36.2	-1.9%		Q4	10.0	4.2%
Stroke	Q1	37.1	0.3%	Parkinson's	Q1	8.9	1.1%
	Q2	37.4	0.8%		Q2	9.2	3.4%
	Q3	38.1	1.9%		Q3	9.5	3.3%
	Q4	38.6	1.3%		Q4	9.8	3.2%
Alzheimer's	Q1	29.8	0.0%	Pneumonitis	Q1	4.6	-2.1%
	Q2	30.7	3.0%		Q2	4.5	-2.2%
	Q3	31.6	2.9%		Q3	4.5	0.0%
	Q4	32.2	1.9%		Q4	4.4	-2.2%
Diabetes	Q1	21.7	0.5%	HIV	Q1	1.4	0.0%
	Q2	22.5	3.7%		Q2	1.4	0.0%
	Q3	23.6	4.9%		Q3	1.4	0.0%
	Q4	24.6	4.2%		Q4	1.4	0.0%
Influenza/ pneumonia	Q1	13.0	5.7%	**Total**	Q1	505.6	0.3%
	Q2	13.1	0.8%		Q2	535.7	6.0%
	Q3	13.2	0.8%		Q3	559.4	4.4%
	Q4	13.0	-1.5%		Q4	600.1	7.3%

CDC Rapid Release.

5.3 2020 U.S. POPULATION MORTALITY RATES – EXTERNAL CAUSES OF DEATH

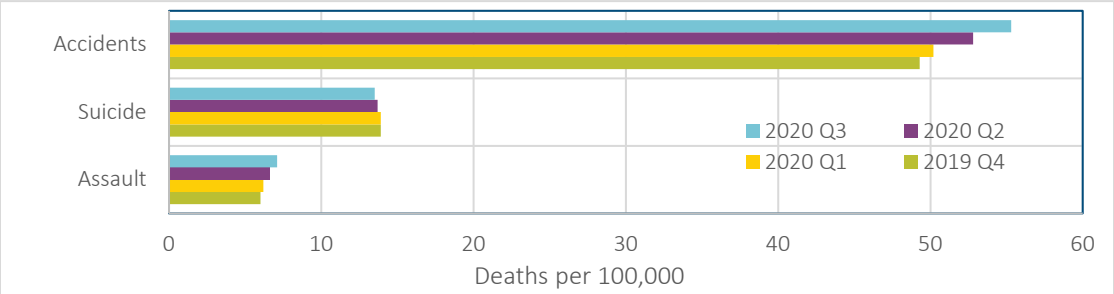
The 12-month mortality rates ending in each of the first three quarters of 2020 for the three external CODs (accidents, suicides and assault) were available from the CDC and are shown in Figure 8. External CODs, especially accidental deaths, tend to be the largest CODs for younger ages. The values in Figure 8, and the percentage changes in these mortality rates from quarter to quarter, are shown in Table 5. Data for only the first three quarters of 2020 were available for these CODs at the time of publication of this report.

Accidental deaths is a broad category that includes motor vehicle accidents (MVA). Accidental deaths also intersect partially with drug overdose deaths. MVA detail is not included in this report because data on MVAs are not yet available from the CDC.[14] Drug overdose deaths have not been included in Figure 8 and Table 5 because data were only available through the second quarter of 2020 from the CDC; however, the 12-month mortality rates ending in the first and second quarter of 2020 were up 5.1% and 10.6%, respectively, over the 12-month mortality rates ending in the prior quarter. An assessment of the detailed changes in external CODs will be possible when final 2020 COD data become available in late 2021 or early 2022.

Accidents, suicides and assault deaths represented about 8.4% of all deaths in the U.S. in 2019 and, in total, the second and third quarter-ending rates increased 4.0% and 3.8%, respectively. These increases compared to the '15 physiological CODs excluding COVID' increases of 0.6% and 1.2% in the second and third quarter-ending rates, respectively.

Figure 8

2020 U.S. POPULATION MORTALITY RATES BY CAUSE OF DEATH – EXTERNAL



CDC Rapid Release.

Table 5

2020 U.S. POPULATION MORTALITY RATES AND CHANGES IN MORTALITY RATES BY CAUSE OF DEATH – EXTERNAL

Cause of Death	Quarter -Ending	Deaths per 100,000	Change from Prior Quarter	Cause of Death	Quarter - Ending	Deaths per 100,000	Change from Prior Quarter
Accidents	Q1	50.2	1.8%	Assault	Q1	6.2	3.3%
	Q2	52.8	5.2%		Q2	6.6	6.5%
	Q3	55.3	4.7%		Q3	7.1	7.6%
Suicide	Q1	13.9	0.0%	Total	Q1	70.3	1.6%
	Q2	13.7	-1.4%		Q2	73.1	4.0%
	Q3	13.5	-1.5%		Q3	75.9	3.8%

CDC Rapid Release.

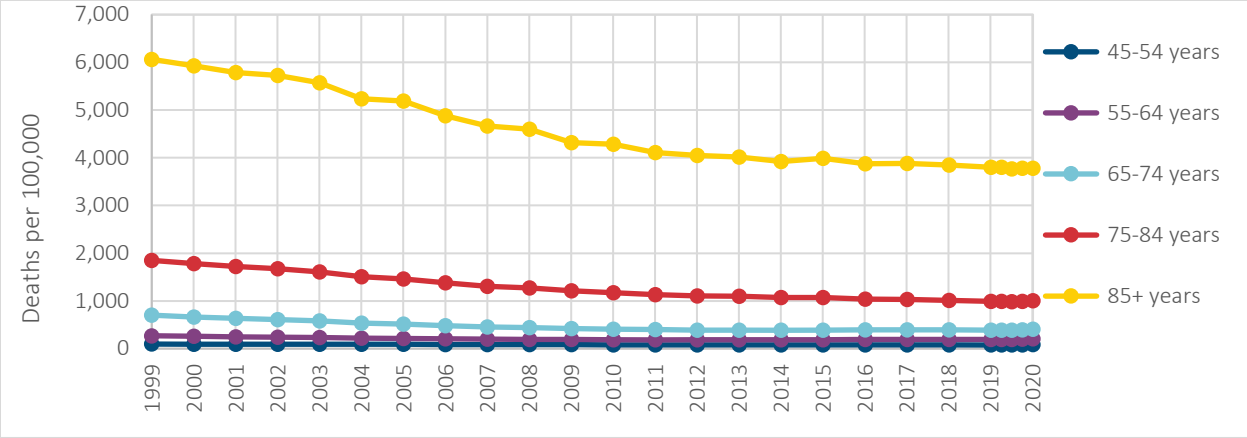
[14] The National Safety Council is estimating an 8% increase in motor vehicle deaths in 2020. https://injuryfacts.nsc.org/motor-vehicle/overview/preliminary-estimates/

5.4 MORTALITY RATES AND CHANGES IN MORTALITY RATES BY AGE GROUP - HEART

The 12-month heart disease mortality rate ending in each quarter of 2020 remained relatively level as shown in Figure 9.

Figure 9

1999-2020 U.S. POPULATION MORTALITY RATES - HEART DISEASE

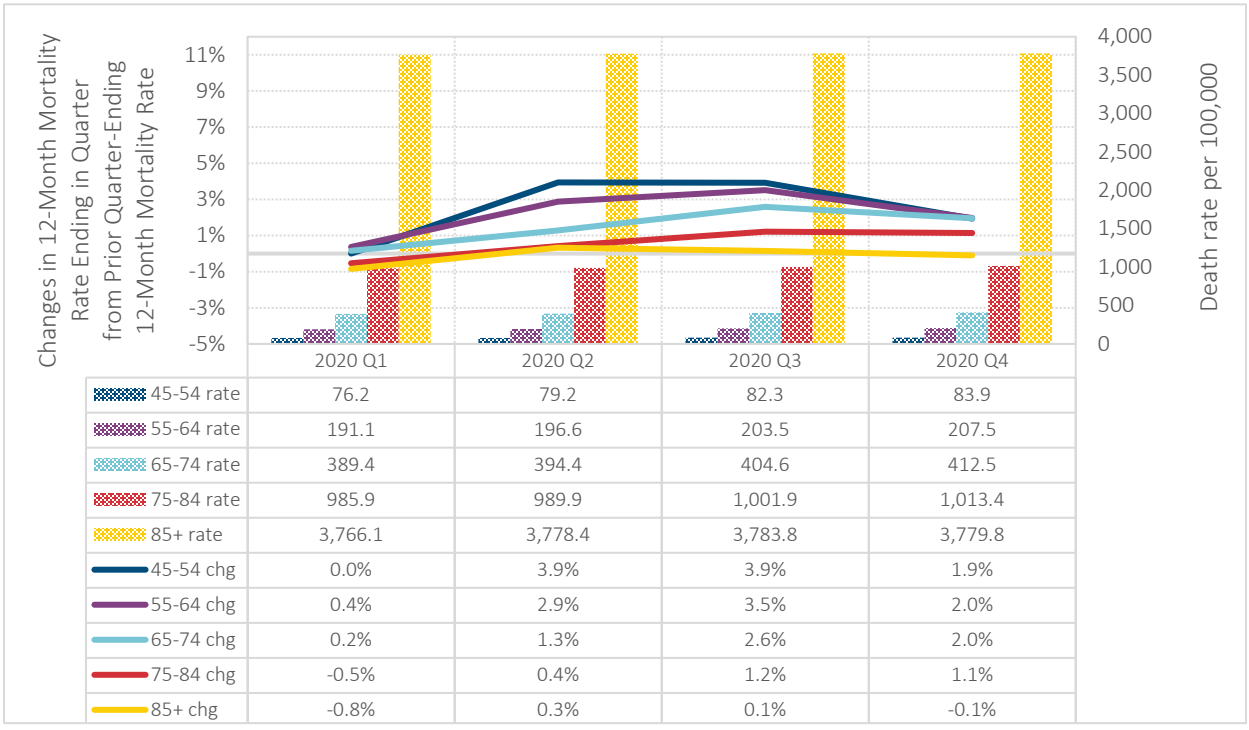


CDC WONDER; CDC Rapid Release.

Details of the 12-month heart disease mortality rates ending in each quarter of 2020 for selected age groups are shown in Figure 10. For ages 45+, second, third and fourth quarter-ending mortality rates increased, with the largest increase of 3.9% for ages 45-54. These 2020 increases raised the 12-month mortality rates for the 45-74 age groups to levels not seen since 2010 or prior. The oldest age group, 85+, was the only one to see any net improvement in rate levels in 2020.

Figure 10

2020 U.S. POPULATION CHANGES IN MORTALITY AND MORTALITY RATES BY AGE - HEART DISEASE



	2020 Q1	2020 Q2	2020 Q3	2020 Q4
45-54 rate	76.2	79.2	82.3	83.9
55-64 rate	191.1	196.6	203.5	207.5
65-74 rate	389.4	394.4	404.6	412.5
75-84 rate	985.9	989.9	1,001.9	1,013.4
85+ rate	3,766.1	3,778.4	3,783.8	3,779.8
45-54 chg	0.0%	3.9%	3.9%	1.9%
55-64 chg	0.4%	2.9%	3.5%	2.0%
65-74 chg	0.2%	1.3%	2.6%	2.0%
75-84 chg	-0.5%	0.4%	1.2%	1.1%
85+ chg	-0.8%	0.3%	0.1%	-0.1%

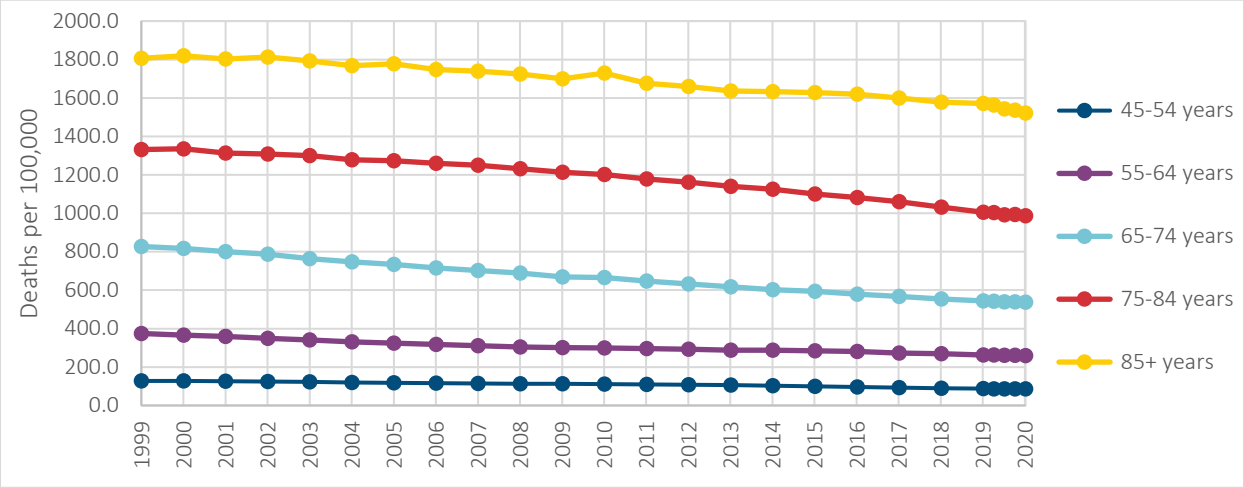
CDC Rapid Release.

5.5 MORTALITY RATES AND CHANGES IN MORTALITY RATES BY AGE GROUP – CANCER

Figure 11 shows that cancer mortality continued a long-term decreasing trend in 2020.

Figure 11

1999-2020 U.S. POPULATION MORTALITY RATES – CANCER

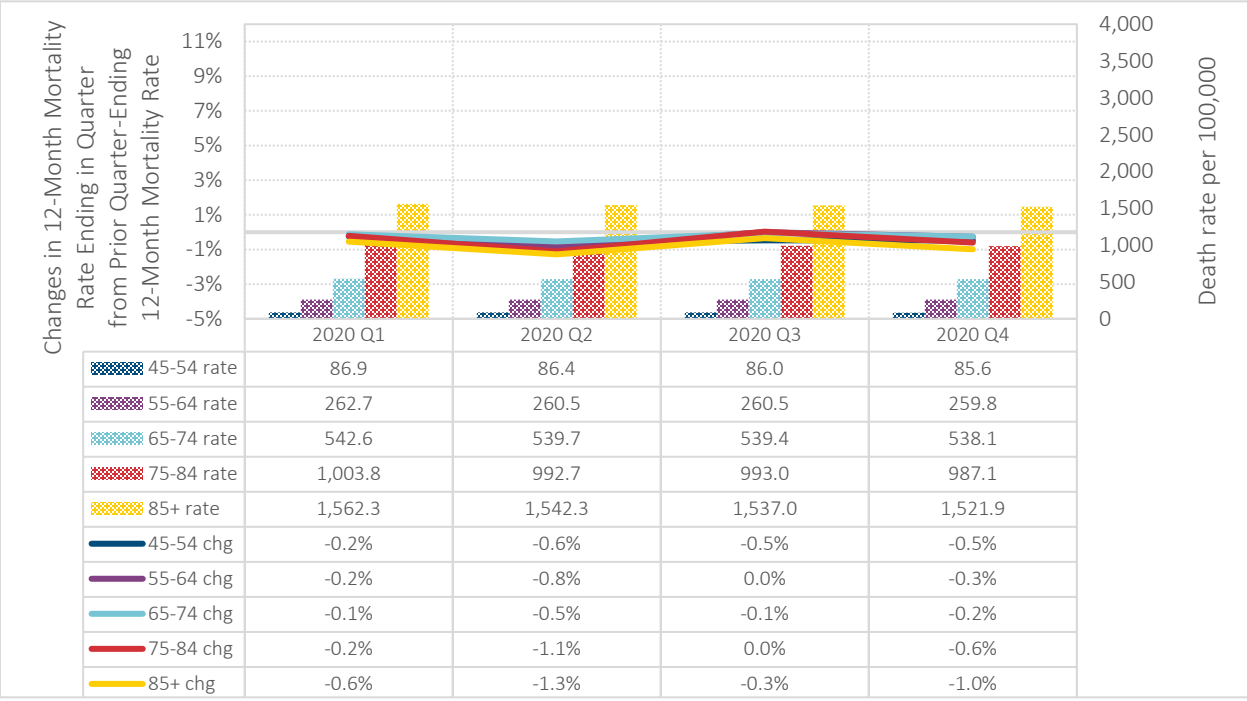


CDC WONDER; CDC Rapid Release.

Details of the 12-month cancer mortality rates ending in each quarter of 2020 for selected age groups are shown in Figure 12. Most age group/quarter-ending rates saw improvement and those age group/quarter-ending rates without improvement remained flat. The second quarter of 2020 had the largest improvement across all age groups shown, followed by the fourth quarter.

Figure 12

2020 U.S. POPULATION CHANGES IN MORTALITY AND MORTALITY RATES BY AGE – CANCER



	2020 Q1	2020 Q2	2020 Q3	2020 Q4
45-54 rate	86.9	86.4	86.0	85.6
55-64 rate	262.7	260.5	260.5	259.8
65-74 rate	542.6	539.7	539.4	538.1
75-84 rate	1,003.8	992.7	993.0	987.1
85+ rate	1,562.3	1,542.3	1,537.0	1,521.9
45-54 chg	-0.2%	-0.6%	-0.5%	-0.5%
55-64 chg	-0.2%	-0.8%	0.0%	-0.3%
65-74 chg	-0.1%	-0.5%	-0.1%	-0.2%
75-84 chg	-0.2%	-1.1%	0.0%	-0.6%
85+ chg	-0.6%	-1.3%	-0.3%	-1.0%

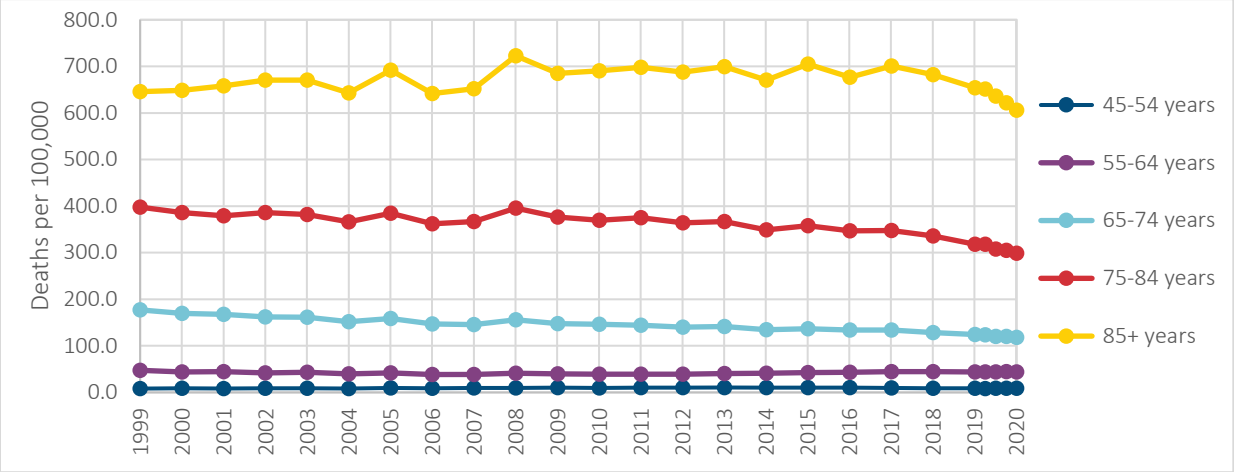
CDC Rapid Release.

5.6 MORTALITY RATES AND CHANGES IN MORTALITY RATES BY AGE GROUP – PULMONARY

Ages 65+ saw a net improvement in the 12-month pulmonary (chronic lower respiratory disease) mortality rates ending in each quarter of 2020. These improvements appear to be continuing a downward trend, which began around 2016-2017, as shown in Figure 13.

Figure 13

1999-2020 U.S. POPULATION MORTALITY RATES – PULMONARY

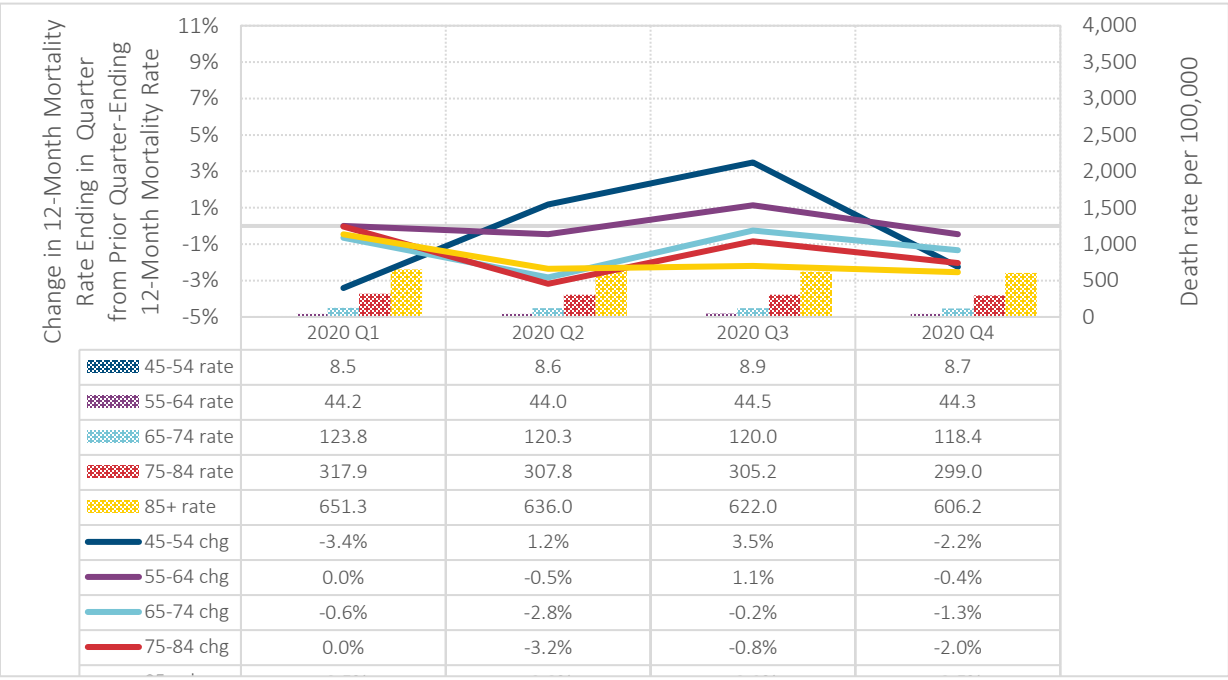


CDC WONDER; CDC Rapid Release.

Details of the 12-month pulmonary mortality rates ending in each quarter of 2020 for selected age groups are shown in Figure 14. There was improvement across all age groups in the rates ending in the first and fourth quarters. The second and third quarter-ending rates increased for ages 45-54 and decreased for ages 65+.

Figure 14

2020 U.S. POPULATION CHANGES IN MORTALITY AND MORTALITY RATES BY AGE – PULMONARY



	2020 Q1	2020 Q2	2020 Q3	2020 Q4
45-54 rate	8.5	8.6	8.9	8.7
55-64 rate	44.2	44.0	44.5	44.3
65-74 rate	123.8	120.3	120.0	118.4
75-84 rate	317.9	307.8	305.2	299.0
85+ rate	651.3	636.0	622.0	606.2
45-54 chg	-3.4%	1.2%	3.5%	-2.2%
55-64 chg	0.0%	-0.5%	1.1%	-0.4%
65-74 chg	-0.6%	-2.8%	-0.2%	-1.3%
75-84 chg	0.0%	-3.2%	-0.8%	-2.0%

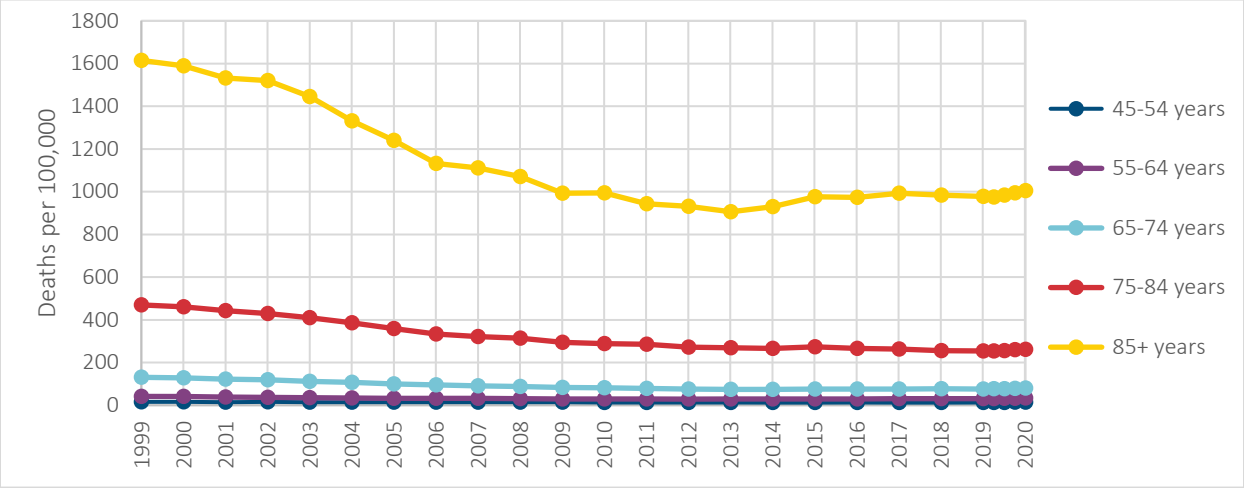
CDC Rapid Release.

5.7 MORTALITY RATES AND CHANGES IN MORTALITY RATES BY AGE GROUP – STROKE

Figure 15 shows how mortality from stroke remained relatively level in the recent years and in 2020 for ages 75 and below. It also shows an increasing pattern in 2020 for ages above 85.

Figure 15

1999-2020 U.S. POPULATION MORTALITY RATES – STROKE

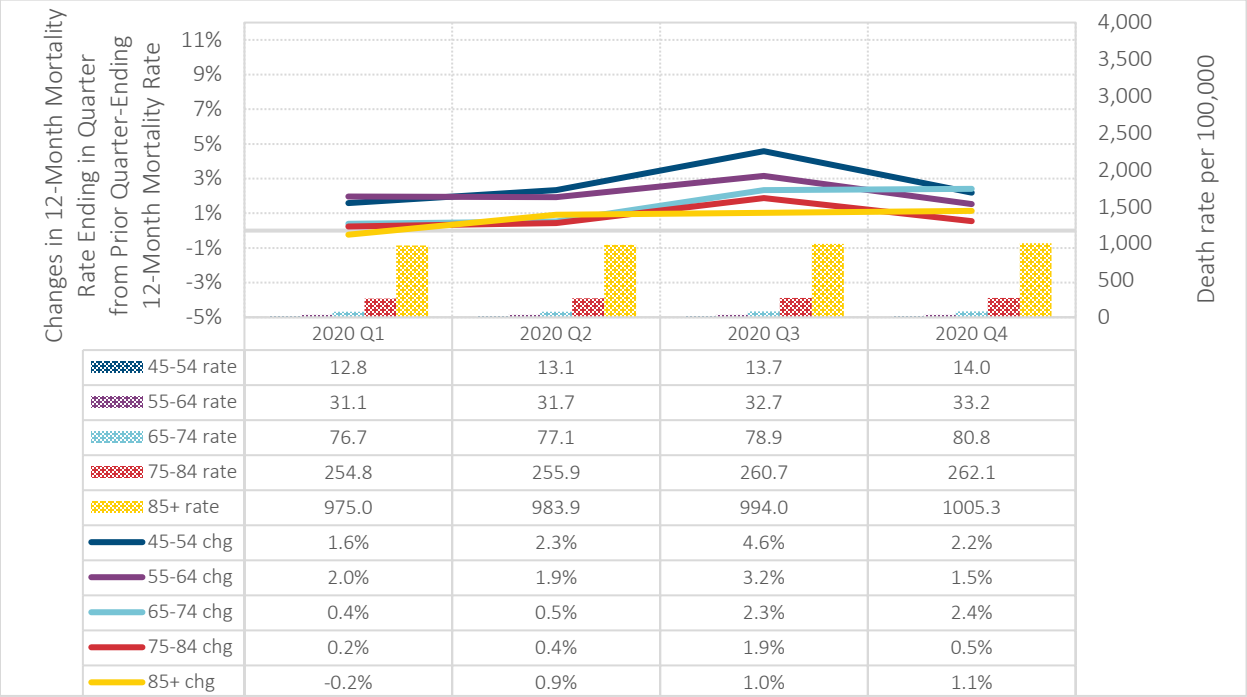


CDC WONDER; CDC Rapid Release.

Details of the 12-month stroke mortality rates ending in each quarter of 2020 for selected age groups are shown in Figure 16. Aside from a small decrease in the first quarter of 2020 for ages 85+, all other age group/quarter-ending rates increased. For ages below 65, the third quarter-ending rates were the highest.

Figure 16

2020 U.S. POPULATION CHANGES IN MORTALITY AND MORTALITY RATES BY AGE – STROKE



	2020 Q1	2020 Q2	2020 Q3	2020 Q4
45-54 rate	12.8	13.1	13.7	14.0
55-64 rate	31.1	31.7	32.7	33.2
65-74 rate	76.7	77.1	78.9	80.8
75-84 rate	254.8	255.9	260.7	262.1
85+ rate	975.0	983.9	994.0	1005.3
45-54 chg	1.6%	2.3%	4.6%	2.2%
55-64 chg	2.0%	1.9%	3.2%	1.5%
65-74 chg	0.4%	0.5%	2.3%	2.4%
75-84 chg	0.2%	0.4%	1.9%	0.5%
85+ chg	-0.2%	0.9%	1.0%	1.1%

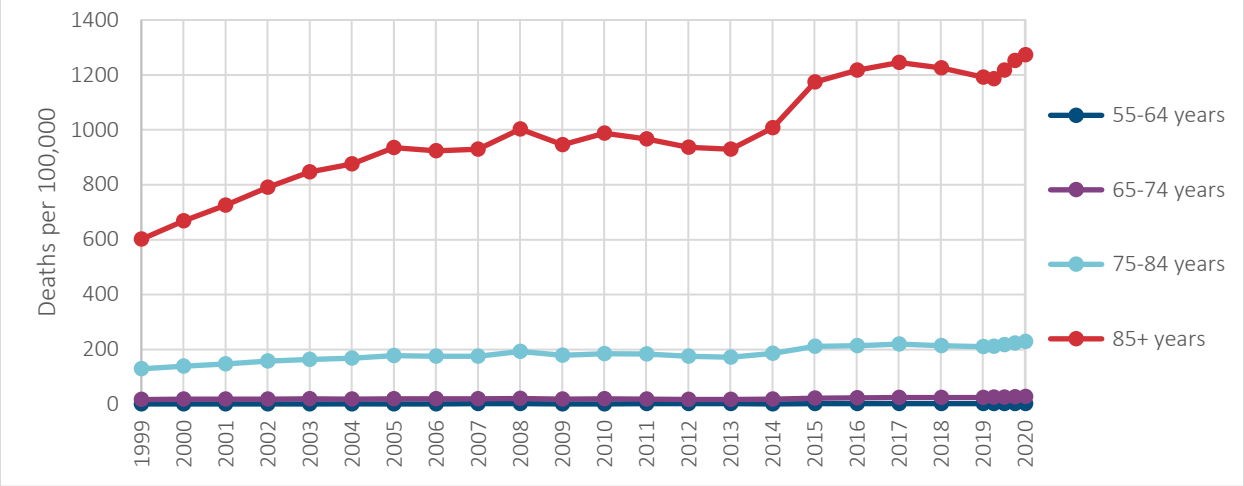
CDC Rapid Release.

5.8 MORTALITY RATES AND CHANGES IN MORTALITY RATES BY AGE GROUP – ALZHEIMER'S

Figure 17 shows the relative magnitude of historical mortality from Alzheimer's by age group and how the ages 85+ rate has more than doubled since 1999. Some of the early increases here may have been due to the increased attribution of deaths to Alzheimer's away from other CODs.

Figure 17

1999-2020 U.S. POPULATION MORTALITY RATES – ALZHEIMER'S

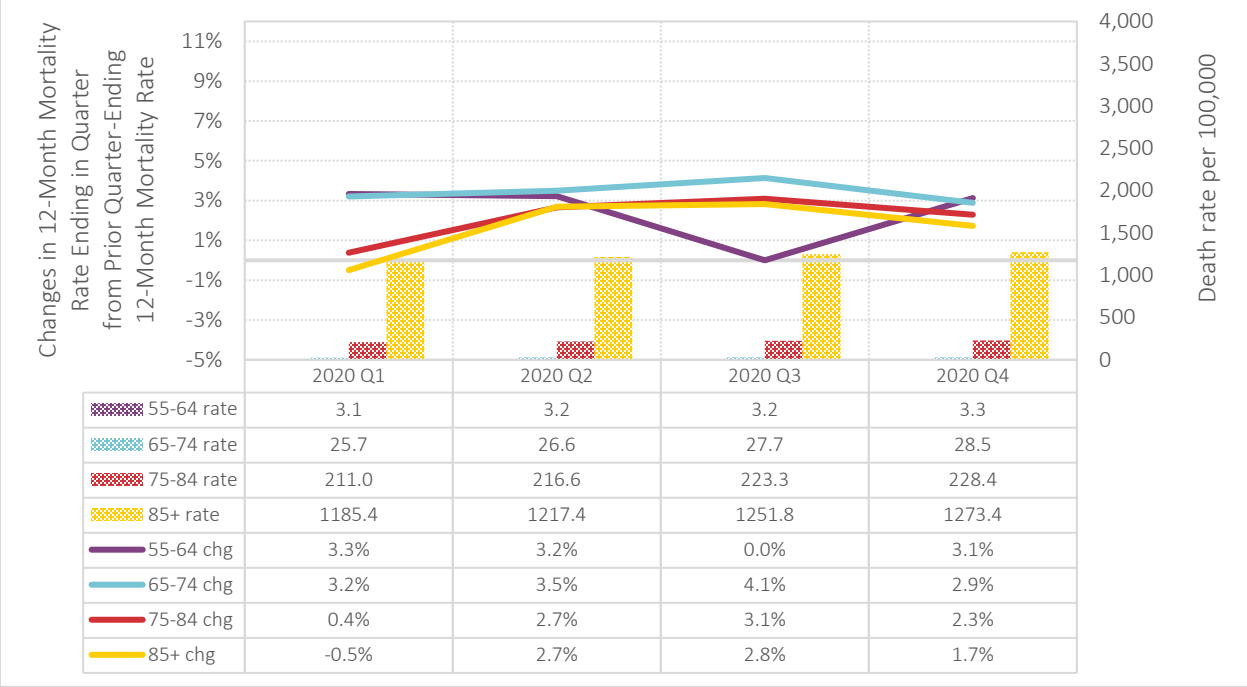


CDC WONDER; CDC Rapid Release.

Details of the 12-month Alzheimer's mortality rates ending in each quarter of 2020 for selected age groups are shown in Figure 18. Aside from a small decrease in the first quarter-ending rate for ages 85+, all other age group/quarter rates increased, with most changes in the 2.7-4.1% range.

Figure 18

2020 U.S. POPULATION CHANGES IN MORTALITY AND MORTALITY RATES BY AGE – ALZHEIMER'S



	2020 Q1	2020 Q2	2020 Q3	2020 Q4
55-64 rate	3.1	3.2	3.2	3.3
65-74 rate	25.7	26.6	27.7	28.5
75-84 rate	211.0	216.6	223.3	228.4
85+ rate	1185.4	1217.4	1251.8	1273.4
55-64 chg	3.3%	3.2%	0.0%	3.1%
65-74 chg	3.2%	3.5%	4.1%	2.9%
75-84 chg	0.4%	2.7%	3.1%	2.3%
85+ chg	-0.5%	2.7%	2.8%	1.7%

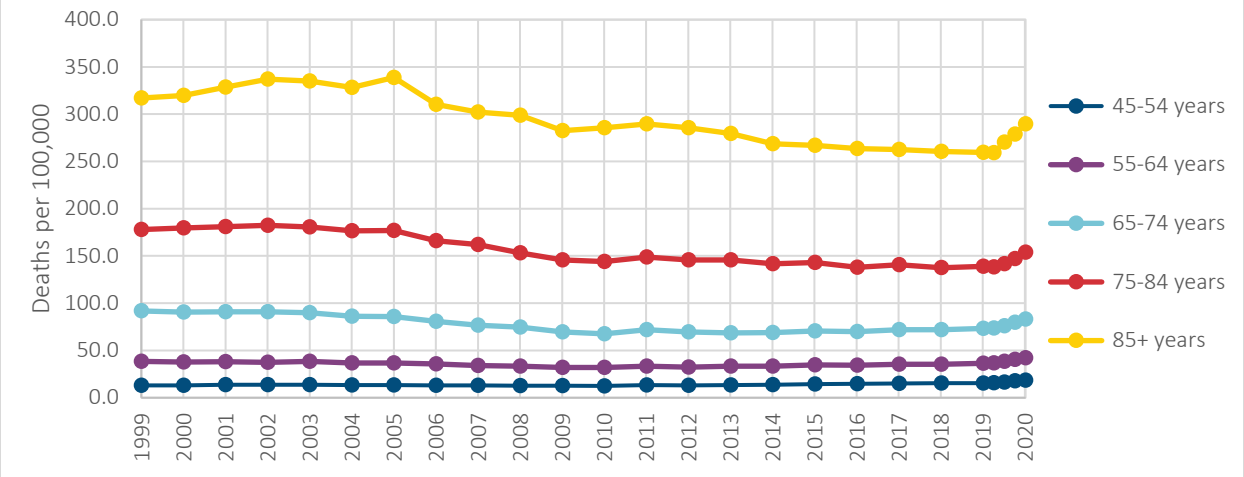
CDC Rapid Release.

5.9 MORTALITY RATES AND CHANGES IN MORTALITY RATES BY AGE GROUP – DIABETES

Mortality from diabetes decreased for ages 75+ and remained relatively level for ages 45-74 in recent years before 2020 as shown in Figure 19. However, a noticeable increase in diabetes mortality in 2020 can be seen in all age groups shown.

Figure 19

1999-2020 U.S. POPULATION MORTALITY RATES – DIABETES

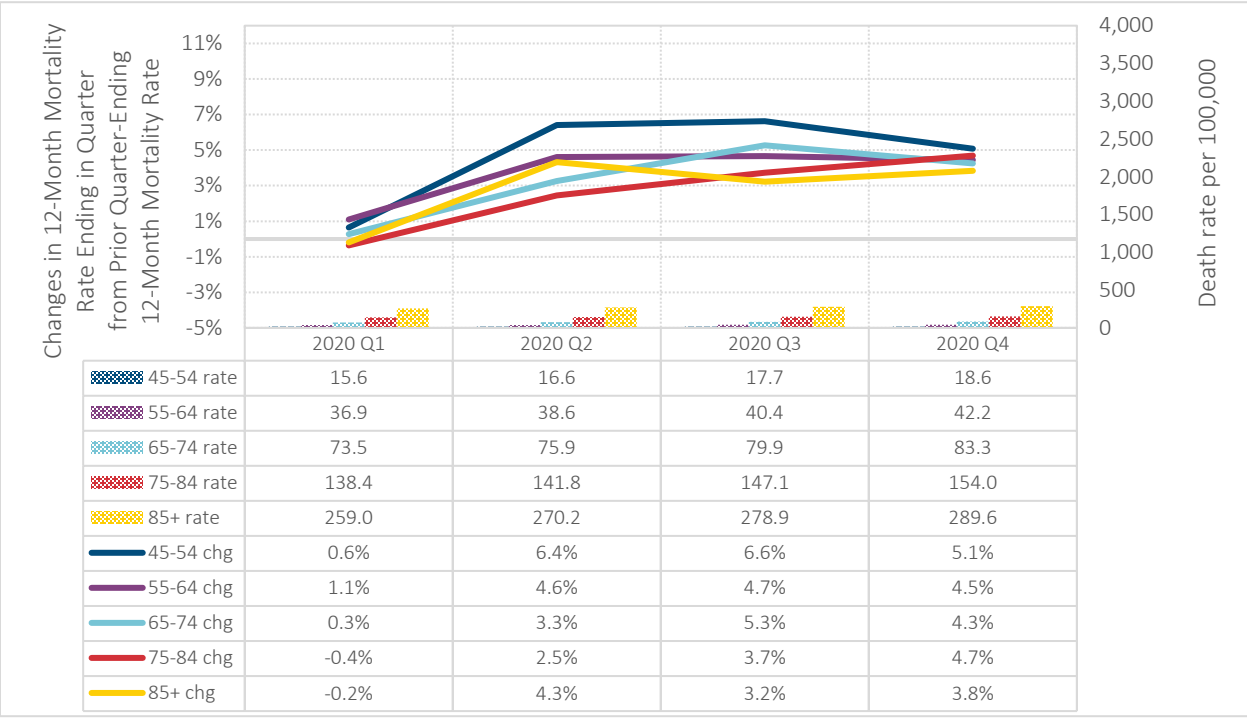


CDC WONDER; CDC Rapid Release.

Details of the 12-month diabetes mortality rates ending in each quarter of 2020 for selected age groups are shown in Figure 20. The 12-month diabetes mortality rates ending in each of the last three quarters of 2020 increased at rates ranging from 2.5% to 6.6%, with the highest increases at the younger age groups shown.

Figure 20

2020 U.S. POPULATION CHANGES IN MORTALITY AND MORTALITY RATES BY AGE – DIABETES



	2020 Q1	2020 Q2	2020 Q3	2020 Q4
45-54 rate	15.6	16.6	17.7	18.6
55-64 rate	36.9	38.6	40.4	42.2
65-74 rate	73.5	75.9	79.9	83.3
75-84 rate	138.4	141.8	147.1	154.0
85+ rate	259.0	270.2	278.9	289.6
45-54 chg	0.6%	6.4%	6.6%	5.1%
55-64 chg	1.1%	4.6%	4.7%	4.5%
65-74 chg	0.3%	3.3%	5.3%	4.3%
75-84 chg	-0.4%	2.5%	3.7%	4.7%
85+ chg	-0.2%	4.3%	3.2%	3.8%

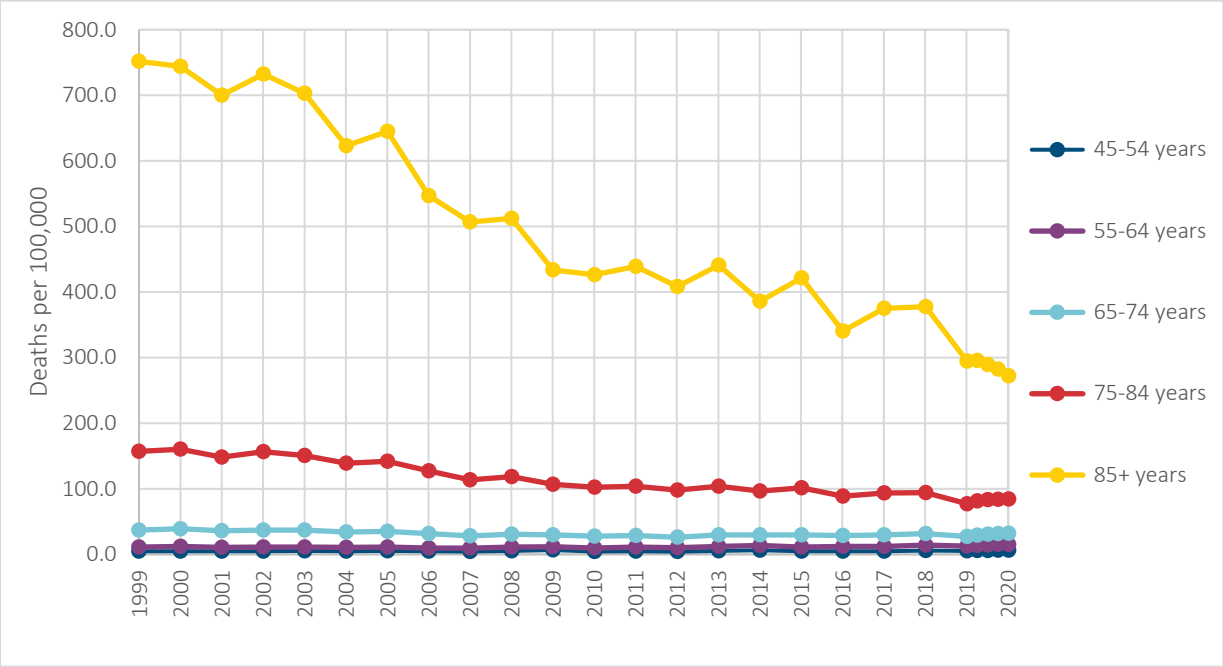
CDC Rapid Release.

5.10 MORTALITY RATES AND CHANGES IN MORTALITY RATES BY AGE GROUP – INFLUENZA/PNEUMONIA

Flu and pneumonia deaths can fluctuate widely from year to year and are dependent on the emergence of new flu strains and the efficacy of flu vaccines. Figure 21 shows some of this volatility and how older ages are at greater risk.

Figure 21

1999-2020 U.S. POPULATION MORTALITY RATES – INFLUENZA/PNEUMONIA

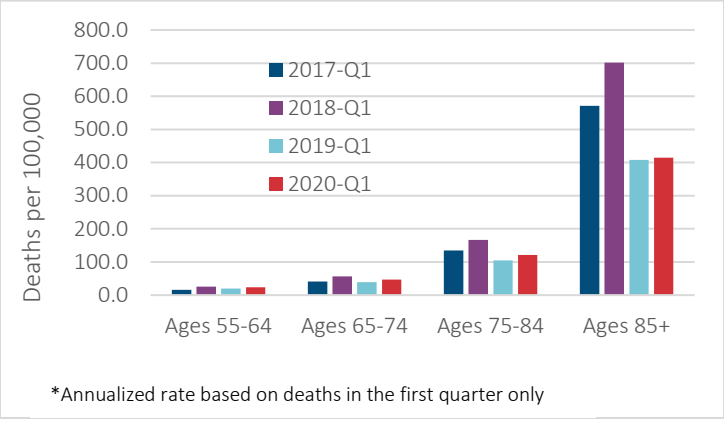


CDC WONDER; CDC Rapid Release.

The first quarter of a calendar year is often the quarter with the highest flu and pneumonia mortality rates. Figure 22 shows the annualized mortality rates based on deaths in the first quarter (three months of deaths only) of the last four years by age group. The 2020 first quarter mortality rate was comparable to 2019's and lower than 2017's and 2018's. The first quarter of 2018 was part of a relatively bad flu season occurring in late 2017 and early 2018. 2020 mortality levels were about 60% of 2018 levels for ages 85+, the age group most at risk for flu and pneumonia.

Figure 22

U.S. POPULATION ANNUALIZED MORTALITY RATES OF FIRST QUARTER DEATHS* BY AGE – INFLUENZA/PNEUMONIA



Ages	2017-Q1 ÷ 2018-Q1	2019-Q1 ÷ 2018-Q1	2020-Q1 ÷ 2018-Q1
55-64	61.7%	75.4%	92.6%
65-74	72.9%	69.0%	83.4%
75-84	80.6%	62.9%	72.9%
85+	81.4%	58.1%	59.1%

CDC Rapid Release.

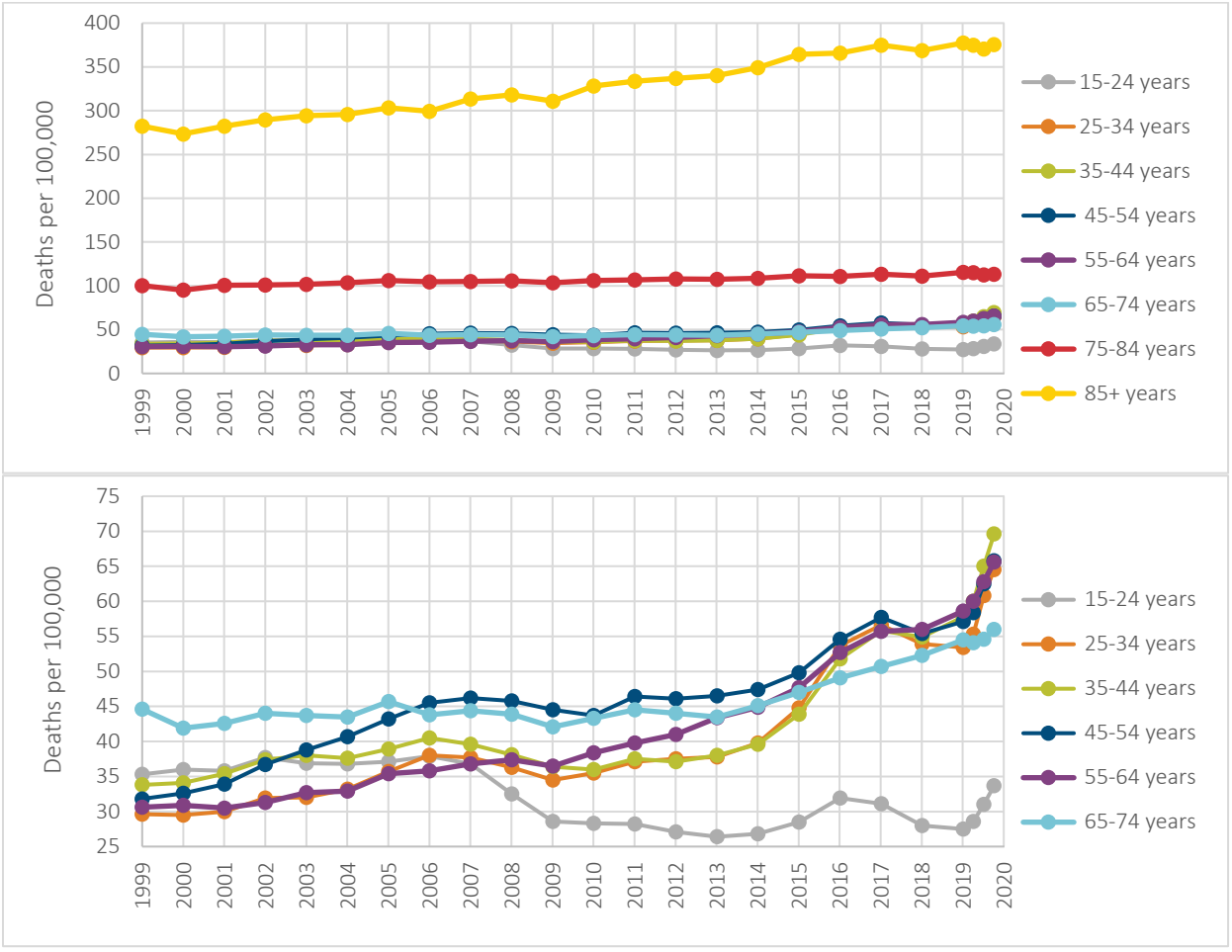
5.11 MORTALITY RATES AND CHANGES IN MORTALITY RATES BY AGE GROUP – ACCIDENTS

Accidental deaths are typically the third largest COD in the U.S. but were pushed to fourth place in 2020 due to COVID. Accidental deaths are also the top COD for younger age groups.

As seen in the top half of Figure 23, accidental deaths were up in the first three quarters of 2020 for ages below 65 and down for ages above 75. The bottom half of Figure 23 zooms in on ages below 75 and shows the large increases that have occurred since around 2010 for ages 25-74.

Figure 23

1999-2020 U.S. POPULATION MORTALITY RATES – ACCIDENTS



CDC WONDER; CDC Rapid Release.

As explained in Section 5.3, accidental deaths is a broad category that includes motor vehicle accidents. Accidental deaths also partially intersect drug overdose deaths. Motor vehicle accident detail is not included in this report because it is not yet available from the CDC. Limited commentary on drug overdose deaths has been included in this report because only second quarter drug overdose data were available. An assessment of the detailed changes in accidental deaths will be possible when final 2020 COD data becomes available in late 2021 or early 2022.

Details of the 12-month accident mortality rates ending in each of the first three quarters of 2020 for selected age groups are shown in Figure 24. The 12-month accident mortality rates ending in the second quarter increased for all age groups under 75, while the mortality rates ending in the third quarter increased for all age groups. The increases also were, generally, inversely related to age and peaked at 9.9% for ages 25-34 in the second quarter. Ages 75+ experienced decreasing mortality from accidents in both quarters.

Figure 24

2020 U.S. POPULATION CHANGES IN MORTALITY AND MORTALITY RATES BY AGE – ACCIDENTS

	2020 Q1	2020 Q2	2020 Q3
15-24 rate	28.6	31.0	33.7
25-34 rate	55.3	60.8	64.5
35-44 rate	60.0	65.0	69.6
45-54 rate	58.4	62.5	65.8
55-64 rate	60.0	62.8	65.6
65-74 rate	54.1	54.6	56.0
75-84 rate	115.0	112.5	113.3
85+ rate	374.7	370.6	375.6
15-24 chg	4.0%	8.4%	8.7%
25-34 chg	3.6%	9.9%	6.1%
35-44 chg	3.8%	8.3%	7.1%
45-54 chg	2.3%	7.0%	5.3%
55-64 chg	2.4%	4.7%	4.5%
65-74 chg	-0.7%	0.9%	2.6%
75-84 chg	-0.4%	-2.2%	0.7%
85+ chg	-0.7%	-1.1%	1.3%

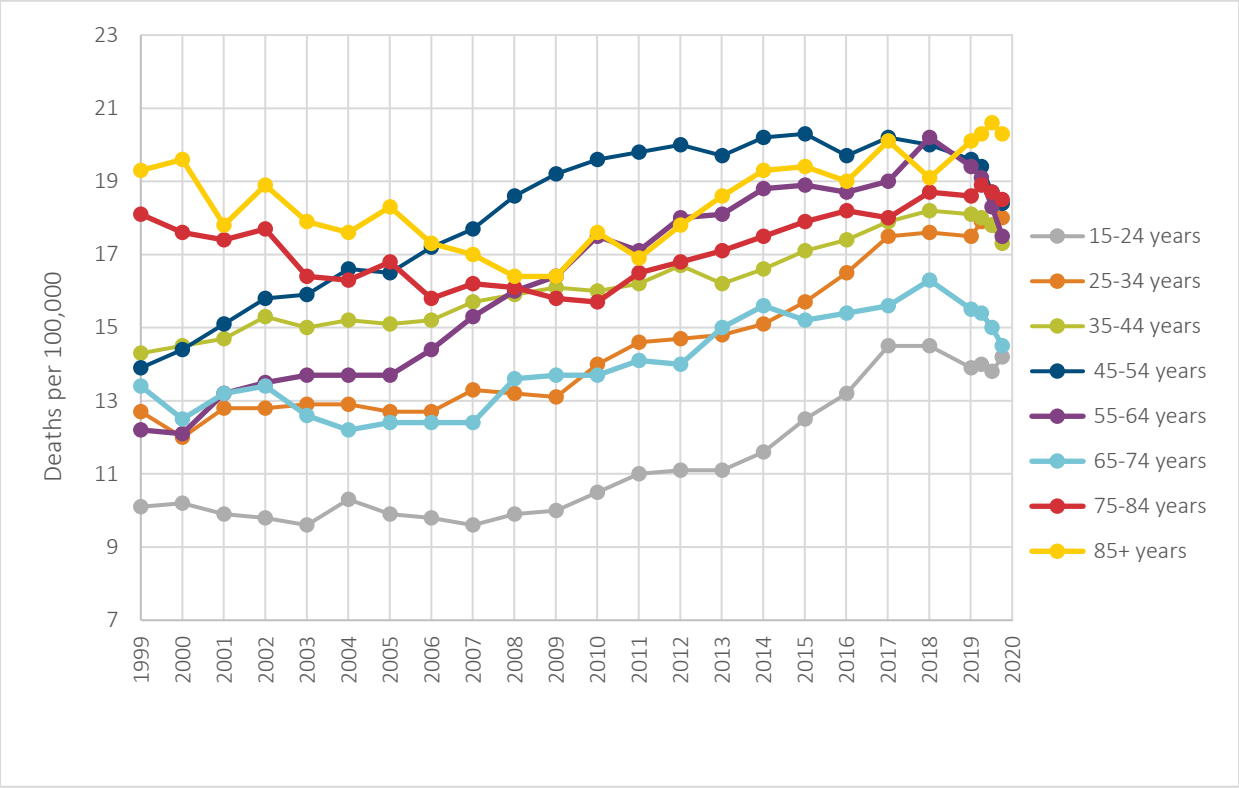
CDC Rapid Release.

5.12 MORTALITY RATES AND CHANGES IN MORTALITY RATES BY AGE GROUP – SUICIDE

Deaths from suicide are considered one of the deaths of despair CODs and a review of suicide deaths may provide information on whether COVID had any impact on 'deaths of despair.' Figure 25 shows the level of suicide mortality rates by age group since 1999. Although some increasing trends can be seen in most age groups over the past 15 years, the first three quarters of 2020 show improvement in ages 35-74.

Figure 25

1999-2020 U.S. POPULATION MORTALITY RATES – SUICIDE

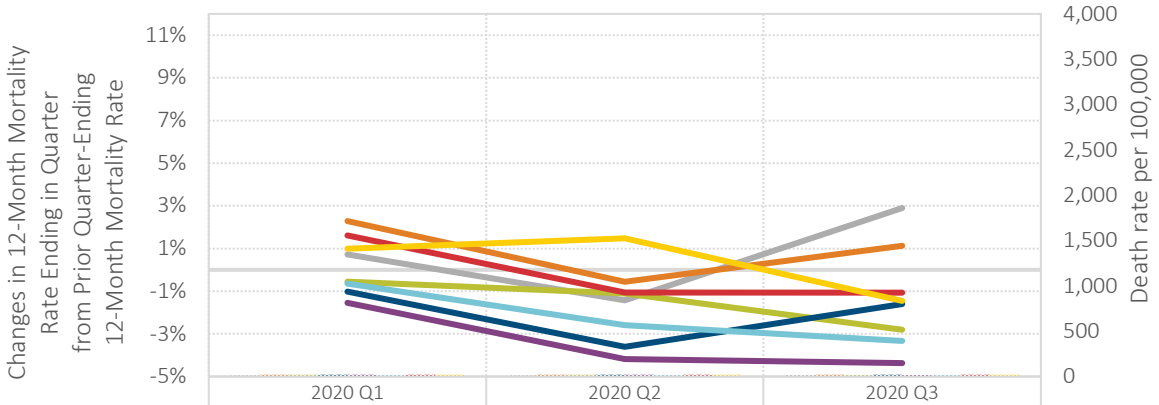


CDC WONDER; CDC Rapid Release.

Details of the 12-month suicide mortality rates ending in each of the first three quarters of 2020 for selected age groups are shown in Figure 26. For age groups between 35-74, the 12-month suicide mortality rates ending in each of the first three quarters of 2020 improved.

Figure 26

2020 U.S. POPULATION CHANGES IN MORTALITY AND MORTALITY RATES BY AGE – SUICIDE



	2020 Q1	2020 Q2	2020 Q3
15-24 rate	14.0	13.8	14.2
25-34 rate	17.9	17.8	18.0
35-44 rate	18.0	17.8	17.3
45-54 rate	19.4	18.7	18.4
55-64 rate	19.1	18.3	17.5
65-74 rate	15.4	15.0	14.5
75-84 rate	18.9	18.7	18.5
85+ rate	20.3	20.6	20.3
15-24 chg	0.7%	-1.4%	2.9%
25-34 chg	2.3%	-0.6%	1.1%
35-44 chg	-0.6%	-1.1%	-2.8%
45-54 chg	-1.0%	-3.6%	-1.6%
55-64 chg	-1.5%	-4.2%	-4.4%
65-74 chg	-0.6%	-2.6%	-3.3%
75-84 chg	1.6%	-1.1%	-1.1%
85+ chg	1.0%	1.5%	-1.5%

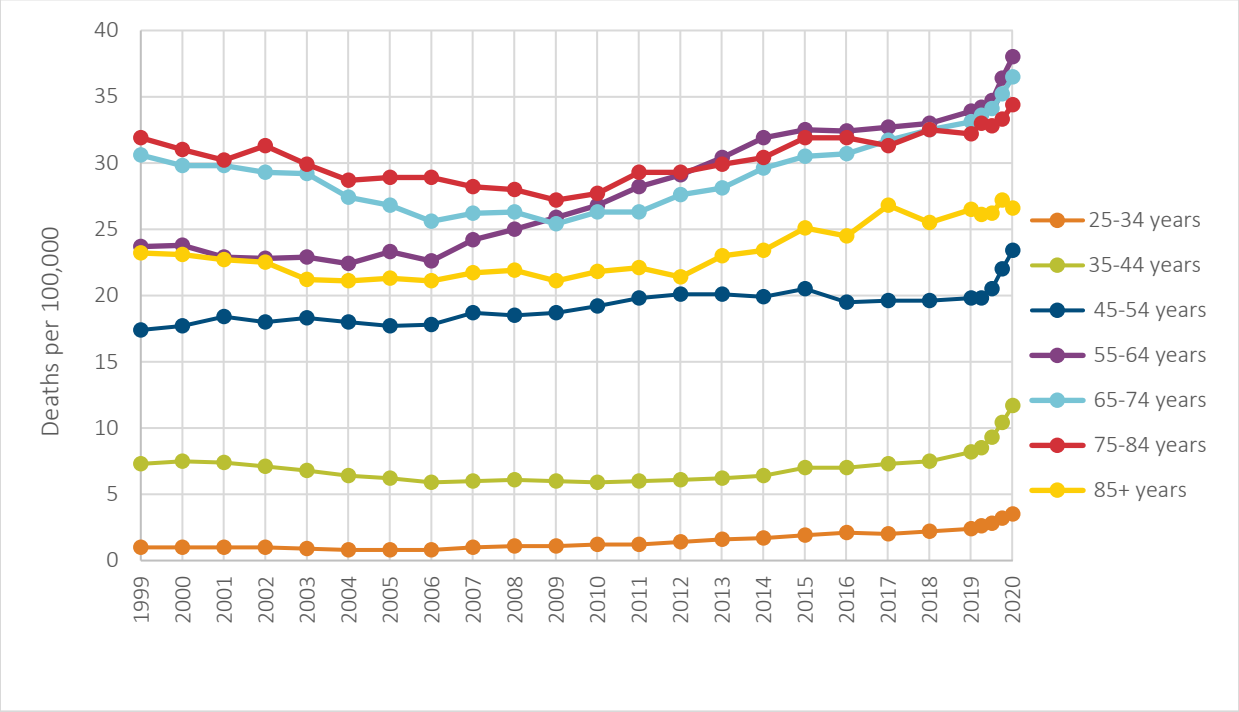
CDC Rapid Release.

5.13 MORTALITY RATES AND CHANGES IN MORTALITY RATES BY AGE GROUP – LIVER

Deaths from liver disease and cirrhosis were analyzed because it has been considered one of the deaths of despair CODs sometimes caused by excessive use of alcohol. Even though absolute liver death rates are low, there was a desire to see if COVID has had any impact on 'deaths of despair.' Figure 27 shows the level of liver death rates by age group since 1999. Although the absolute levels are relatively small, increasing trends can be seen in most age groups over the past 15 years, with further increases in 2020.

Figure 27

1999-2020 U.S. POPULATION MORTALITY RATES – LIVER

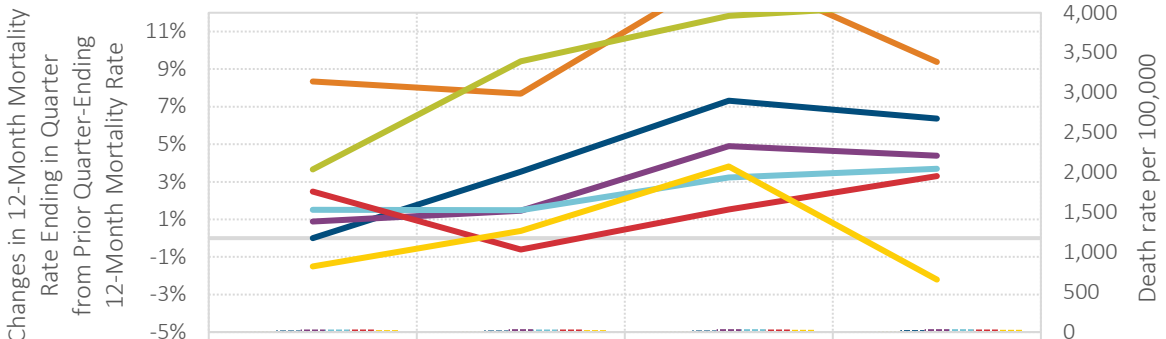


CDC WONDER; CDC Rapid Release.

Details of the 12-month liver mortality rates ending in each quarter of 2020 for selected age groups are shown in Figure 28. Virtually all age group/quarter-ending rates increased. The highest increases, ranging from 9.4% to 14.3%, occurred in the third and fourth quarter-ending rates for ages 25-44.

Figure 28

2020 U.S. POPULATION CHANGES IN MORTALITY AND MORTALITY RATES BY AGE – LIVER



	2020 Q1	2020 Q2	2020 Q3	2020 Q4
25-34 rate	2.6	2.8	3.2	3.5
35-44 rate	8.5	9.3	10.4	11.7
45-54 rate	19.8	20.5	22.0	23.4
55-64 rate	34.2	34.7	36.4	38.0
65-74 rate	33.6	34.1	35.2	36.5
75-84 rate	33.0	32.8	33.3	34.4
85+ rate	26.1	26.2	27.2	26.6
25-34 chg	8.3%	7.7%	14.3%	9.4%
35-44 chg	3.7%	9.4%	11.8%	12.5%
45-54 chg	0.0%	3.5%	7.3%	6.4%
55-64 chg	0.9%	1.5%	4.9%	4.4%
65-74 chg	1.5%	1.5%	3.2%	3.7%
75-84 chg	2.5%	-0.6%	1.5%	3.3%
85+ chg	-1.5%	0.4%	3.8%	-2.2%

CDC Rapid Release.

Section 6: Methodology and Reliances

This report uses estimates from the most recent National Center for Health Statistics (NCHS) National Vital Statistics System (NVSS) Rapid Release Quarterly Provisional Estimates[15] and historical experience from 1999 to 2019 from the Centers for Disease Control and Prevention's (CDC) Wide-ranging Online Data for Epidemiologic Research (WONDER) database[16]. The Quarterly Provisional Estimates include mortality rate estimates that may change as additional data becomes available.

Unless otherwise noted, all mortality rates shown are per 100,000 of population and annual rates over the 12-month period ending as of the date indicated. For example, the Q2-2020 rate covers deaths from Q3-2019 through Q2-2020. For tables and charts with only a calendar year indicated, the mortality rate covers deaths during that calendar year. All mortality rates in this report, except for age-group rates, are age-adjusted rates, as opposed to crude rates, and are based on the 2000 U.S. standard[17] population basis. These age-adjusted rates will differ from the age-adjusted rates shown in the 'U.S. Population Mortality Observations - Updated with 2019 Experience' report[18], which were based on the CDC's non-standard population option of 2010, but the changes in mortality rates are similar under the two population bases.

The CODs used in this report are determined from the single underlying COD[19] as identified on the death certificate, as opposed to one of the multiple CODs[20] listed on a death certificate. It is important to understand that the death counts and rates provided by the CDC and used in this report are provisional estimates. Delays in death reporting may result in data that is more incomplete for the most recent months and the final cause may not be available at the time the provisional estimates are available.[21] Finally, the assignment of COD is somewhat subjective and there is potential for misclassification[22].[23]. Some CODs other than COVID may have been directly or indirectly due to COVID.

[15] https://www.cdc.gov/nchs/nvss/vsrr/mortality.htm
[16] https://wonder.cdc.gov/
[17] In WONDER, the user may choose the population distribution used for calculating age-adjusted rates. Several "Standard" populations, including the default 2000 standard population, are available. As an alternative, the user can select a "Non-Standard" population, such as 2010, for the population distribution in the age adjustment.
[18] https://www.soa.org/research-reports/2017/population-mortality-observations/
[19] https://wonder.cdc.gov/wonder/help/ucd.html#
[20] https://wonder.cdc.gov/wonder/help/mcd.html
[21] https://www.cdc.gov/nchs/nvss/vsrr/mortality-technical-notes.htm
[22] https://www.cdc.gov/nchs/nvss/vsrr/covid19/tech_notes.htm
[23] https://www.cdc.gov/nchs/nvss/vsrr/covid19/tech_notes.htm

The NVSS Rapid Release Quarterly Provisional Estimates provide mortality estimates for the CODs shown in Table 6. Estimates for the third quarter of 2020 were available for all the CODs, except accident, suicide and assault. Estimates for the accident, suicide and assault CODs were available through the second quarter of 2020. Care should be taken when comparing rates across these CODs or when determining the mortality rate for all other CODs not shown here. The Drug Overdose, Falls Ages 65+ and Firearm CODs intersect with other CODs in Table 6. Falls Ages 65+ and Firearm CODs are not included in any analysis in this report. Limited commentary on Drug Overdose is found in Sections 5.1, 5.3 and 5.11. The rates for Falls Ages 65+ use the population for age 65+ only in the denominator of the mortality rate calculation, whereas the total population for all ages is used in the denominator in the rate for all other CODs.

Table 6

PRIMARY CAUSE OF DEATH IN RAPID RELEASE QUARTERLY PROVISIONAL ESTIMATES

Primary Cause of Death	ICD-10 Codes
COVID-19	Coronavirus disease (U07.1)
Heart	Diseases of heart (I00-I09, I11, I13, I20-I51)
Cancer	Malignant neoplasms (C00-C97)
Accidents	Unintentional Injuries (V01-X59, Y85-Y86)
Pulmonary	Chronic lower respiratory diseases (J40-J47)
Stroke	Cerebrovascular diseases (I60-I69)
Alzheimer's	Alzheimer's disease (G30)
Diabetes	Diabetes mellitus (E10-E14)
Influenza/ pneumonia	Influenza and pneumonia (J09-J18)
Kidney	Nephritis, nephrotic syndrome and nephrosis (N00-N07, N17-N19, N25-N27)
Suicide	Intentional self-harm (*U03, X60-X84, Y87.0)
Blood poisoning	Septicemia (A40-A41)
Liver	Chronic liver disease and cirrhosis (K70, K73-K74)
Hypertension	Essential hypertension and hypertensive renal disease (I10, I12, I15)
Parkinson's	Parkinson's disease (G20-G21)
Pneumonitis	Pneumonitis due to solids and liquids (J69)
Assault	Assault (homicide) (*U01-*U02, X85-Y09, Y87.1)
HIV	Human immunodeficiency virus (HIV) disease (B20-B24)
Drug Overdose	Drug Overdose (X40-X44, X60-X64, X85, Y10-Y14)
Falls, 65+	Falls, ages 65 and over (W00-W19)
Firearms	Firearm-related injury (U01.4, W32-W34, X72-X74, X93-X95, Y22-Y24, Y35.0)

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