

U.S. Mortality Trends Through the Pandemic

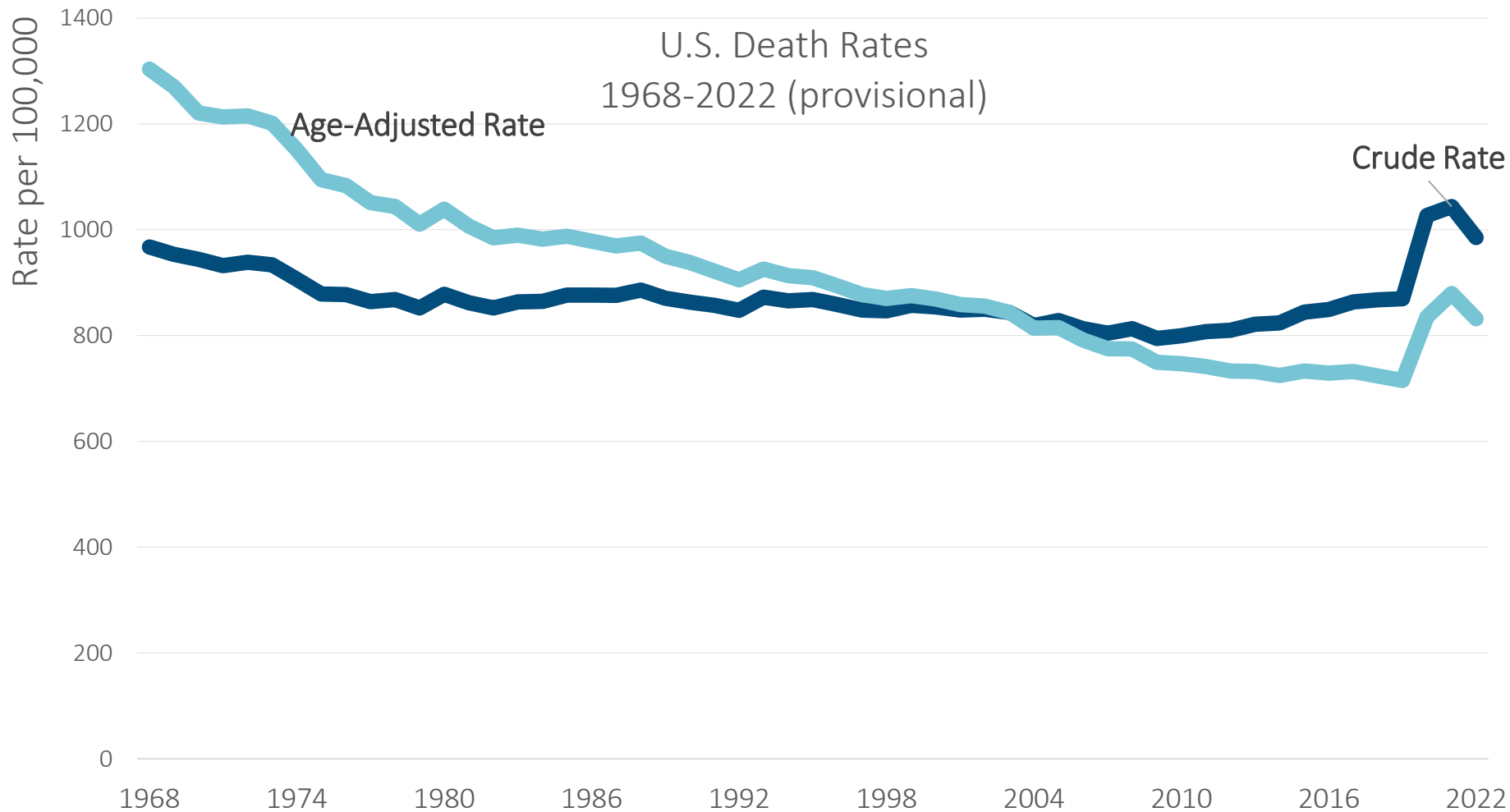
MARY PAT CAMPBELL, FSA, MAAA

22 March 2023

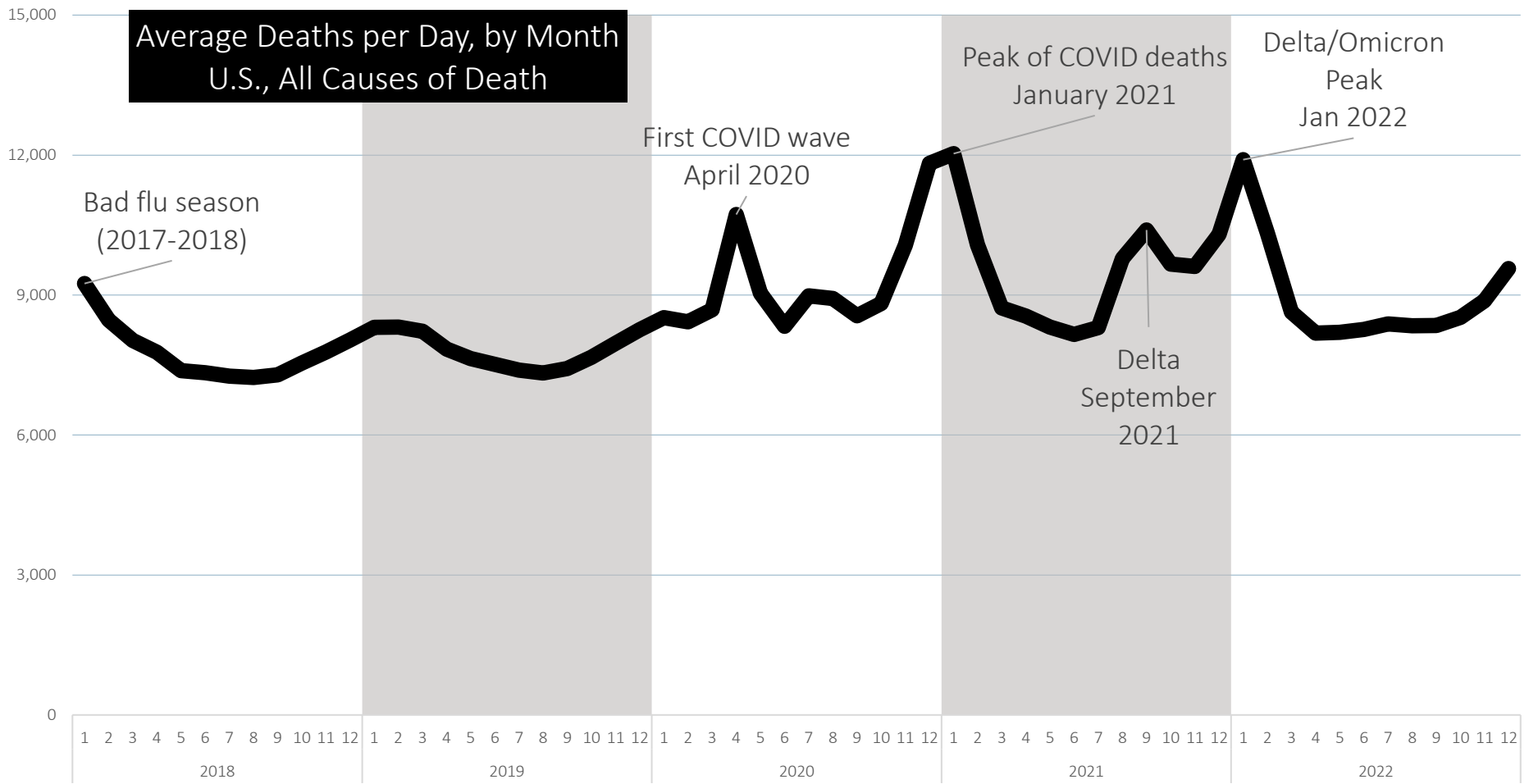


All-cause mortality trends



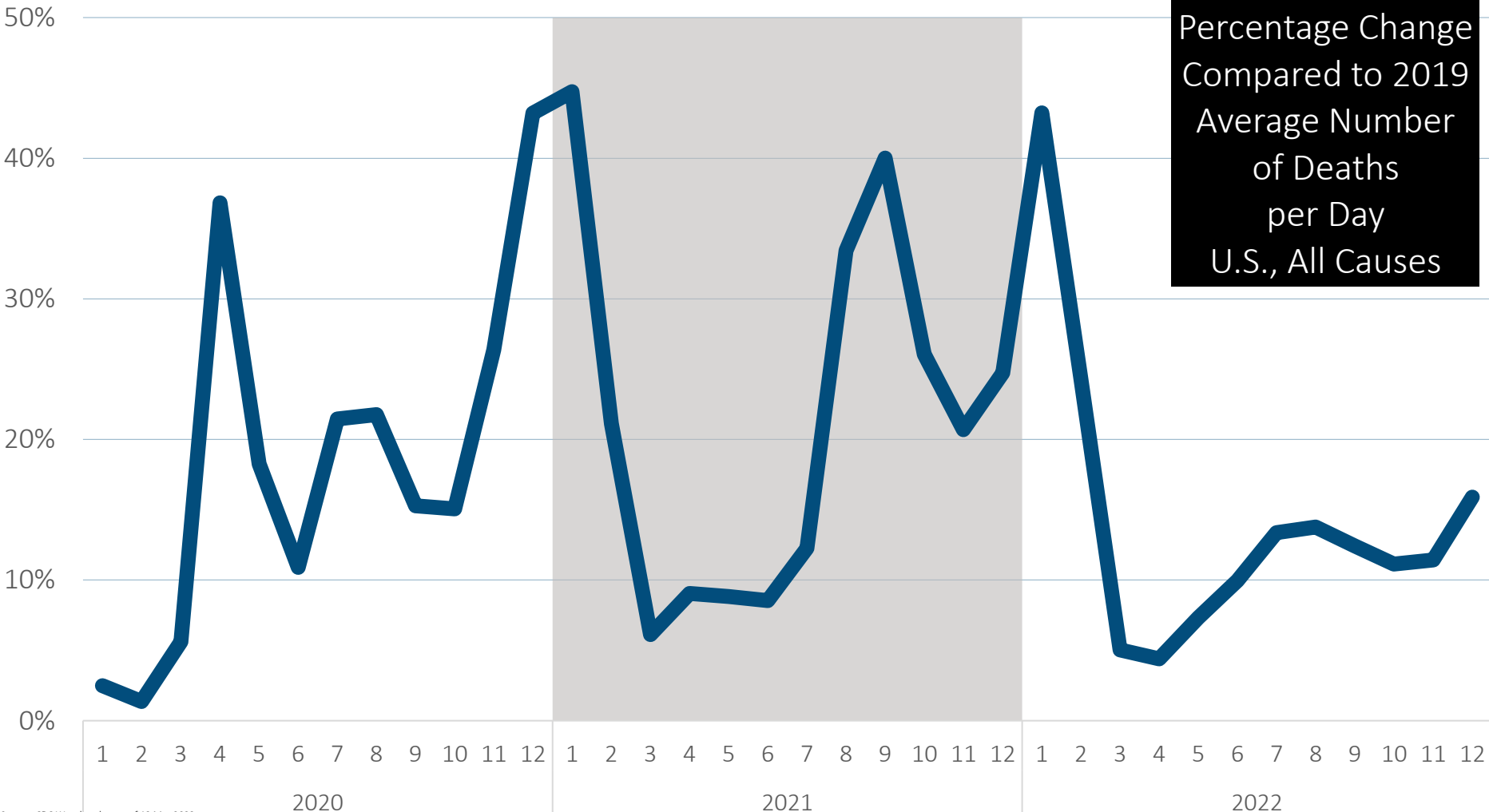


Average Deaths per Day, by Month U.S., All Causes of Death



Source: CDC Wonder, data as of 13 March 2023

Percentage Change
Compared to 2019
Average Number
of Deaths
per Day
U.S., All Causes



Source: CDC Wonder, data as of 13 Mar 2023

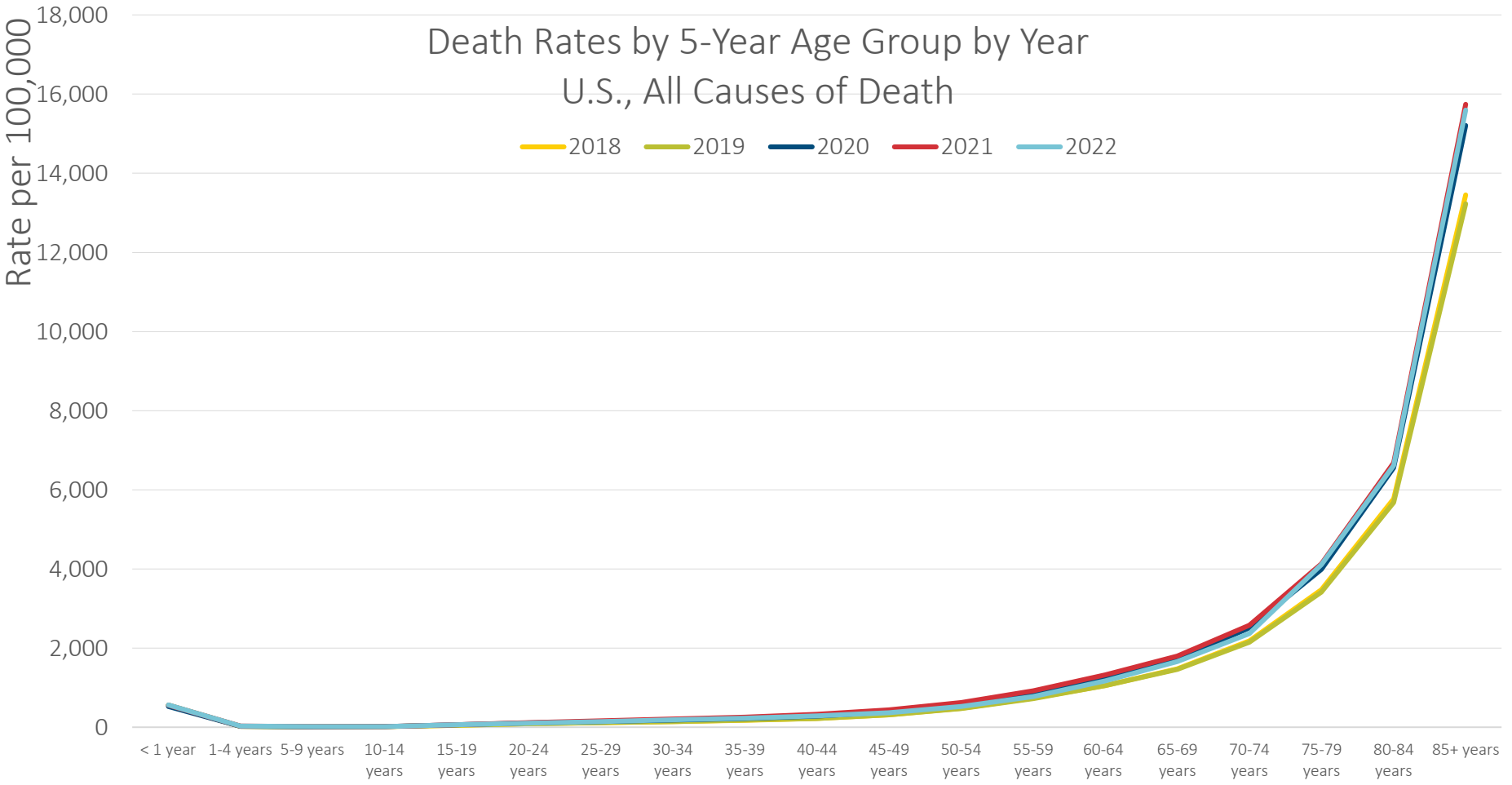
All-cause mortality by age group



Death Rates by 5-Year Age Group by Year

U.S., All Causes of Death

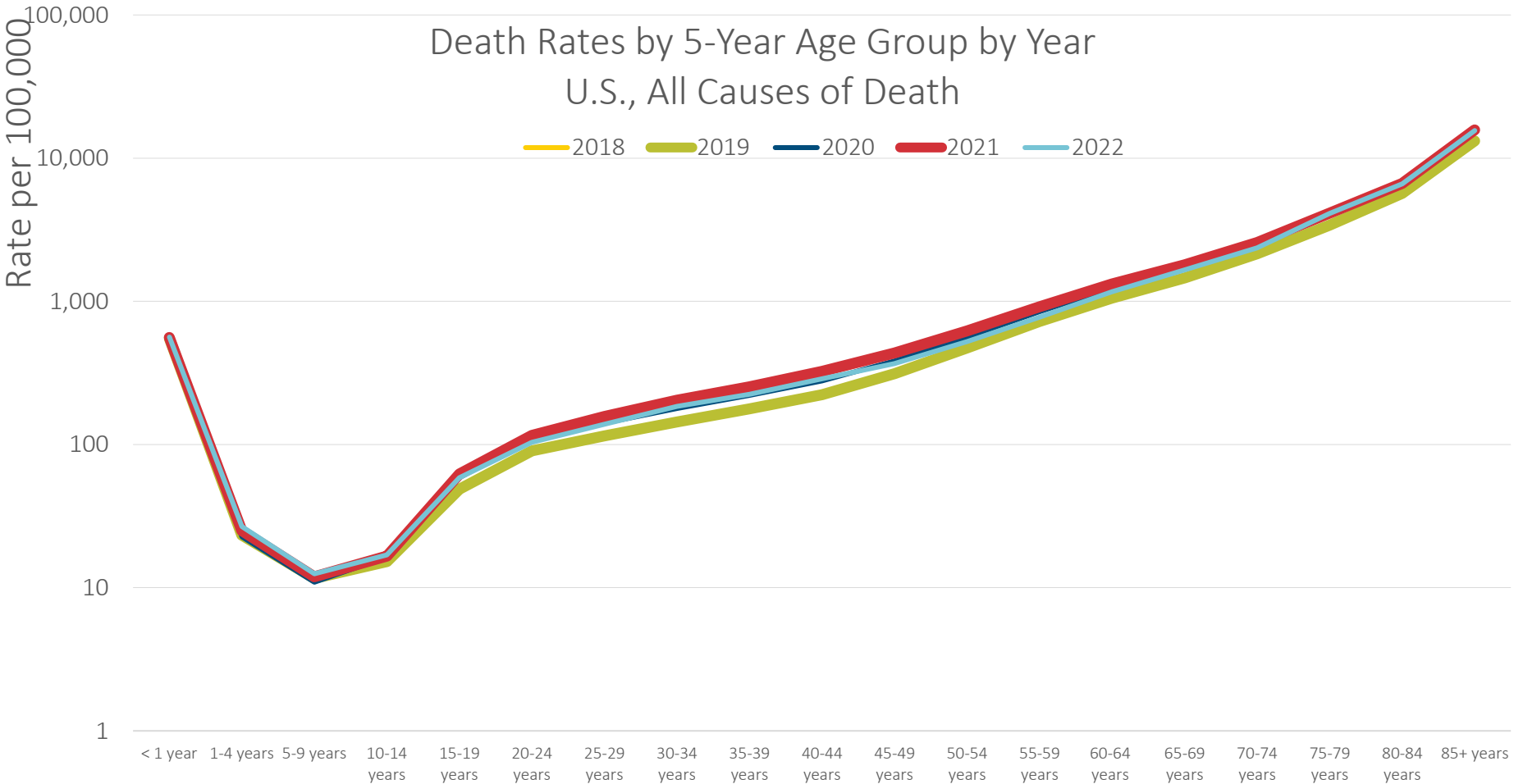
— 2018 — 2019 — 2020 — 2021 — 2022



Source: CDC Wonder, data as of 15 Mar 2023

Death Rates by 5-Year Age Group by Year U.S., All Causes of Death

— 2018 — 2019 — 2020 — 2021 — 2022

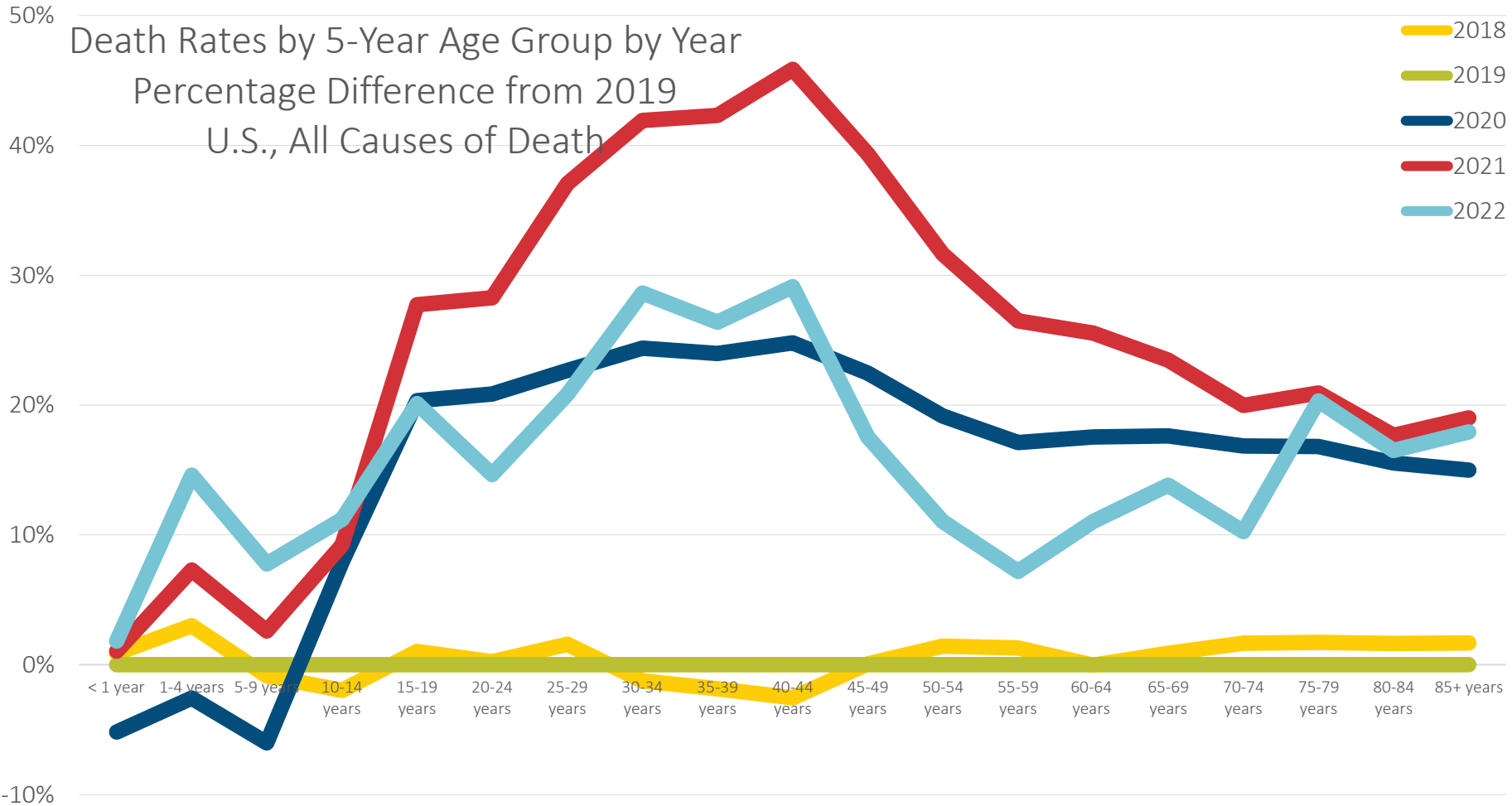


Source: CDC Wonder, data as of 15 Mar 2023

Death Rates by 5-Year Age Group by Year

Percentage Difference from 2019

U.S., All Causes of Death



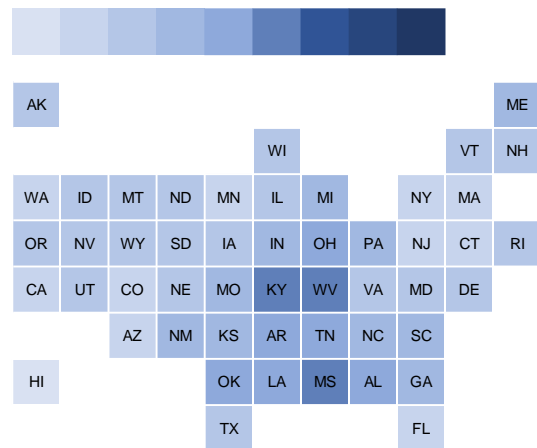
Source: CDC Wonder, data as of 15 March 2023

Geographic differences



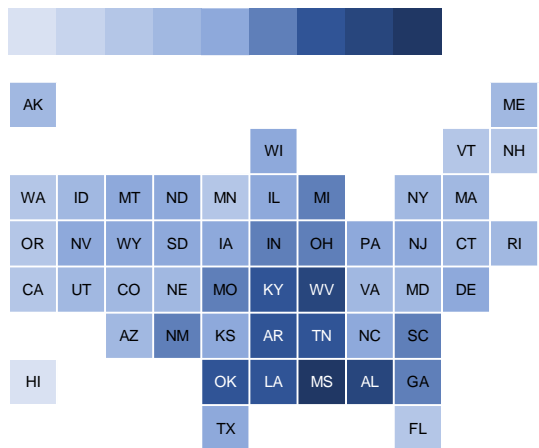
Age-Adjusted Death Rates, 2019, All Causes of Death

<600 600 675 750 825 900 975 1050 >1125
-675 -750 -825 -900 -975 -1050 -1125



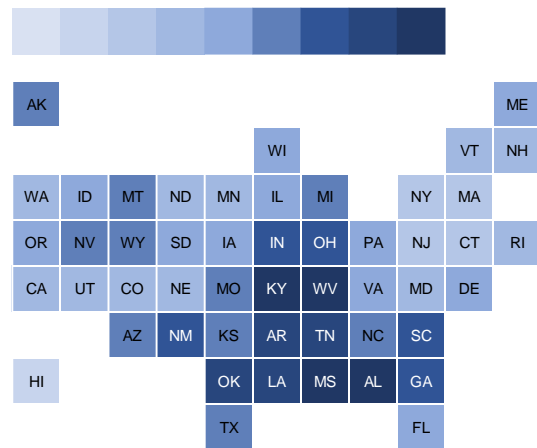
Age-Adjusted Death Rates, 2020, All Causes of Death

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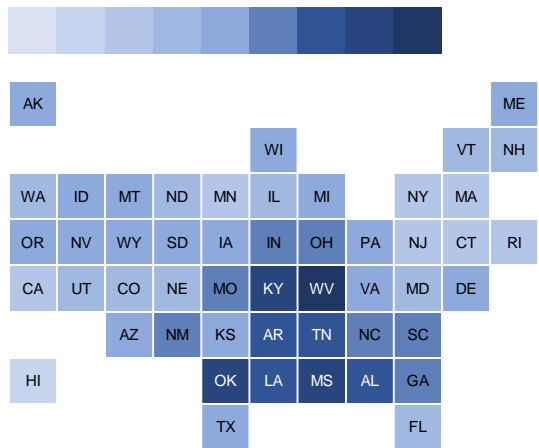
Age-Adjusted Death Rates, 2021, All Causes of Death

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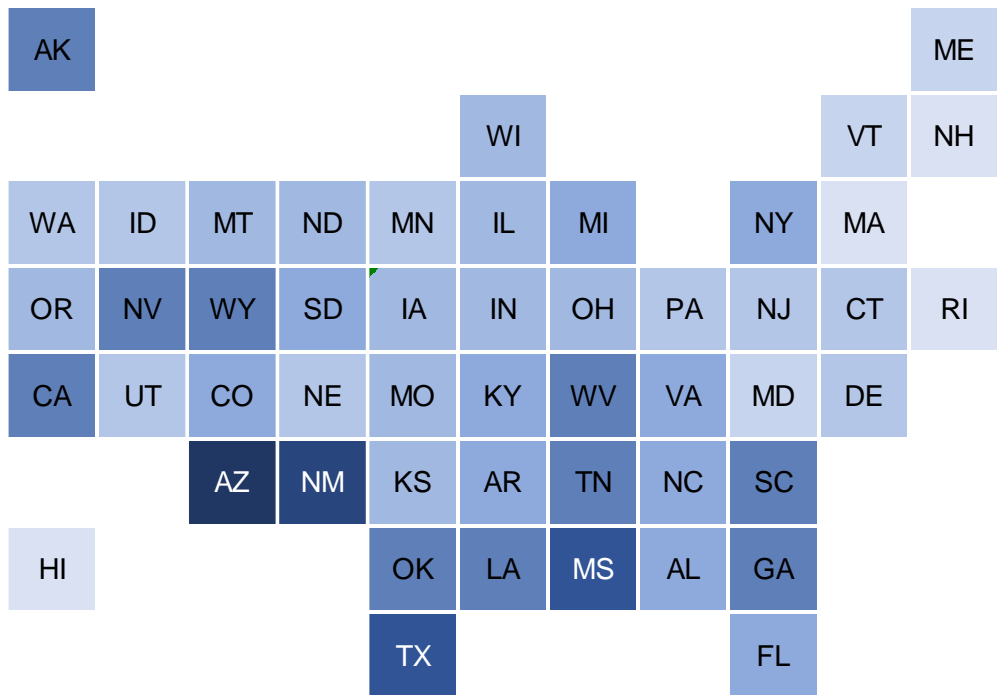
Age-Adjusted Death Rates, 2022, All Causes of Death

<600 600 675 750 825 900 975 1050 >1125
-675 -750 -825 -900 -975 -1050 -1125



Percentage Change in Age-Adjusted Death Rates, (2020-2022) vs (2017-2019)

<10% 10% 13% 15% 17% 19% 21% 23% >25%
 - 13% - 15% - 17% - 19% - 21% - 23% - 25%



Average Age-Adjusted Death Rate, All Causes

Rank	State			Percentage Change
		2017-2019	2020-2022	
1	Arizona	669	845	26.2%
2	New Mexico	755	941	24.6%
3	Mississippi	944	1,150	21.9%
4	Texas	728	887	21.8%
5	Alaska	703	850	20.9%
6	Wyoming	734	886	20.7%
7	West Virginia	952	1,143	20.0%
8	South Carolina	818	981	20.0%
9	Louisiana	870	1,040	19.6%
10	California	610	727	19.2%

11	Tennessee	890	1,061	19.2%
12	Georgia	785	936	19.2%
13	Nevada	749	892	19.1%
14	Oklahoma	892	1,062	19.1%
15	Colorado	654	777	18.8%
16	Arkansas	884	1,044	18.1%
17	District of Columbia	716	844	17.9%
18	Alabama	911	1,072	17.6%
19	New York	622	732	17.6%
20	Kentucky	920	1,082	17.6%
21	Florida	660	775	17.4%
22	Virginia	711	833	17.1%
23	South Dakota	731	856	17.1%
24	North Carolina	774	907	17.1%
25	Michigan	779	912	17.0%
26	Kansas	769	899	16.8%
27	Indiana	835	976	16.8%
28	Montana	739	862	16.7%
29	Oregon	702	818	16.6%
30	Missouri	815	950	16.5%

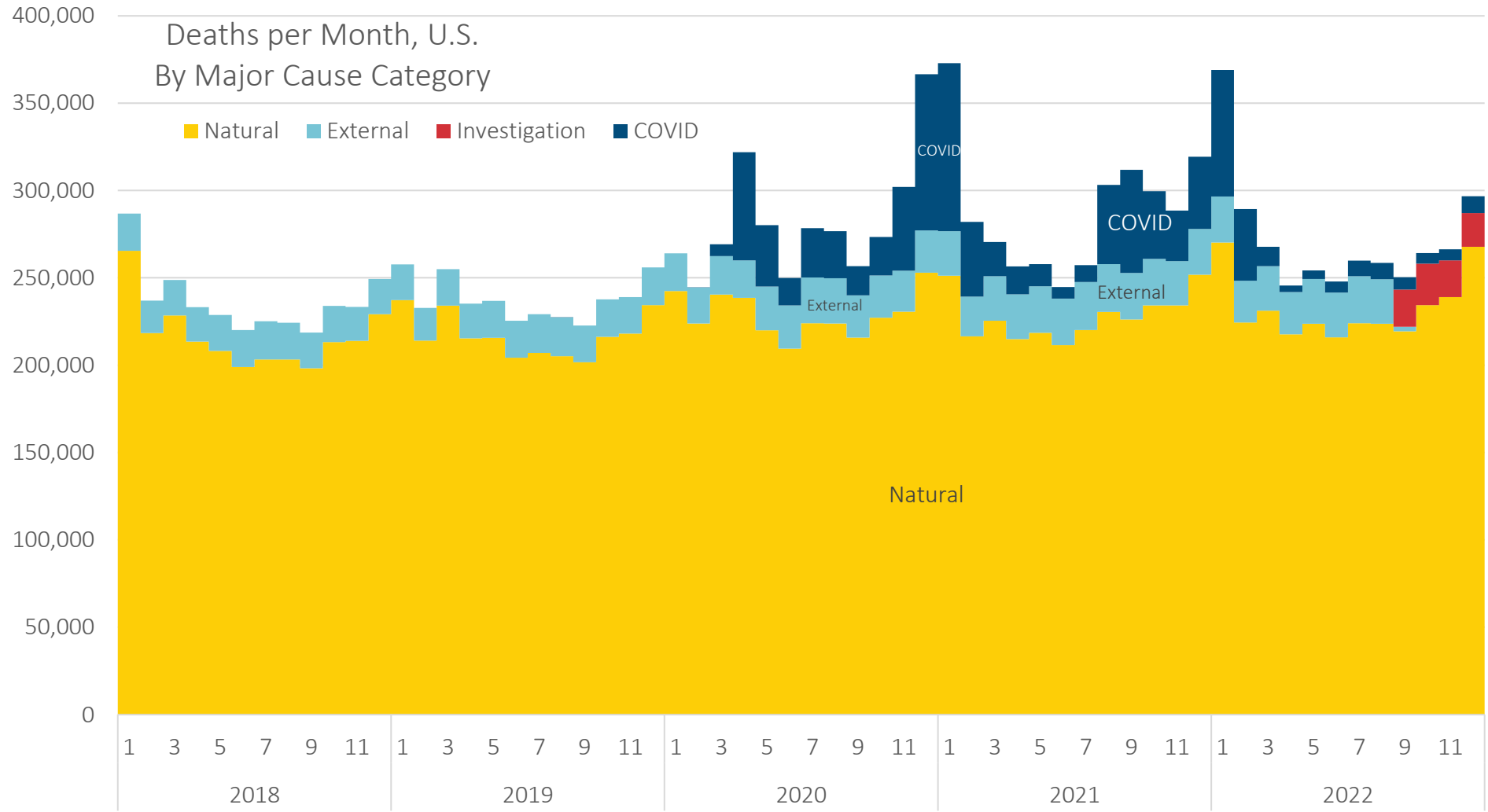
31	Illinois	715	829	15.9%
32	Ohio	838	971	15.8%
33	North Dakota	698	804	15.3%
34	Wisconsin	722	832	15.2%
35	Iowa	731	841	15.1%
36	Delaware	745	857	15.0%
37	Minnesota	651	748	14.9%
38	Utah	693	793	14.4%
39	Washington	674	771	14.3%
40	Idaho	728	831	14.3%
41	Connecticut	648	740	14.3%
42	Pennsylvania	763	869	14.0%
43	New Jersey	666	758	13.8%
44	Nebraska	719	813	13.1%
45	Maryland	712	803	12.8%
46	Maine	762	858	12.7%
47	Vermont	701	776	10.8%
48	Rhode Island	707	777	10.0%
49	Massachusetts	668	734	9.9%
50	New Hampshire	710	773	8.9%
51	Hawaii	577	621	7.7%

Cause of Death: Major Categories



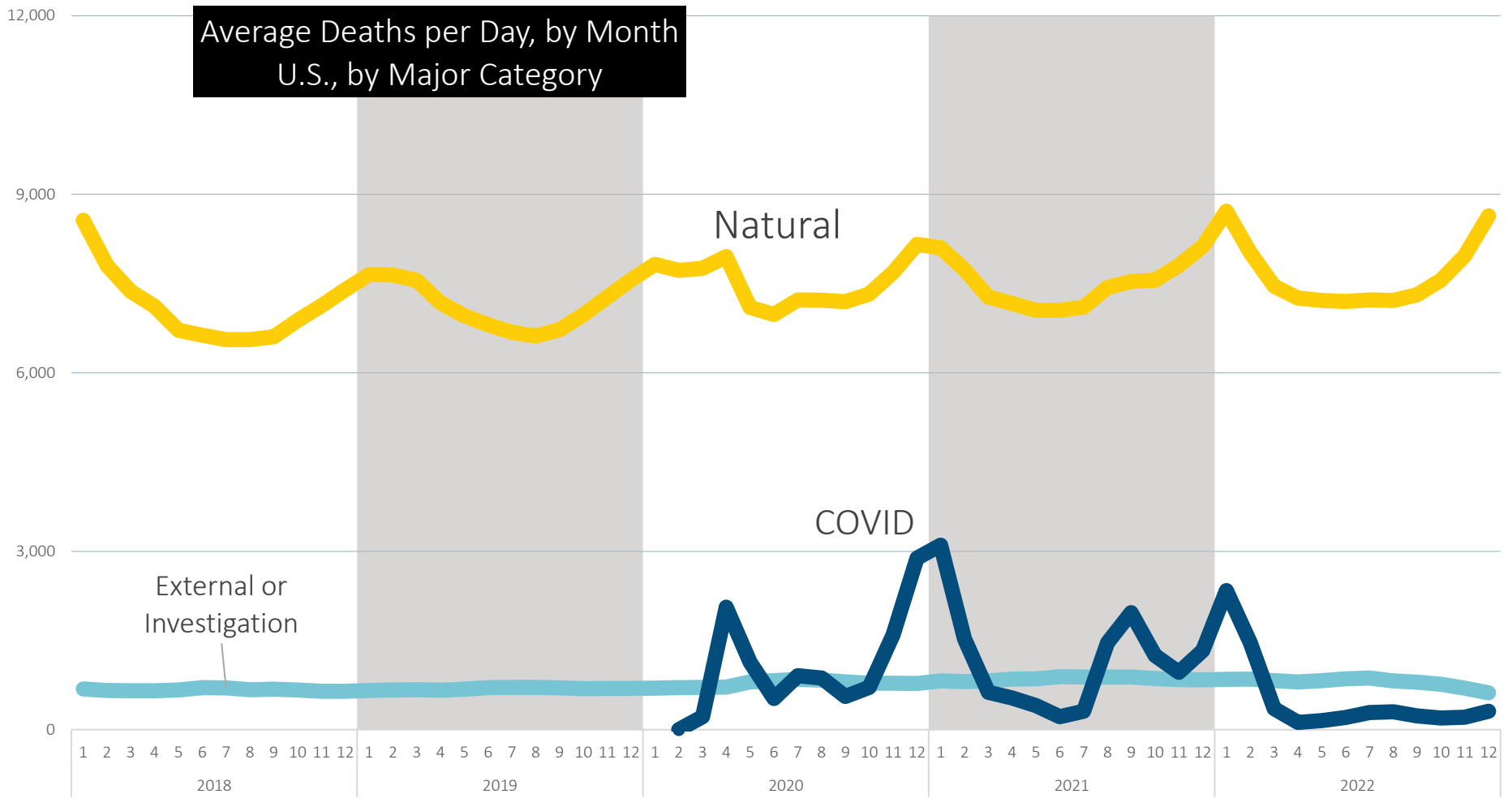
Deaths per Month, U.S. By Major Cause Category

■ Natural ■ External ■ Investigation ■ COVID



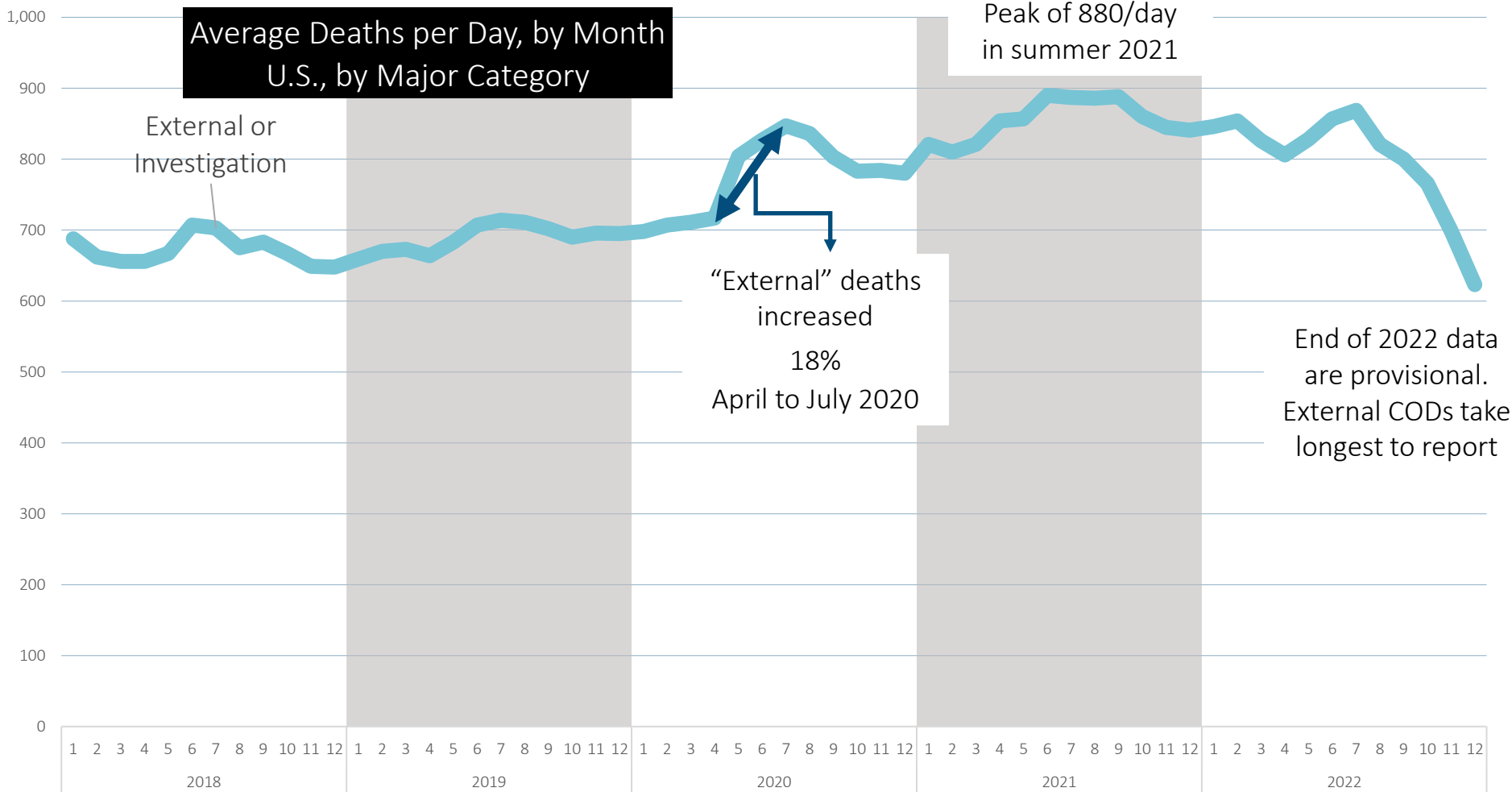
Source: CDC Wonder, data as of 15 Mar 2023

Average Deaths per Day, by Month U.S., by Major Category



Source: CDC Wonder, data as of 15 Mar 2023

Average Deaths per Day, by Month U.S., by Major Category



Source: CDC Wonder, data as of 15 Mar 2023

Total Death Rate	< 1	1-4	5-14	15-24	25-34	35-44	45-54	55-64	65-74	75-84	85+
	0.55%	0.02%	0.01%	0.07%	0.13%	0.20%	0.39%	0.88%	1.76%	4.31%	13.23%

Death Rate by Leading Causes of Death by Age Group, 2019, U.S.

Rank	< 1	1-4	5-14	15-24	25-34	35-44	45-54	55-64	65-74	75-84	85+
1	Perinatal period 0.272%	Accidents 0.007%	Accidents 0.004%	Accidents 0.028%	Accidents 0.053%	Accidents 0.058%	Cancer 0.087%	Cancer 0.263%	Cancer 0.543%	Cancer 1.006%	Heart disease 3.798%
2	Congenital anomalies 0.114%	Congenital anomalies 0.003%	Cancer 0.002%	Suicide 0.014%	Suicide 0.018%	Cancer 0.026%	Heart disease 0.076%	Heart disease 0.190%	Heart disease 0.389%	Heart disease 0.991%	Cancer 1.571%
3	Accidents 0.033%	Cancer 0.002%	Suicide 0.001%	Homicide 0.011%	Homicide 0.012%	Heart disease 0.025%	Accidents 0.057%	Accidents 0.059%	Chronic lower respiratory diseases 0.125%	Chronic lower respiratory diseases 0.318%	Alzheimers 1.191%
4	Heart disease 0.007%	Homicide 0.002%	Congenital anomalies 0.001%	Cancer 0.003%	Cancer 0.008%	Suicide 0.018%	Liver disease 0.020%	Chronic lower respiratory diseases 0.044%	Stroke 0.076%	Stroke 0.254%	Stroke 0.977%
5	Homicide 0.007%	Heart disease 0.001%	Homicide 0.001%	Heart disease 0.002%	Heart disease 0.008%	Homicide 0.008%	Suicide 0.020%	Diabetes 0.037%	Diabetes 0.073%	Alzheimers 0.210%	Chronic lower respiratory diseases 0.654%
6	Flu/pneumonia 0.004%	Flu/pneumonia 0.001%	Heart disease 0.0004%	Congenital anomalies 0.001%	Liver disease 0.002%	Liver disease 0.008%	Diabetes 0.016%	Liver disease 0.034%	Accidents 0.055%	Diabetes 0.139%	Accidents 0.377%
7	Septicemia 0.004%	Perinatal period 0.0004%	Chronic lower respiratory diseases 0.0004%	Diabetes 0.001%	Diabetes 0.002%	Diabetes 0.005%	Stroke 0.013%	Stroke 0.030%	Kidney disease 0.035%	Accidents 0.115%	Flu/pneumonia 0.295%
8	Stroke 0.003%	Septicemia 0.0003%	Flu/pneumonia 0.0003%	Flu/pneumonia 0.0004%	Stroke 0.001%	Stroke 0.004%	Chronic lower respiratory diseases 0.009%	Suicide 0.019%	Liver disease 0.033%	Parkinsons 0.093%	Diabetes 0.260%
9	Cancer 0.001%	Stroke 0.0003%	Stroke 0.0002%	Chronic lower respiratory diseases 0.0004%	Pregnancy-related 0.001%	Flu/pneumonia 0.002%	Kidney disease 0.006%	Kidney disease 0.014%	Septicemia 0.028%	Kidney disease 0.092%	Kidney disease 0.251%
10	Meningitis 0.001%	Benign neoplasms 0.0003%	Diabetes 0.0001%	Stroke 0.0004%	HIV/AIDS 0.001%	Septicemia 0.002%	Septicemia 0.005%	Septicemia 0.013%	Flu/pneumonia 0.027%	Flu/pneumonia 0.077%	Hypertension 0.227%

Source:
CDC
Wonder
finalized
data

Total Death Rate	< 1	1-4	5-14	15-24	25-34	35-44	45-54	55-64	65-74	75-84	85+
	0.52%	0.02%	0.01%	0.08%	0.16%	0.25%	0.47%	1.04%	2.07%	5.00%	15.21%

Death Rate by Leading Causes of Death by Age Group, 2020, U.S.

Rank	< 1	1-4	5-14	15-24	25-34	35-44	45-54	55-64	65-74	75-84	85+
1	Perinatal period 0.256%	Accidents 0.007%	Accidents 0.004%	Accidents 0.036%	Accidents 0.068%	Accidents 0.074%	Cancer 0.086%	Cancer 0.260%	Cancer 0.539%	Heart disease 1.017%	Heart disease 3.822%
2	Congenital anomalies 0.108%	Congenital anomalies 0.002%	Cancer 0.002%	Homicide 0.015%	Suicide 0.018%	Heart disease 0.029%	Heart disease 0.085%	Heart disease 0.209%	Heart disease 0.414%	Cancer 0.990%	COVID 1.645%
3	Accidents 0.032%	Homicide 0.002%	Suicide 0.001%	Suicide 0.014%	Homicide 0.015%	Cancer 0.025%	Accidents 0.069%	COVID 0.099%	COVID 0.234%	COVID 0.590%	Cancer 1.538%
4	Homicide 0.007%	Cancer 0.002%	Homicide 0.001%	Cancer 0.003%	Heart disease 0.009%	Suicide 0.017%	COVID 0.042%	Accidents 0.068%	Chronic lower respiratory diseases 0.118%	Chronic lower respiratory diseases 0.300%	Alzheimers 1.287%
5	Heart disease 0.006%	Heart disease 0.001%	Congenital anomalies 0.001%	Heart disease 0.002%	Cancer 0.008%	COVID 0.014%	Liver disease 0.024%	Chronic lower respiratory diseases 0.044%	Diabetes 0.084%	Stroke 0.263%	Stroke 1.018%
6	Flu/pneumonia 0.003%	Flu/pneumonia 0.001%	Heart disease 0.0004%	COVID 0.001%	COVID 0.005%	Liver disease 0.012%	Diabetes 0.019%	Diabetes 0.042%	Stroke 0.081%	Alzheimers 0.229%	Chronic lower respiratory diseases 0.613%
7	Septicemia 0.003%	Stroke 0.0004%	Chronic lower respiratory diseases 0.0004%	Congenital anomalies 0.001%	Liver disease 0.004%	Homicide 0.011%	Suicide 0.018%	Liver disease 0.038%	Accidents 0.057%	Diabetes 0.155%	Accidents 0.384%
8	Stroke 0.003%	Perinatal period 0.0003%	Flu/pneumonia 0.0003%	Diabetes 0.001%	Diabetes 0.003%	Diabetes 0.007%	Stroke 0.014%	Stroke 0.033%	Liver disease 0.037%	Accidents 0.113%	Diabetes 0.293%
9	Cancer 0.001%	Septicemia 0.0003%	Stroke 0.0002%	Chronic lower respiratory diseases 0.001%	Stroke 0.001%	Stroke 0.005%	Chronic lower respiratory diseases 0.009%	Suicide 0.017%	Kidney disease 0.035%	Parkinsons 0.105%	Flu/pneumonia 0.274%
10	Meningitis 0.001%	Benign neoplasms 0.0002%	Diabetes 0.0001%	Pregnancy-related 0.000%	Pregnancy-related 0.001%	Flu/pneumonia 0.003%	Homicide 0.006%	Flu/pneumonia 0.015%	Flu/pneumonia 0.032%	Kidney disease 0.089%	Hypertension 0.250%

Source:
CDC
Wonder
finalized
data

Total Death Rate	< 1	1-4	5-14	15-24	25-34	35-44	45-54	55-64	65-74	75-84	85+
	0.56%	0.03%	0.01%	0.09%	0.18%	0.29%	0.53%	1.12%	2.15%	5.12%	15.74%

Death Rate by Leading Causes of Death by Age Group, 2021, U.S.

Rank	< 1	1-4	5-14	15-24	25-34	35-44	45-54	55-64	65-74	75-84	85+
1	Perinatal period 0.265%	Accidents 0.009%	Accidents 0.004%	Accidents 0.037%	Accidents 0.076%	Accidents 0.084%	COVID 0.091%	Cancer 0.252%	Cancer 0.532%	Heart disease 1.044%	Heart disease 4.079%
2	Congenital anomalies 0.111%	Congenital anomalies 0.003%	Cancer 0.002%	Homicide 0.015%	Suicide 0.019%	COVID 0.037%	Heart disease 0.085%	Heart disease 0.209%	Heart disease 0.417%	Cancer 1.017%	Cancer 1.713%
3	Accidents 0.037%	Homicide 0.002%	Suicide 0.001%	Suicide 0.015%	Homicide 0.017%	Heart disease 0.029%	Cancer 0.082%	COVID 0.172%	COVID 0.305%	COVID 0.610%	COVID 1.354%
4	Homicide 0.007%	Cancer 0.002%	Homicide 0.001%	COVID 0.003%	COVID 0.013%	Cancer 0.026%	Accidents 0.077%	Accidents 0.078%	Chronic lower respiratory disease 0.113%	Chronic lower respiratory disease 0.286%	Alzheimers 1.244%
5	Heart disease 0.007%	Heart disease 0.001%	Congenital anomalies 0.001%	Cancer 0.003%	Heart disease 0.009%	Suicide 0.018%	Liver disease 0.026%	Diabetes 0.043%	Stroke 0.084%	Stroke 0.275%	Stroke 1.111%
6	Flu/pneumonia 0.004%	Perinatal period 0.000%	Heart disease 0.000%	Heart disease 0.002%	Cancer 0.008%	Liver disease 0.013%	Diabetes 0.019%	Liver disease 0.041%	Diabetes 0.083%	Alzheimers 0.214%	Chronic lower respiratory disease 0.601%
7	Septicemia 0.003%	Stroke 0.000%	COVID 0.000%	Congenital anomalies 0.001%	Liver disease 0.004%	Homicide 0.011%	Suicide 0.018%	Chronic lower respiratory disease 0.041%	Accidents 0.065%	Diabetes 0.160%	Accidents 0.446%
8	Stroke 0.003%	COVID 0.000%	Chronic lower respiratory disease 0.000%	Diabetes 0.001%	Diabetes 0.003%	Diabetes 0.007%	Stroke 0.014%	Stroke 0.034%	Liver disease 0.038%	Accidents 0.127%	Diabetes 0.310%
9	COVID 0.003%	Flu/pneumonia 0.000%	Stroke 0.000%	Pregnancy-related 0.000%	Pregnancy-related 0.002%	Stroke 0.005%	Chronic lower respiratory disease 0.008%	Suicide 0.017%	Kidney disease 0.036%	Parkinsons 0.103%	Kidney disease 0.271%
10	Meningitis 0.002%	Benign neoplasms 0.000%	Benign neoplasms 0.000%	Stroke 0.000%	Stroke 0.001%	Septicemia 0.003%	Homicide 0.007%	Septicemia 0.015%	Septicemia 0.031%	Kidney disease 0.096%	Hypertension 0.271%

Source:
CDC
Wonder
finalized
data

Male-to-Female Ratio	1.16	1.18	1.34	2.57	2.31	1.86	1.70	2.57	1.54	1.37	1.15
Total Death Rate	< 1	1-4	5-14	15-24	25-34	35-44	45-54	55-64	65-74	75-84	85+
	0.60%	0.03%	0.02%	0.13%	0.25%	0.37%	0.67%	1.40%	2.64%	6.03%	17.19%

Death Rate by Leading Causes of Death by Age Group, 2021, U.S., Male

Rank	< 1	1-4	5-14	15-24	25-34	35-44	45-54	55-64	65-74	75-84	85+
1	Perinatal period 0.285%	Accidents 0.010%	Accidents 0.005%	Accidents 0.051%	Accidents 0.111%	Accidents 0.121%	Heart disease 0.120%	Heart disease 0.296%	Cancer 0.623%	Heart disease 1.320%	Heart disease 4.640%
2	Congenital anomalies 0.110%	Congenital anomalies 0.002%	Cancer 0.002%	Homicide 0.026%	Suicide 0.031%	COVID 0.045%	COVID 0.115%	Cancer 0.276%	Heart disease 0.569%	Cancer 1.228%	Cancer 2.296%
3	Accidents 0.041%	Homicide 0.002%	Suicide 0.002%	Suicide 0.024%	Homicide 0.028%	Heart disease 0.040%	Accidents 0.110%	COVID 0.214%	COVID 0.378%	COVID 0.780%	COVID 1.732%
4	Homicide 0.009%	Cancer 0.002%	Homicide 0.001%	COVID 0.004%	COVID 0.017%	Suicide 0.029%	Cancer 0.078%	Accidents 0.114%	Chronic lower respiratory disease 0.125%	Chronic lower respiratory disease 0.309%	Stroke 0.990%
5	Heart disease 0.008%	Heart disease 0.001%	Congenital anomalies 0.001%	Cancer 0.004%	Heart disease 0.012%	Cancer 0.022%	Liver disease 0.034%	Diabetes 0.056%	Diabetes 0.105%	Stroke 0.284%	Alzheimers 0.934%
6	Flu/pneumonia 0.004%	Perinatal period 0.000%	Heart disease 0.001%	Heart disease 0.003%	Cancer 0.008%	Homicide 0.018%	Suicide 0.028%	Liver disease 0.055%	Stroke 0.096%	Diabetes 0.198%	Chronic lower respiratory disease 0.670%
7	Septicemia 0.004%	COVID 0.000%	COVID 0.000%	Congenital anomalies 0.001%	Liver disease 0.005%	Liver disease 0.017%	Diabetes 0.024%	Chronic lower respiratory disease 0.042%	Accidents 0.093%	Alzheimers 0.175%	Accidents 0.516%
8	Stroke 0.003%	Stroke 0.000%	Chronic lower respiratory disease 0.000%	Diabetes 0.001%	Diabetes 0.003%	Diabetes 0.008%	Stroke 0.016%	Stroke 0.041%	Liver disease 0.052%	Accidents 0.161%	Diabetes 0.377%
9	COVID 0.002%	Septicemia 0.000%	Stroke 0.000%	Stroke 0.000%	HIV/AIDS 0.002%	Stroke 0.006%	Homicide 0.011%	Suicide 0.027%	Kidney disease 0.042%	Parkinsons 0.147%	Parkinsons 0.376%
10	Meningitis 0.002%	Benign neoplasms 0.000%	Benign neoplasms 0.000%	Legal intervention 0.000%	Stroke 0.002%	Septicemia 0.003%	Kidney disease 0.007%	Kidney disease 0.018%	Septicemia 0.034%	Kidney disease 0.114%	Kidney disease 0.348%

Source:
CDC
Wonder
finalized
data

Data source: CDC WONDER, finalized data, 2023 Mar 6

Male-to-Female Ratio	1.16	1.18	1.34	2.57	2.31	1.86	1.70	1.65	1.54	1.37	1.15
Total Death Rate	< 1	1-4	5-14	15-24	25-34	35-44	45-54	55-64	65-74	75-84	85+
	0.52%	0.02%	0.01%	0.05%	0.11%	0.20%	0.39%	0.85%	1.72%	4.40%	14.91%

Death Rate by Leading Causes of Death by Age Group, 2021, U.S., Female

Rank	< 1	1-4	5-14	15-24	25-34	35-44	45-54	55-64	65-74	75-84	85+
1	Perinatal period 0.243%	Accidents 0.007%	Accidents 0.003%	Accidents 0.021%	Accidents 0.040%	Accidents 0.047%	Cancer 0.087%	Cancer 0.229%	Cancer 0.451%	Cancer 0.850%	Heart disease 3.757%
2	Congenital anomalies 0.112%	Congenital anomalies 0.003%	Cancer 0.002%	Suicide 0.006%	COVID 0.010%	Cancer 0.030%	COVID 0.066%	COVID 0.132%	Heart disease 0.281%	Heart disease 0.825%	Alzheimers 1.421%
3	Accidents 0.032%	Cancer 0.002%	Suicide 0.001%	Homicide 0.004%	Cancer 0.008%	COVID 0.028%	Heart disease 0.050%	Heart disease 0.125%	COVID 0.240%	COVID 0.474%	Cancer 1.379%
4	Heart disease 0.007%	Homicide 0.002%	Homicide 0.001%	COVID 0.003%	Suicide 0.007%	Heart disease 0.018%	Accidents 0.044%	Accidents 0.044%	Chronic lower respiratory disease 0.102%	Stroke 0.268%	Stroke 1.180%
5	Homicide 0.006%	Heart disease 0.001%	Congenital anomalies 0.001%	Cancer 0.002%	Heart disease 0.006%	Liver disease 0.010%	Liver disease 0.018%	Chronic lower respiratory disease 0.041%	Stroke 0.074%	Chronic lower respiratory disease 0.267%	COVID 1.138%
6	Flu/pneumonia 0.003%	Perinatal period 0.000%	Heart disease 0.000%	Heart disease 0.002%	Homicide 0.005%	Suicide 0.008%	Diabetes 0.013%	Diabetes 0.031%	Diabetes 0.063%	Alzheimers 0.246%	Chronic lower respiratory disease 0.561%
7	Septicemia 0.003%	Stroke 0.000%	COVID 0.000%	Pregnancy-related 0.001%	Pregnancy-related 0.004%	Diabetes 0.005%	Stroke 0.012%	Stroke 0.028%	Accidents 0.040%	Diabetes 0.130%	Accidents 0.406%
8	COVID 0.003%	Flu/pneumonia 0.000%	Stroke 0.000%	Congenital anomalies 0.001%	Liver disease 0.003%	Stroke 0.004%	Suicide 0.009%	Liver disease 0.028%	Kidney disease 0.031%	Accidents 0.100%	Hypertension 0.284%
9	Stroke 0.003%	COVID 0.000%	Chronic lower respiratory disease 0.000%	Diabetes 0.001%	Diabetes 0.002%	Homicide 0.004%	Chronic lower respiratory disease 0.008%	Septicemia 0.014%	Alzheimers 0.030%	Kidney disease 0.081%	Diabetes 0.271%
10	Meningitis 0.001%	Benign neoplasms 0.000%	Diabetes 0.000%	Stroke 0.000%	Stroke 0.001%	Pregnancy-related 0.003%	Septicemia 0.006%	Kidney disease 0.012%	Septicemia 0.028%	Parkinsons 0.067%	Kidney disease 0.227%

Source:
CDC
Wonder
finalized
data

Data source: CDC WONDER, finalized data, 2023 Mar 6

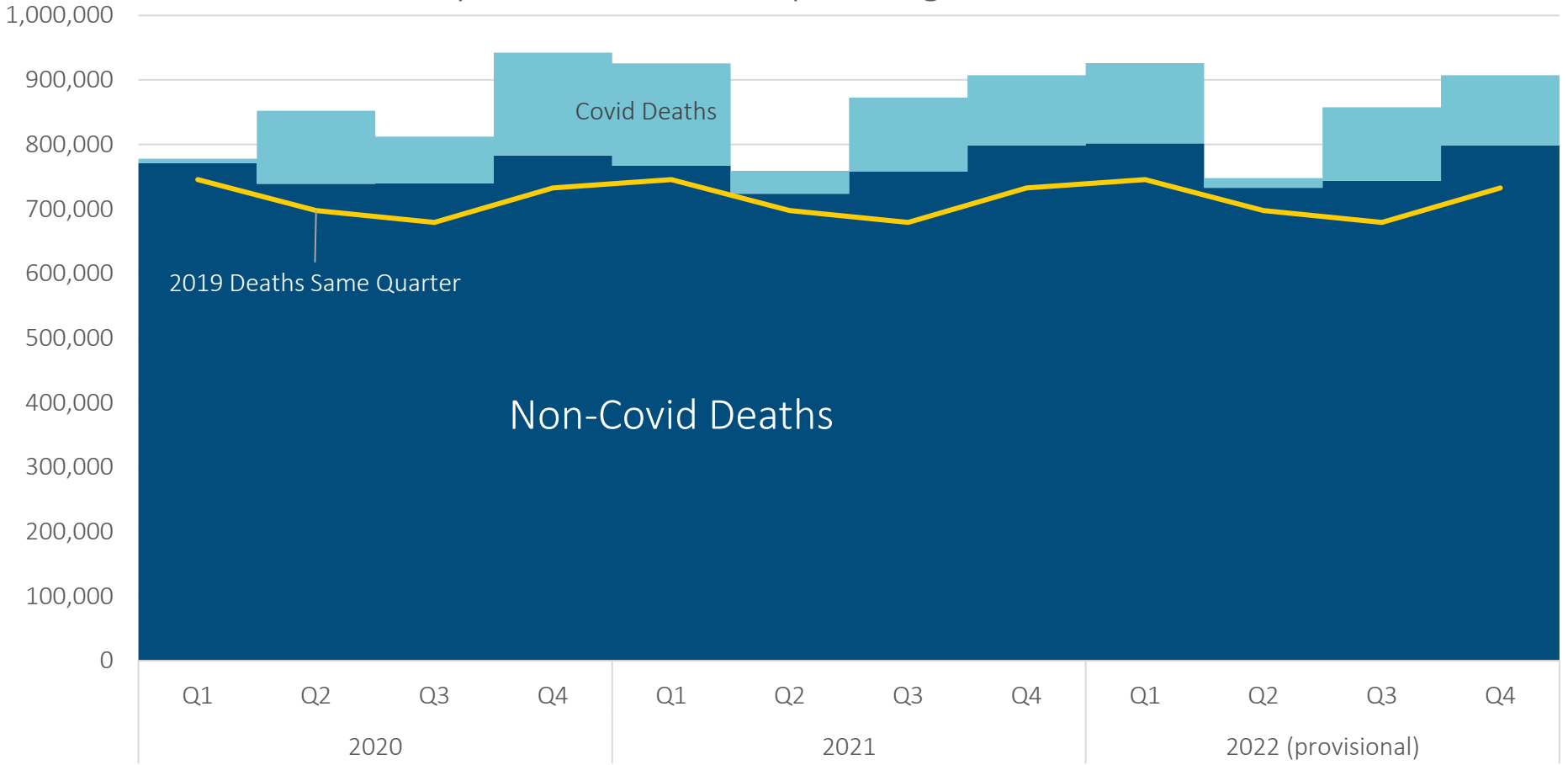
Cause of death: COVID



Counting COVID deaths

- Only counting where COVID is Underlying Cause of Death
- One and only one UCD per death certificate
- Contributing causes of death listed – from 0 up to 20
- Average number of CODs on death certificates has been rising in pre-pandemic years – averages over 3

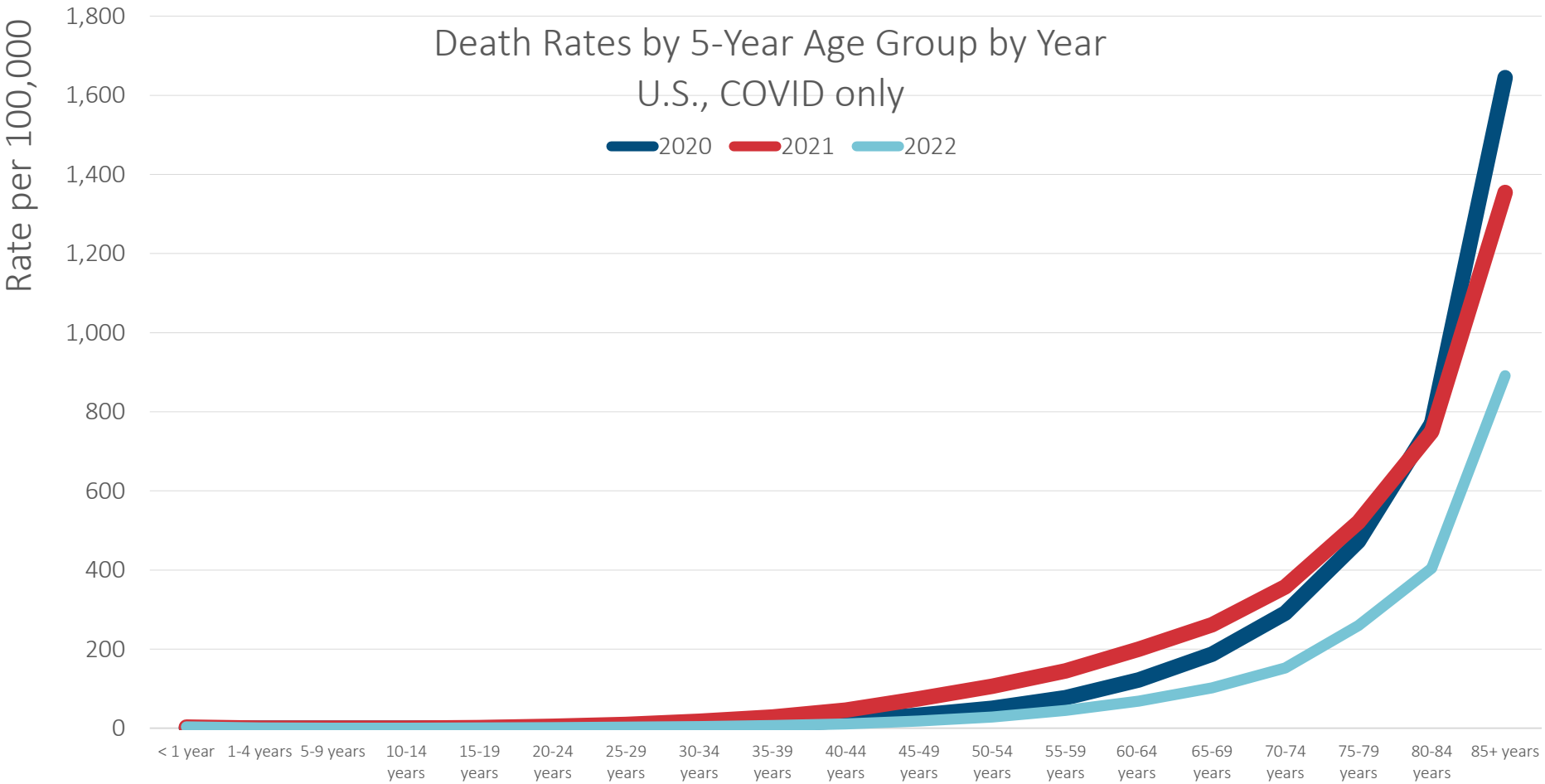
Deaths by Quarter, U.S., Compared Against Same Quarter 2019



Death Rates by 5-Year Age Group by Year

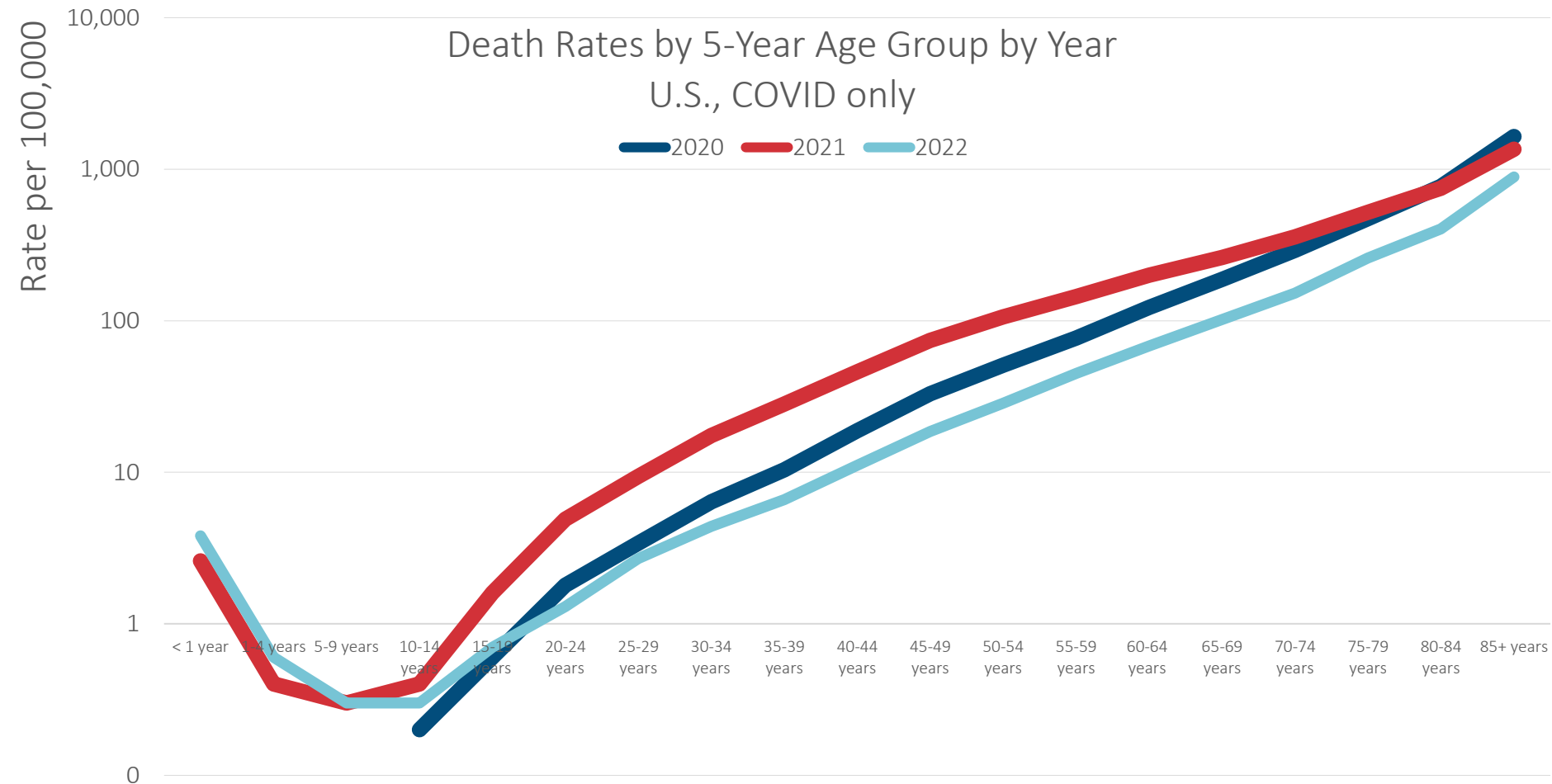
U.S., COVID only

2020 2021 2022



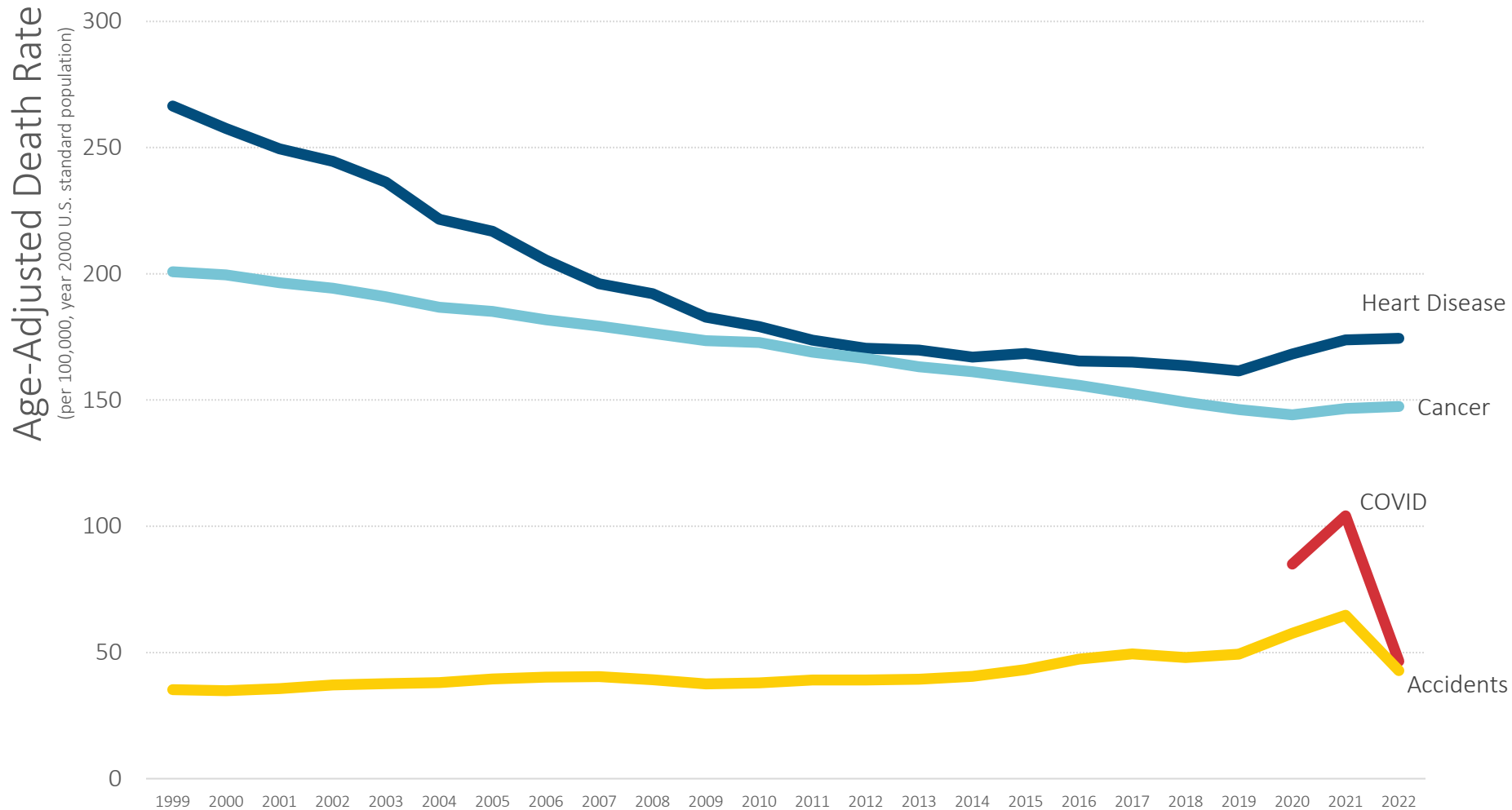
Death Rates by 5-Year Age Group by Year U.S., COVID only

2020 2021 2022



Cause of death: Historical Trajectories

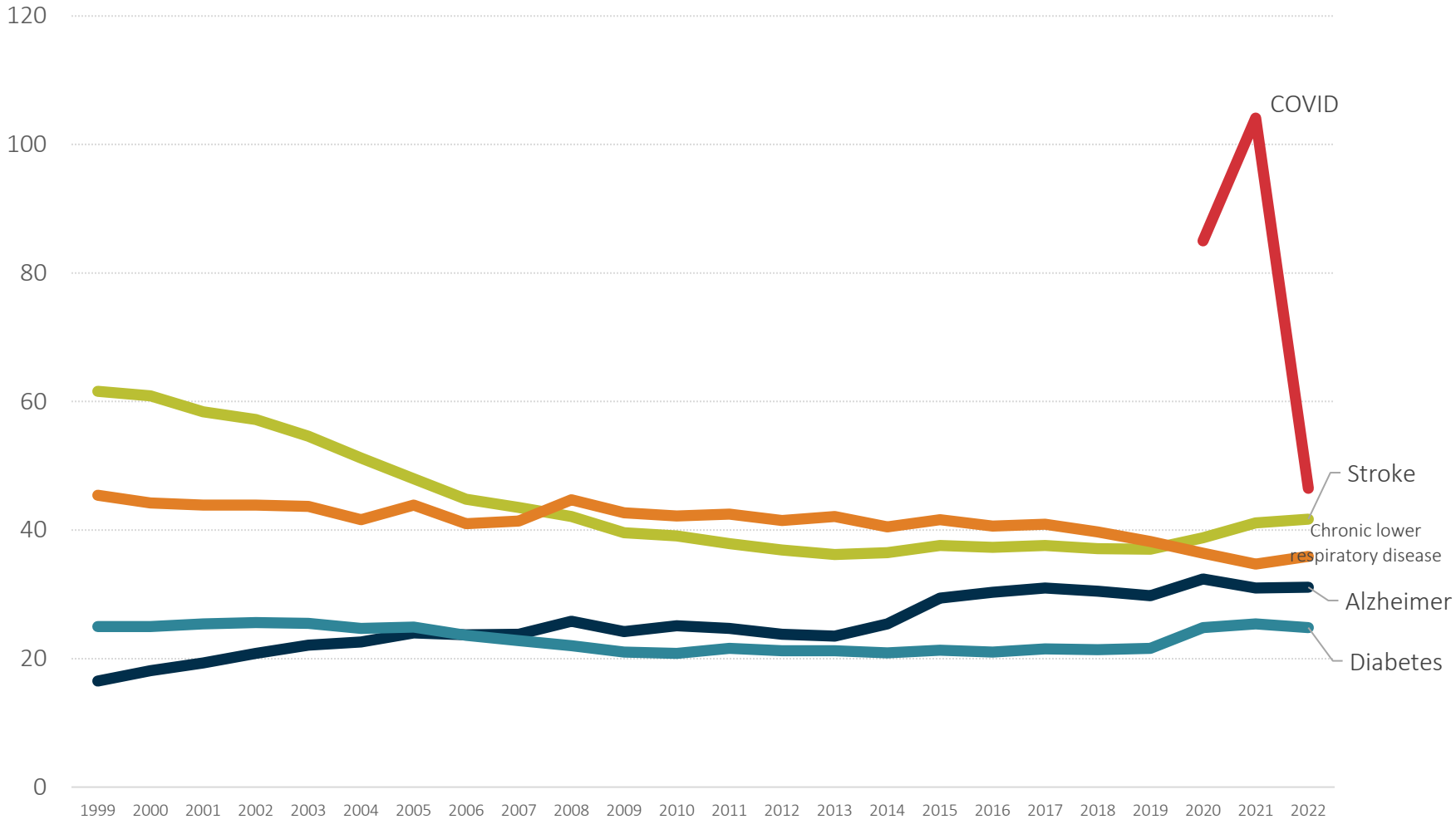




Source: CDC Wonder, data as of 16 Mar 2023, Accidents, Homicides, and Suicides include deaths only through August 2022 and the first week of September 2022 due to 6-month censoring of external causes of death.

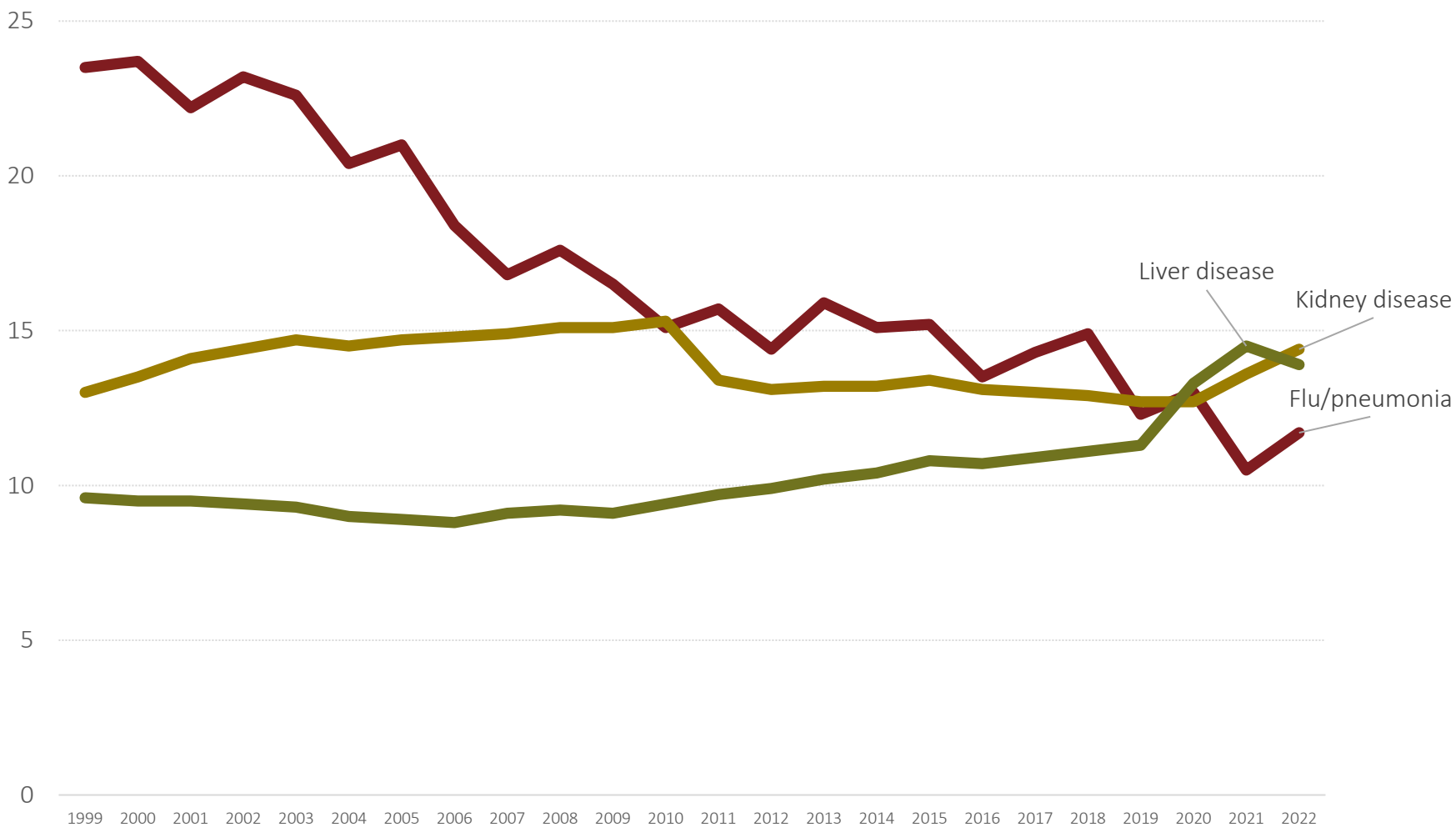
Age-Adjusted Death Rate

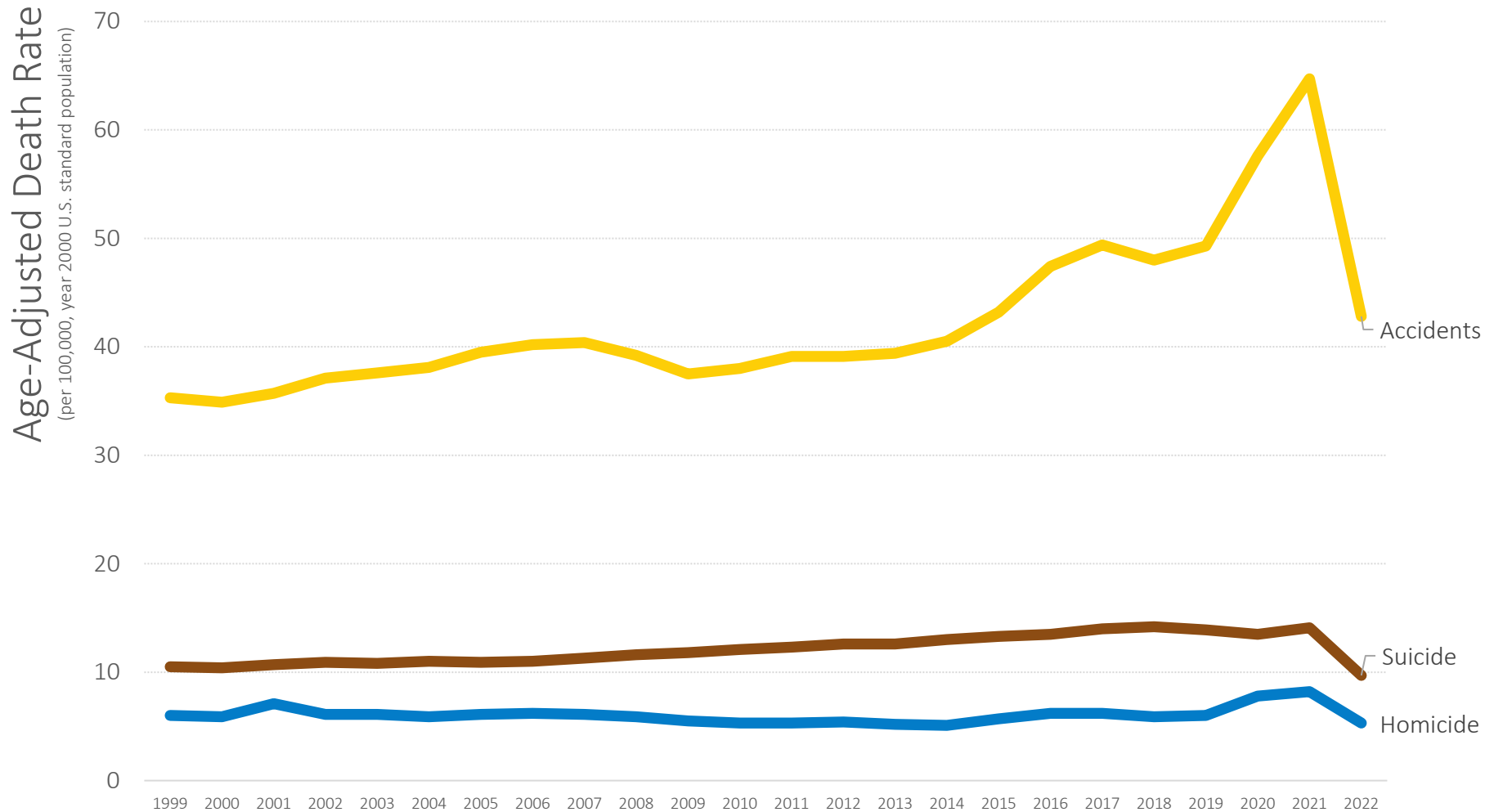
(per 100,000, year 2000 U.S. standard population)



Age-Adjusted Death Rate

(per 100,000, year 2000 U.S. standard population)





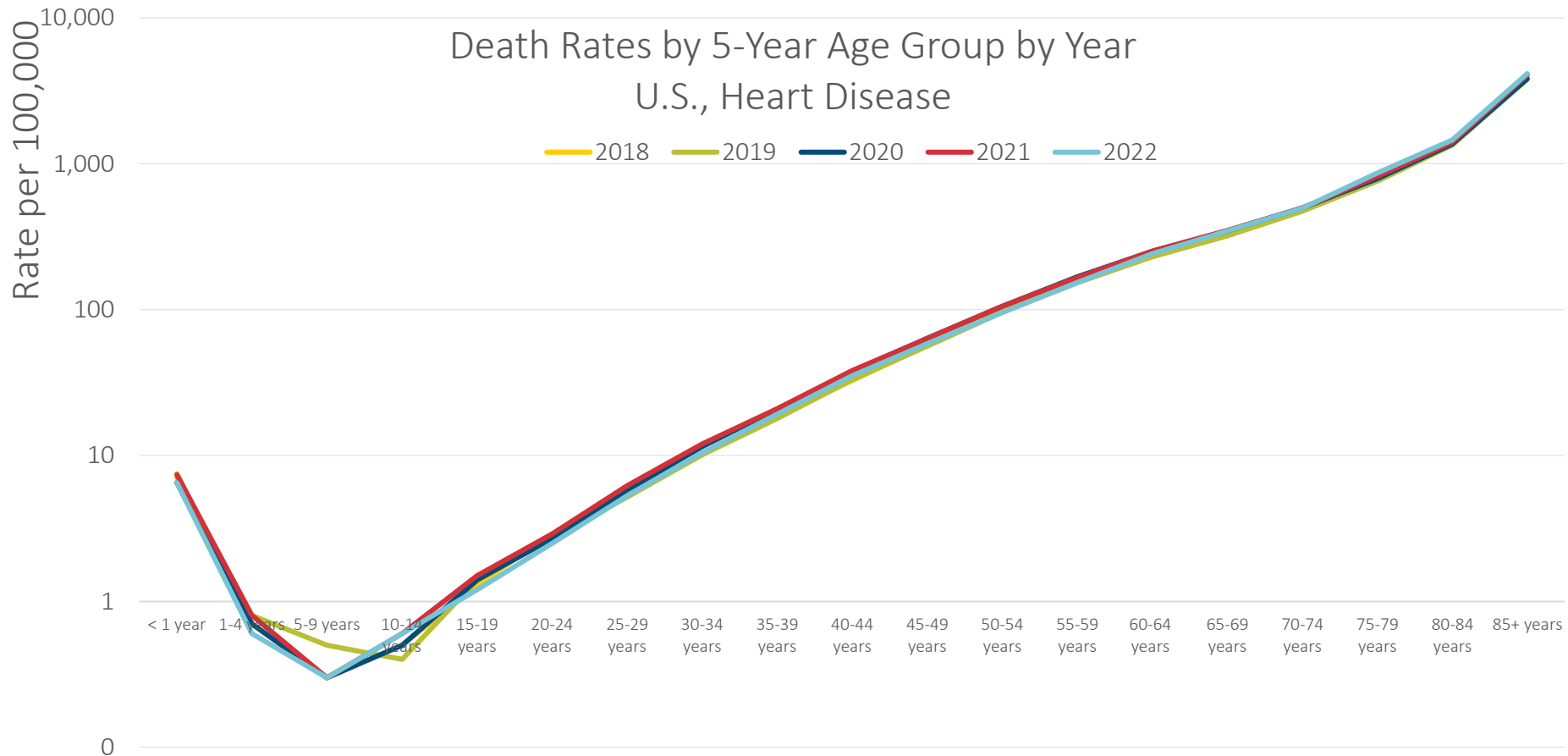
Source: CDC Wonder, data as of 16 Mar 2023, Accidents, Homicides, and Suicides include deaths only through August 2022 and the first week of September 2022 due to 6-month censoring of external causes of death.

Physiological causes



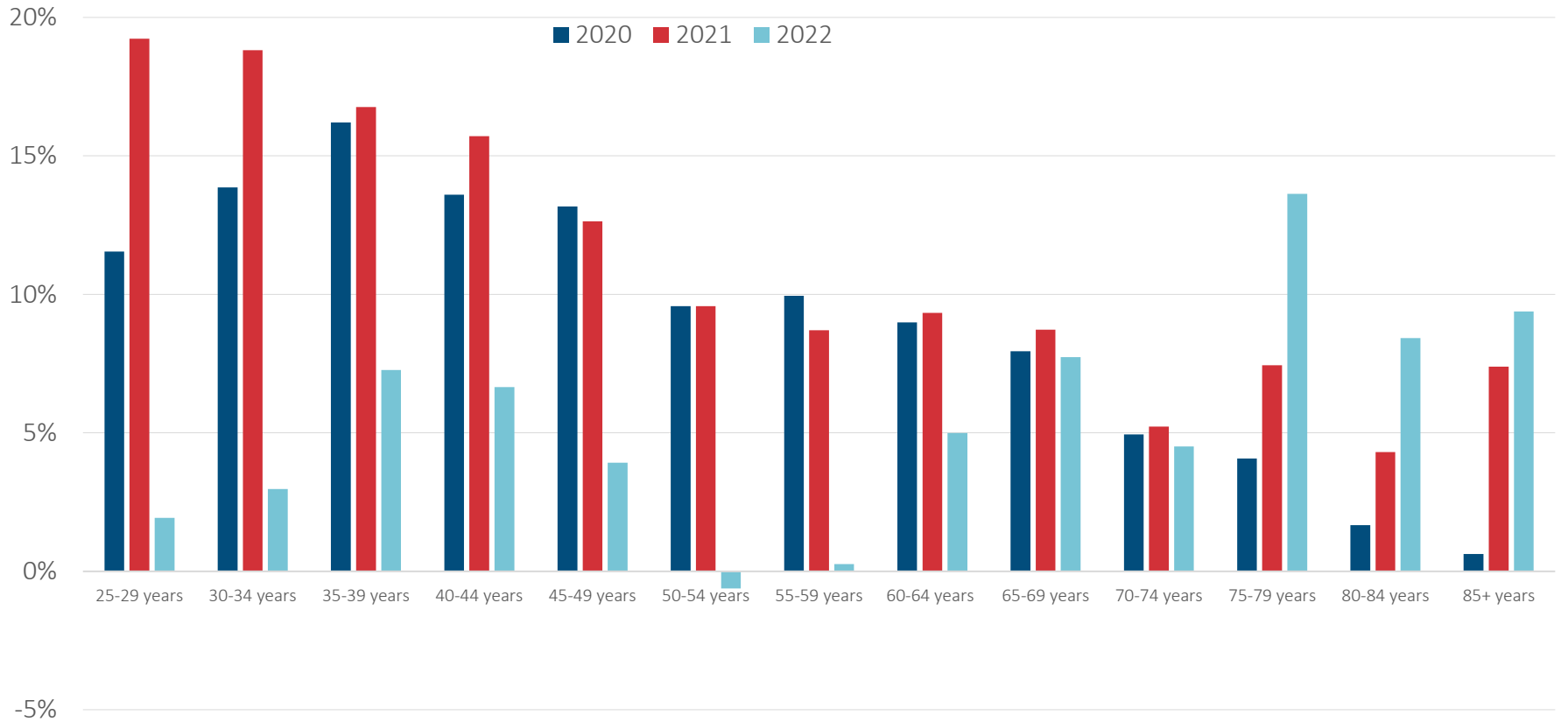
Death Rates by 5-Year Age Group by Year U.S., Heart Disease

2018 2019 2020 2021 2022



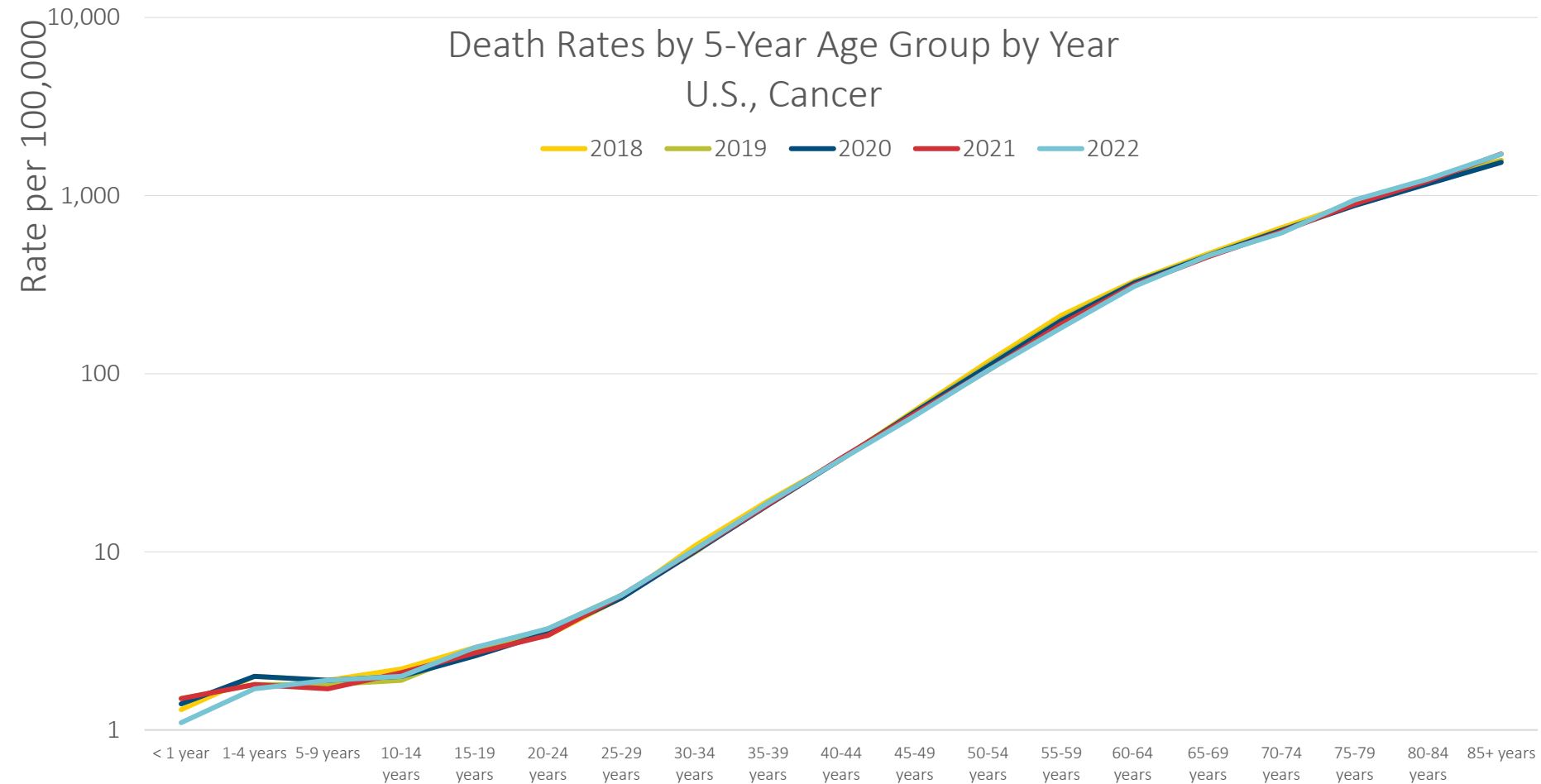
Percentage Difference in Death Rate v 2019

U.S., Heart Disease



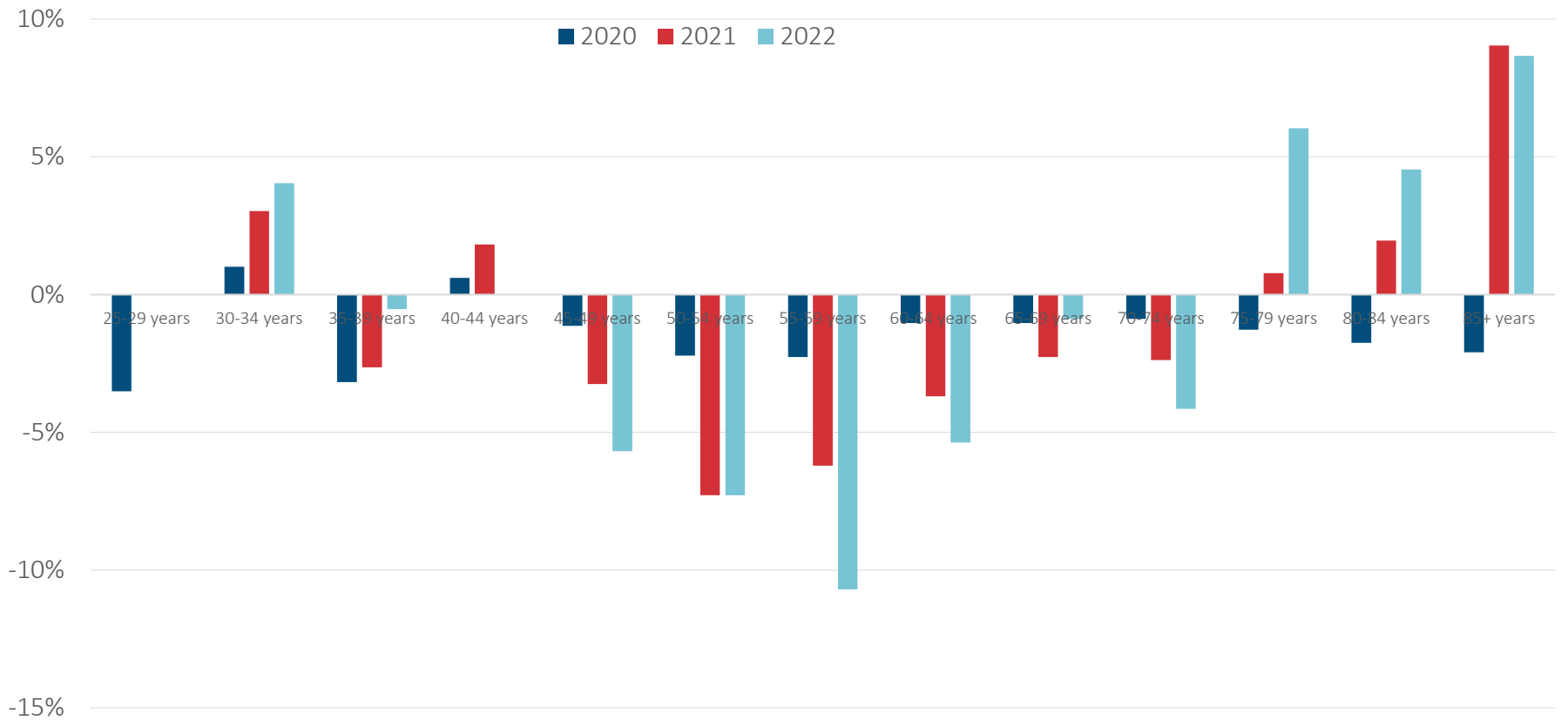
Death Rates by 5-Year Age Group by Year U.S., Cancer

2018 2019 2020 2021 2022



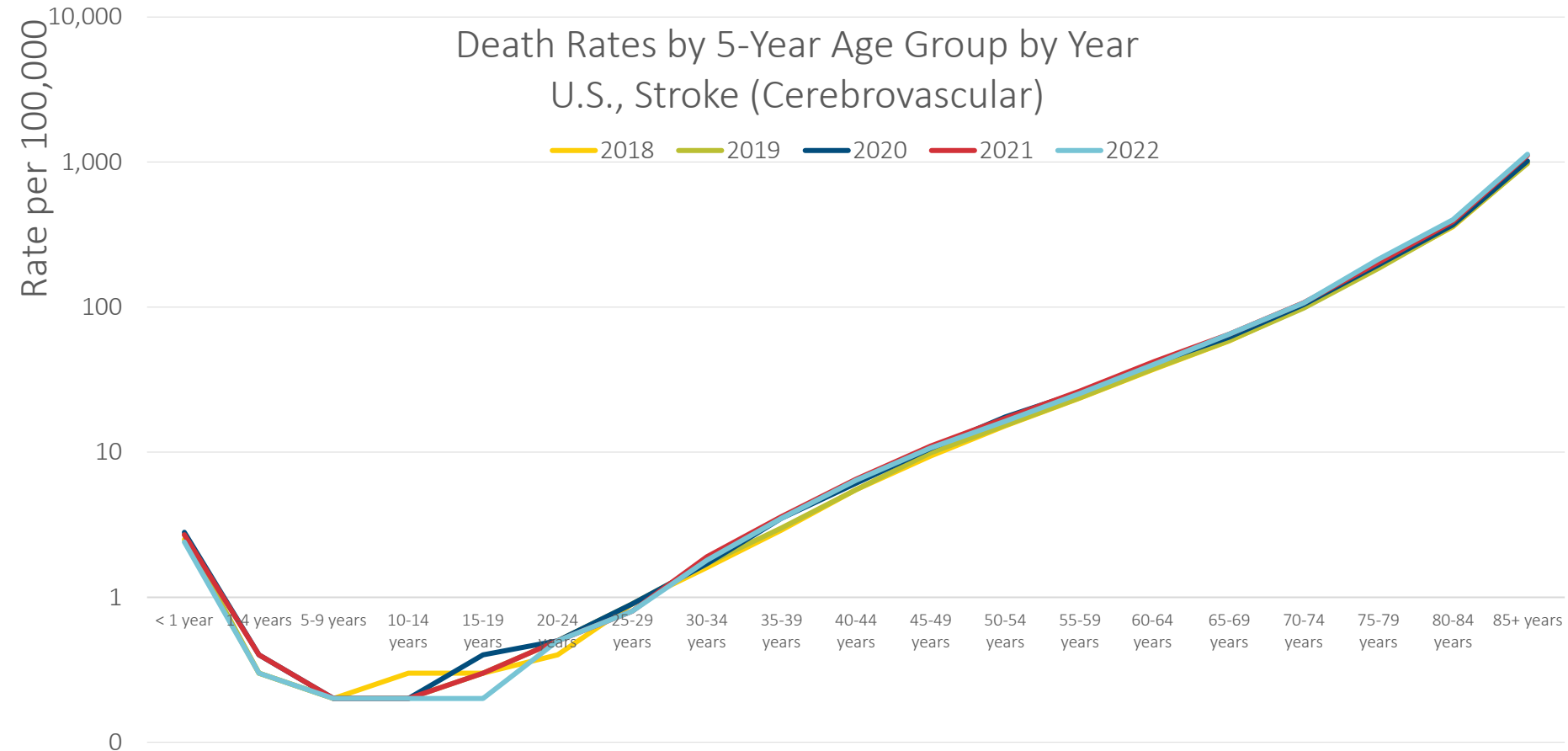
Percentage Difference in Death Rate v 2019

U.S., Cancer



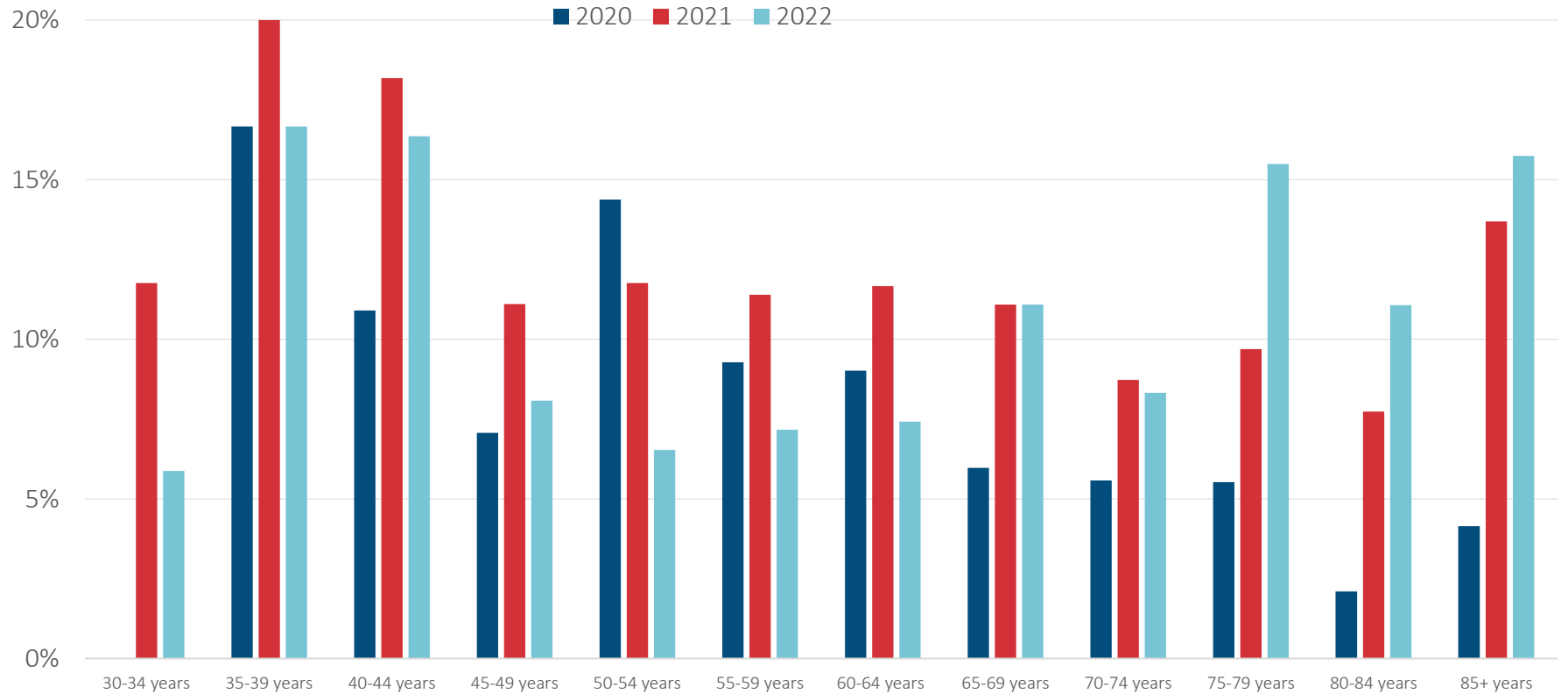
Death Rates by 5-Year Age Group by Year U.S., Stroke (Cerebrovascular)

— 2018 — 2019 — 2020 — 2021 — 2022



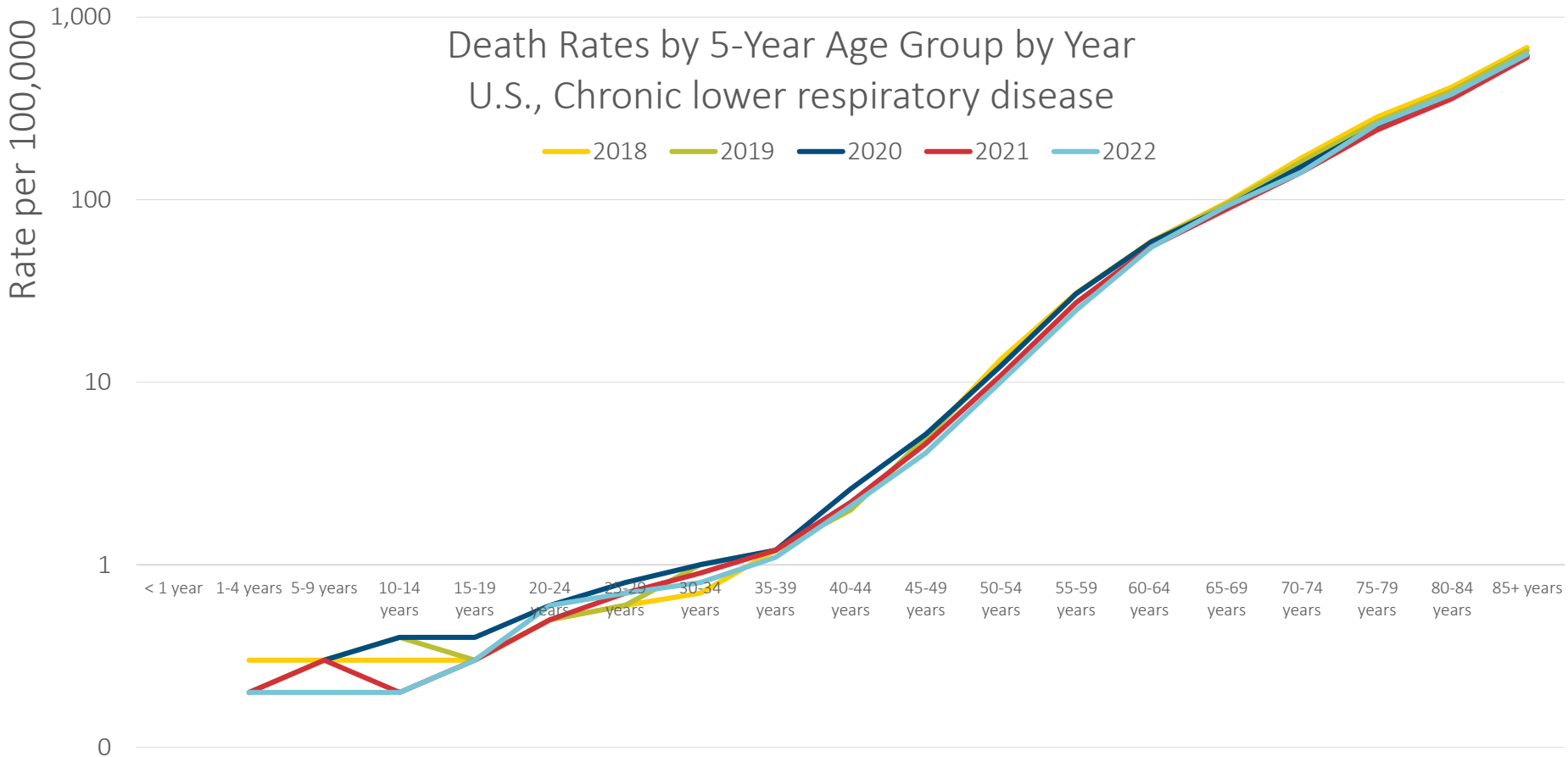
Percentage Difference in Death Rate v 2019

U.S., Stroke

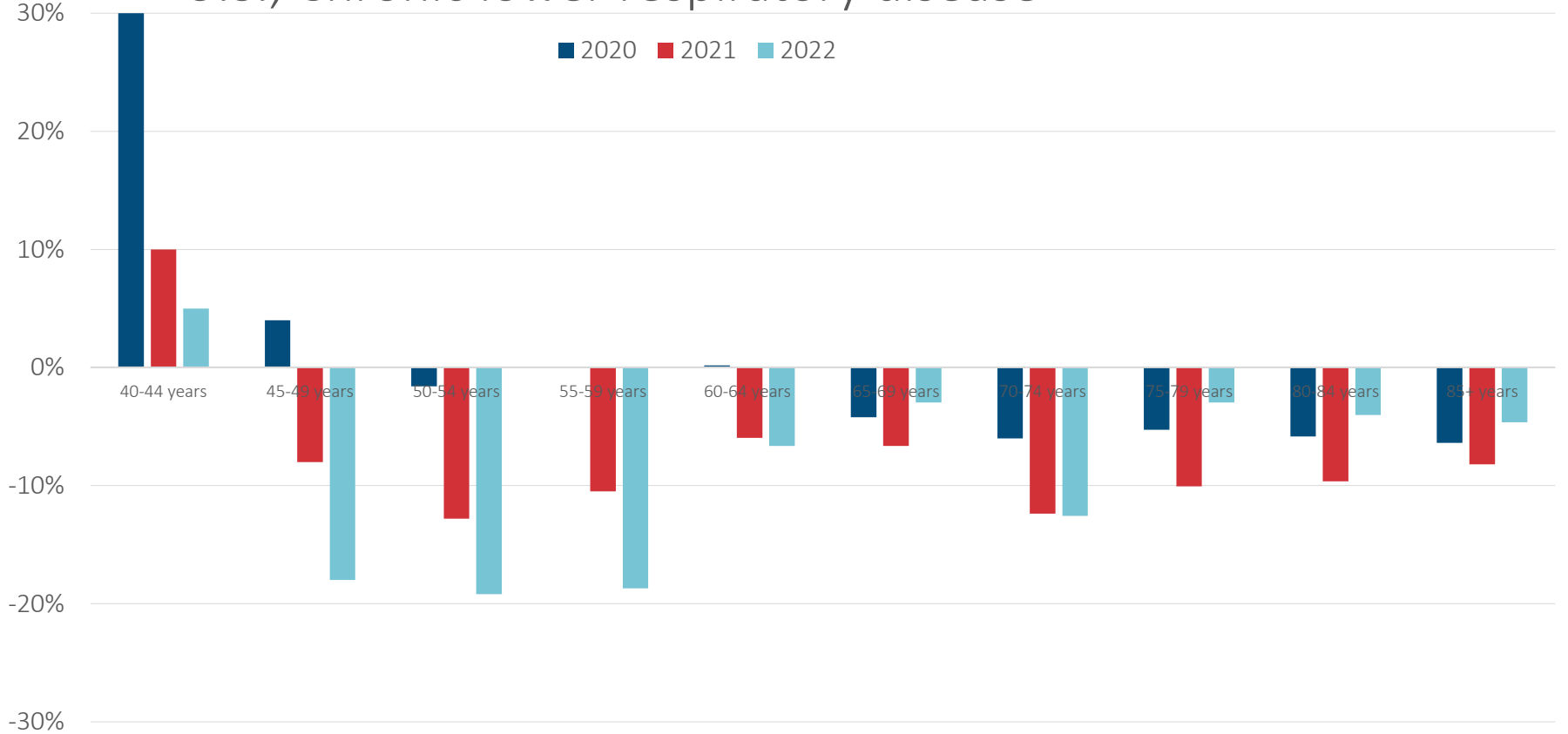


Death Rates by 5-Year Age Group by Year U.S., Chronic lower respiratory disease

— 2018 — 2019 — 2020 — 2021 — 2022

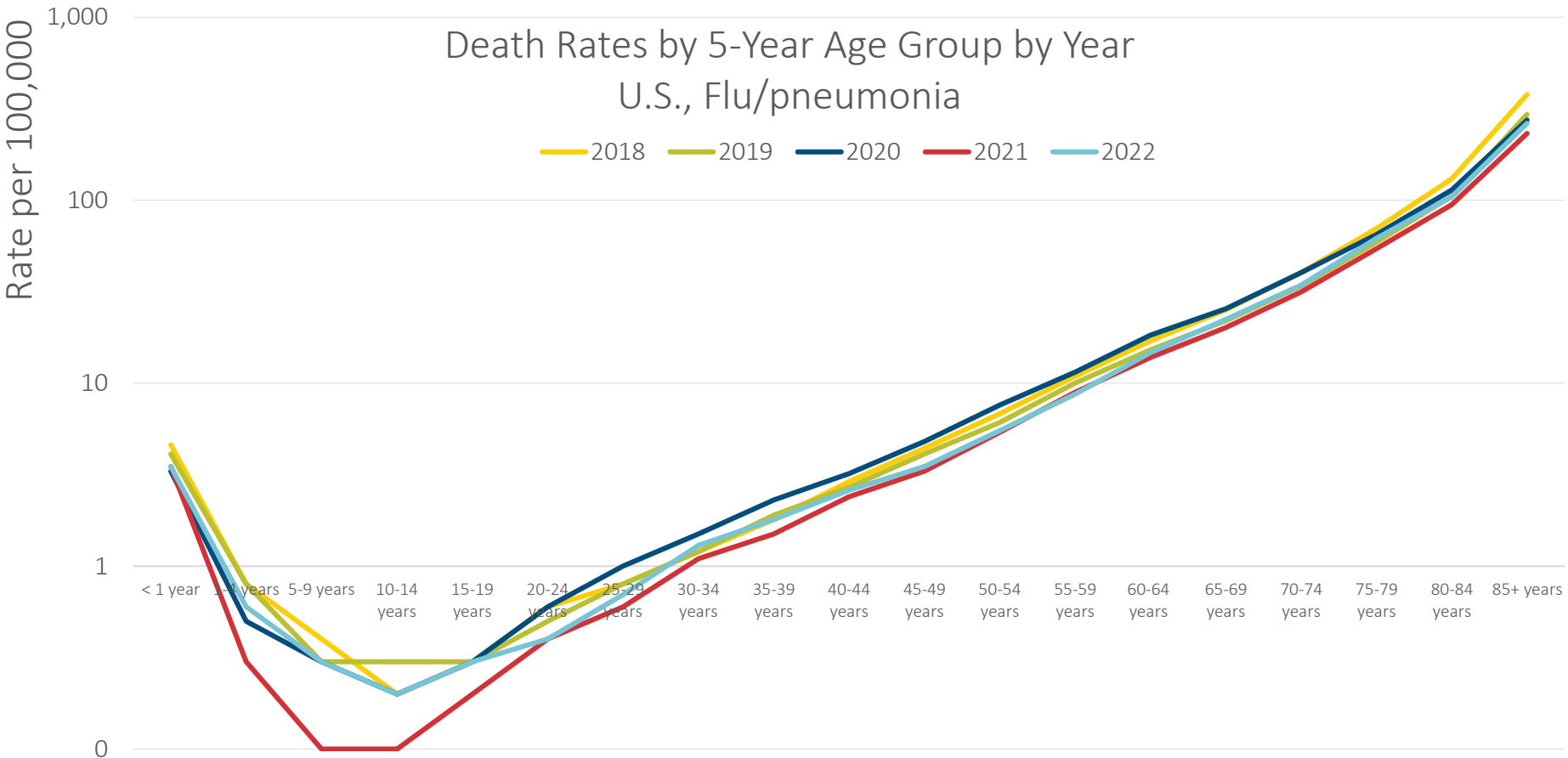


Percentage Difference in Death Rate v 2019 U.S., Chronic lower respiratory disease



Death Rates by 5-Year Age Group by Year U.S., Flu/pneumonia

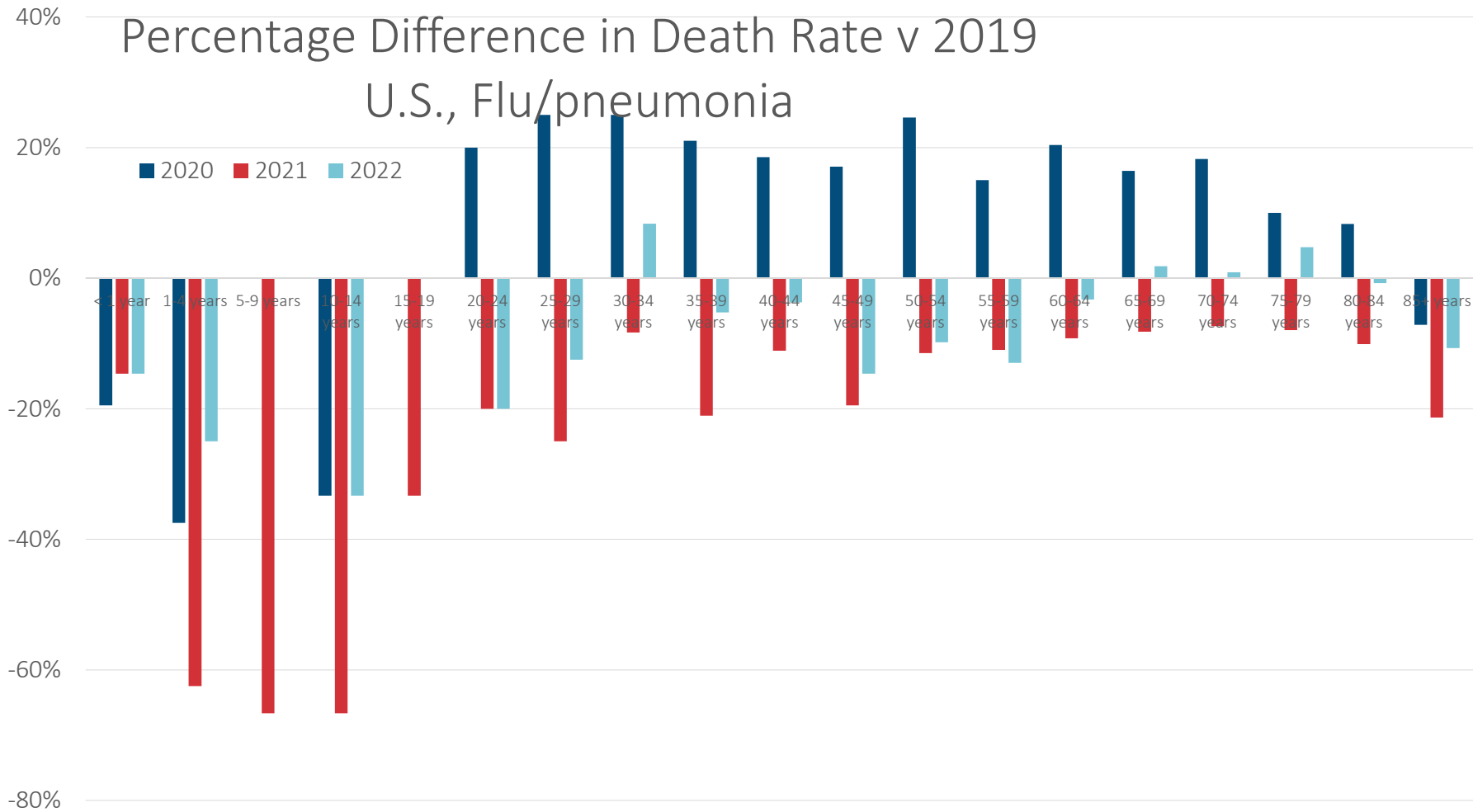
— 2018 — 2019 — 2020 — 2021 — 2022



Source: CDC Wonder, data as of 16 March 2023

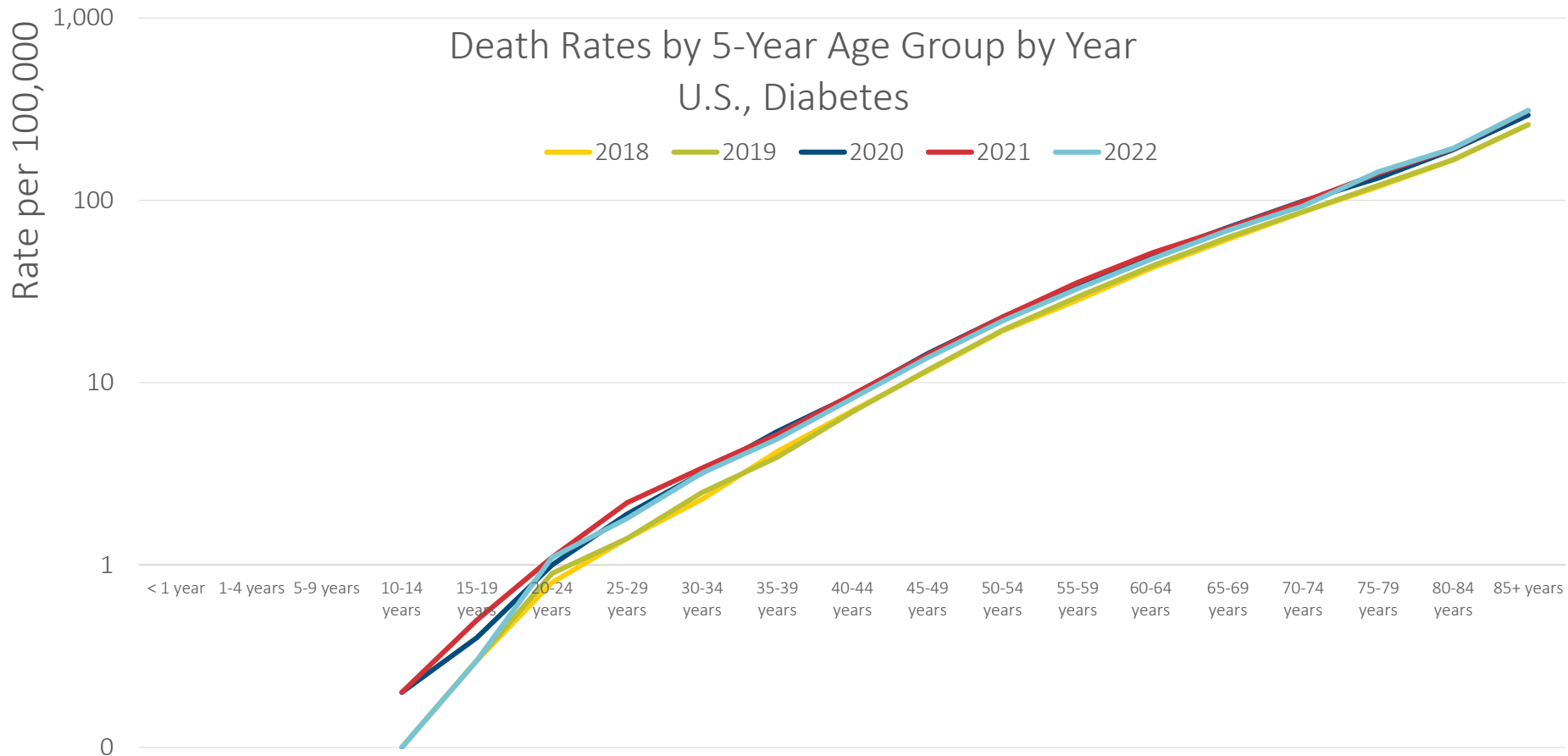
Percentage Difference in Death Rate v 2019

U.S., Flu/pneumonia



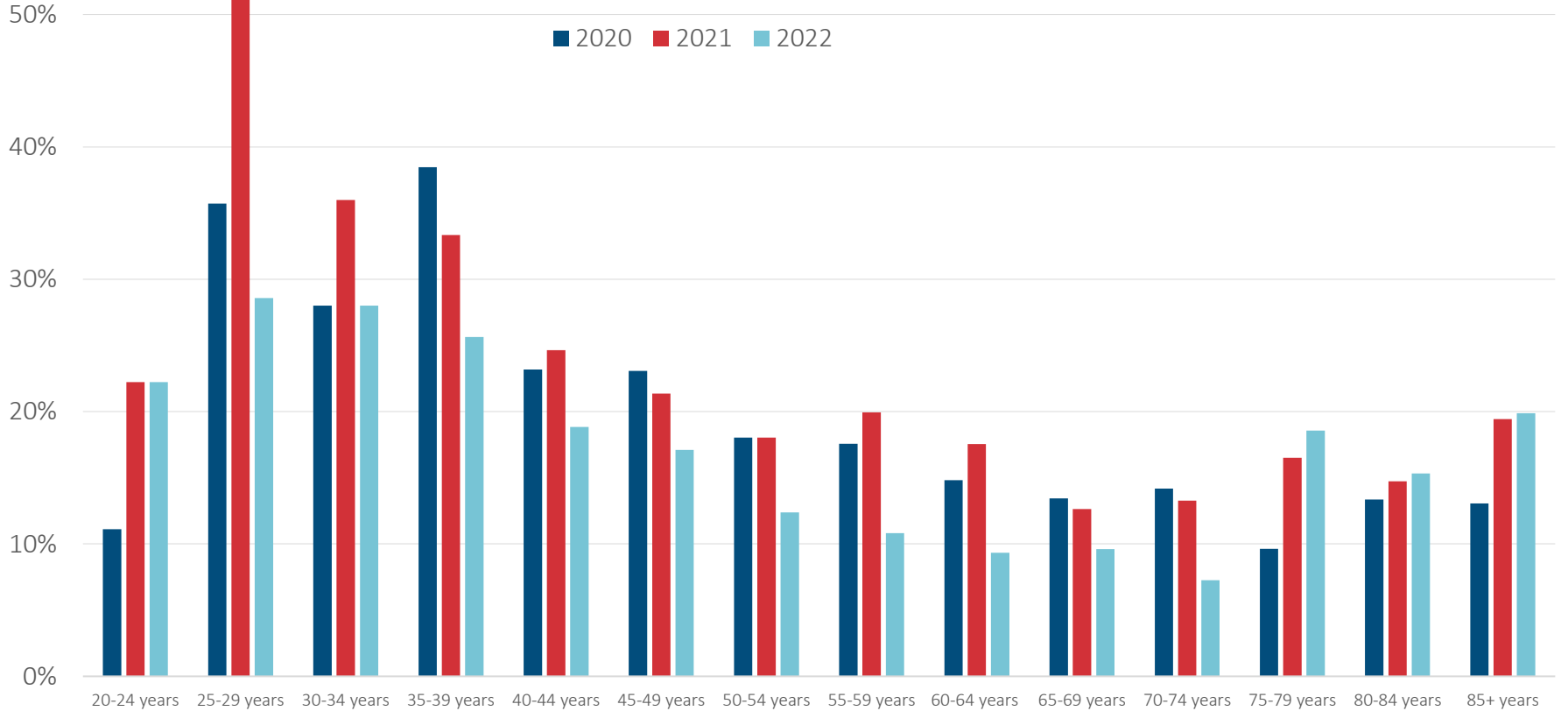
Death Rates by 5-Year Age Group by Year U.S., Diabetes

— 2018 — 2019 — 2020 — 2021 — 2022



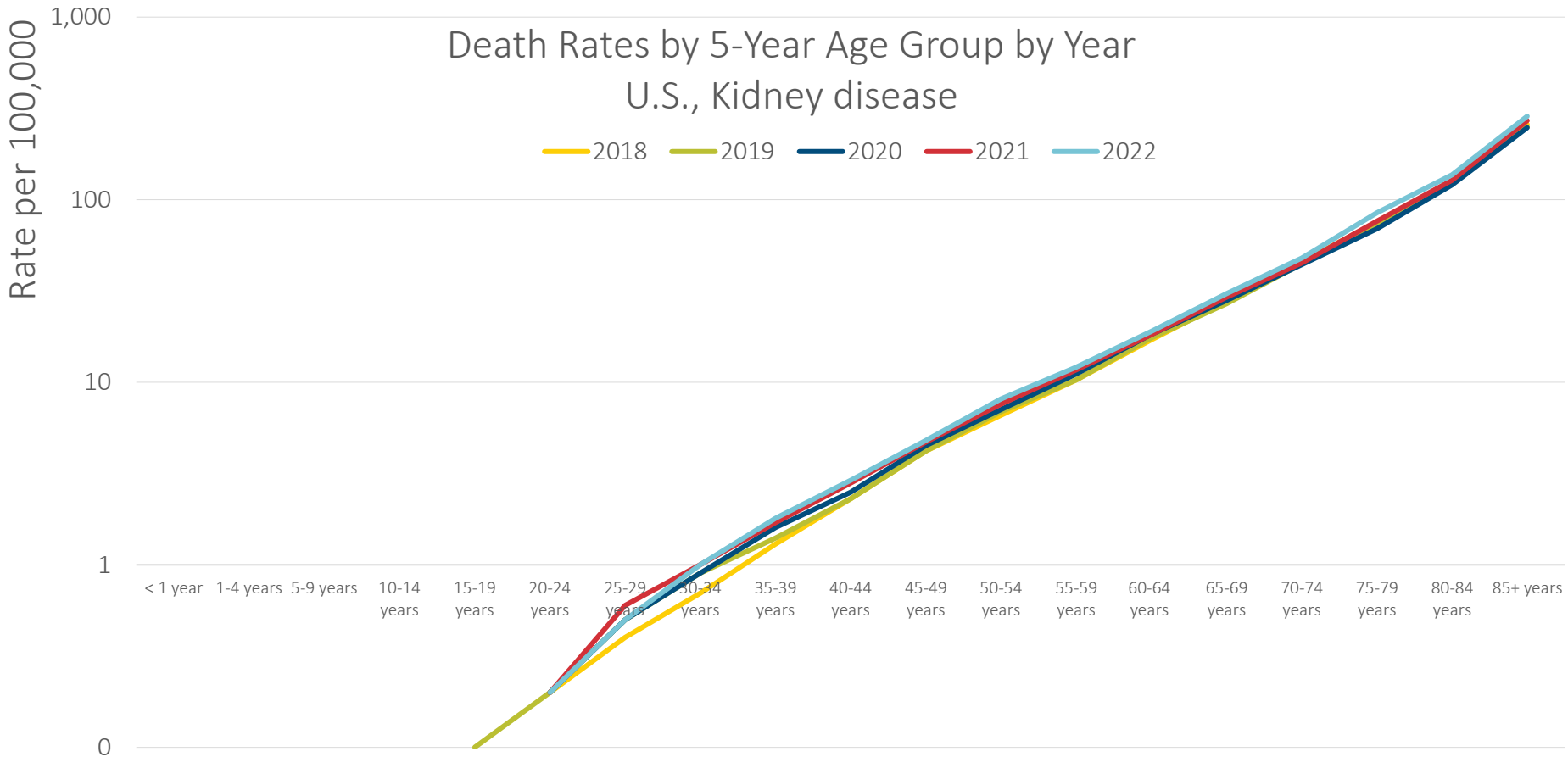
Percentage Difference in Death Rate v 2019

U.S., Diabetes



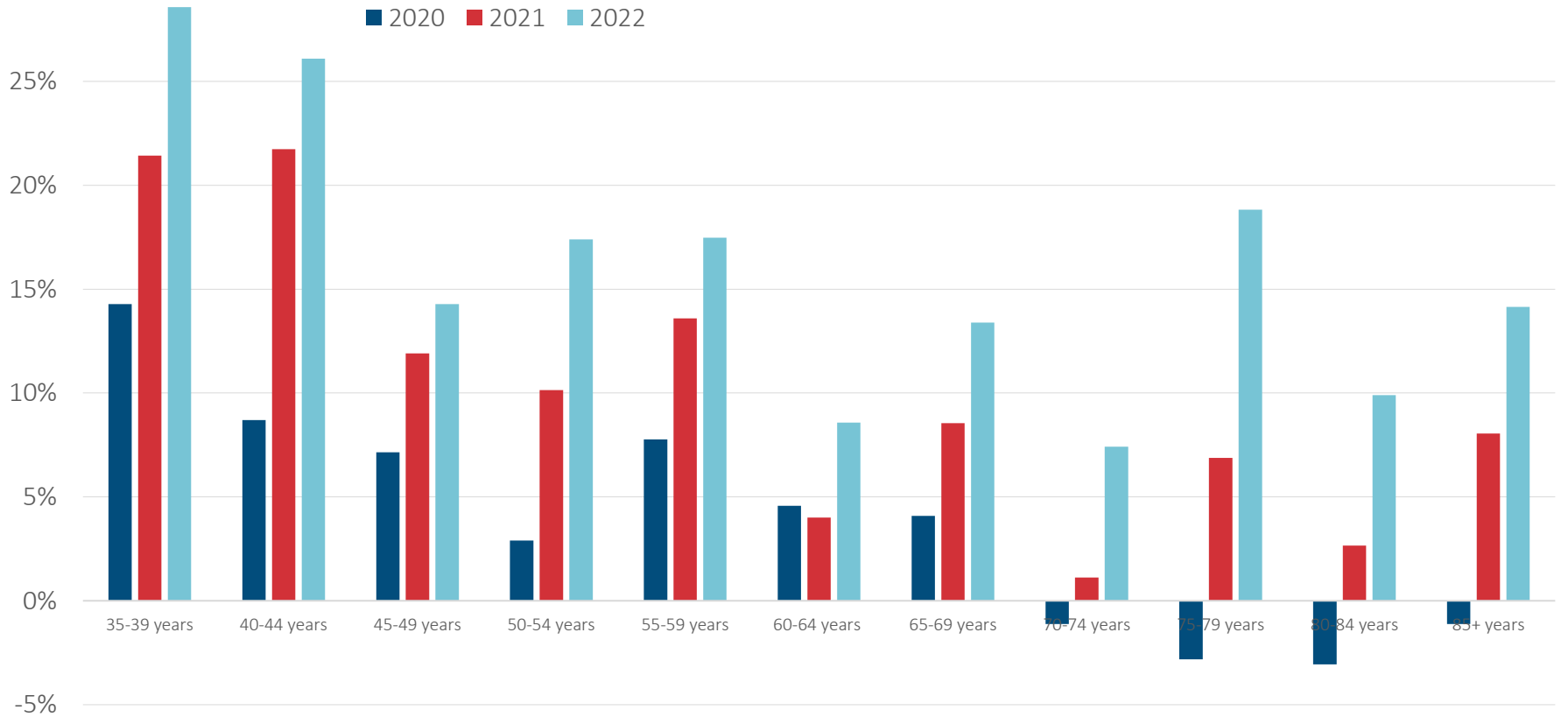
Death Rates by 5-Year Age Group by Year U.S., Kidney disease

— 2018 — 2019 — 2020 — 2021 — 2022



Percentage Difference in Death Rate v 2019

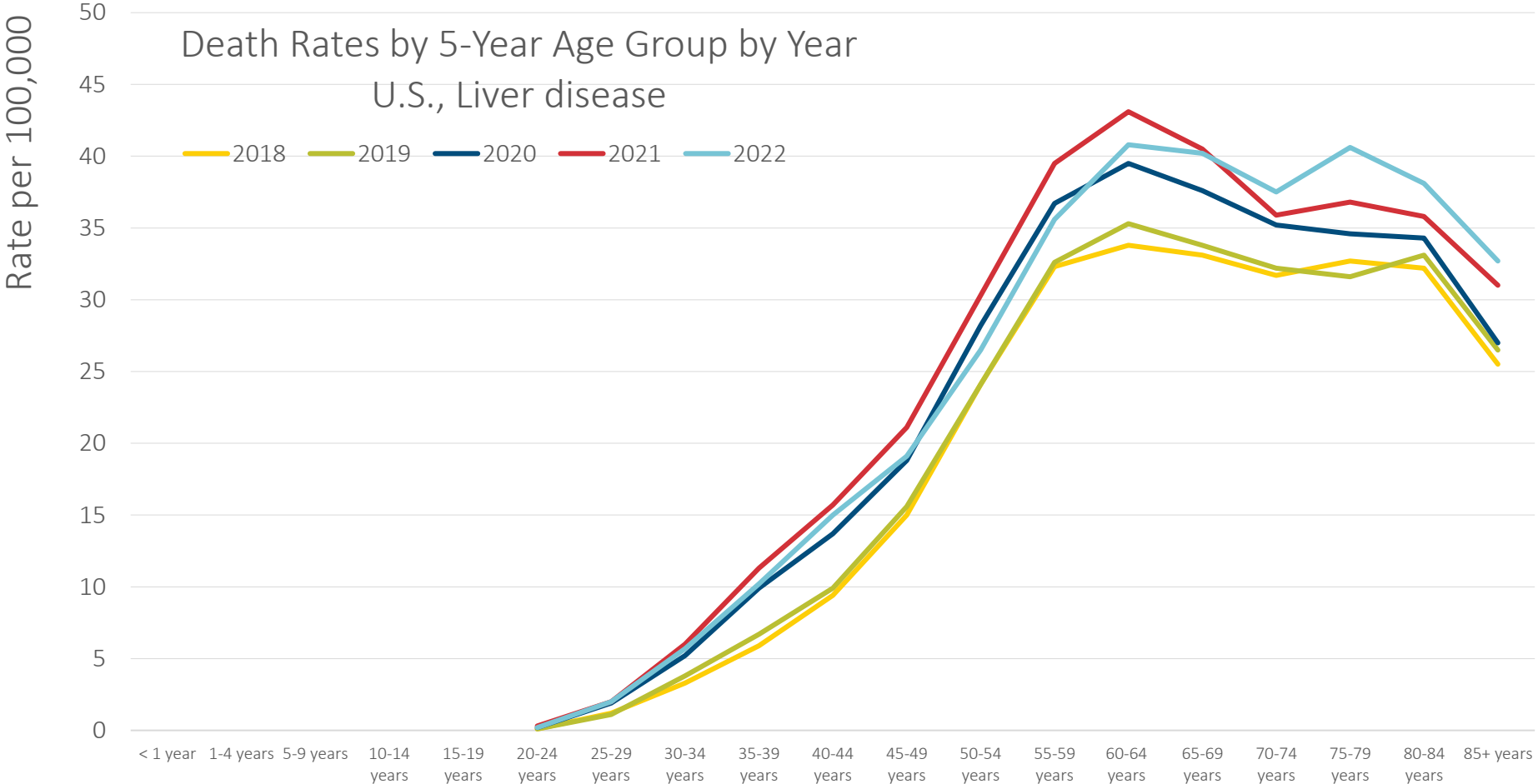
U.S., Kidney Disease



Death Rates by 5-Year Age Group by Year

U.S., Liver disease

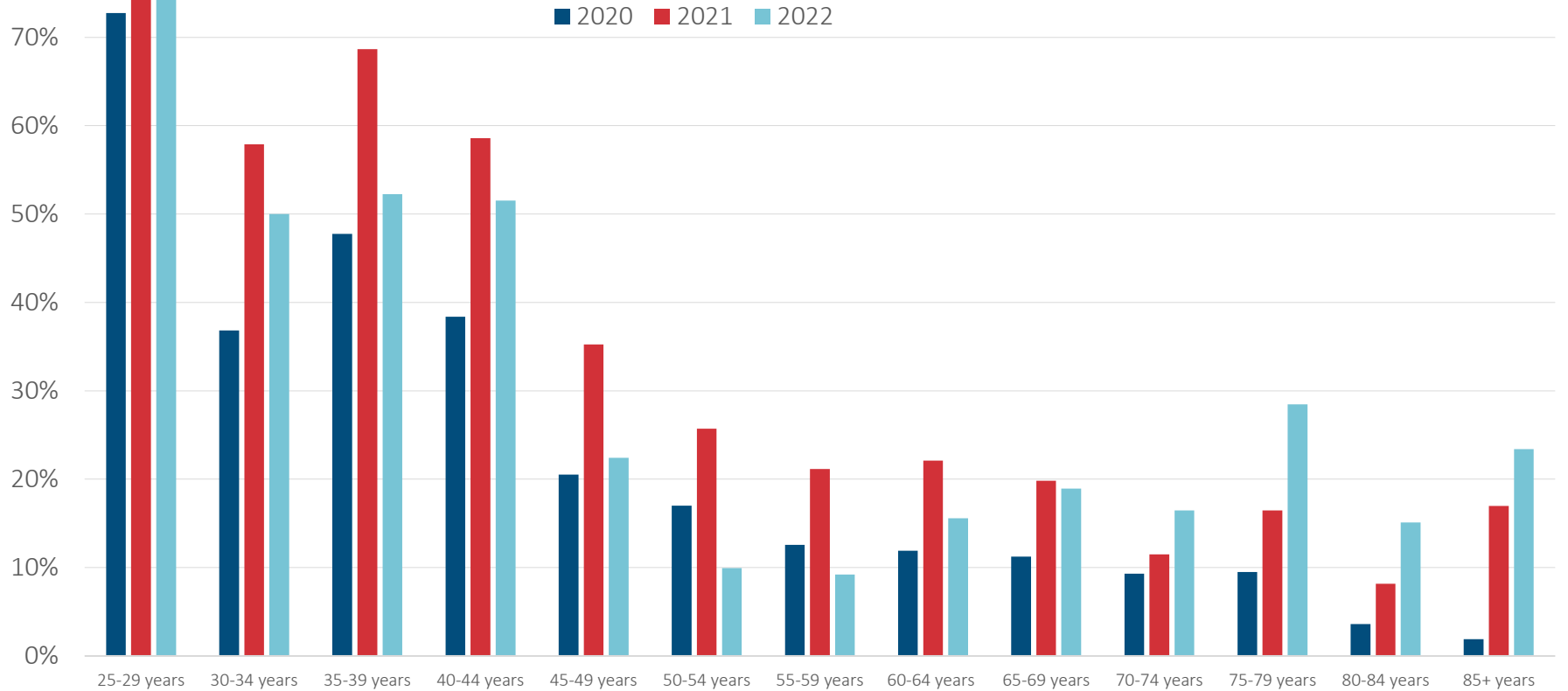
2018 2019 2020 2021 2022



Source: CDC Wonder, data as of 16 March 2023

Percentage Difference in Death Rate v 2019

U.S., Liver Disease



External causes

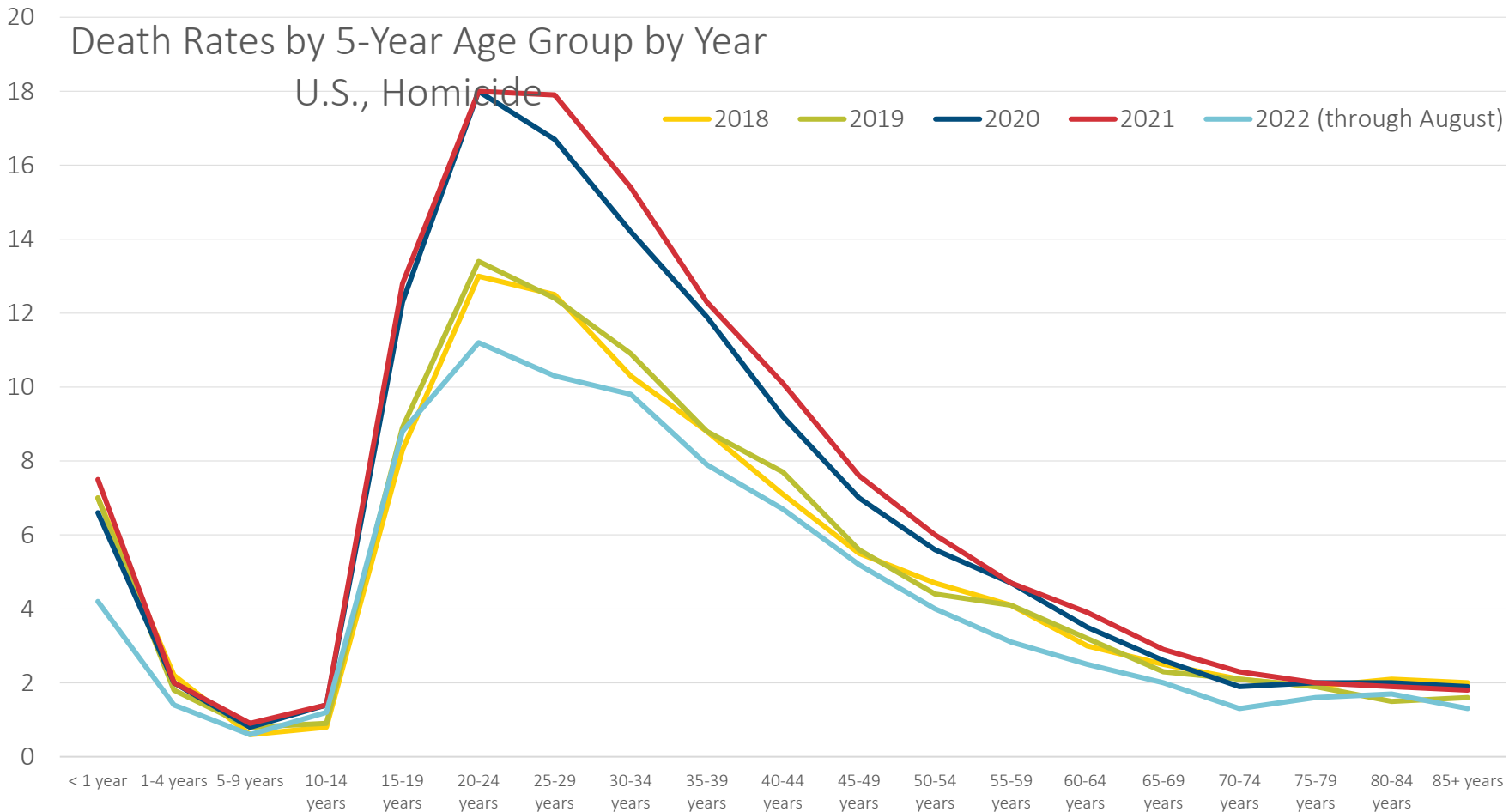


Rate per 100,000

Death Rates by 5-Year Age Group by Year

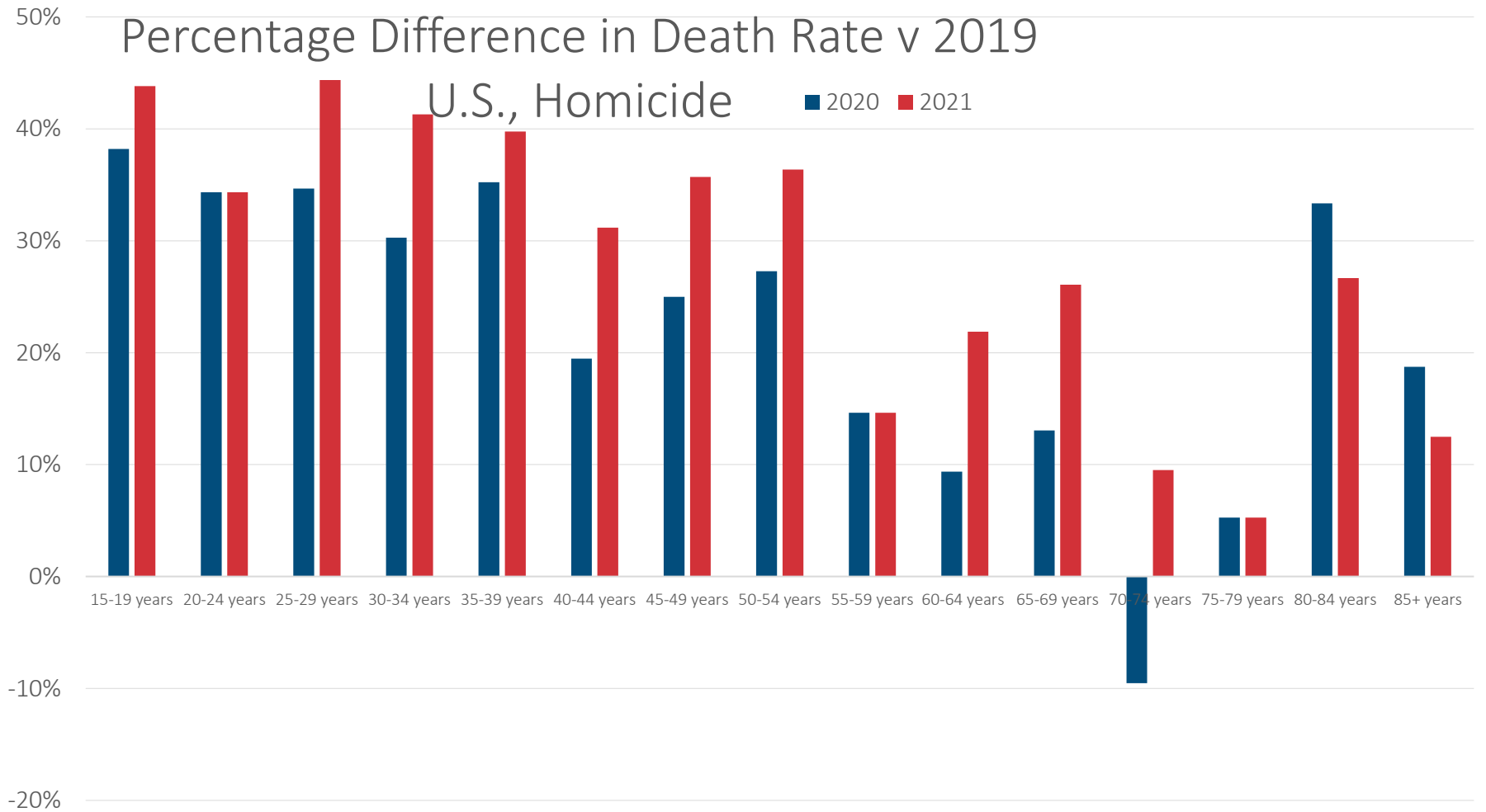
U.S., Homicide

2018 2019 2020 2021 2022 (through August)



Percentage Difference in Death Rate v 2019

U.S., Homicide

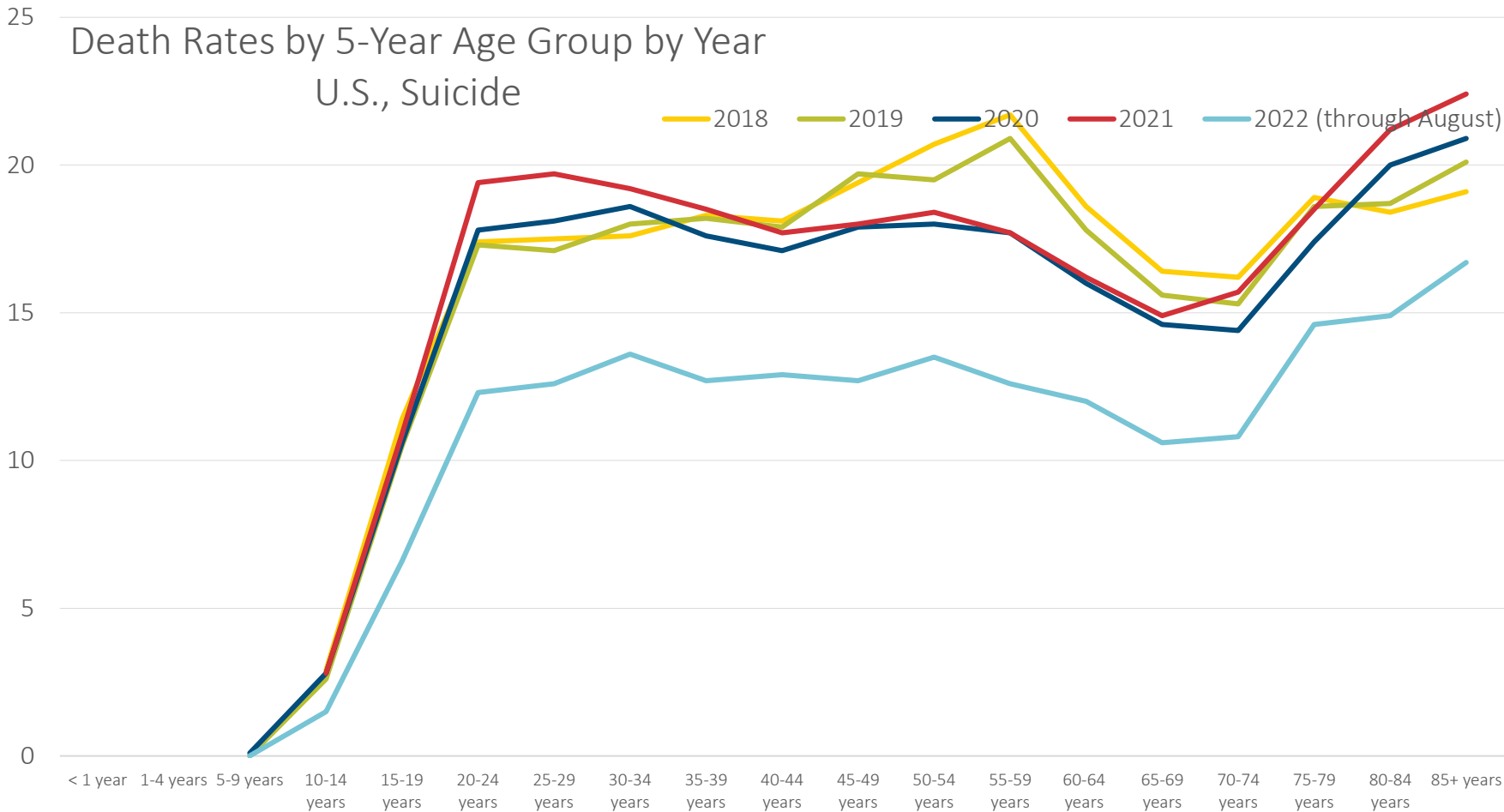


Rate per 100,000

Death Rates by 5-Year Age Group by Year

U.S., Suicide

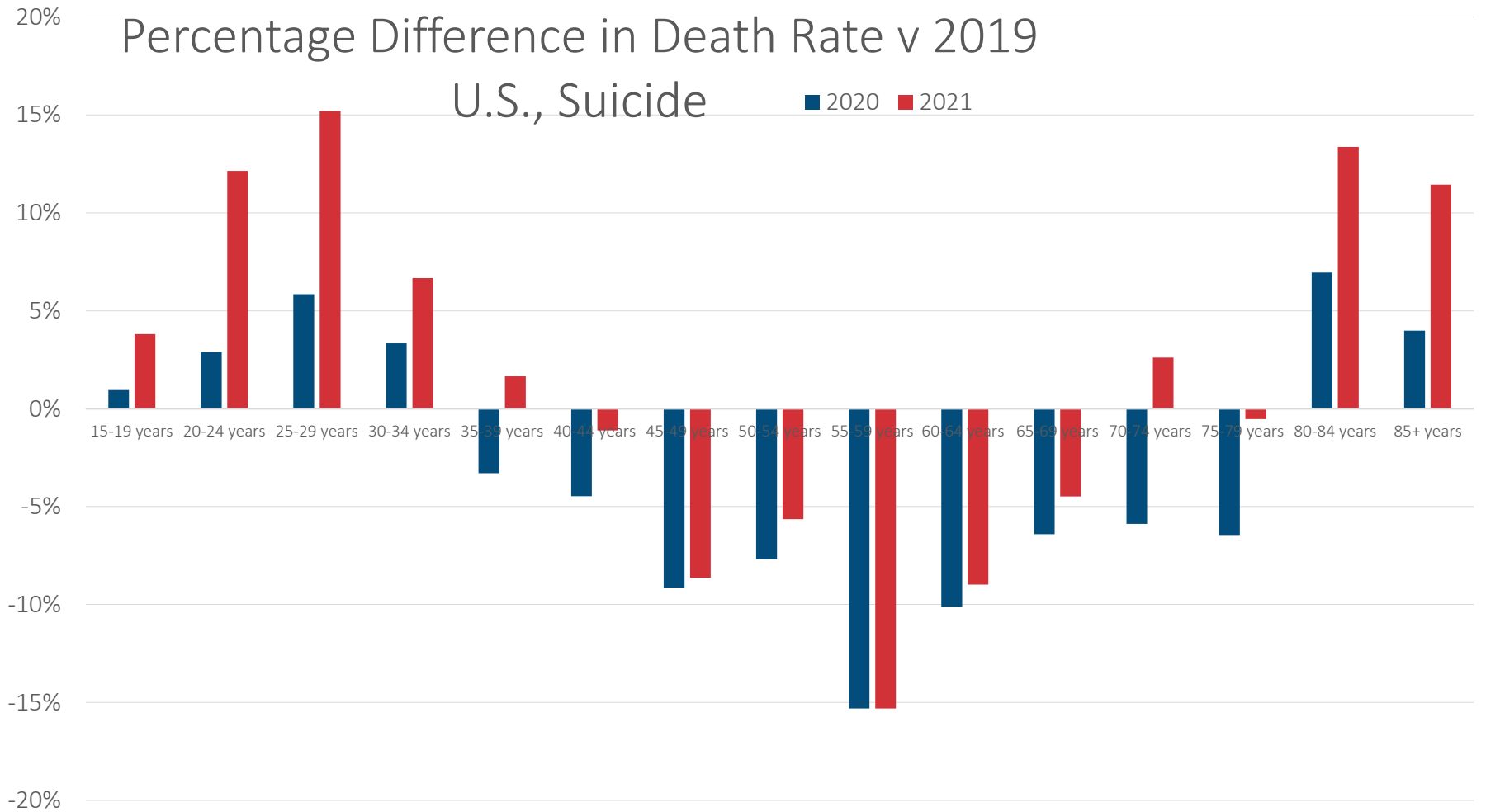
2018 2019 2020 2021 2022 (through August)

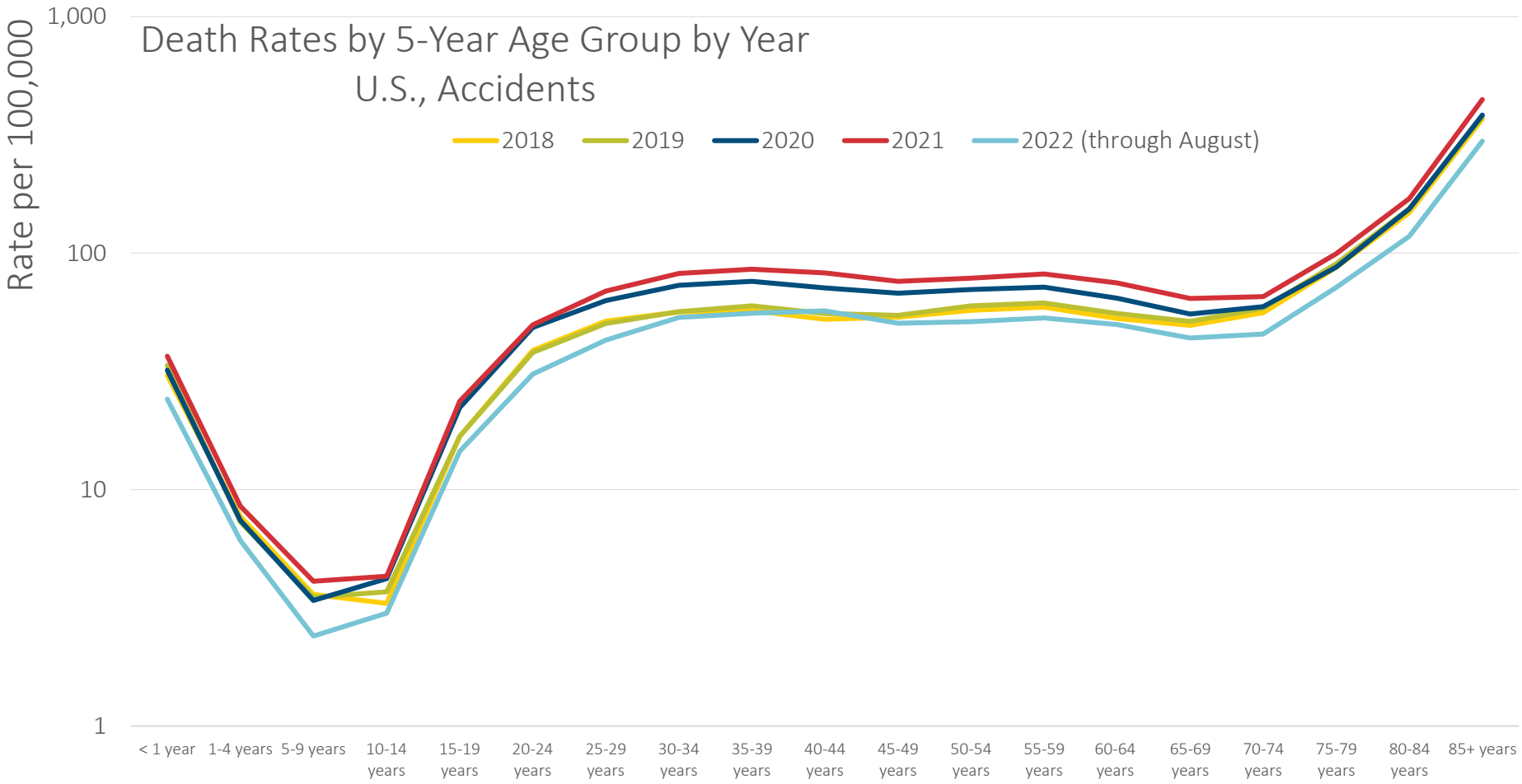


Percentage Difference in Death Rate v 2019

U.S., Suicide

■ 2020 ■ 2021



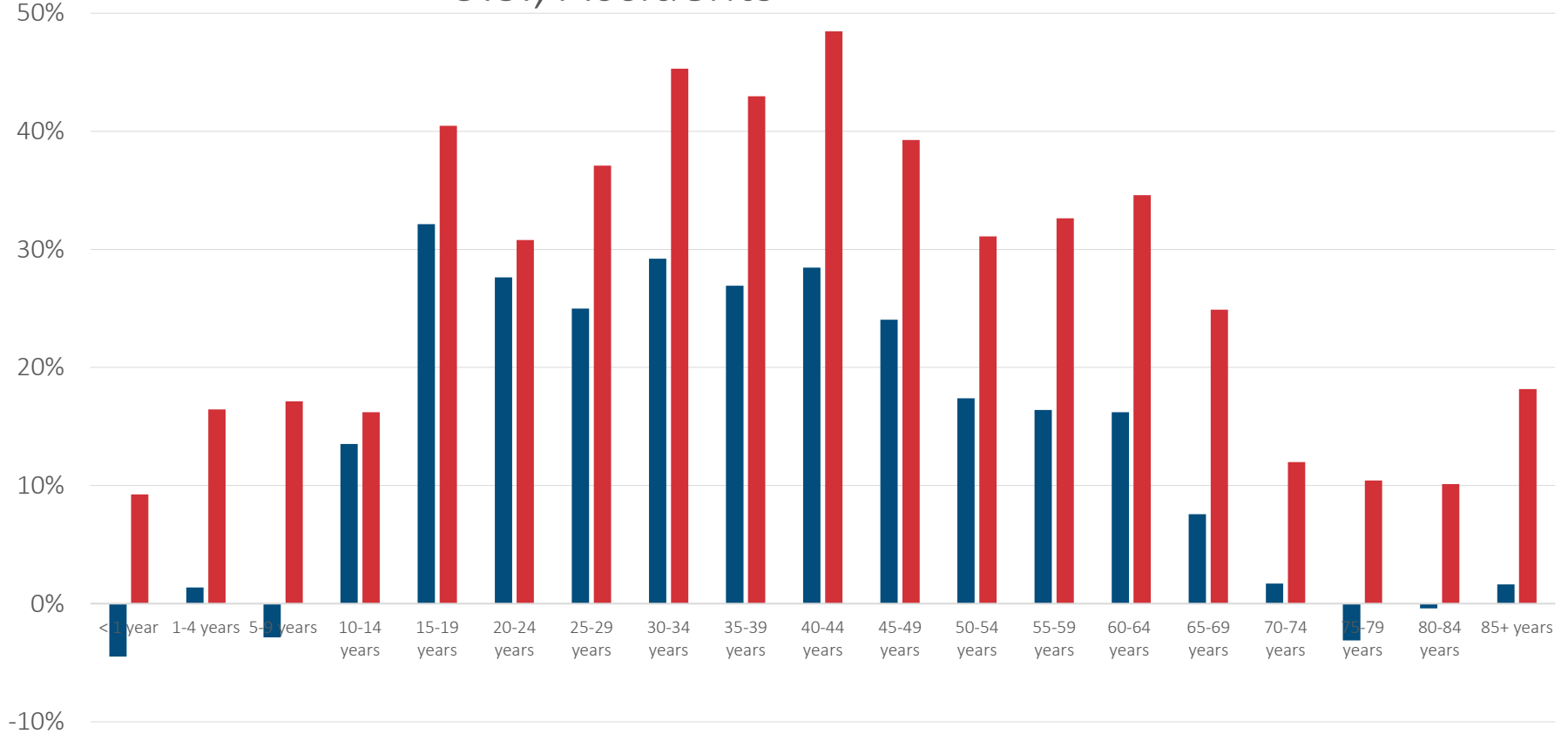


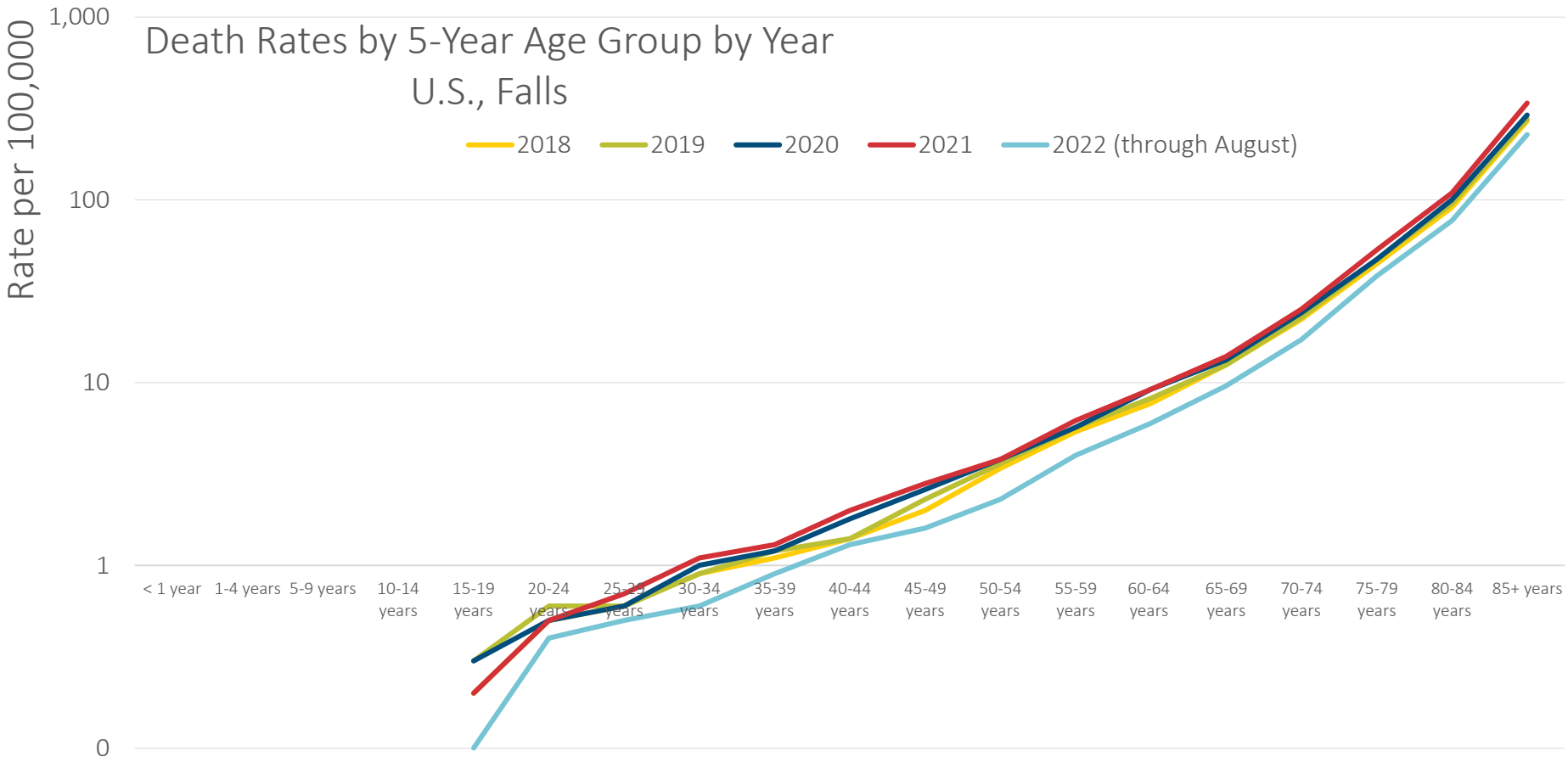
Source: CDC Wonder, data as of 16 March 2023

Percentage Difference in Death Rate v 2019

U.S., Accidents

2020 2021



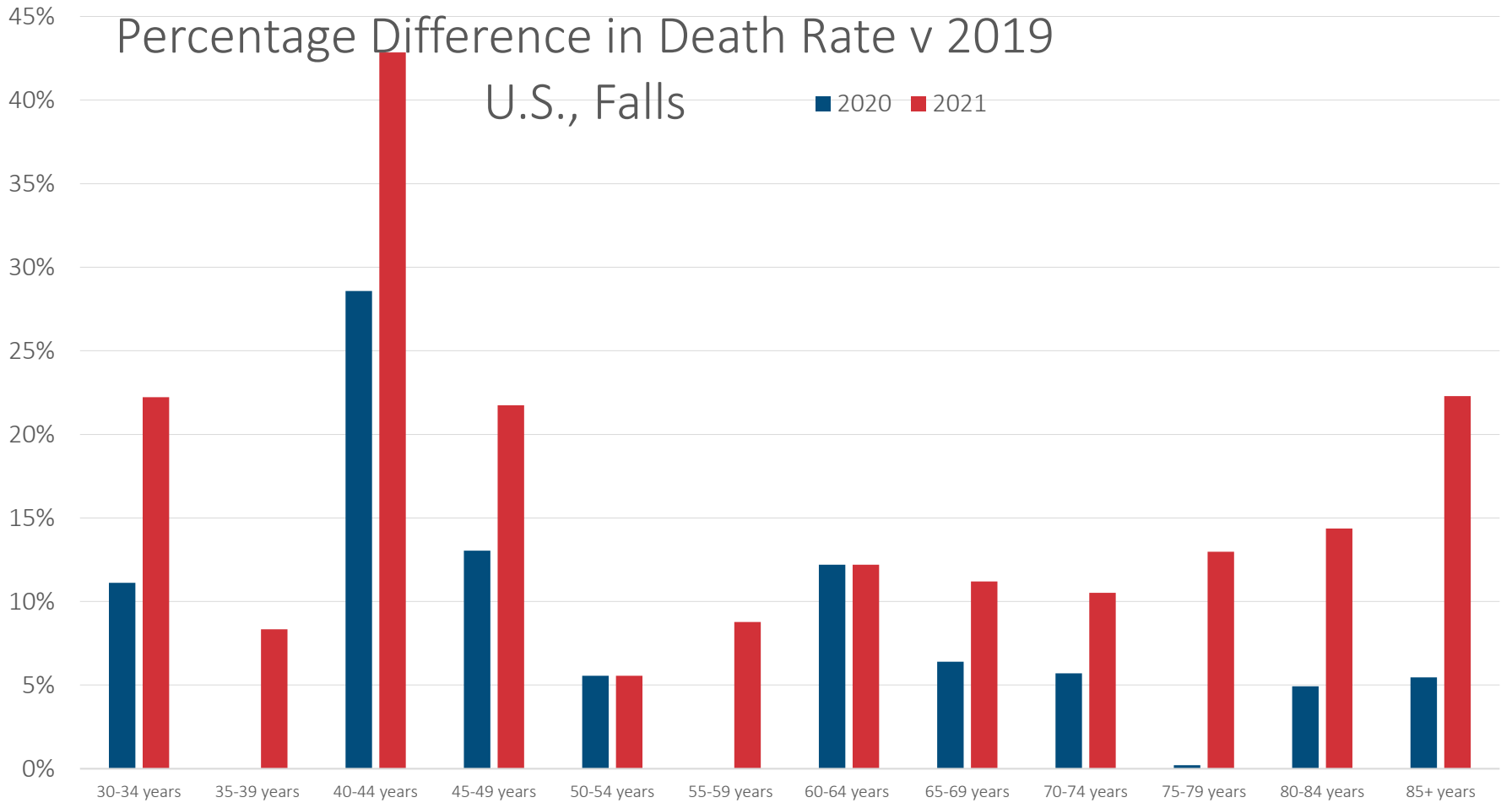


Source: CDC Wonder, data as of 16 March 2023

Percentage Difference in Death Rate v 2019

U.S., Falls

■ 2020 ■ 2021

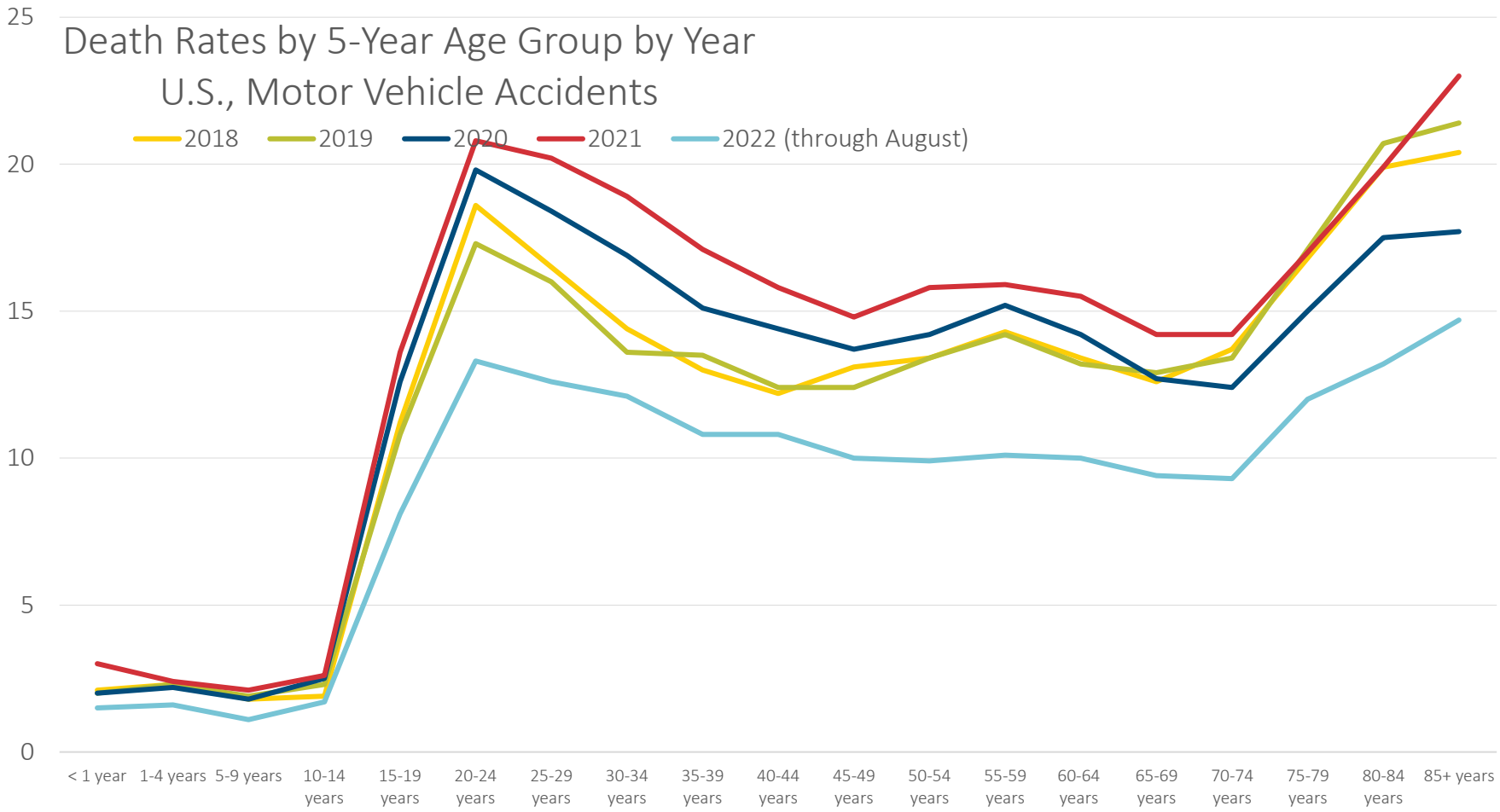


Rate per 100,000

Death Rates by 5-Year Age Group by Year

U.S., Motor Vehicle Accidents

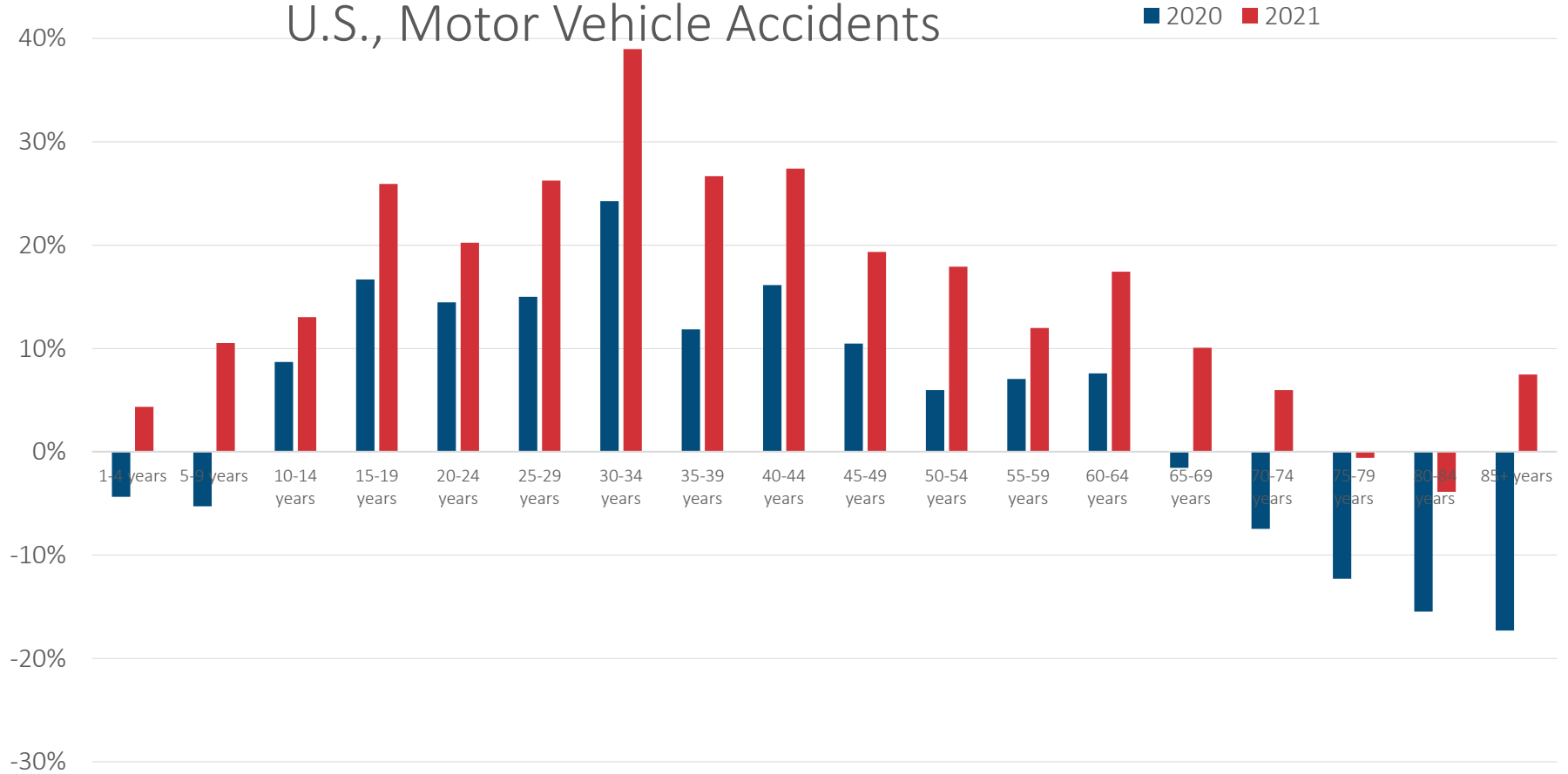
2018 2019 2020 2021 2022 (through August)



Source: CDC Wonder, data as of 16 March 2023

Percentage Difference in Death Rate v 2019

U.S., Motor Vehicle Accidents

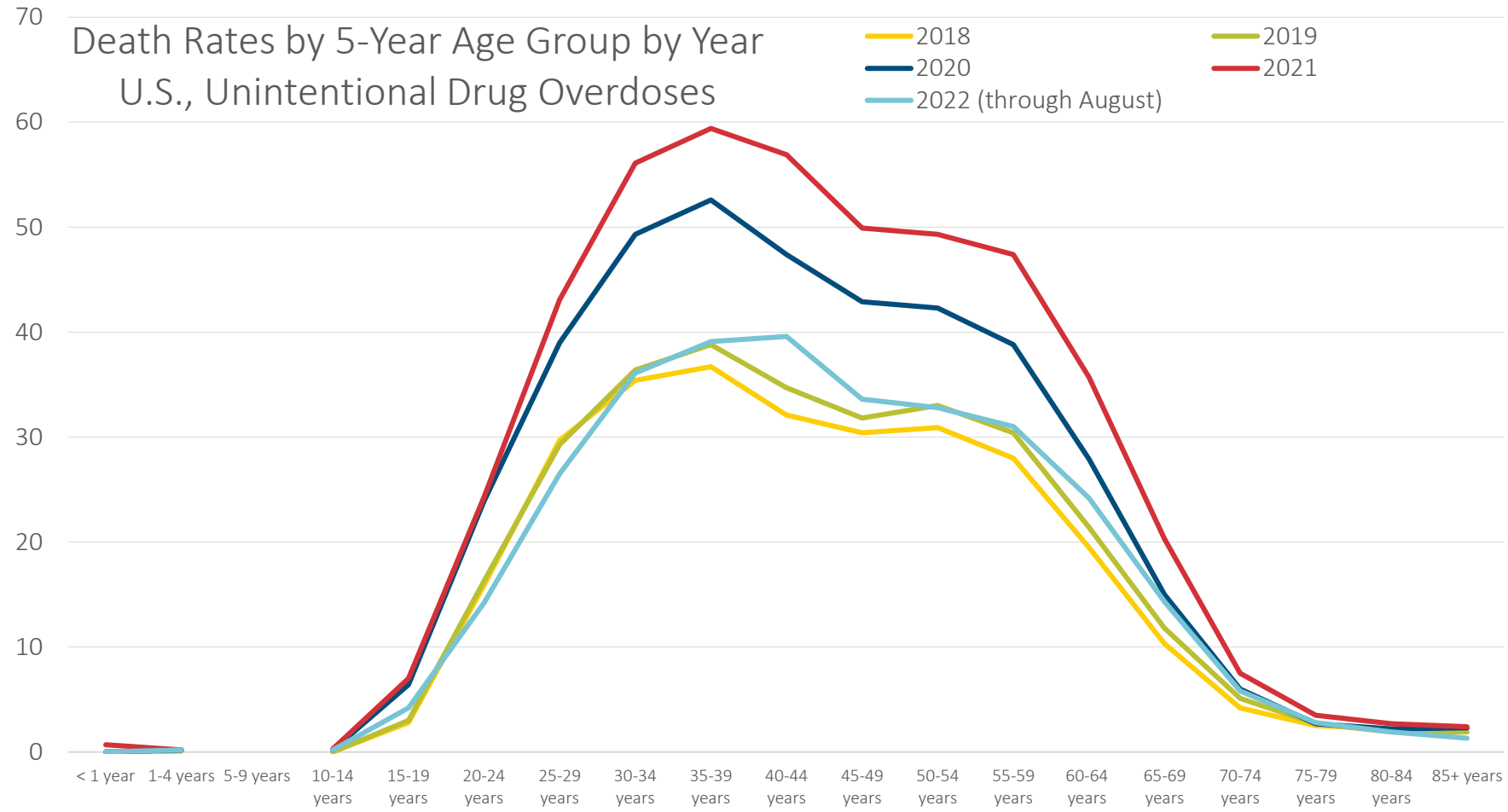


Rate per 100,000

Death Rates by 5-Year Age Group by Year

U.S., Unintentional Drug Overdoses

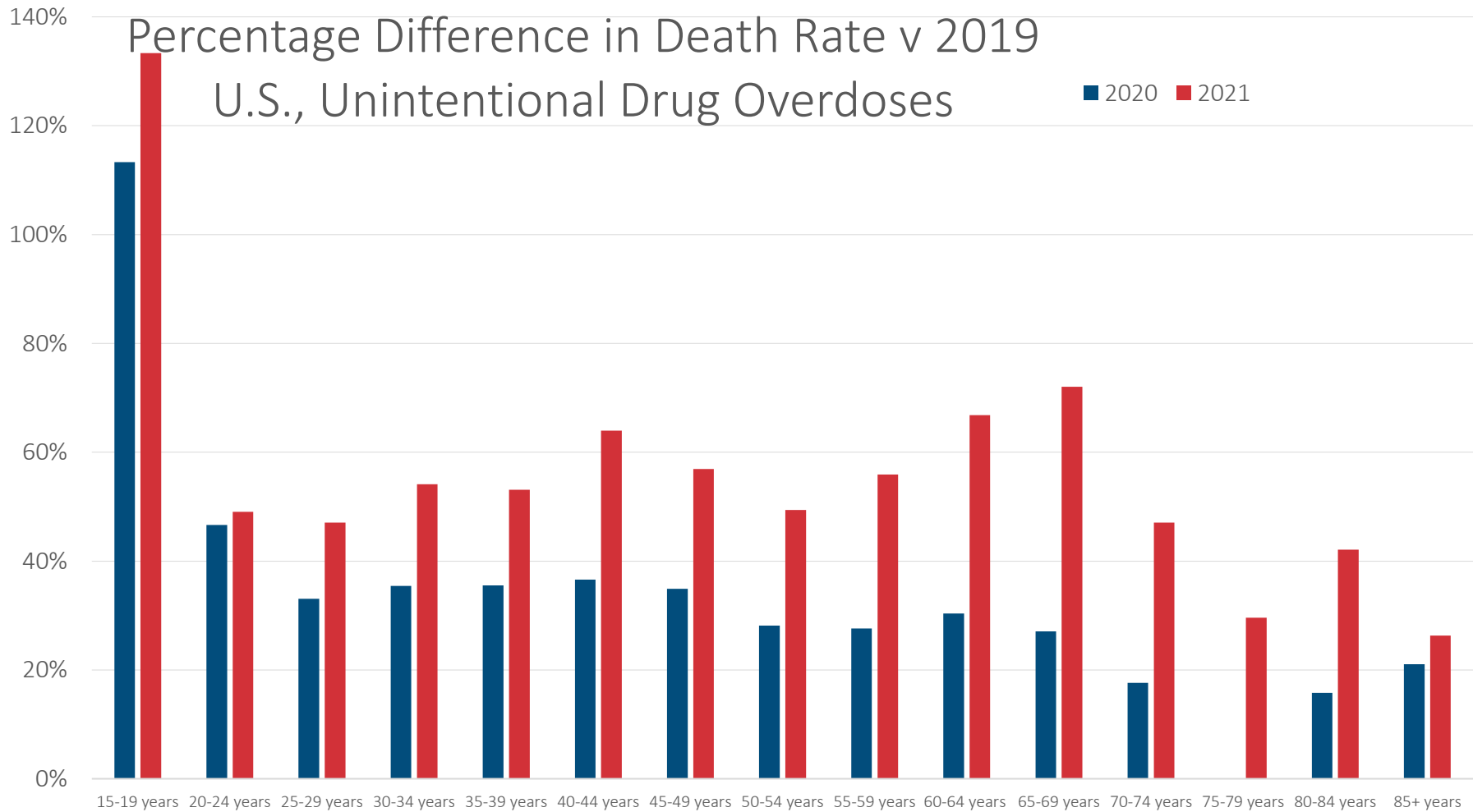
2018
2020
2022 (through August)
2019
2021



Source: CDC Wonder, data as of 16 March 2023

Percentage Difference in Death Rate v 2019

U.S., Unintentional Drug Overdoses



Links to spreadsheets and data
citation(s)



Finalized mortality data, 1999-2020

Centers for Disease Control and Prevention, National Center for Health Statistics.

Underlying Cause of Death 1999-2020 on CDC WONDER Online Database, released in 2021. Data are from the Multiple Cause of Death Files, 1999-2020, as compiled from data provided by the 57 vital statistics jurisdictions through the Vital Statistics Cooperative Program.

Accessed at <http://wonder.cdc.gov/ucd-icd10.html> on 6 March 2023 and later dates.

Compressed Mortality, 1968-1978

Centers for Disease Control and Prevention, National Center for Health Statistics.

National Vital Statistics System, Mortality: Compressed Mortality File 1968-1978. CDC WONDER Online Database, compiled from Compressed Mortality File CMF 1968-1988, Series 20, No. 2A, 2000.

Accessed at <http://wonder.cdc.gov/cmfi-icd8.html> on 13 March 2023 and later dates

Compressed Mortality, 1979-1998

Centers for Disease Control and Prevention, National Center for Health Statistics.

National Vital Statistics System, Mortality:
Compressed Mortality File 1979-1998. CDC WONDER
On-line Database, compiled from Compressed
Mortality File CMF 1968-1988, Series 20, No. 2A,
2000 and CMF 1989-1998, Series 20, No. 2E, 2003.

Accessed at <http://wonder.cdc.gov/cmfi-icd9.html> on 13 March 2023 and later dates.

Provisional mortality data

Centers for Disease Control and Prevention, National Center for Health Statistics.

National Vital Statistics System, Provisional Mortality on CDC WONDER Online Database. Data are from the final Multiple Cause of Death Files, 2018-2021, and from provisional data for years 2022-2023, as compiled from data provided by the 57 vital statistics jurisdictions through the Vital Statistics Cooperative Program.

Deaths occurring through February 18, 2023, reported as of March 5, 2023.

Accessed at <http://wonder.cdc.gov/mcd-icd10-provisional.html> on 13 March 2023 and later dates.

Dropbox link to spreadsheets and slides

Folder link:

<https://www.dropbox.com/sh/nbqey8kyb3l4mla/AABIHYHzsk4zCi-WMqjJCvJla?dl=0>

Can view/download

Mary Pat Campbell links

Substack

<https://marypatcampbell.substack.com/>

Mortality with Meep

<https://marypatcampbell.substack.com/s/mortality-with-meep>

LinkedIn

<https://www.linkedin.com/in/marypatcampbell/>