

# U.S. Mortality Trends Through the Pandemic

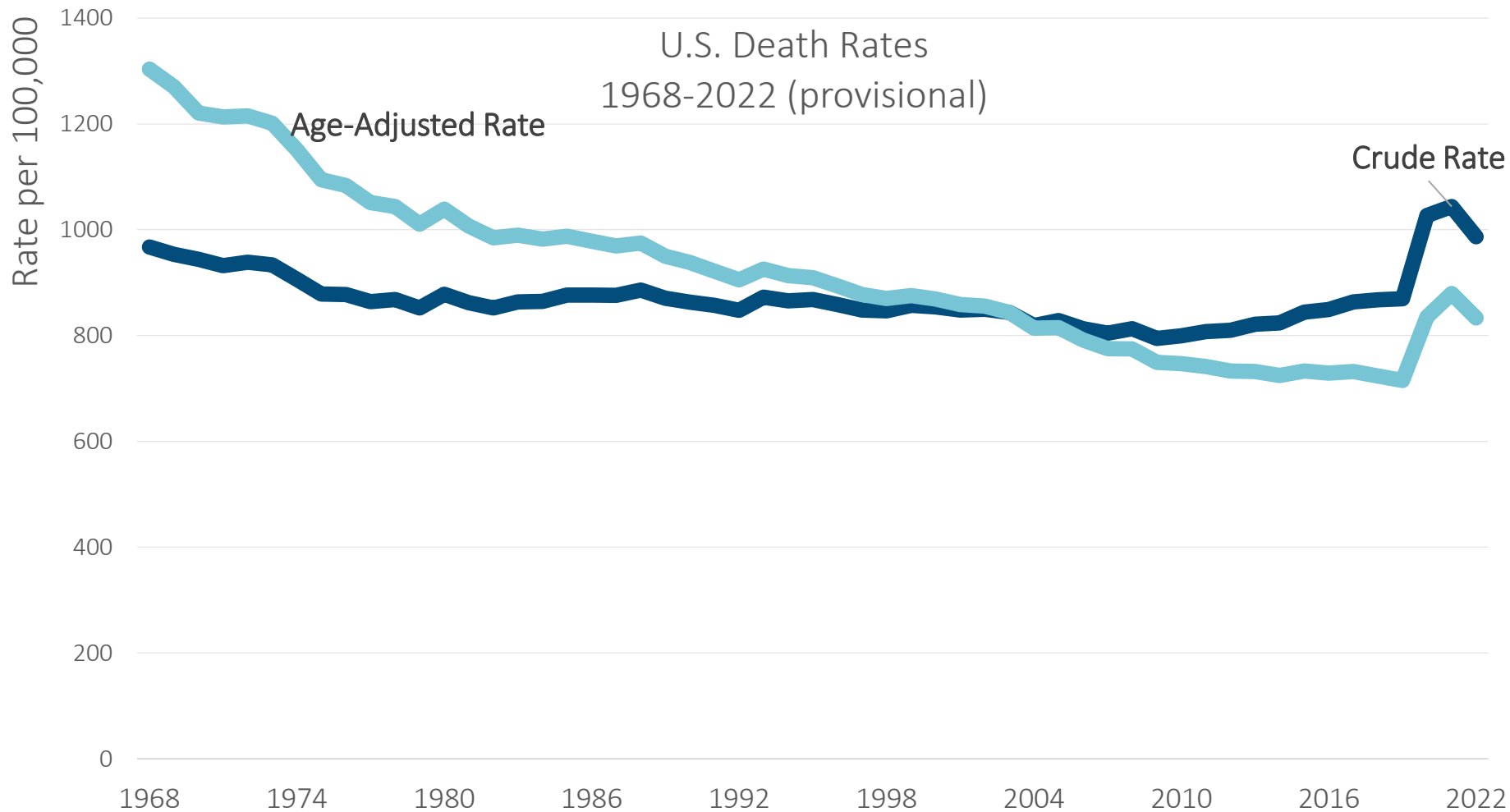
**MARY PAT CAMPBELL, FSA, MAAA**

22 March 2023 UPDATED w. 12 May 2023 and after data

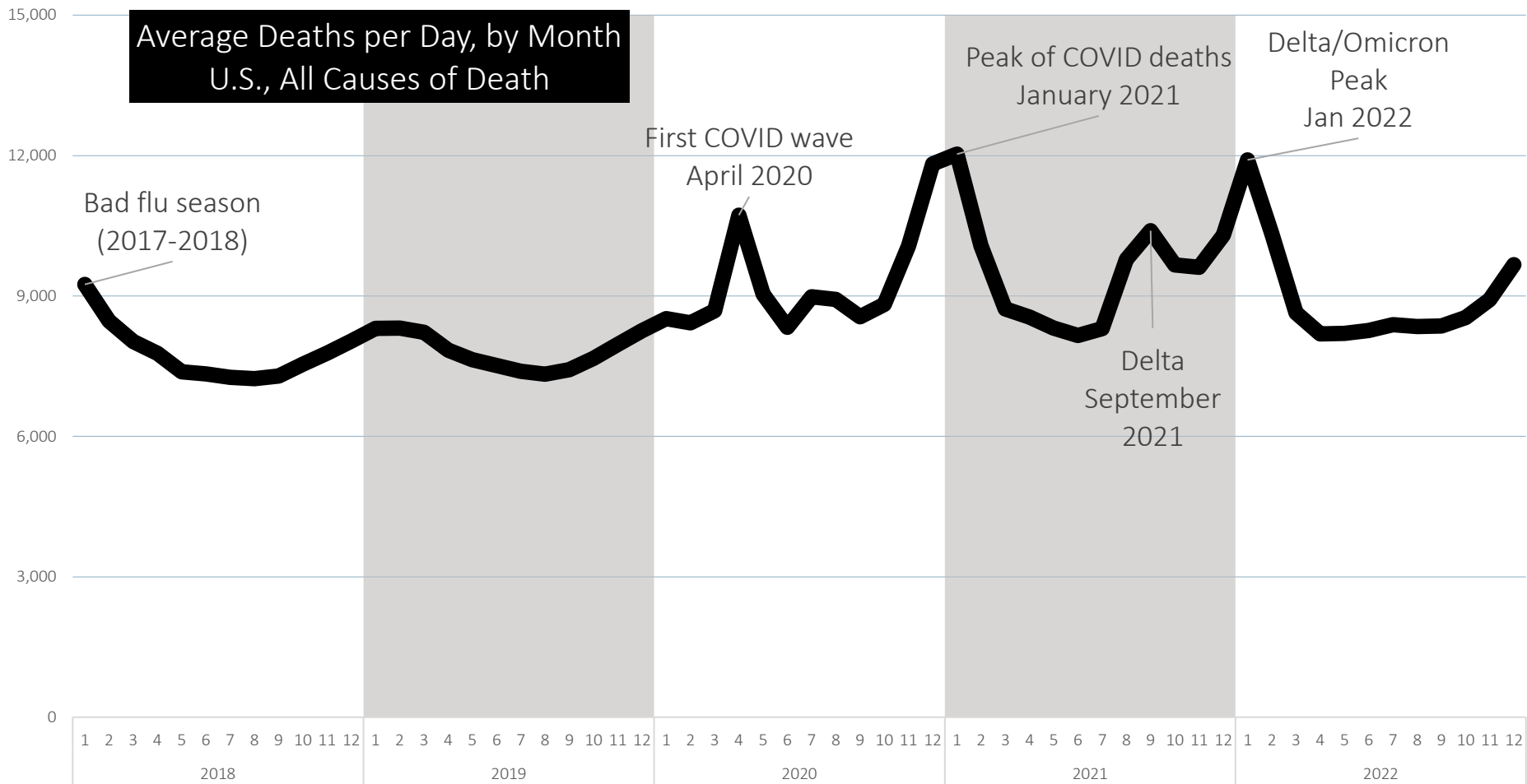


# All-cause mortality trends

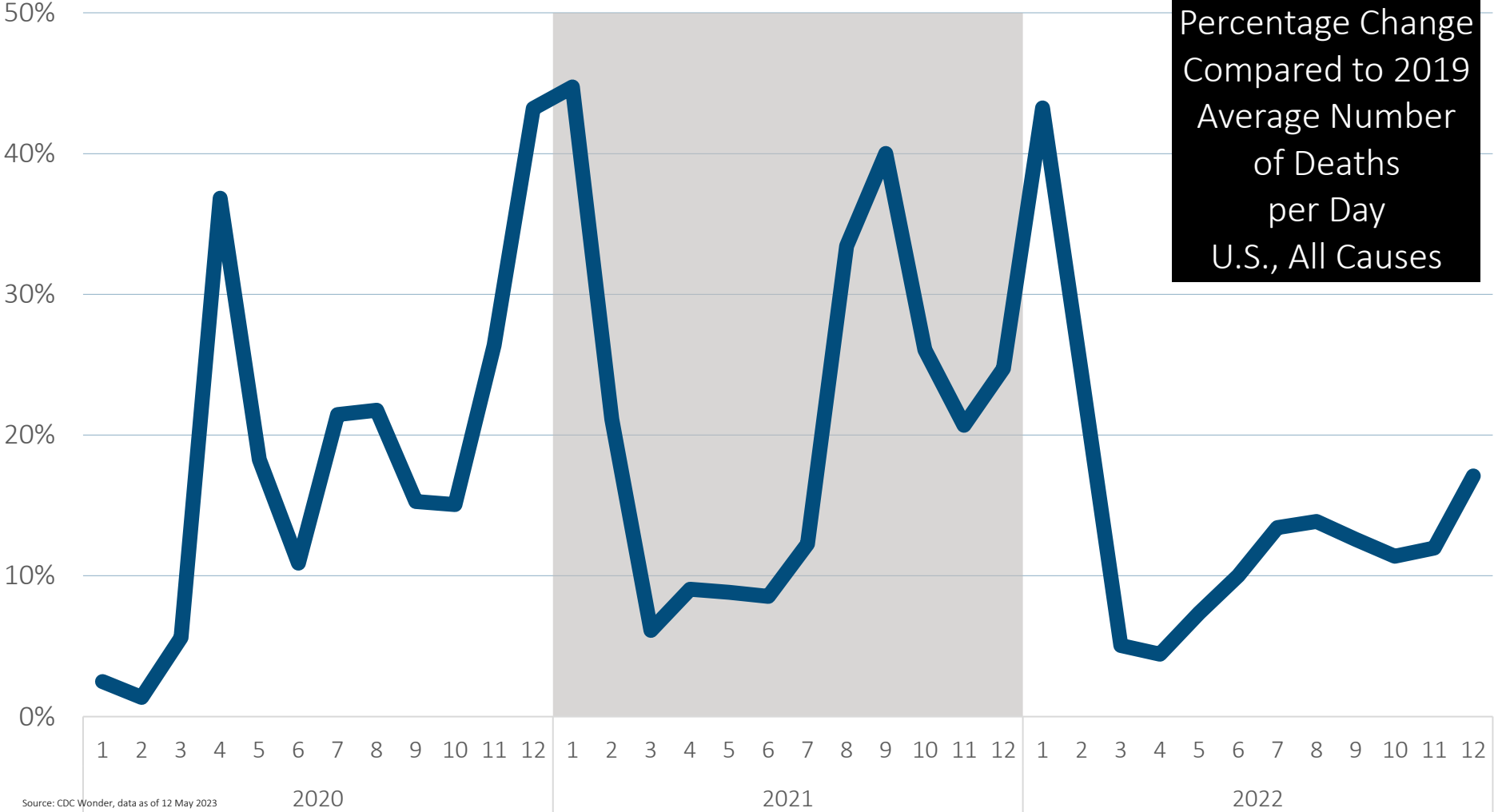




# Average Deaths per Day, by Month U.S., All Causes of Death



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



Source: CDC Wonder, data as of 12 May 2023

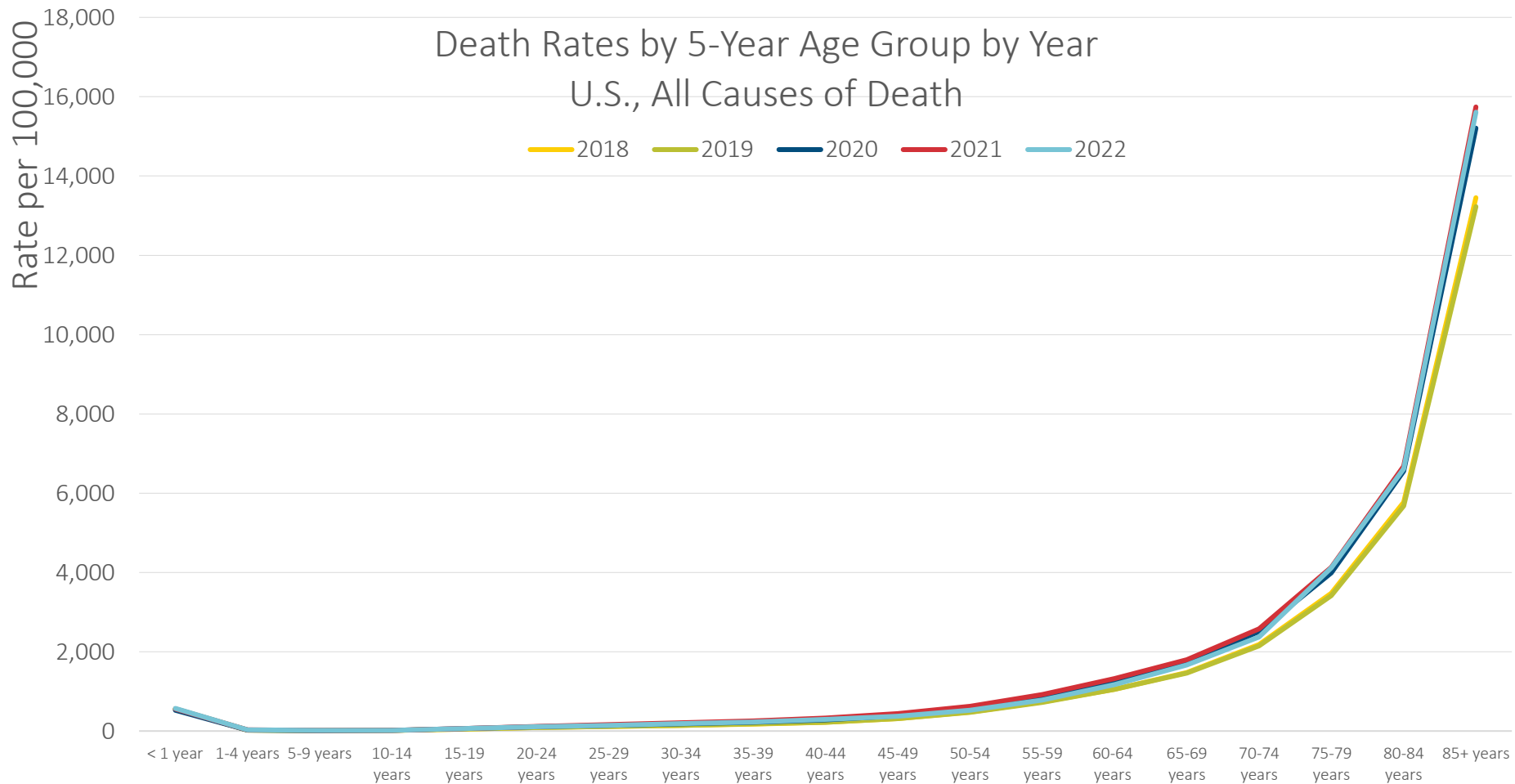
# All-cause mortality by age group



# Death Rates by 5-Year Age Group by Year

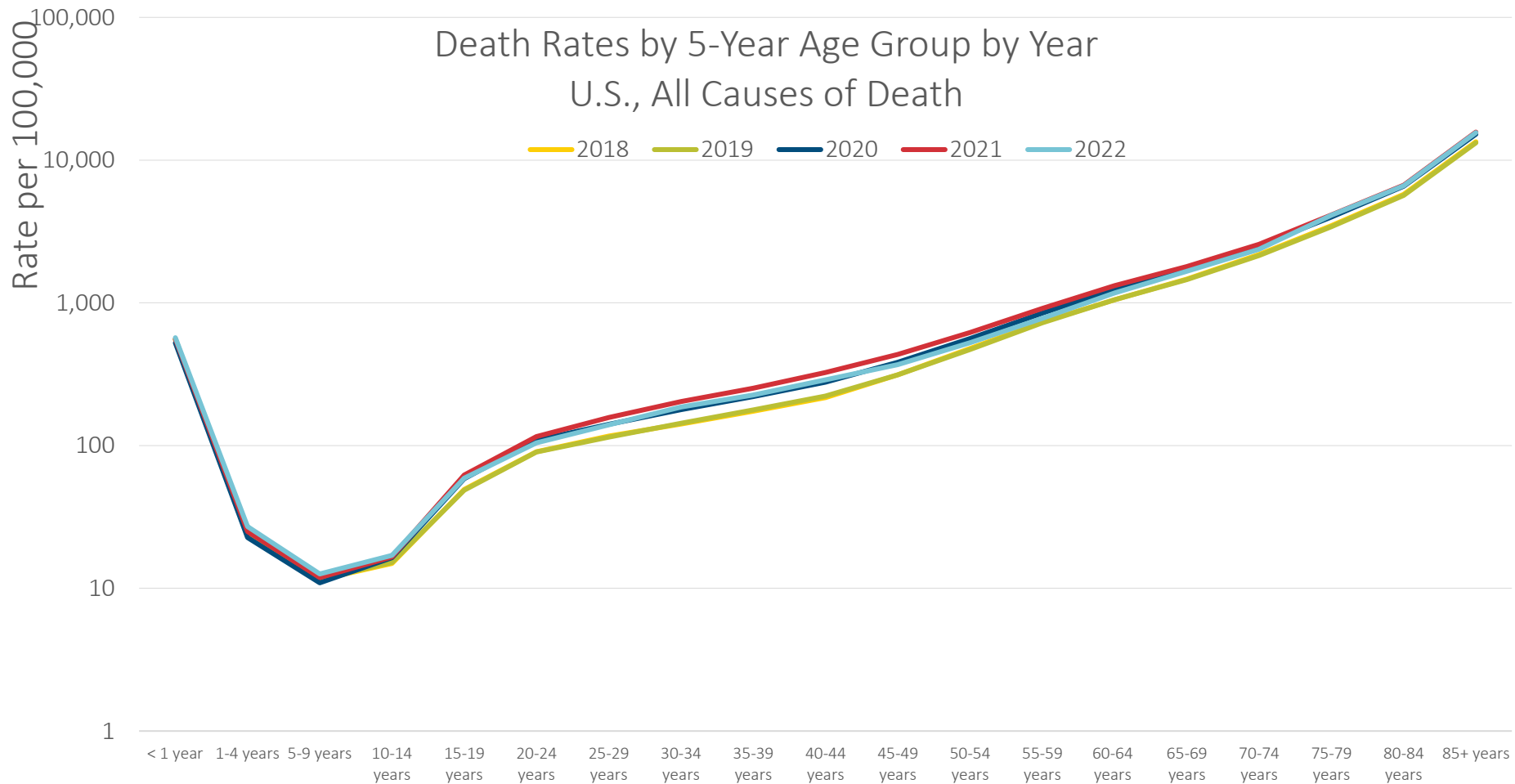
## U.S., All Causes of Death

— 2018 — 2019 — 2020 — 2021 — 2022



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

— 2018 — 2019 — 2020 — 2021 — 2022

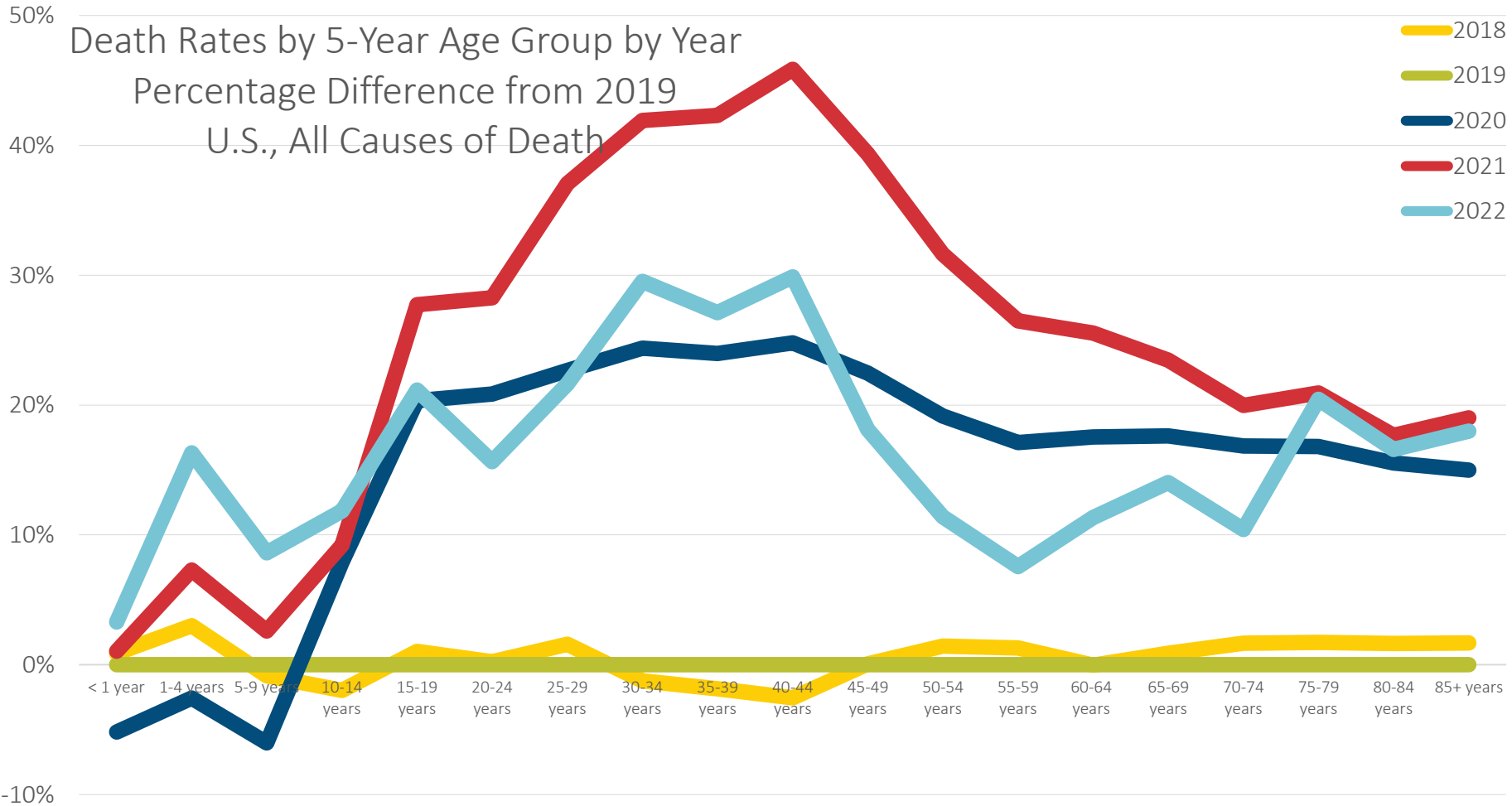




# Death Rates by 5-Year Age Group by Year

## Percentage Difference from 2019

### U.S., All Causes of Death

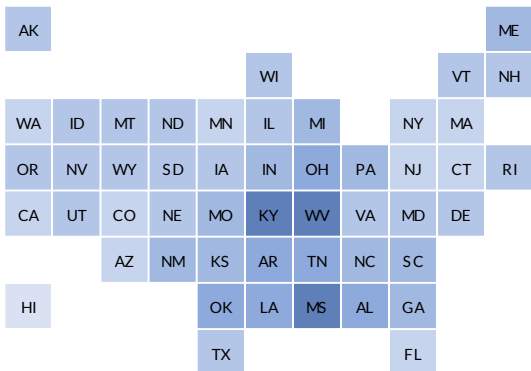


# Geographic differences



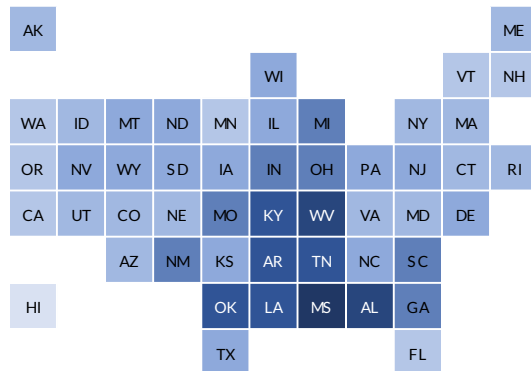
### Age-Adjusted Death Rates, 2019, All Causes of Death

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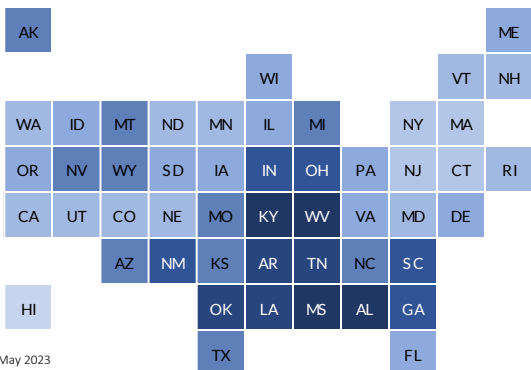
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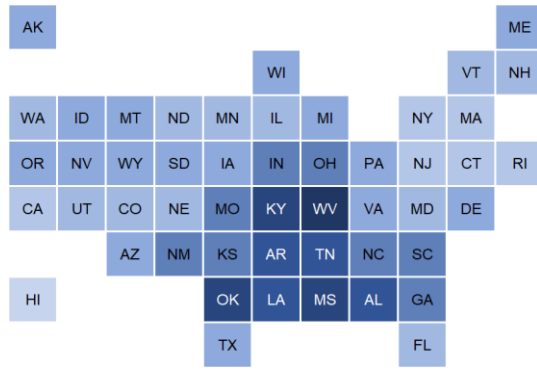
### Age-Adjusted Death Rates, 2021, All Causes of Death

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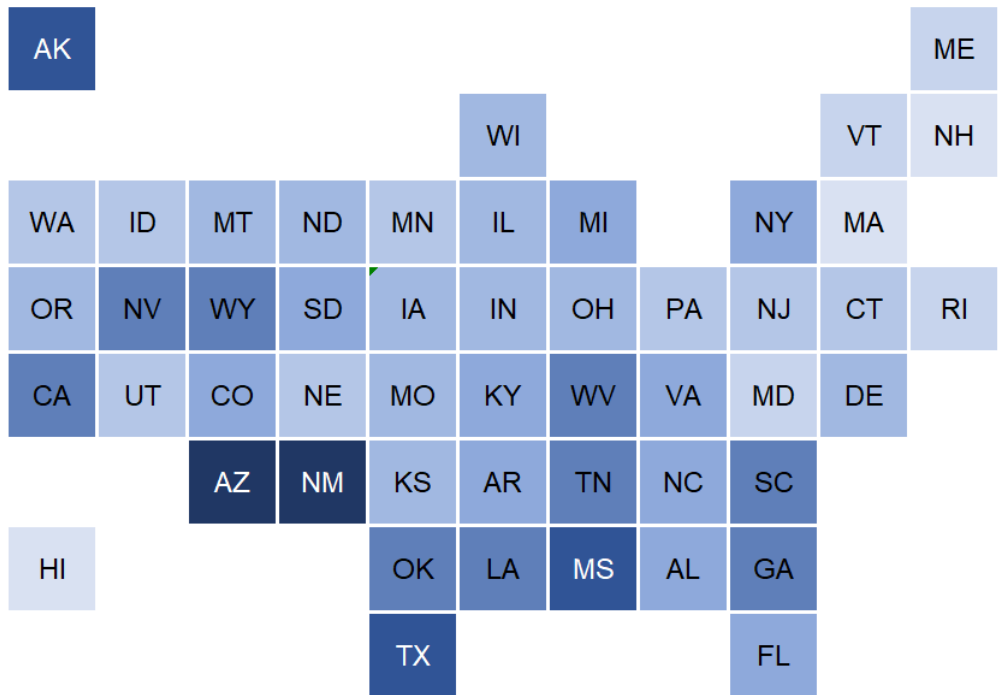
### Age-Adjusted Death Rates, 2022, All Causes of Death

<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	944	25.0%
3	Mississippi	944	1,151	21.9%
4	Texas	728	888	21.9%
5	Alaska	703	853	21.3%
6	Wyoming	734	887	20.7%
7	Louisiana	870	1,045	20.2%
8	West Virginia	952	1,143	20.1%
9	South Carolina	818	982	20.0%
10	Georgia	785	938	19.5%

11	California	610	727	19.3%
12	Tennessee	890	1,061	19.3%
13	Oklahoma	892	1,063	19.2%
14	Nevada	749	893	19.2%
15	Colorado	654	777	18.8%
16	Arkansas	884	1,045	18.2%
17	District of Columbia	716	845	18.0%
18	Alabama	911	1,073	17.8%
19	Kentucky	920	1,084	17.7%
20	New York	622	732	17.6%
21	Florida	660	775	17.4%
22	South Dakota	731	857	17.4%
23	Virginia	711	833	17.2%
24	North Carolina	774	907	17.2%
25	Michigan	779	912	17.1%
26	Indiana	835	977	16.9%
27	Kansas	769	899	16.9%
28	Missouri	815	951	16.8%
29	Oregon	702	819	16.7%
30	Montana	739	863	16.7%

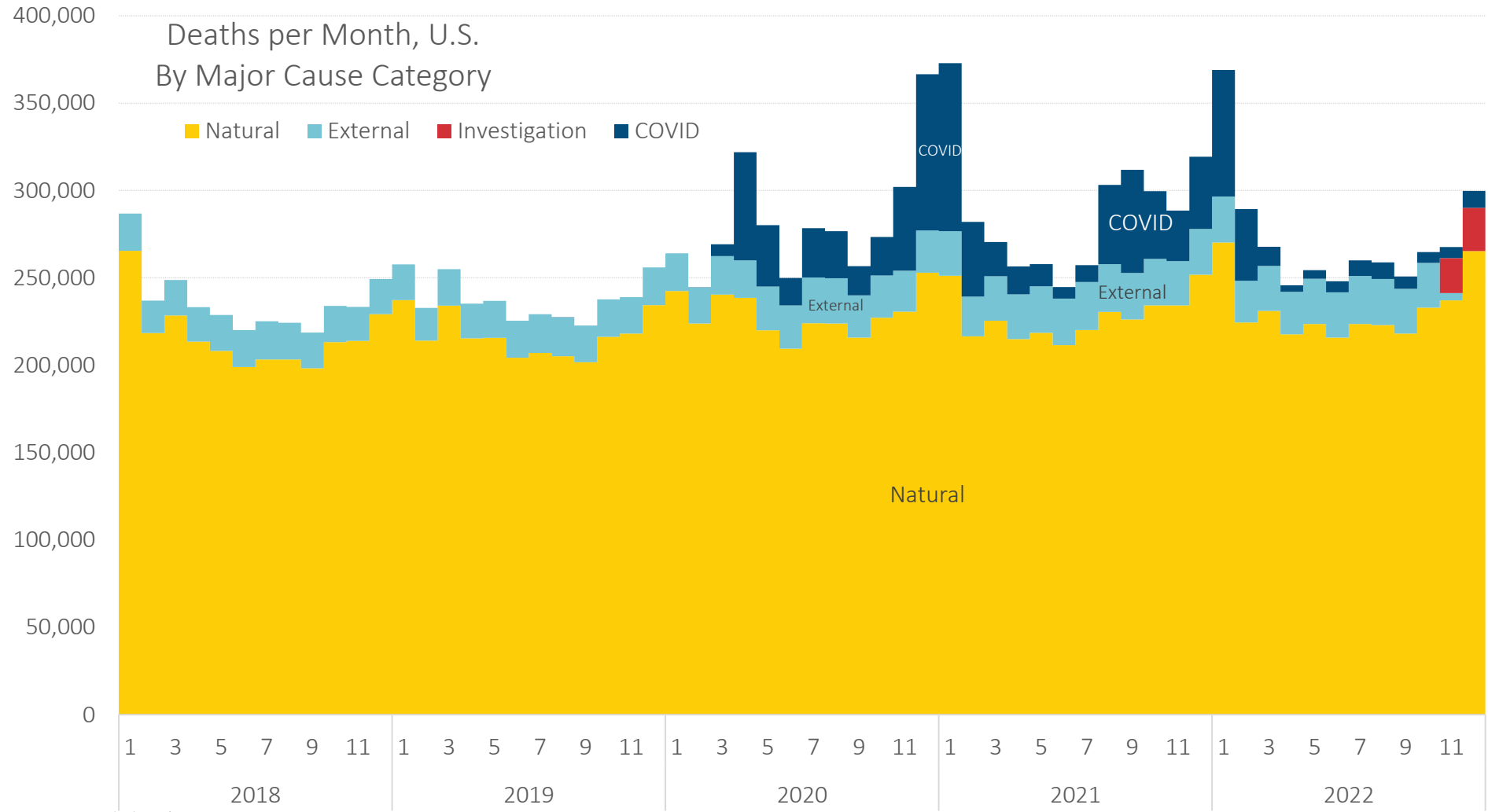
31	Illinois	715	829	16.0%
32	Ohio	838	971	15.9%
33	North Dakota	698	805	15.4%
34	Iowa	731	842	15.2%
35	Wisconsin	722	832	15.2%
36	Delaware	745	858	15.2%
37	Minnesota	651	749	15.0%
38	Utah	693	794	14.5%
39	Washington	674	771	14.4%
40	Connecticut	648	741	14.3%
41	Idaho	728	831	14.3%
42	Pennsylvania	763	869	14.0%
43	New Jersey	666	758	13.9%
44	Nebraska	719	814	13.2%
45	Maryland	712	803	12.8%
46	Maine	762	858	12.7%
47	Vermont	701	776	10.8%
48	Rhode Island	707	778	10.0%
49	Massachusetts	668	734	9.9%
50	New Hampshire	710	773	8.9%
51	Hawaii	577	622	7.8%

# Cause of Death: Major Categories



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

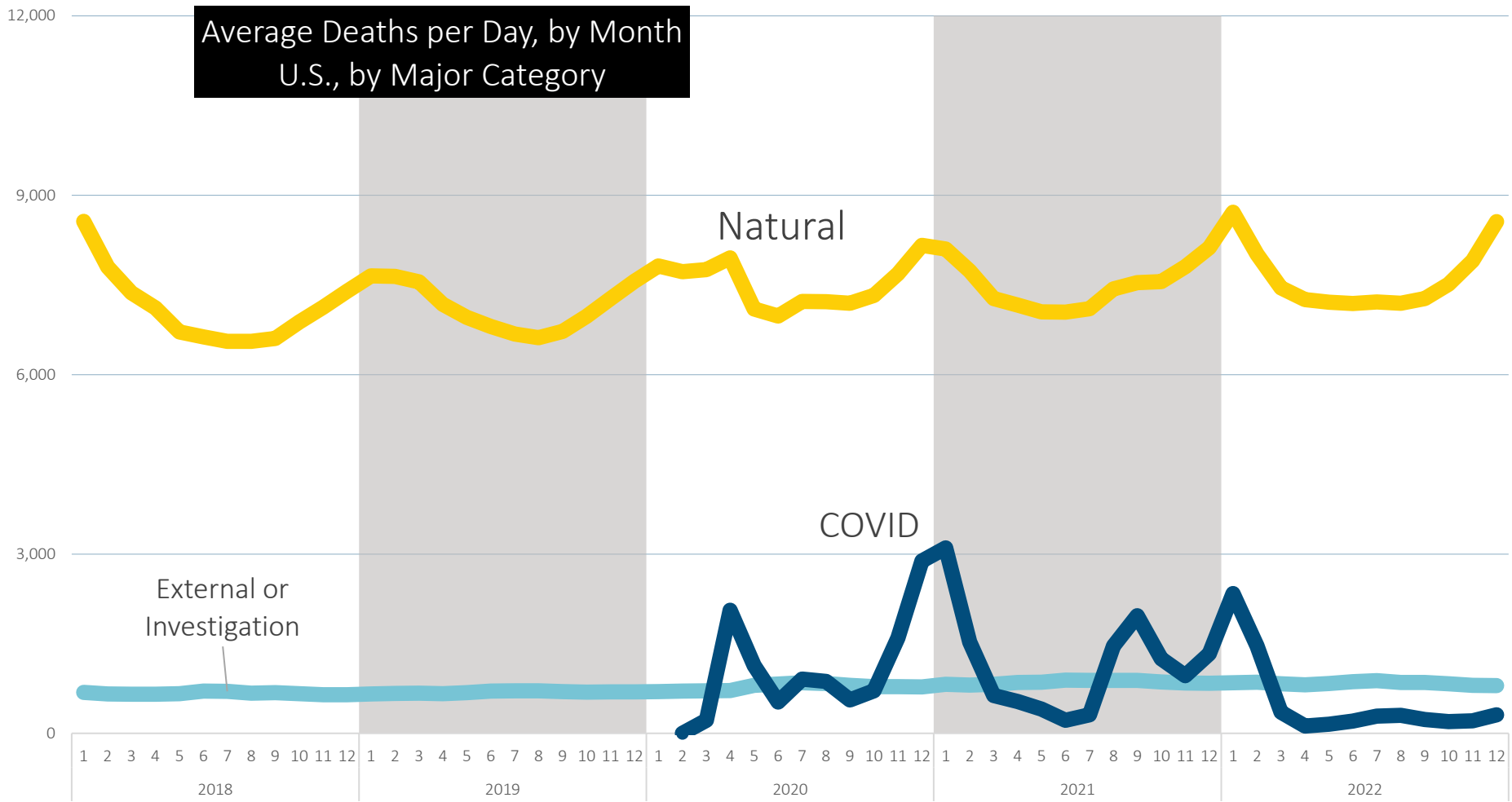
■ Natural ■ External ■ Investigation ■ COVID



Source: CDC Wonder, data as of 12 May 2023

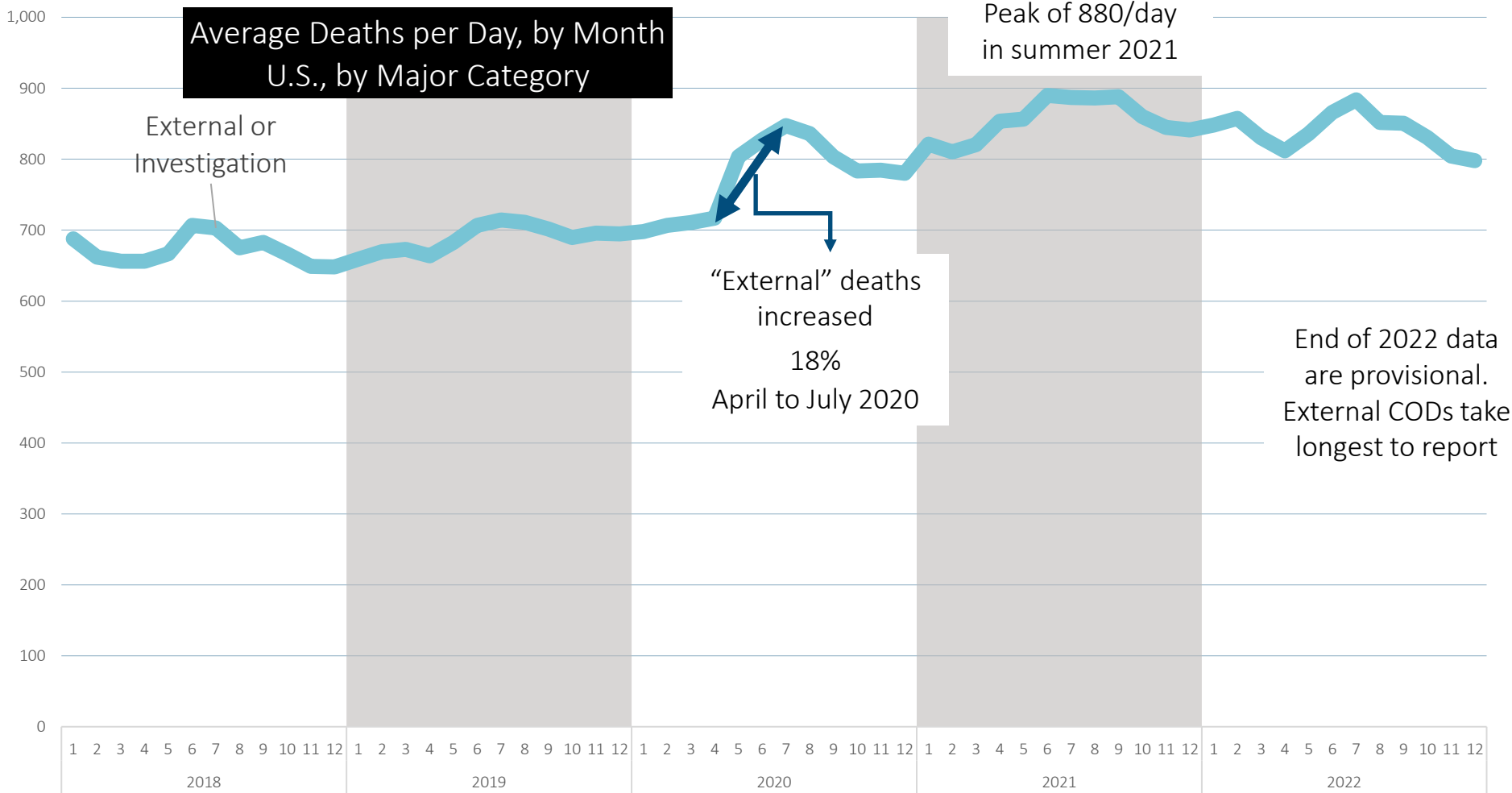


# Average Deaths per Day, by Month U.S., by Major Category



Source: CDC Wonder, data as of 12 May 2023

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



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

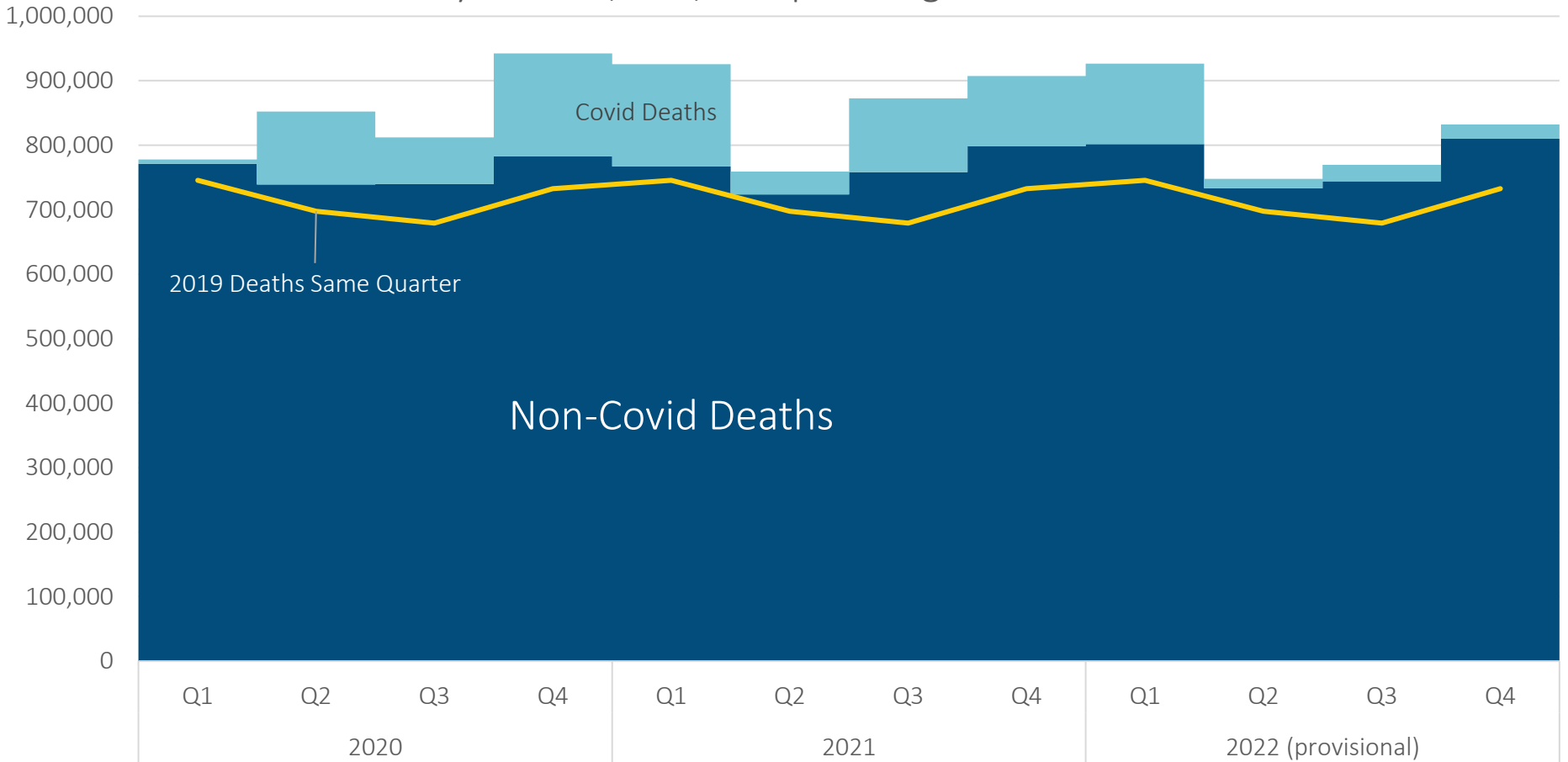




# Counting COVID deaths

- 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

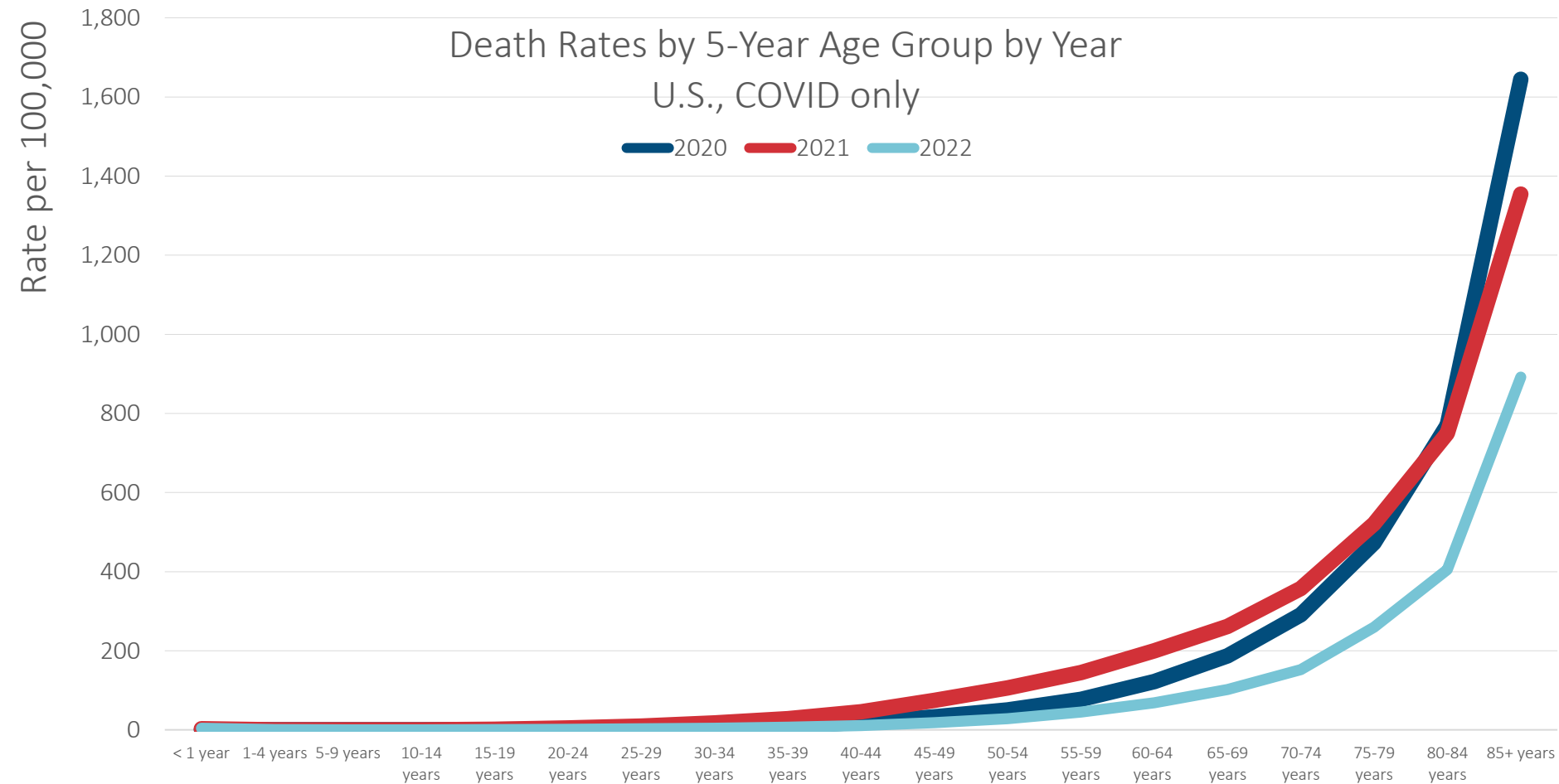
# Deaths by Quarter, U.S., Compared Against Same Quarter 2019



# Death Rates by 5-Year Age Group by Year

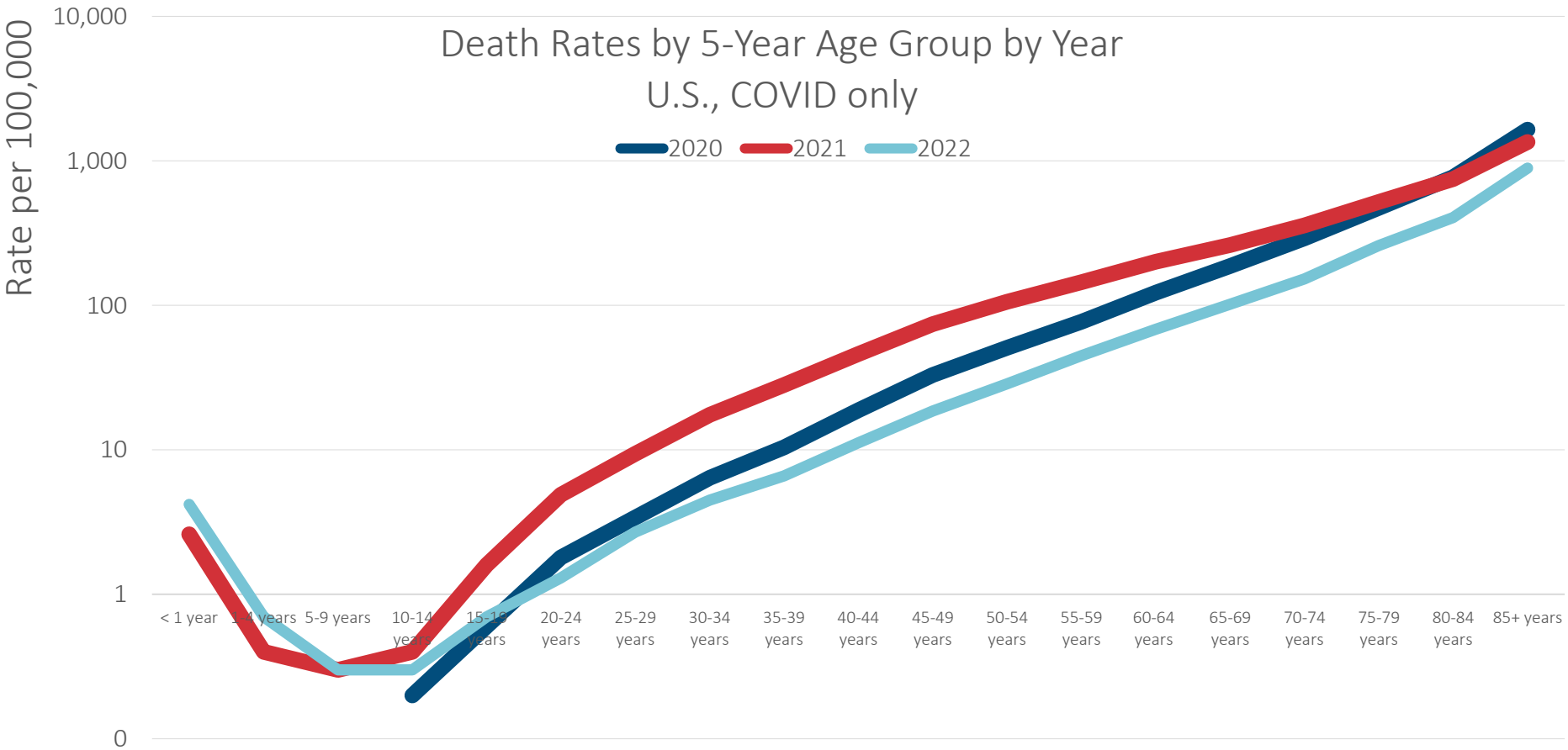
## U.S., COVID only

2020 2021 2022



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

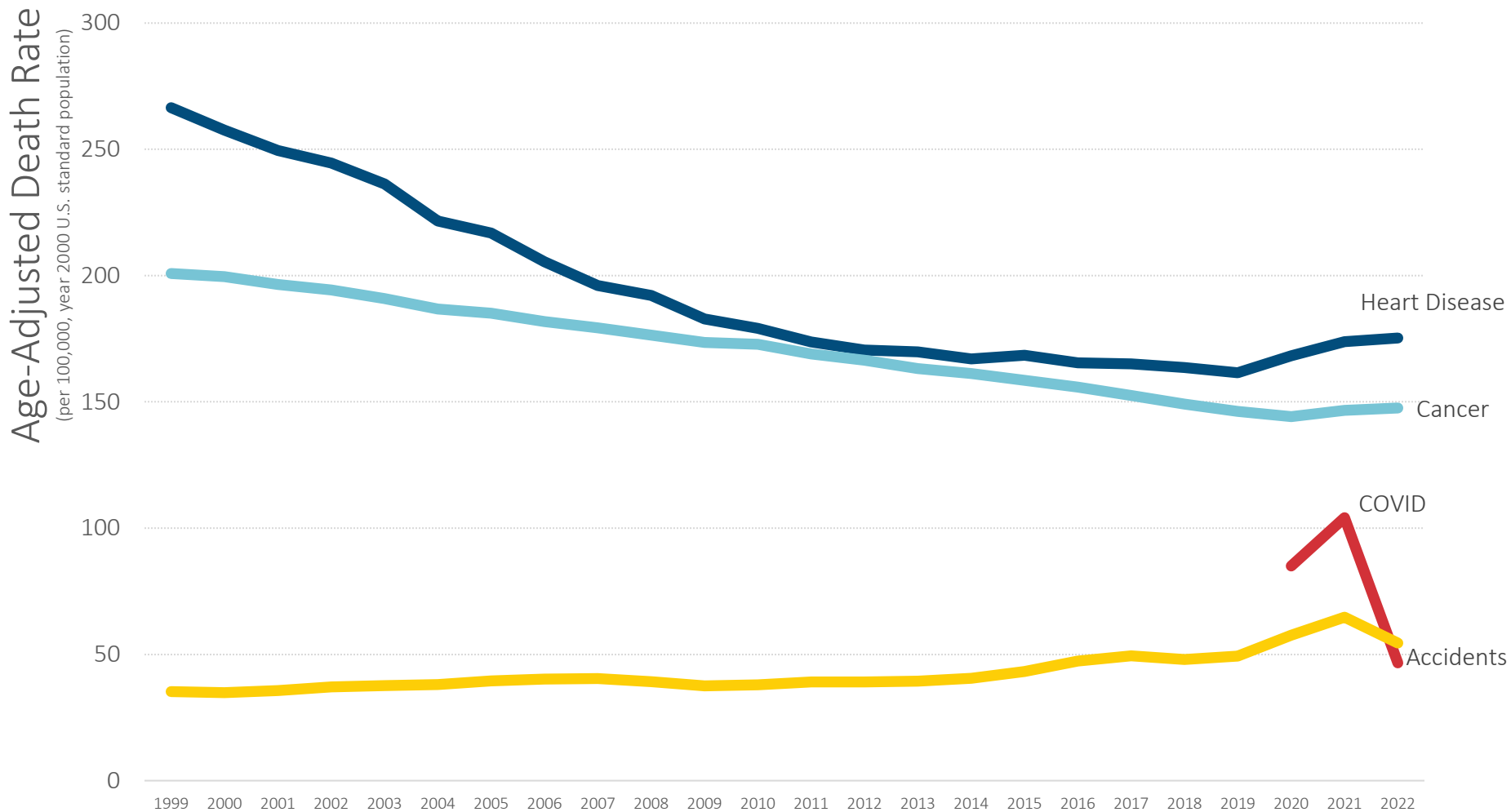
2020 2021 2022



Source: CDC Wonder, data as of 12 May 2023

# Cause of death: Historical Trajectories

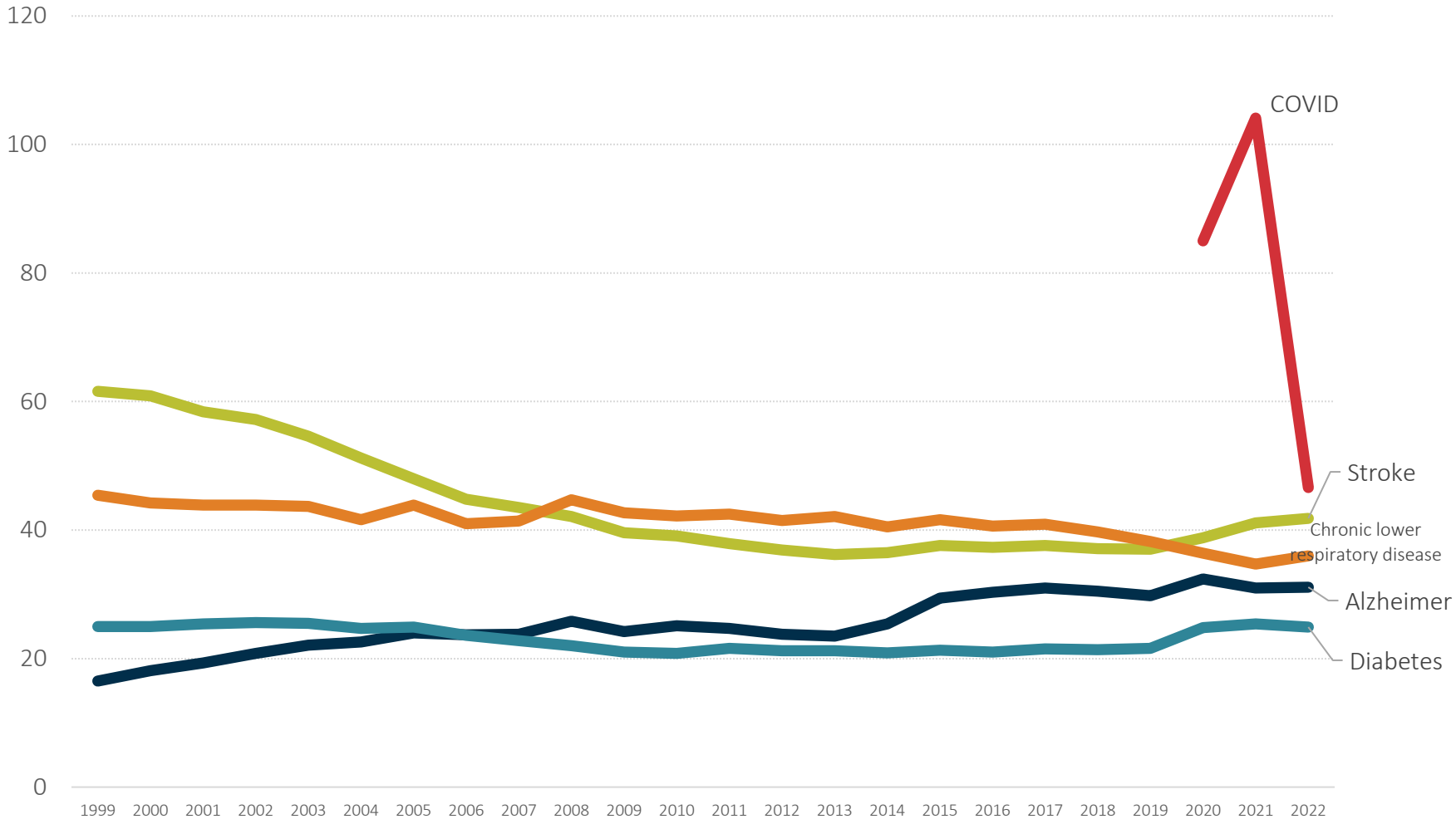




Source: CDC Wonder, data as of 12 May 2023. Accidents, Homicides, and Suicides include deaths only through October 2022 and the first week of November 2022 due to 6-month censoring of external causes of death.

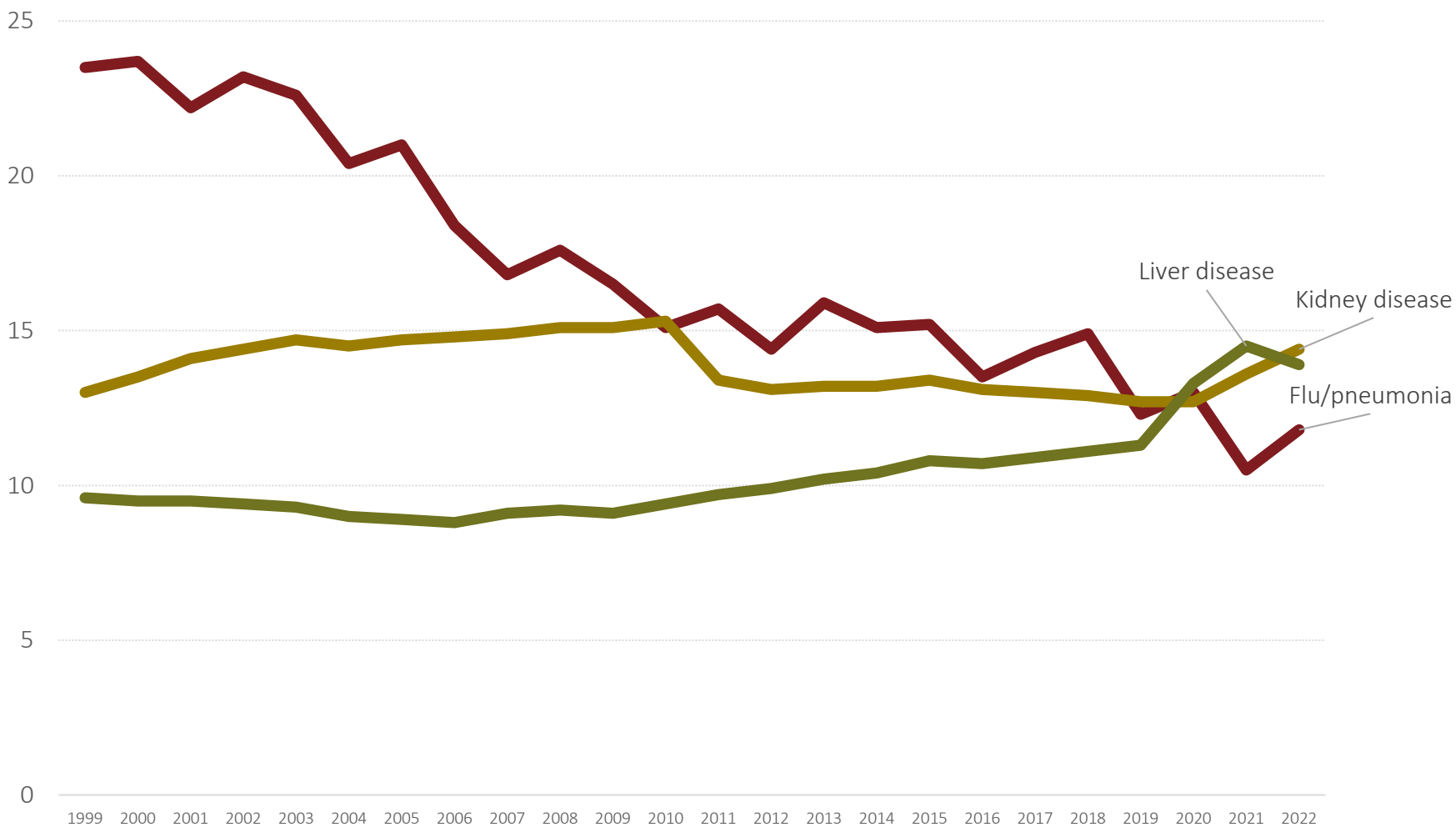
# Age-Adjusted Death Rate

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

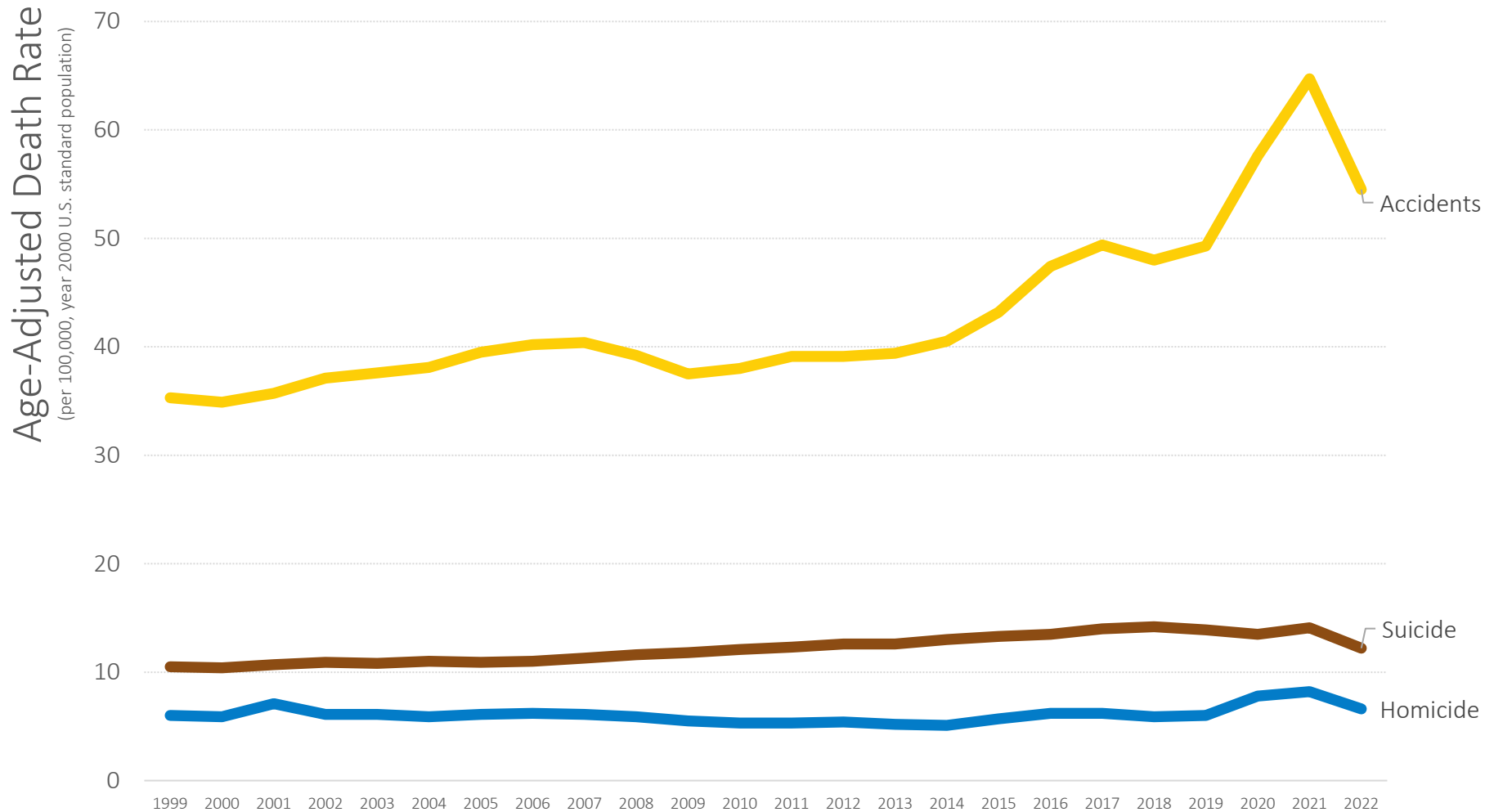


# Age-Adjusted Death Rate

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







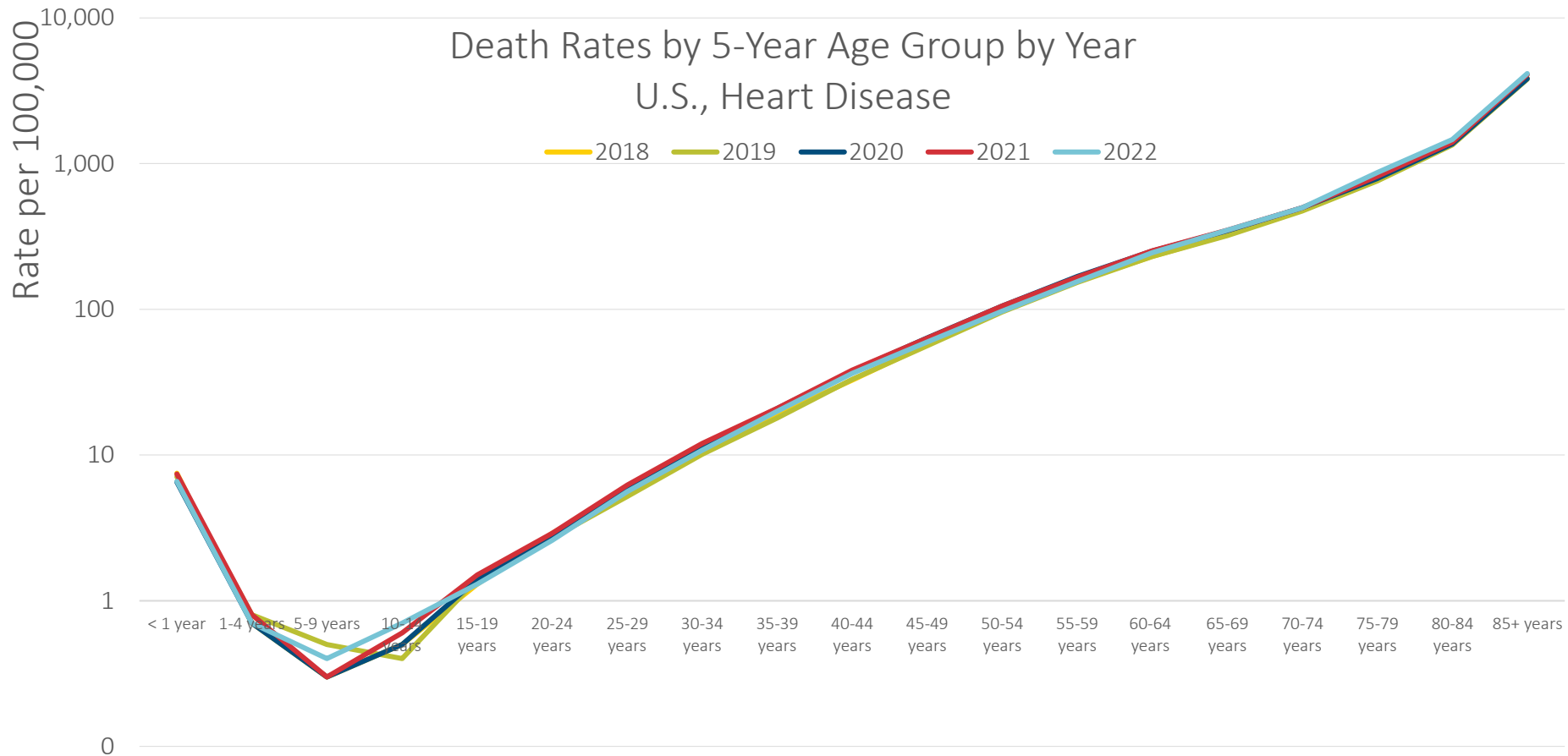
Source: CDC Wonder, data as of 12 May 2023. Accidents, Homicides, and Suicides include deaths only through October 2022 and the first week of November 2022 due to 6-month censoring of external causes of death.

# Physiological causes



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

2018 2019 2020 2021 2022



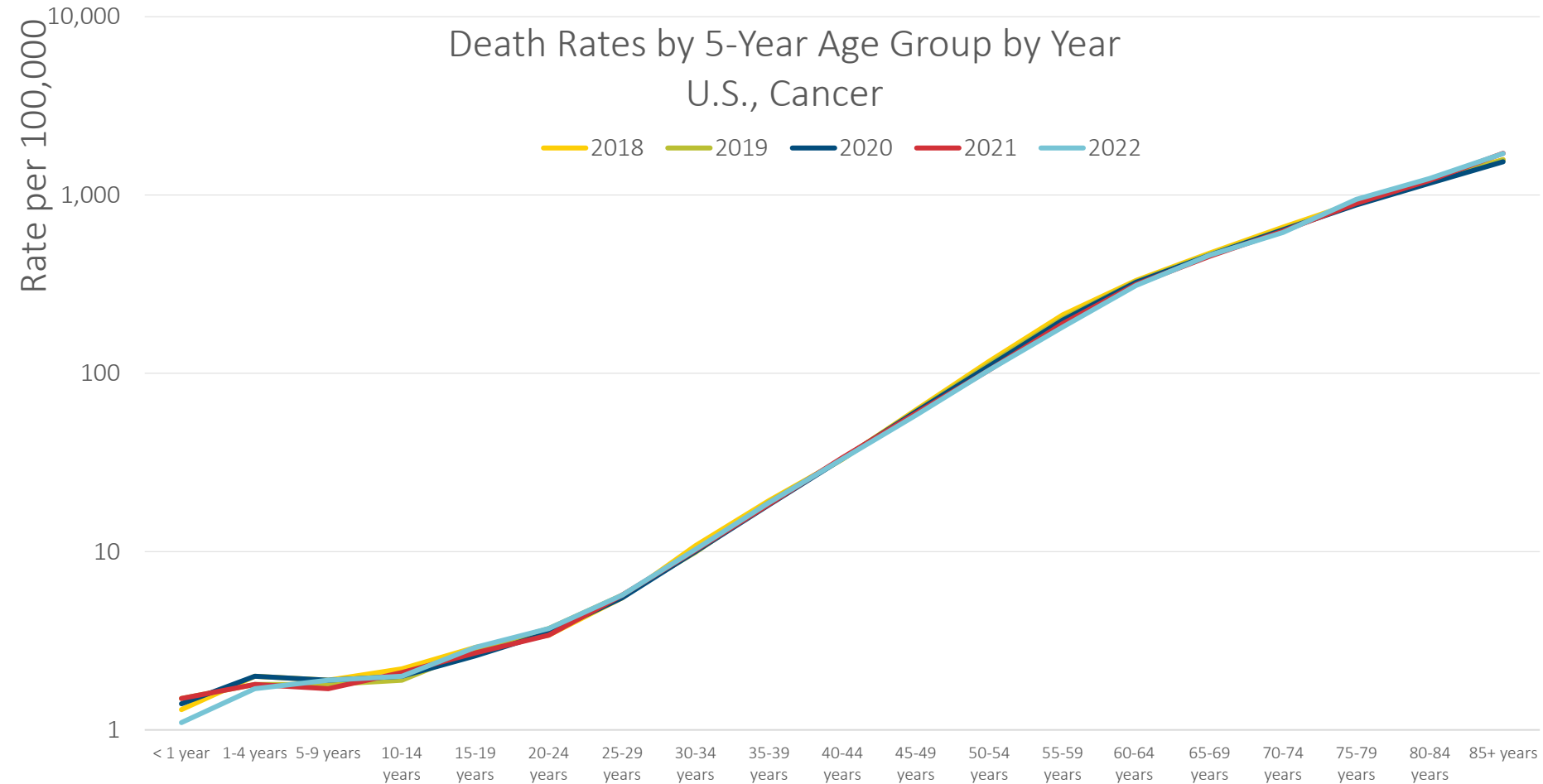
# Percentage Difference in Death Rate v 2019

## U.S., Heart Disease



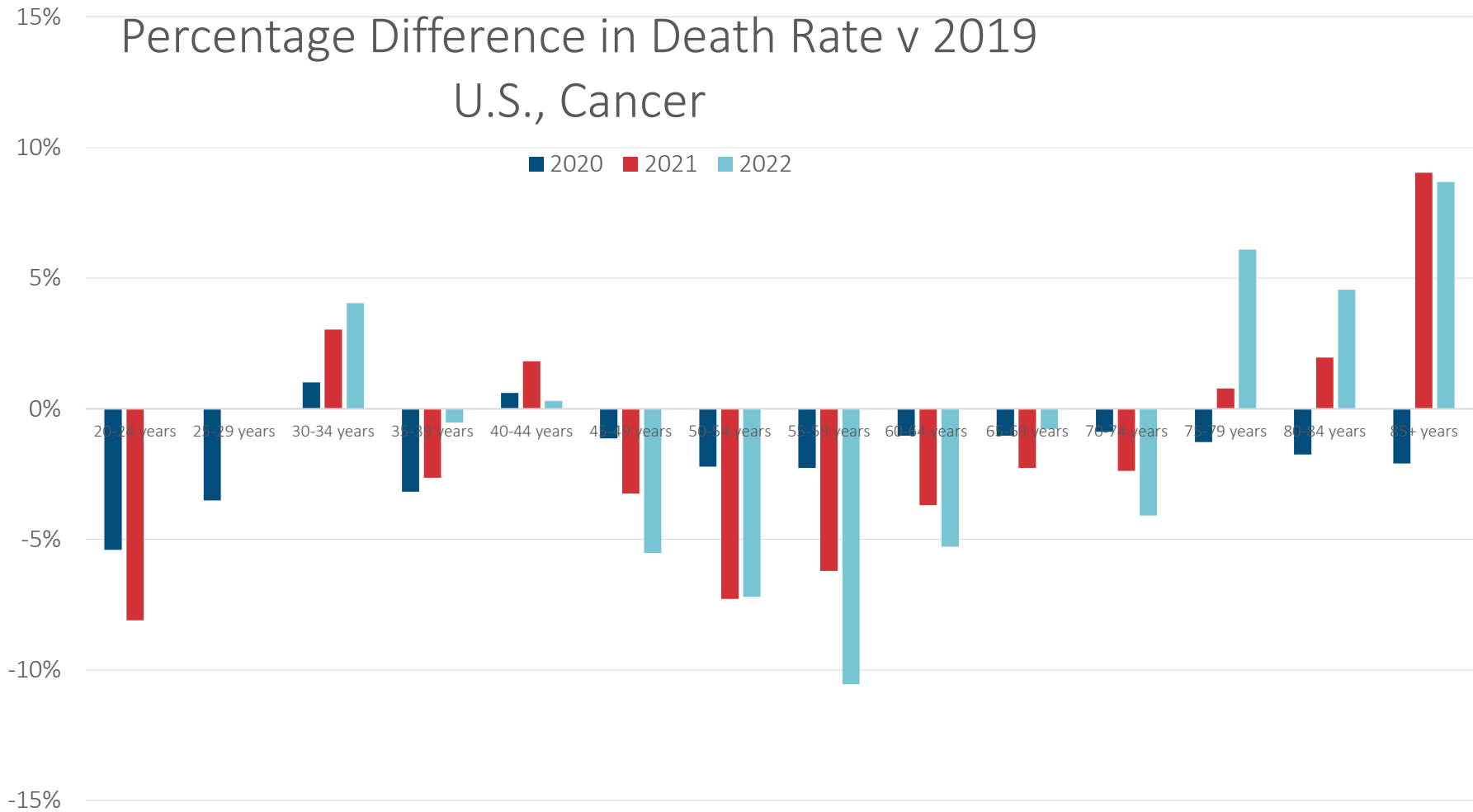
# Death Rates by 5-Year Age Group by Year U.S., Cancer

— 2018 — 2019 — 2020 — 2021 — 2022



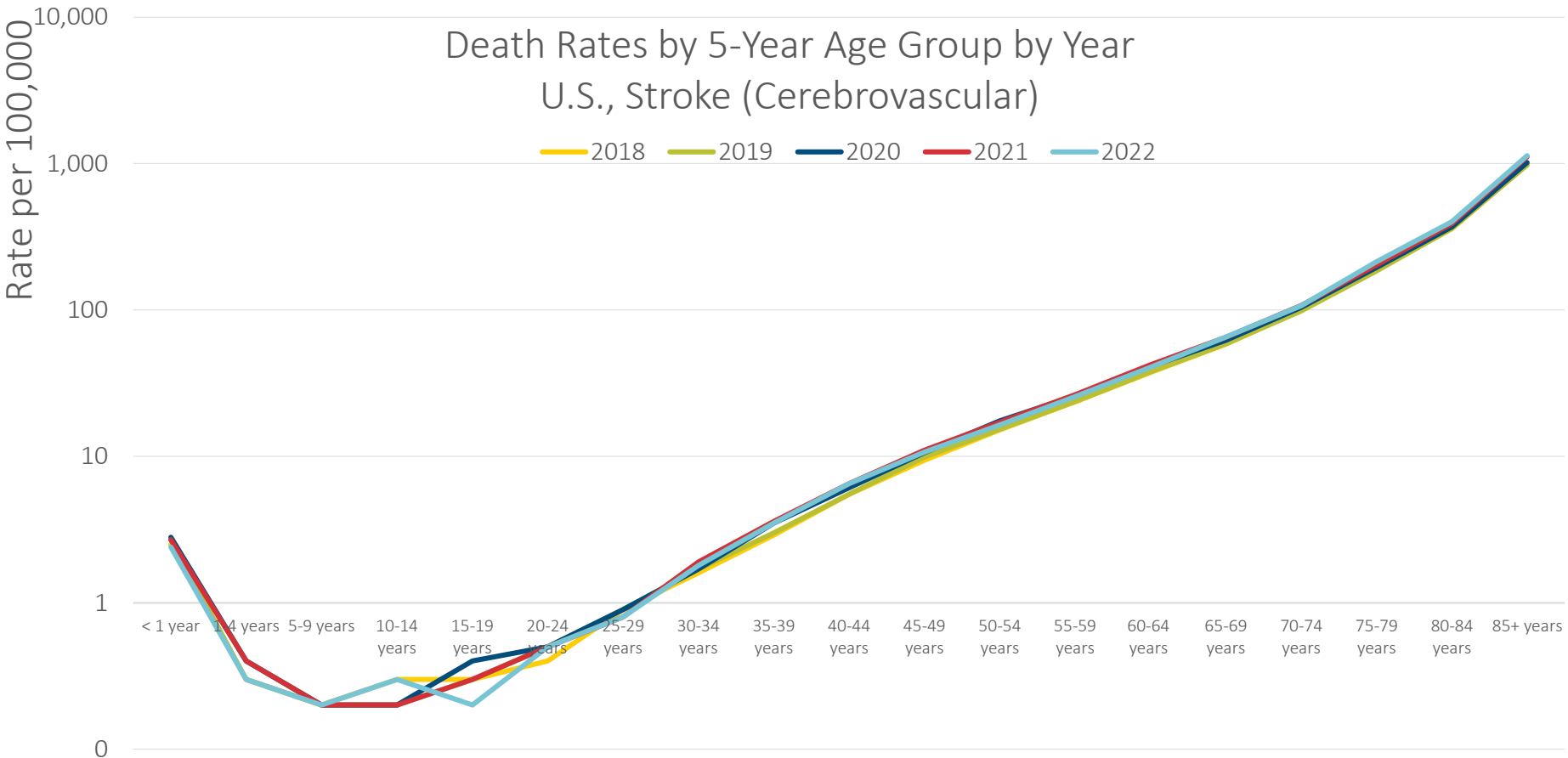
# Percentage Difference in Death Rate v 2019

## U.S., Cancer



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

— 2018 — 2019 — 2020 — 2021 — 2022



Source: CDC Wonder, data as of 12 May 2023

# Percentage Difference in Death Rate v 2019

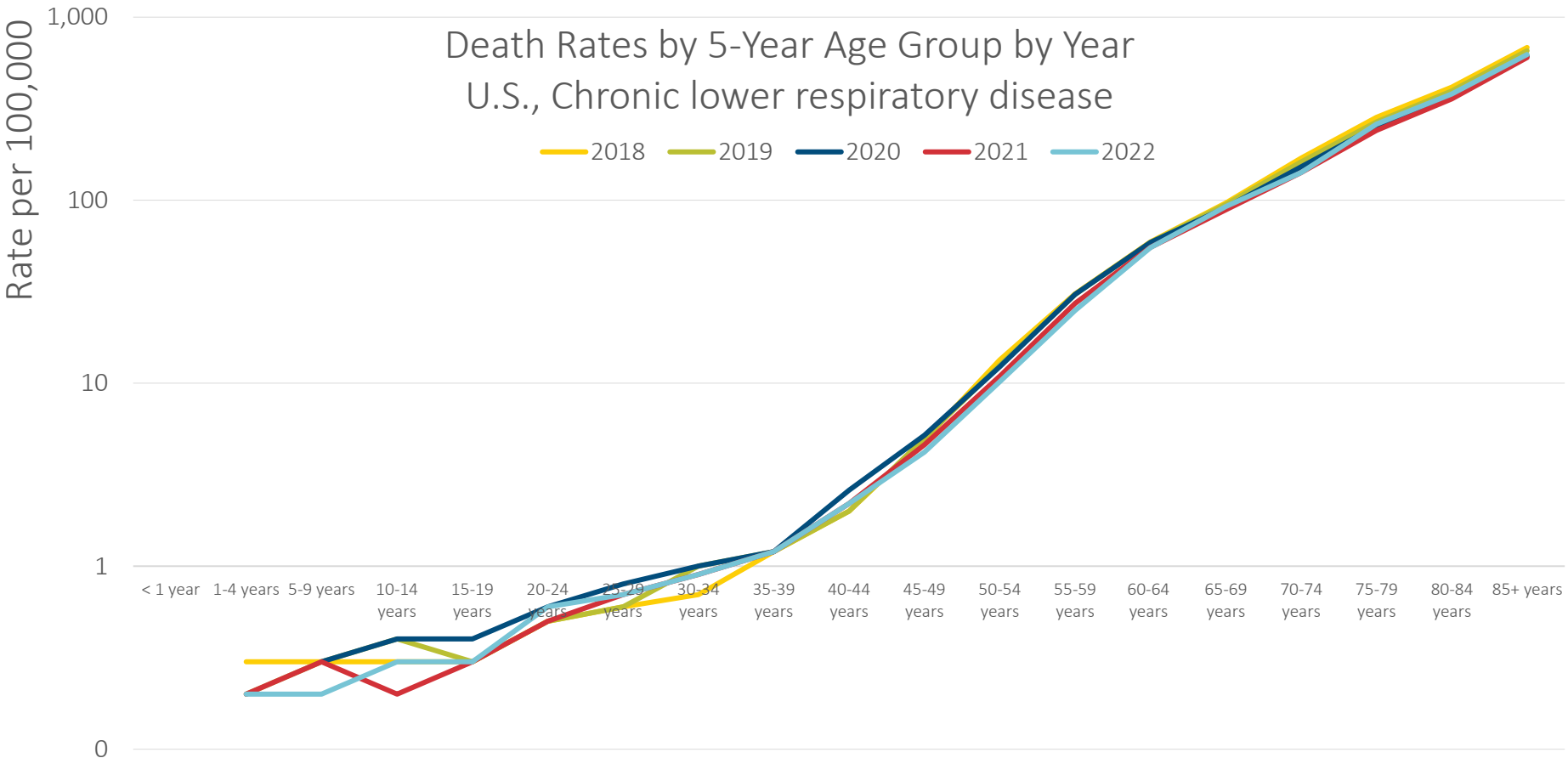
## U.S., Stroke





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

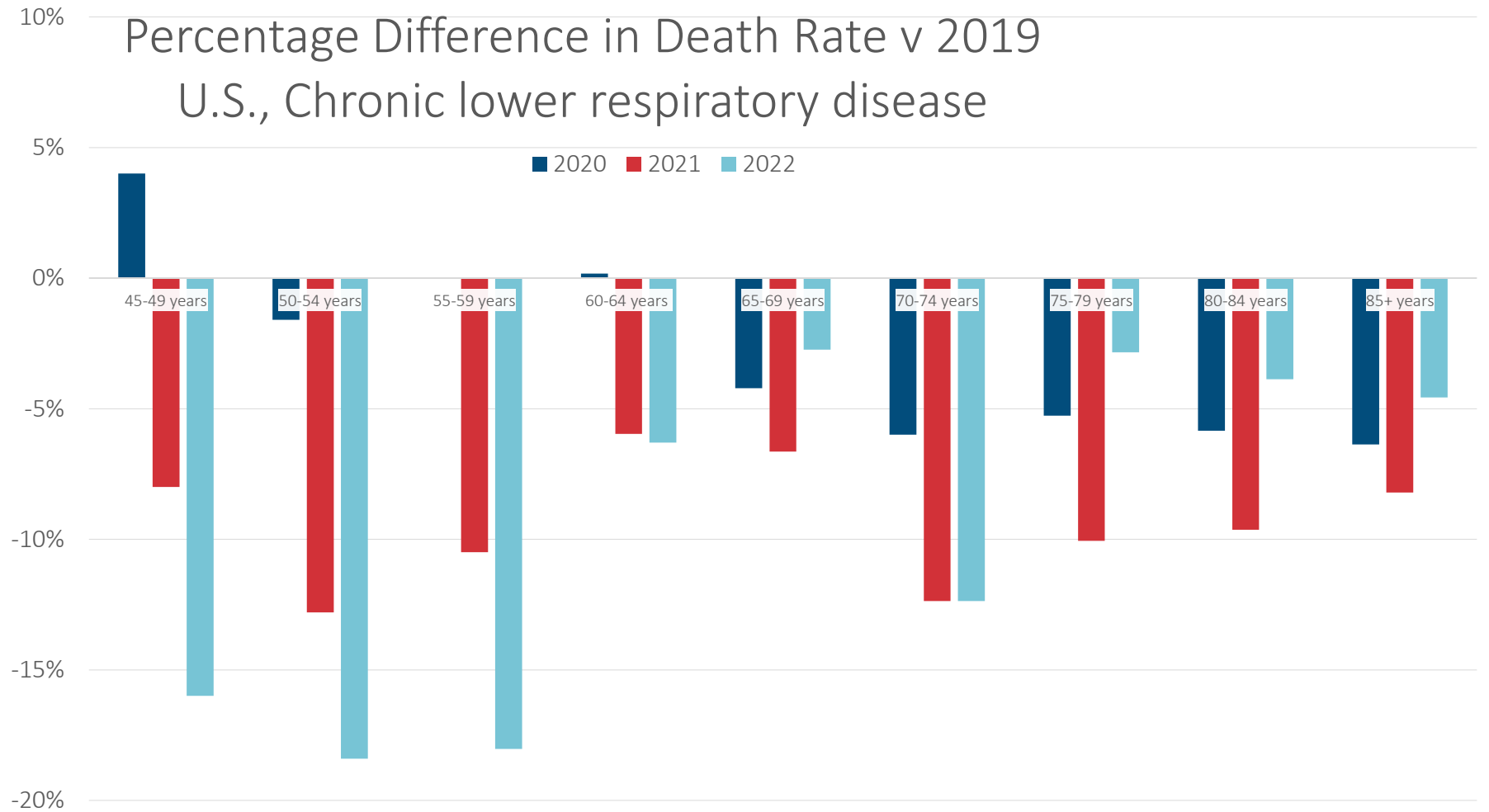
— 2018 — 2019 — 2020 — 2021 — 2022



Source: CDC Wonder, data as of 12 May 2023

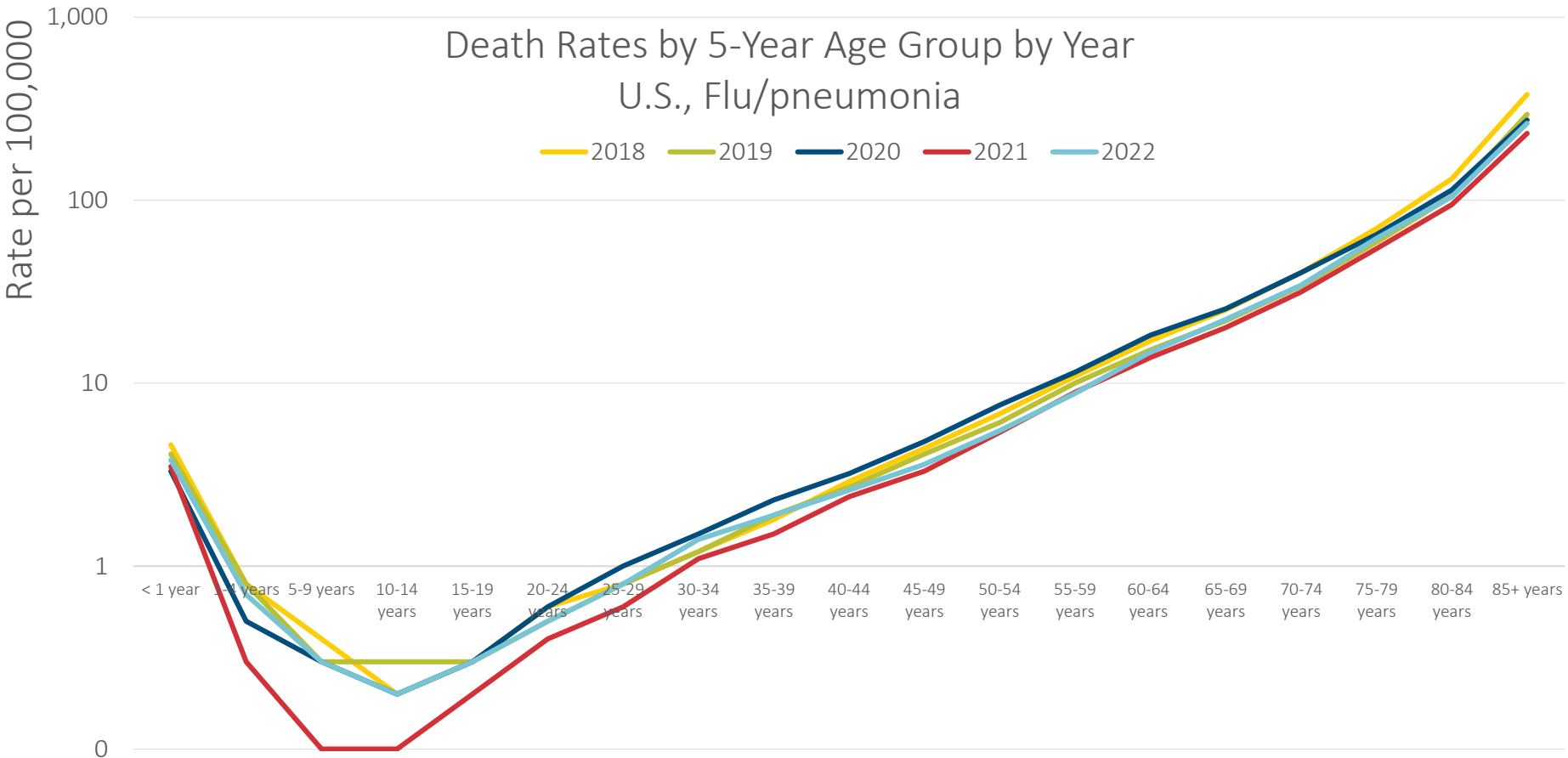
# Percentage Difference in Death Rate v 2019

## U.S., Chronic lower respiratory disease



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

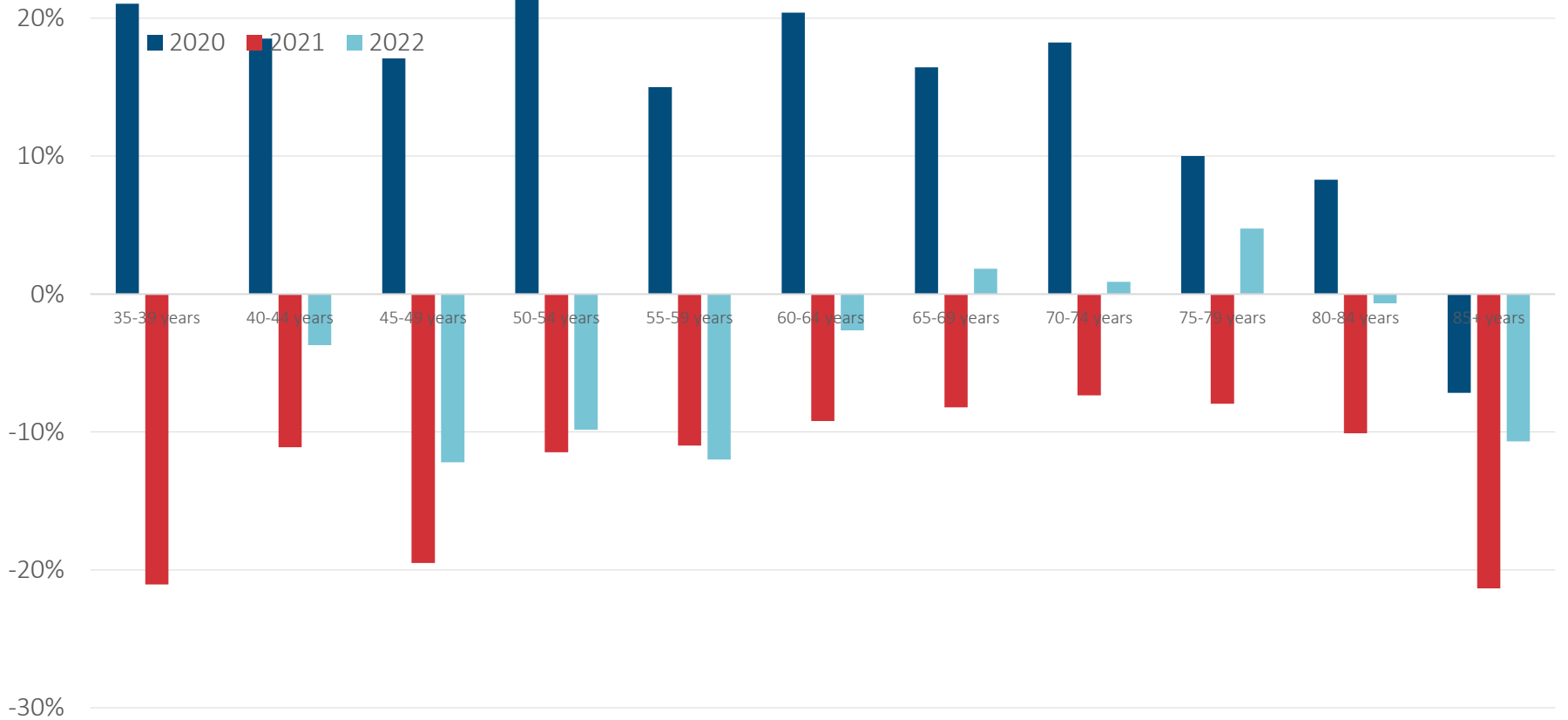
2018 2019 2020 2021 2022



Source: CDC Wonder, data as of 12 May 2023

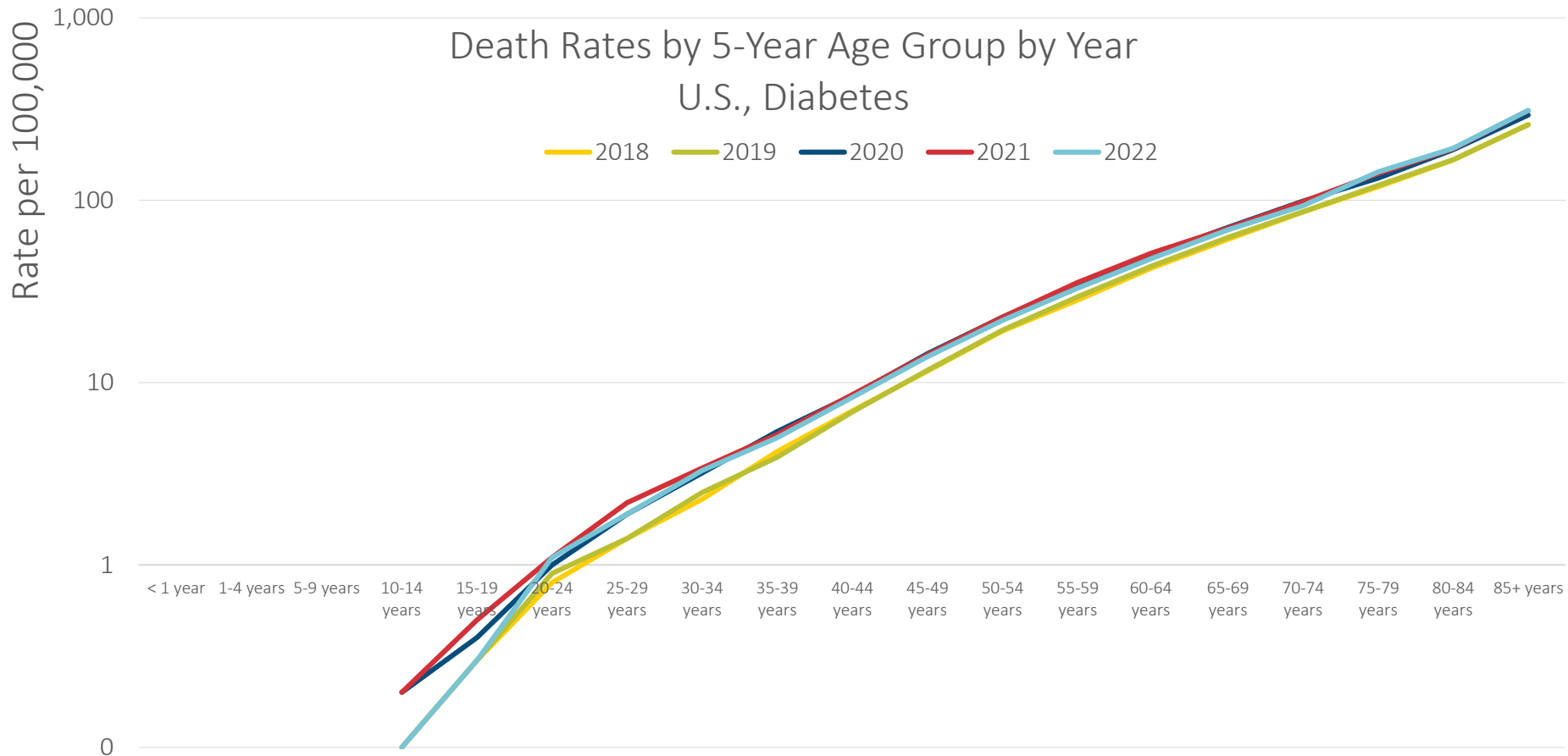
# Percentage Difference in Death Rate v 2019

## U.S., Flu/pneumonia



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

— 2018 — 2019 — 2020 — 2021 — 2022



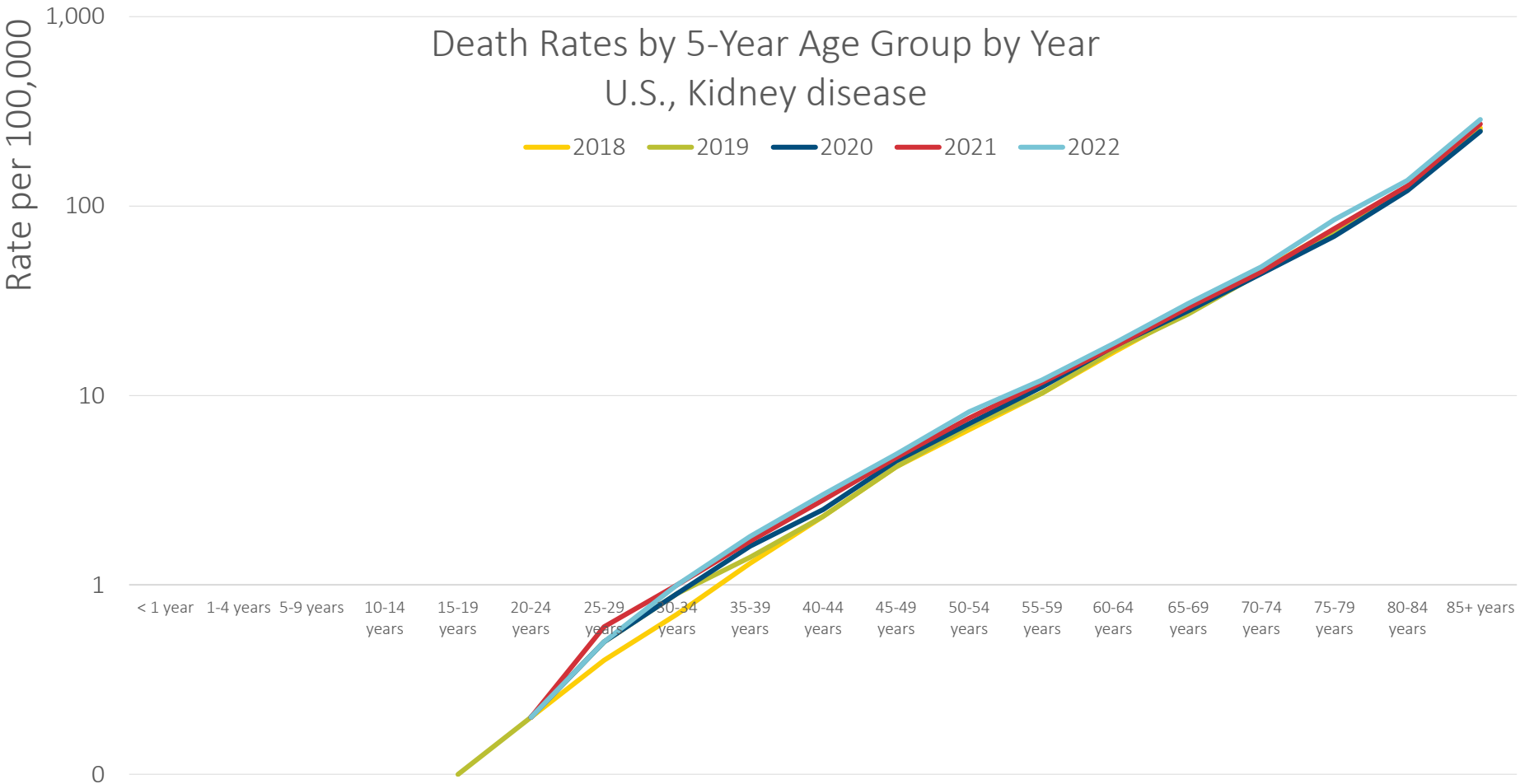
# Percentage Difference in Death Rate v 2019

## U.S., Diabetes



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

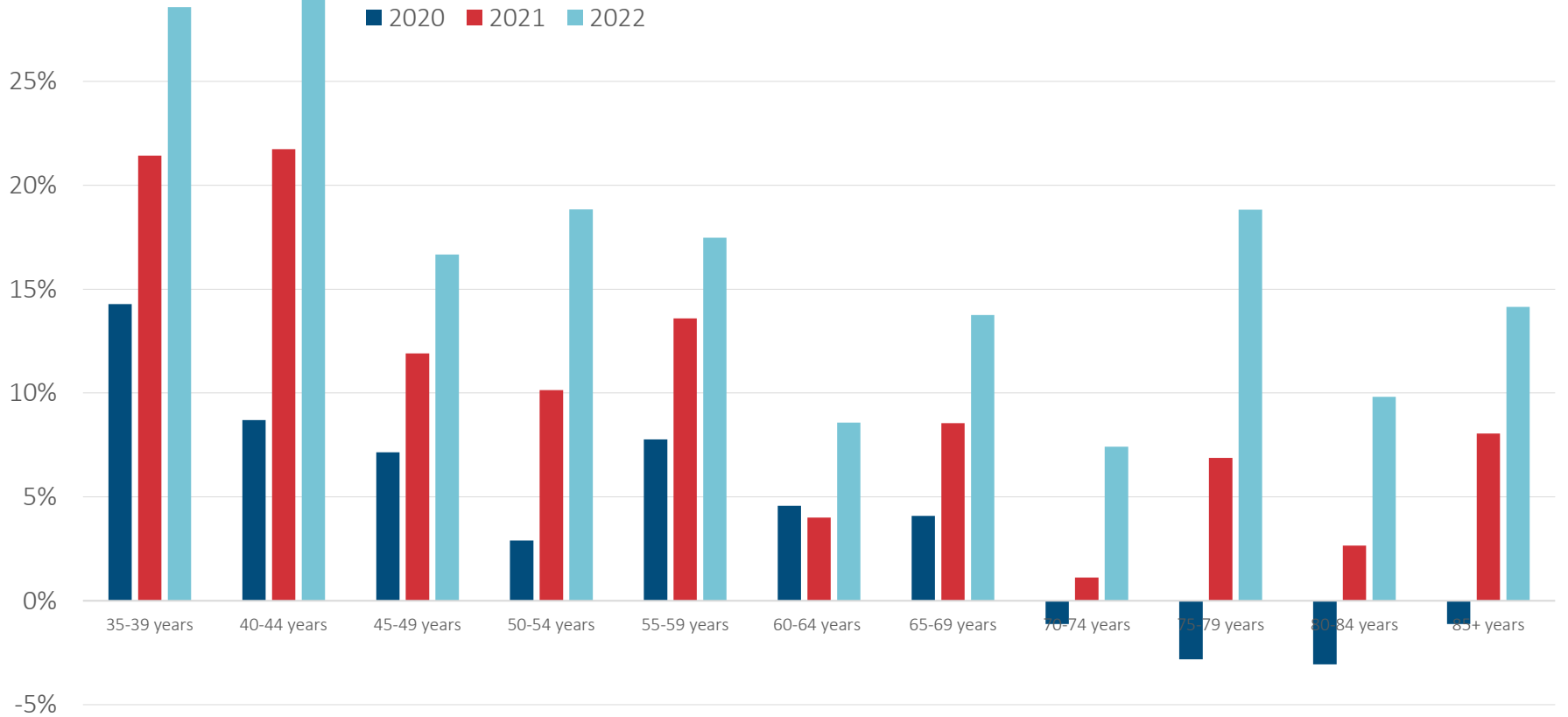
2018 2019 2020 2021 2022



Source: CDC Wonder, data as of 12 May 2023

# Percentage Difference in Death Rate v 2019

## U.S., Kidney Disease

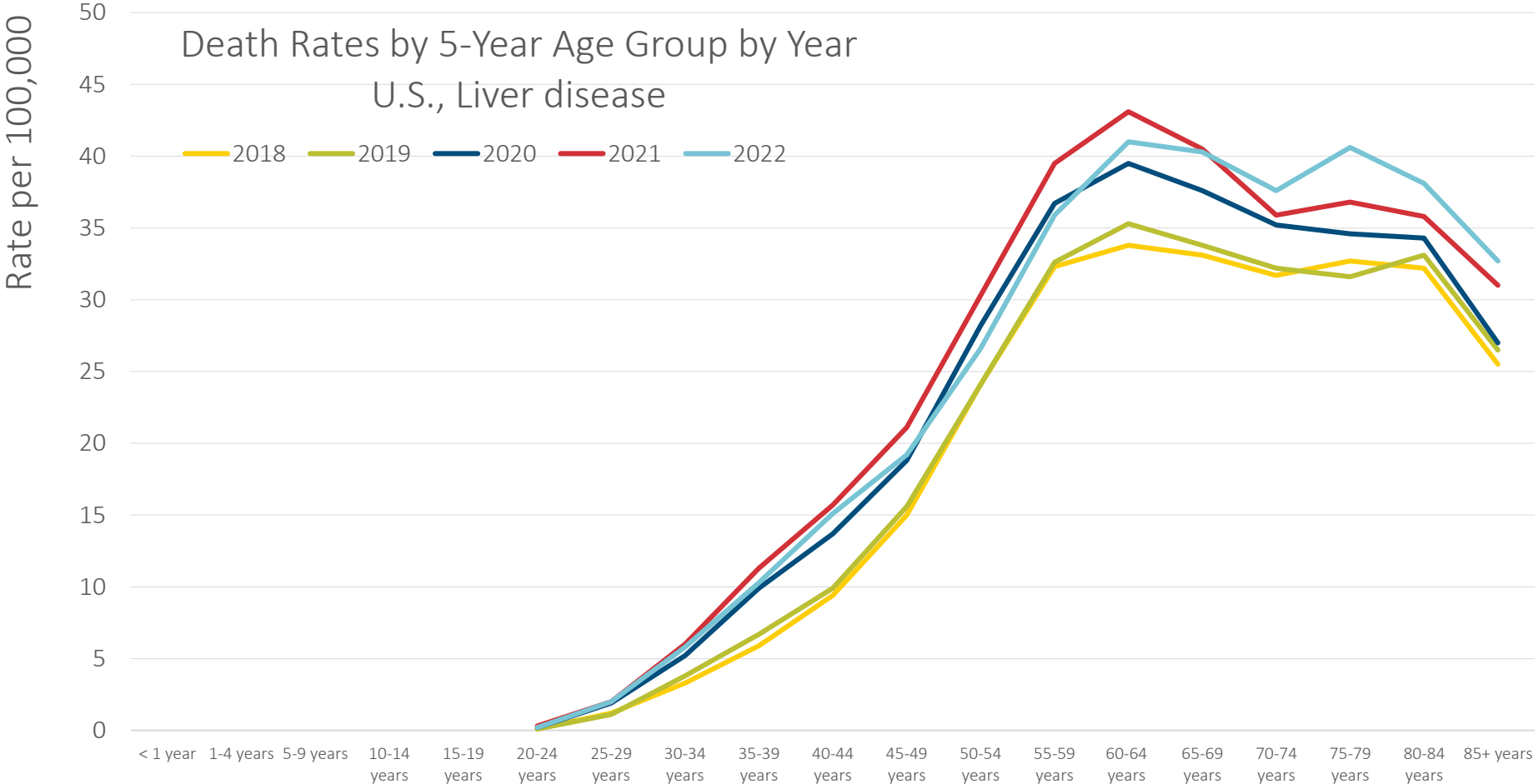




# Death Rates by 5-Year Age Group by Year

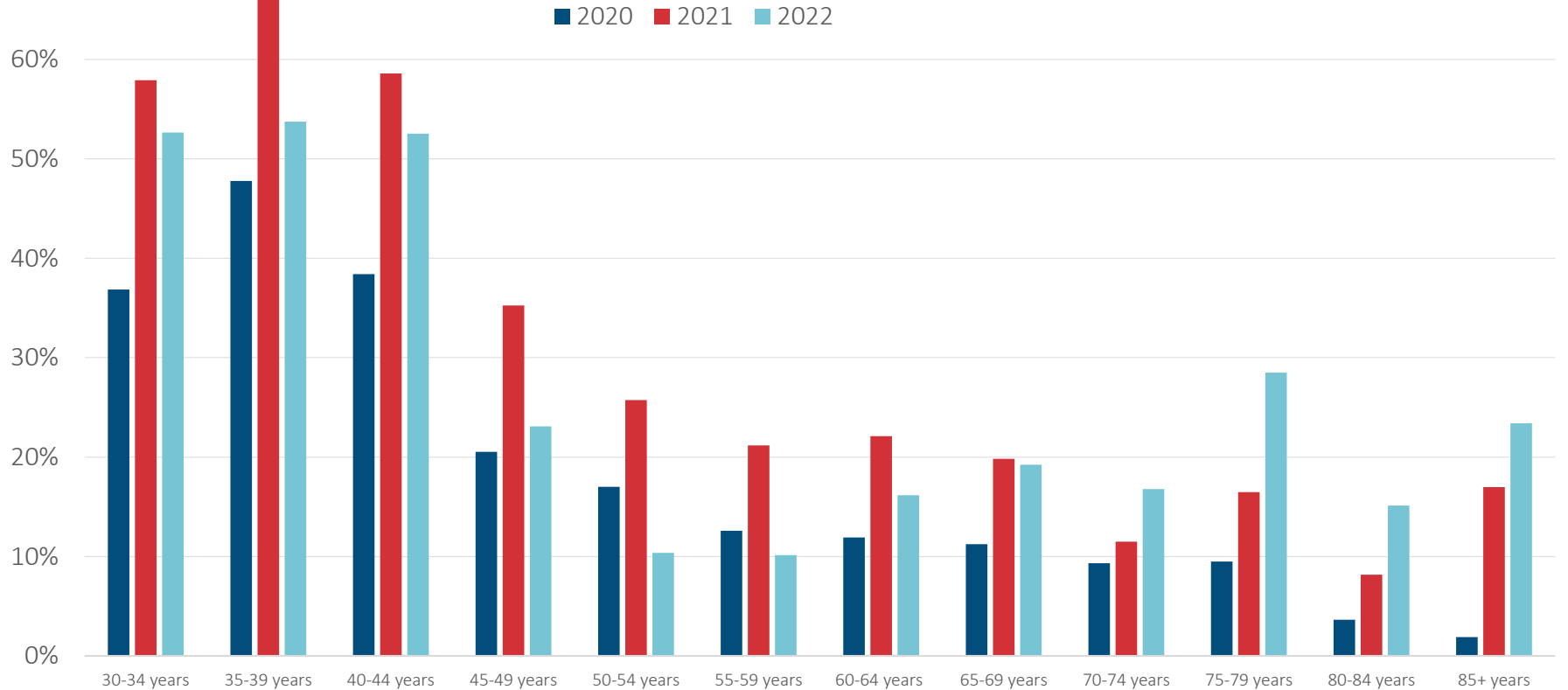
## U.S., Liver disease

2018 2019 2020 2021 2022



# Percentage Difference in Death Rate v 2019

## U.S., Liver Disease



# External causes

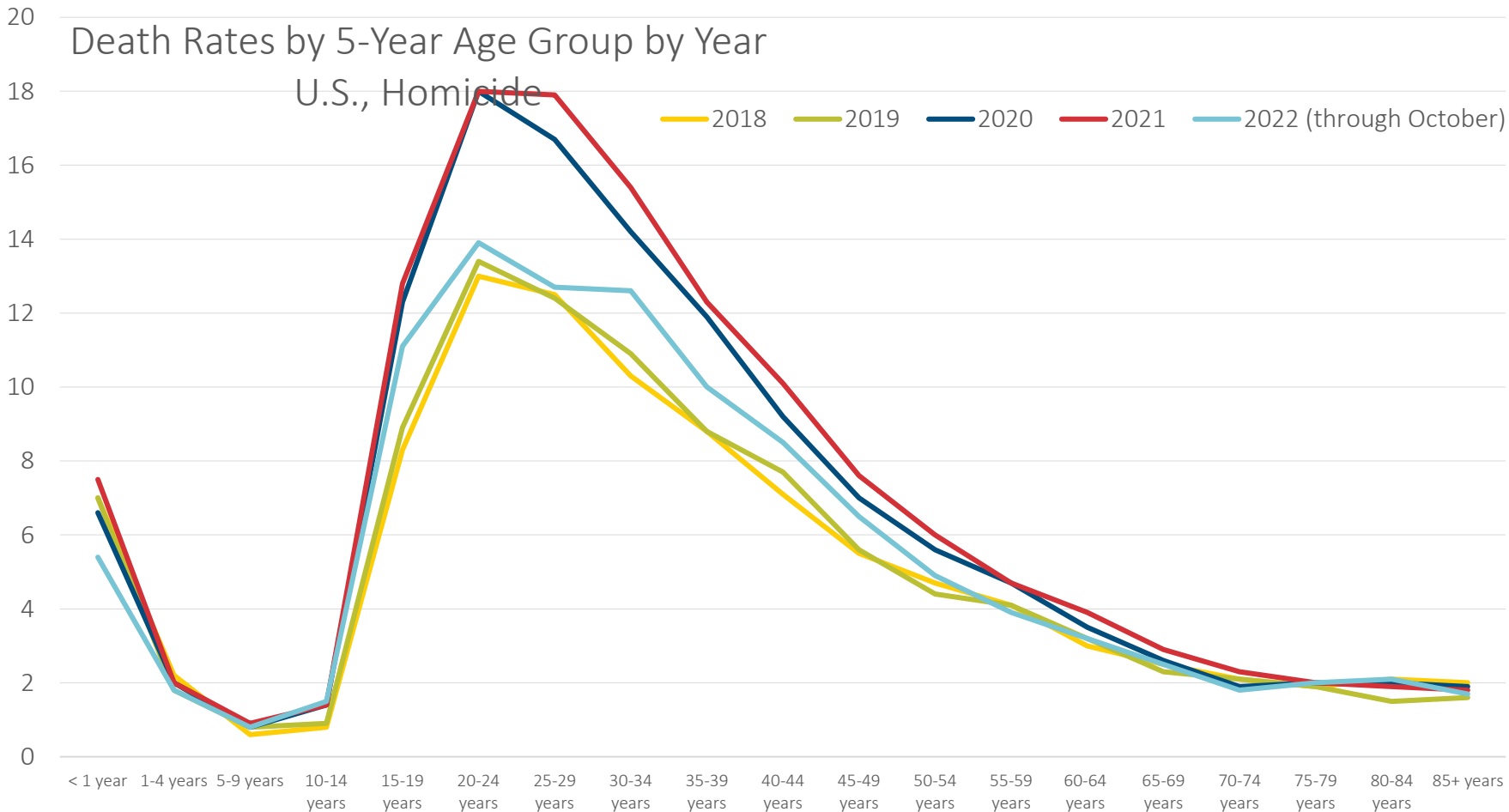


Rate per 100,000

# Death Rates by 5-Year Age Group by Year

## U.S., Homicide

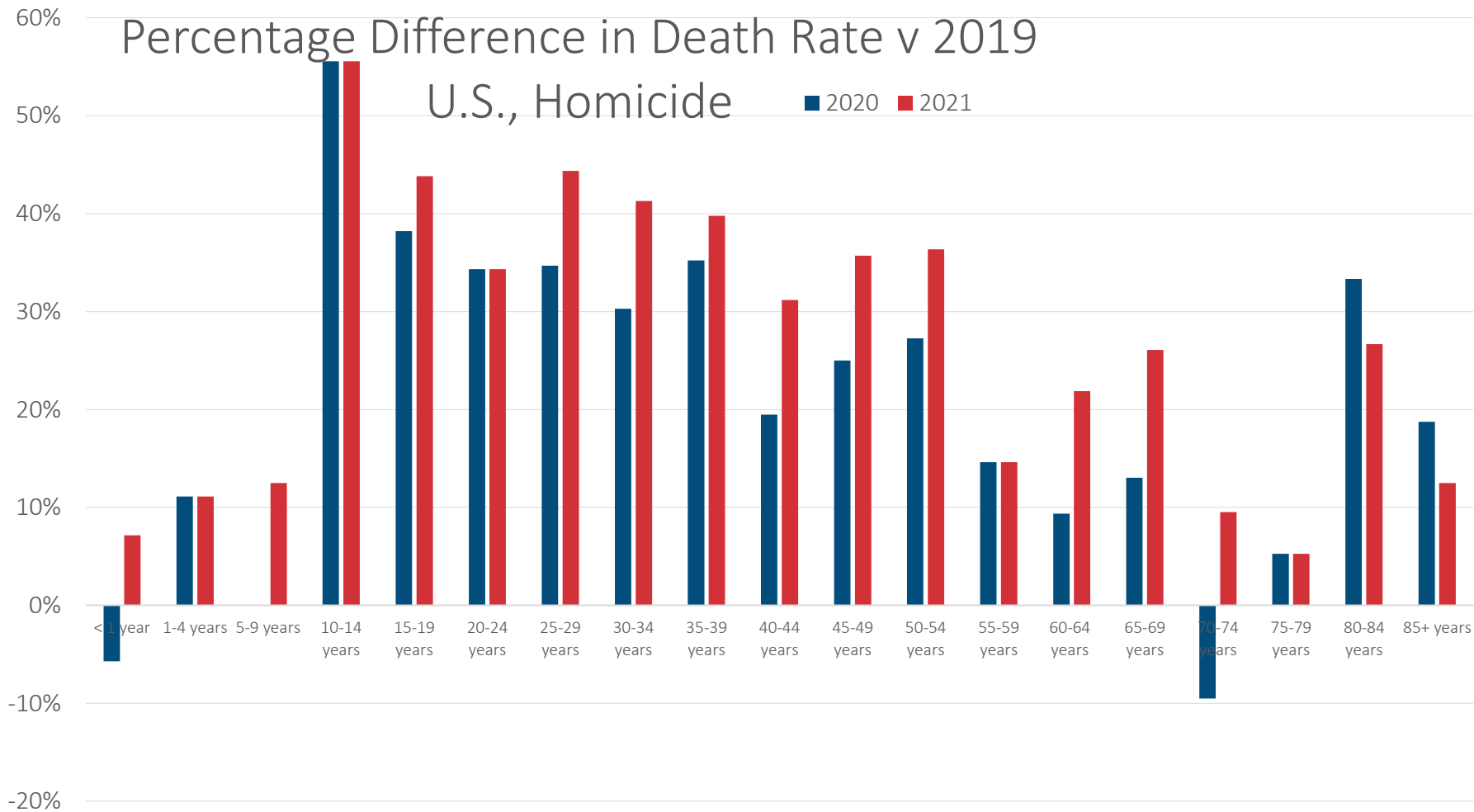
2018 2019 2020 2021 2022 (through October)



# Percentage Difference in Death Rate v 2019

## U.S., Homicide

■ 2020 ■ 2021

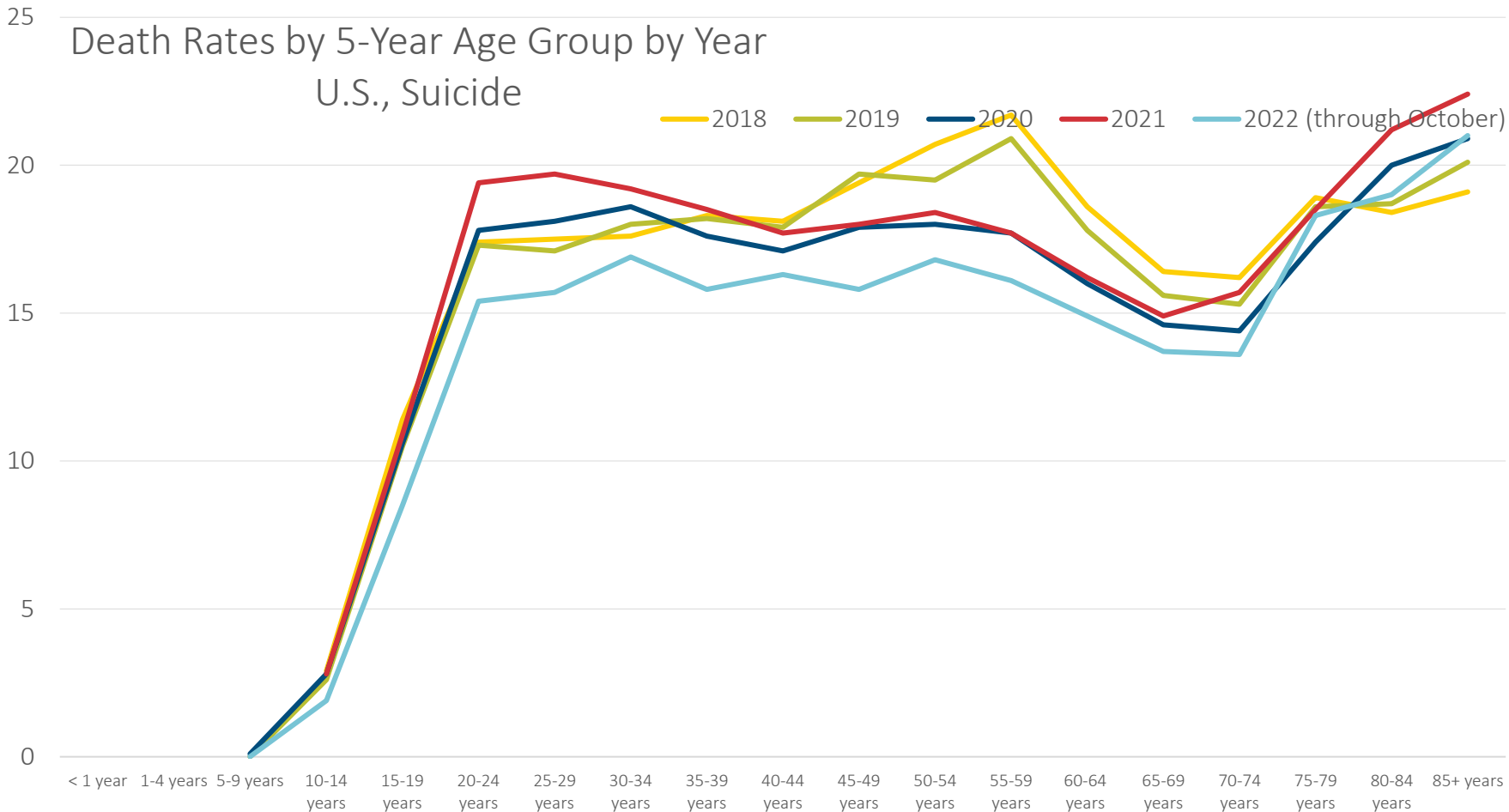


Rate per 100,000

# Death Rates by 5-Year Age Group by Year

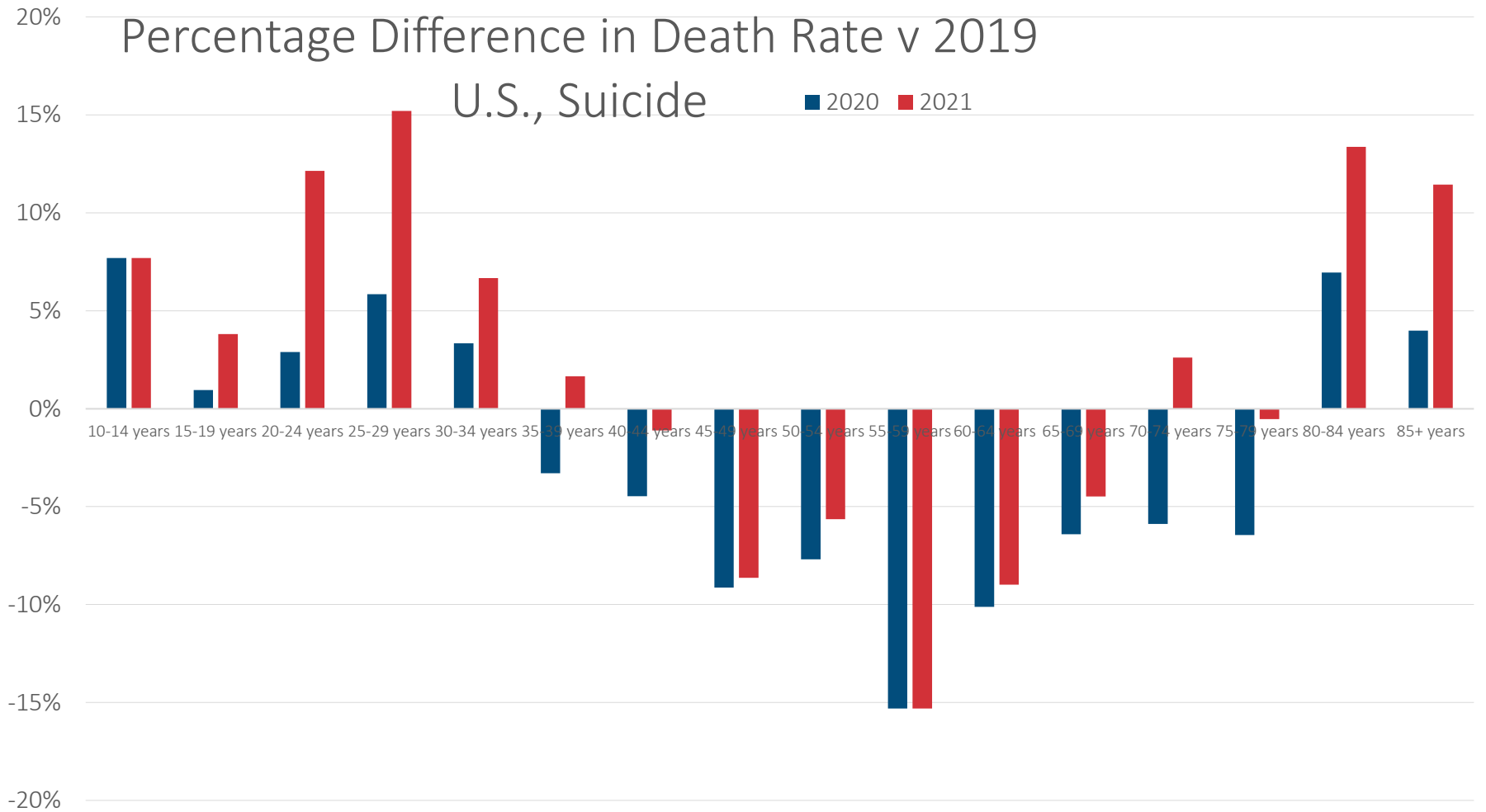
## U.S., Suicide

2018 2019 2020 2021 2022 (through October)



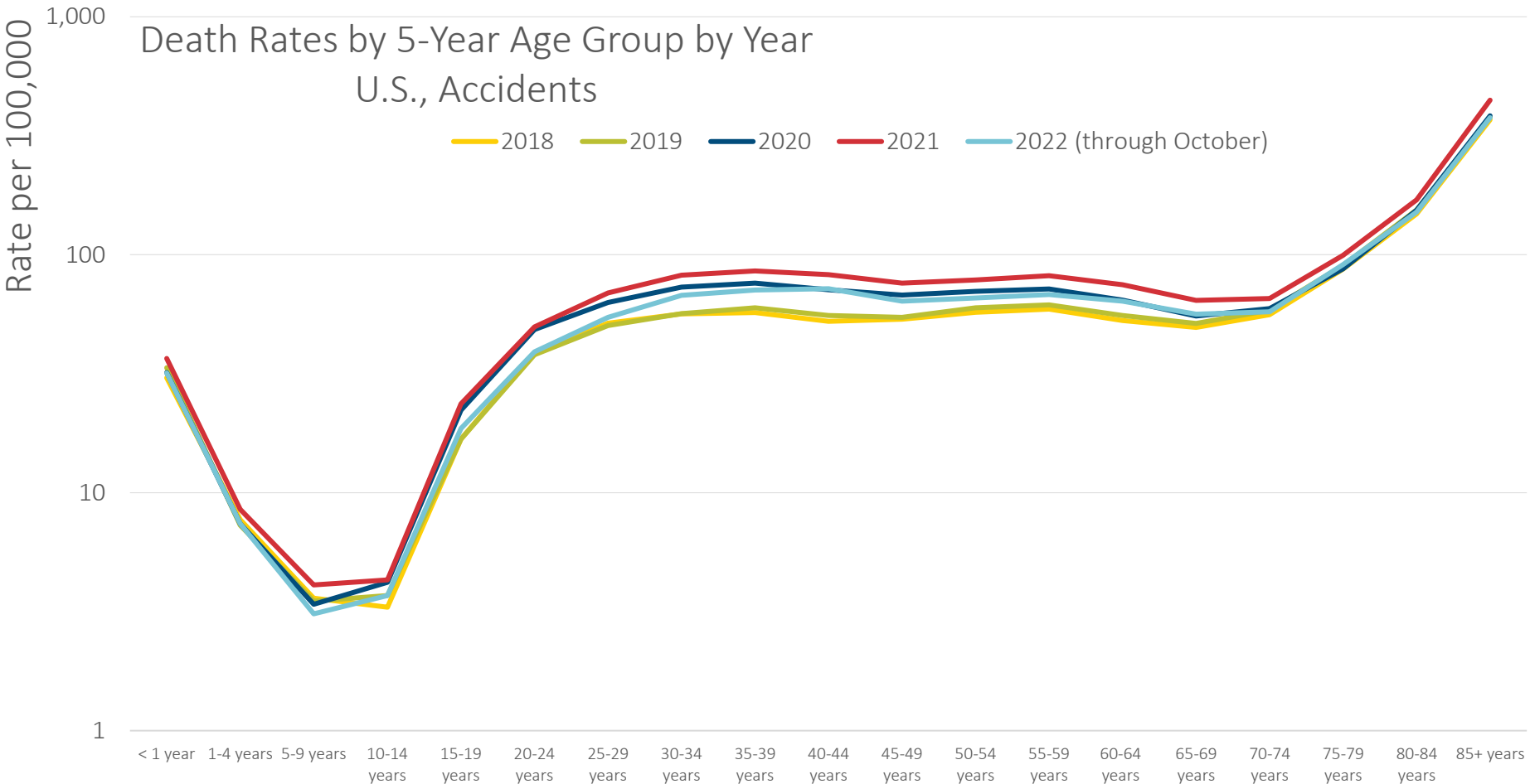
# Percentage Difference in Death Rate v 2019

## U.S., Suicide



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

2018 2019 2020 2021 2022 (through October)

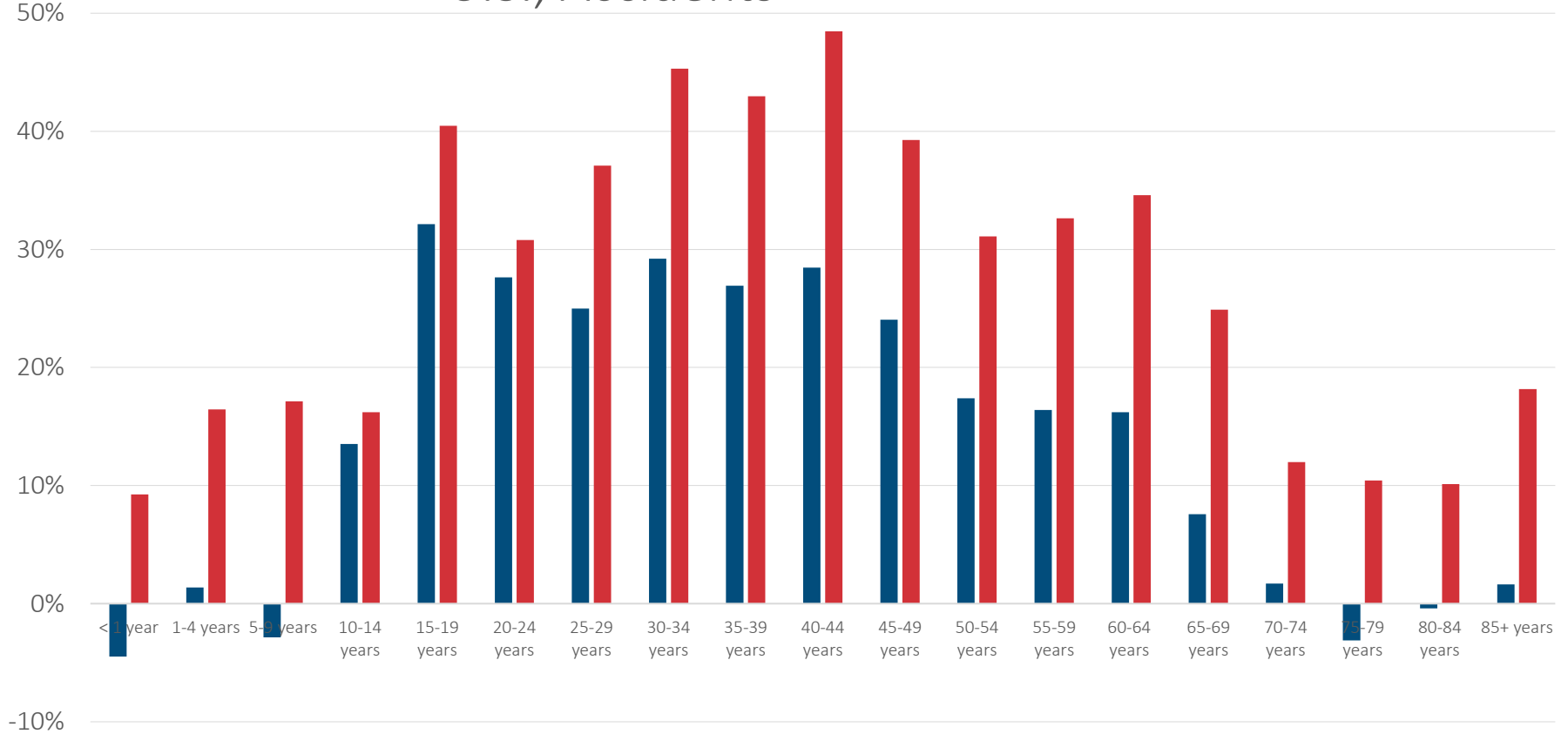


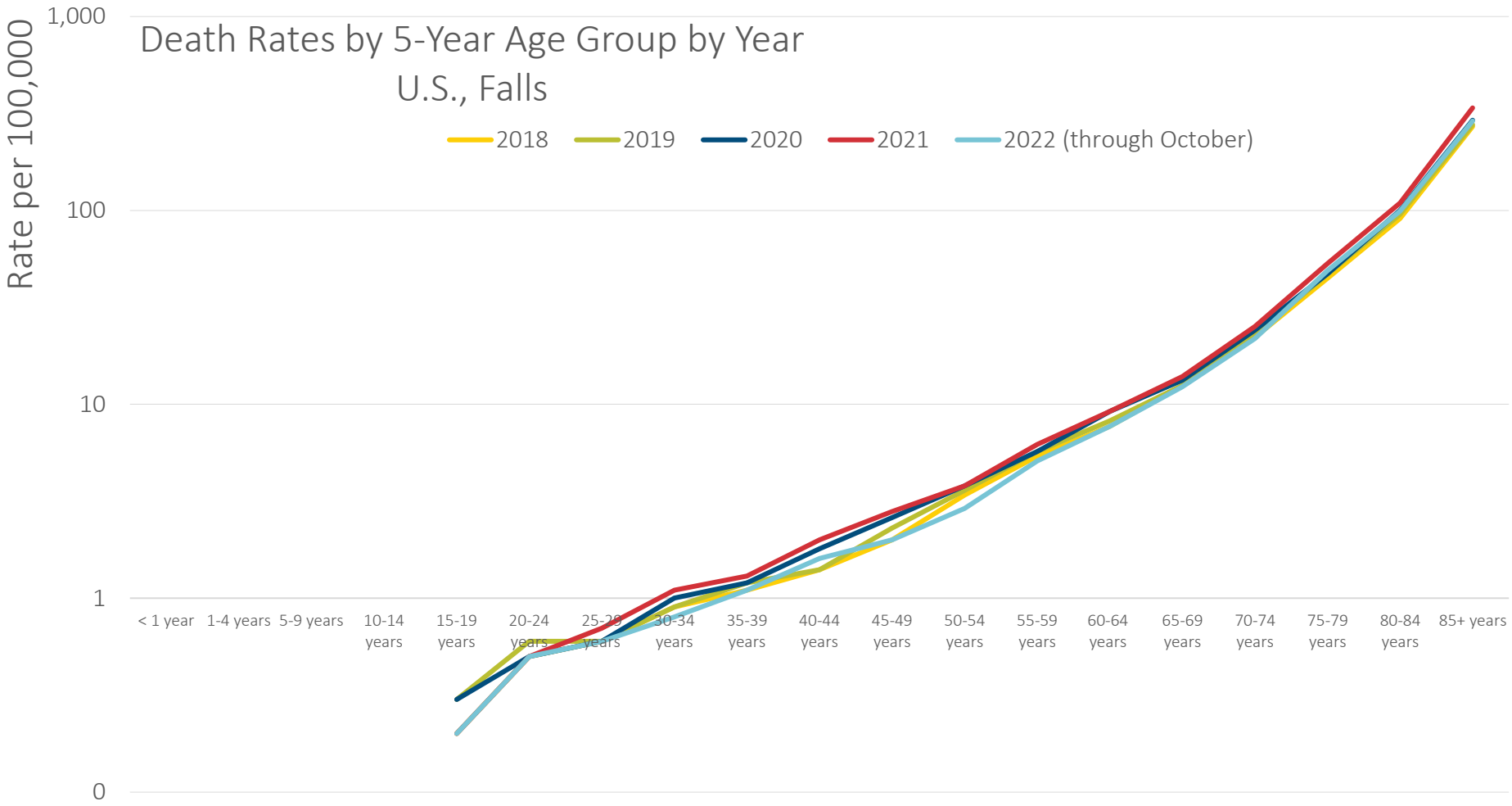


# Percentage Difference in Death Rate v 2019

## U.S., Accidents

2020 2021



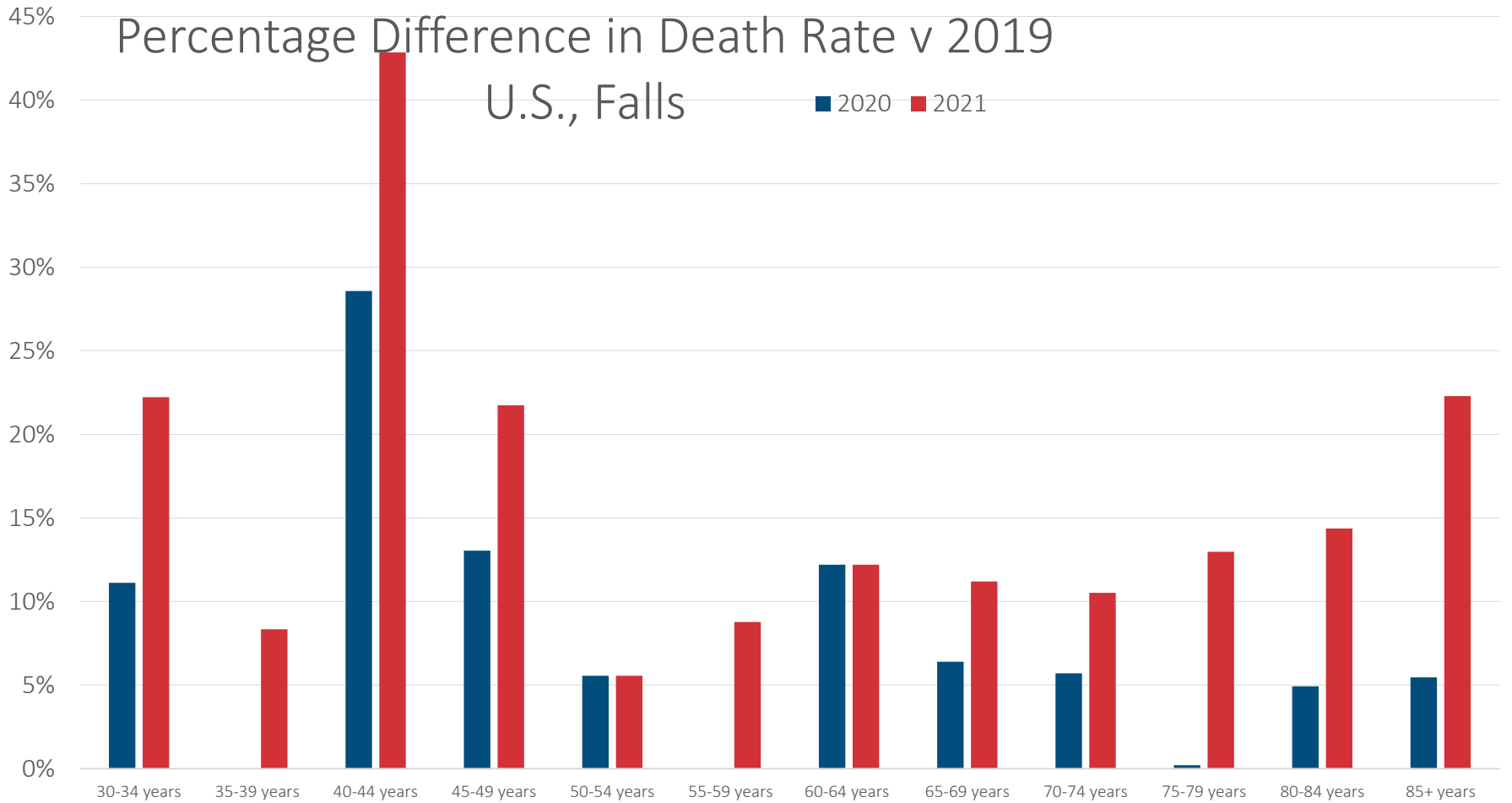


Source: CDC Wonder, data as of 12 May 2023

# Percentage Difference in Death Rate v 2019

U.S., Falls

■ 2020 ■ 2021

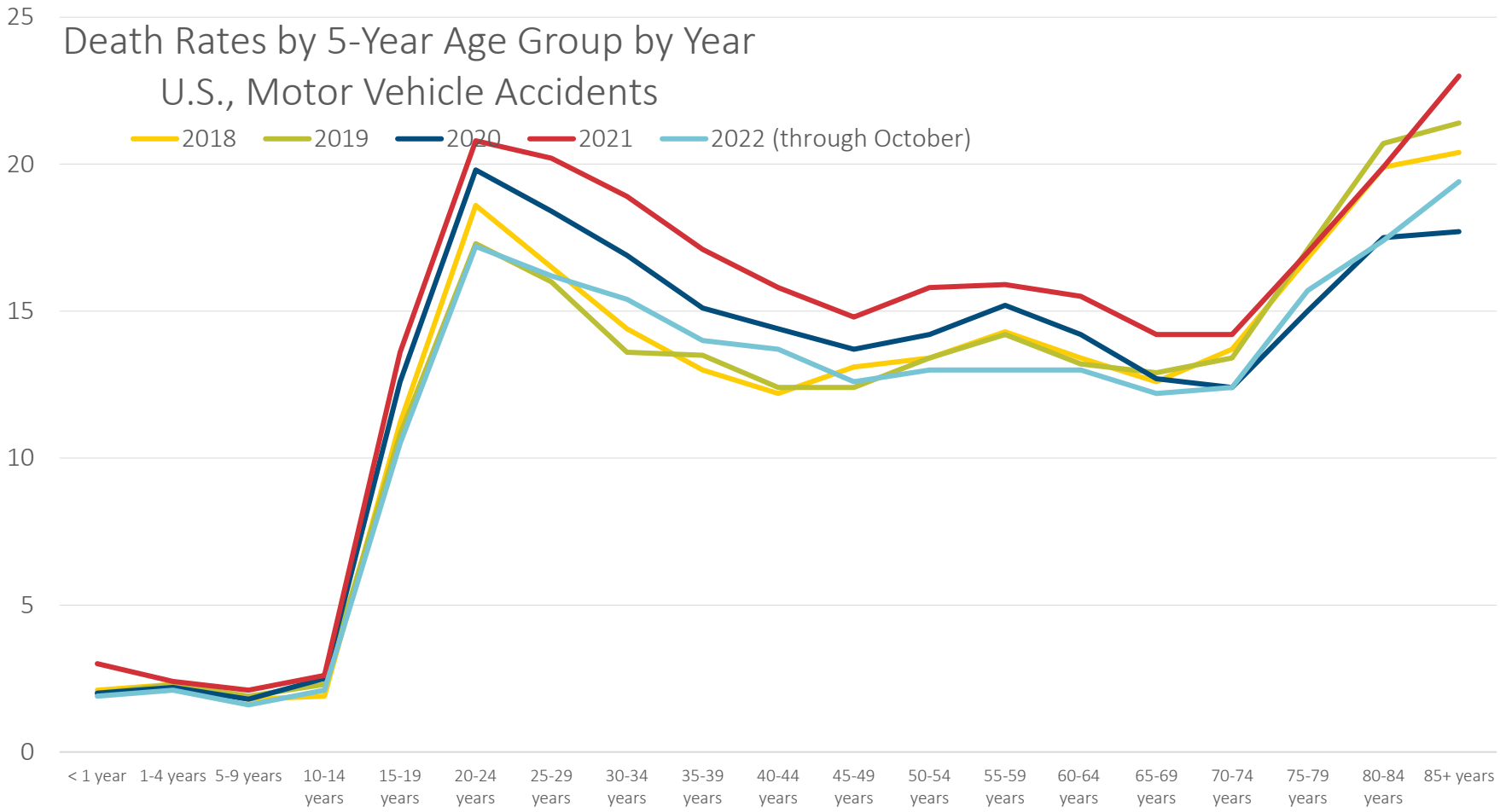


Rate per 100,000

# Death Rates by 5-Year Age Group by Year

## U.S., Motor Vehicle Accidents

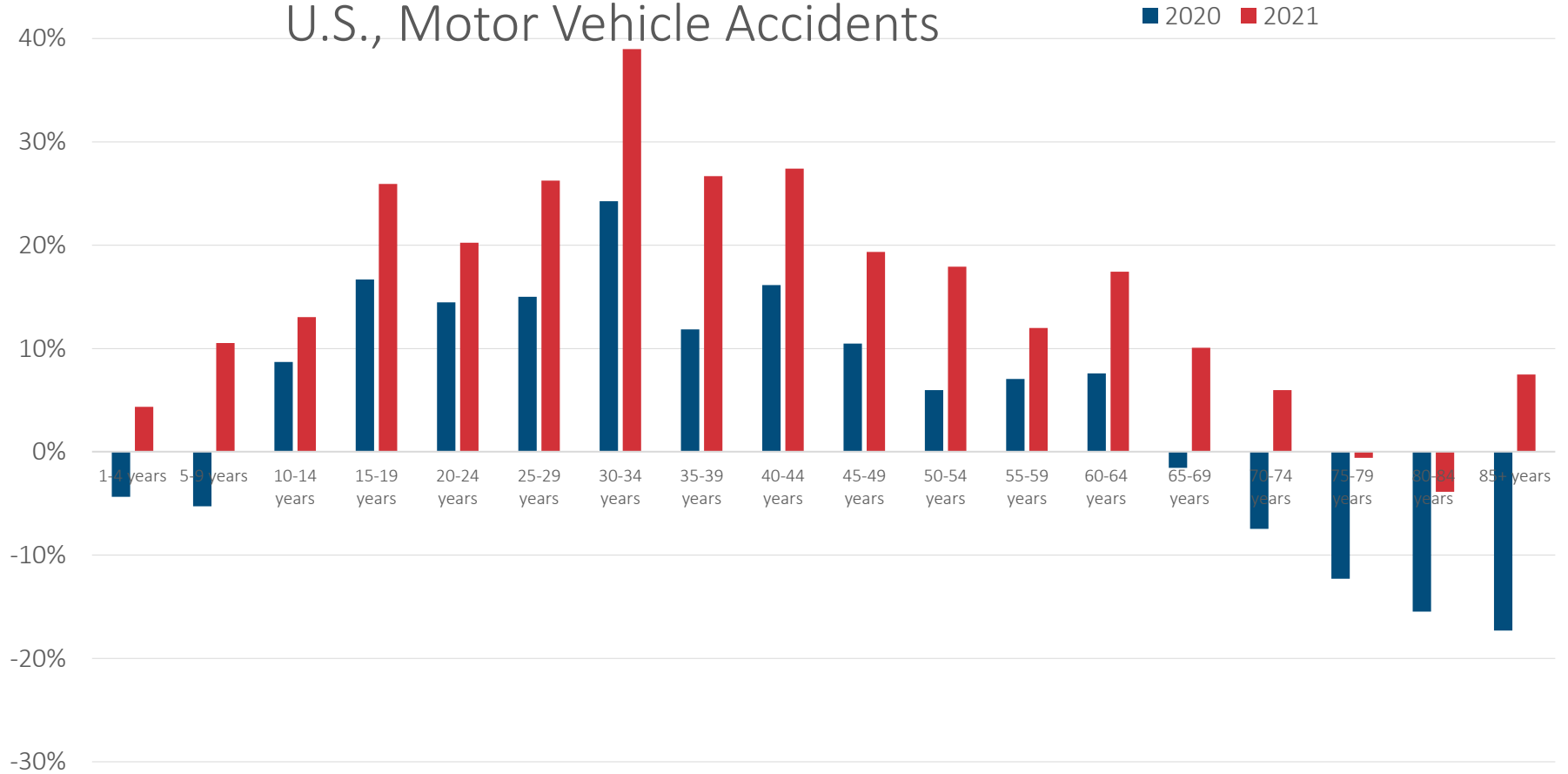
2018 2019 2020 2021 2022 (through October)



Source: CDC Wonder, data as of 12 May 2023

# Percentage Difference in Death Rate v 2019

## U.S., Motor Vehicle Accidents

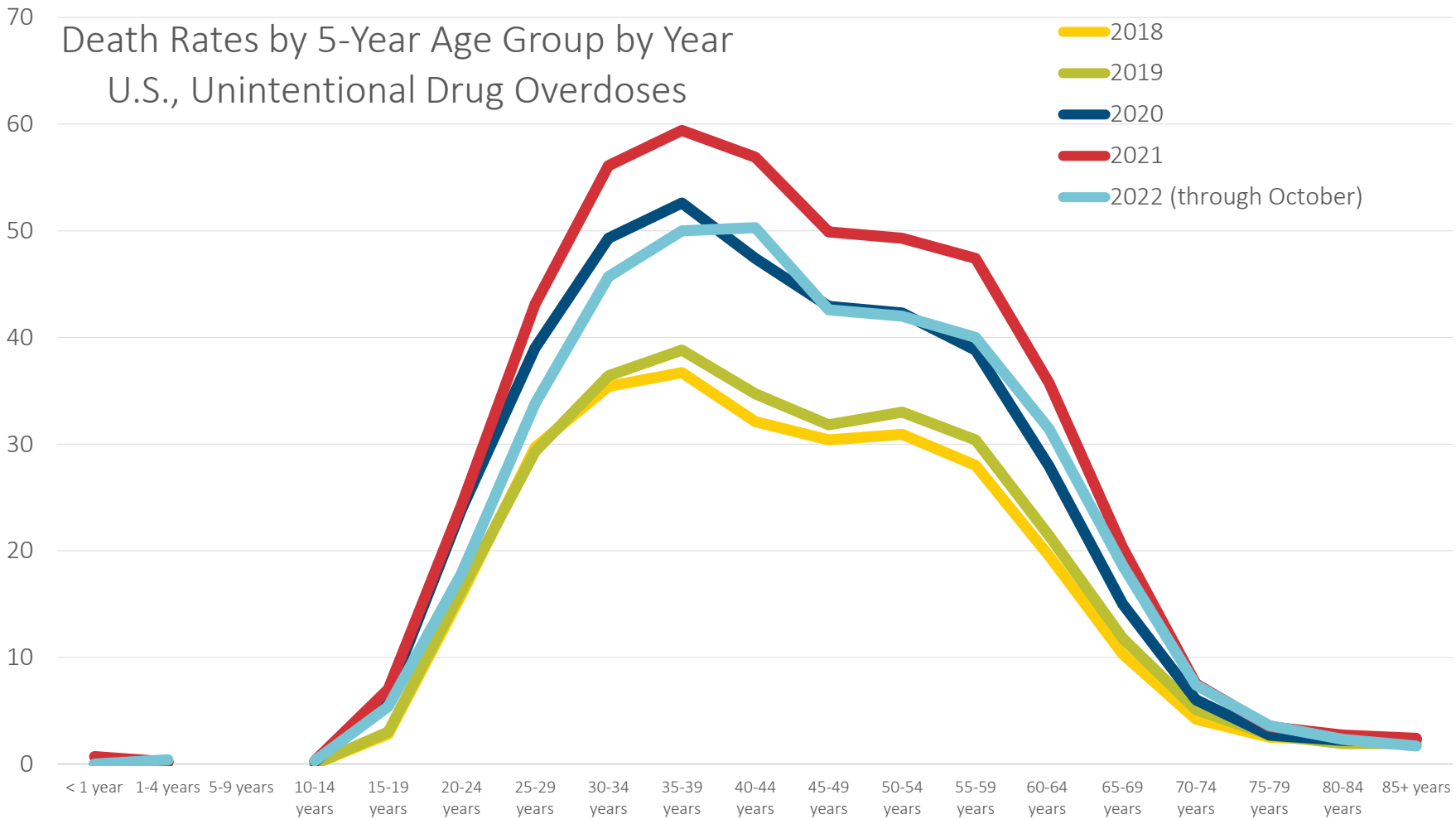


Rate per 100,000

# Death Rates by 5-Year Age Group by Year

## U.S., Unintentional Drug Overdoses

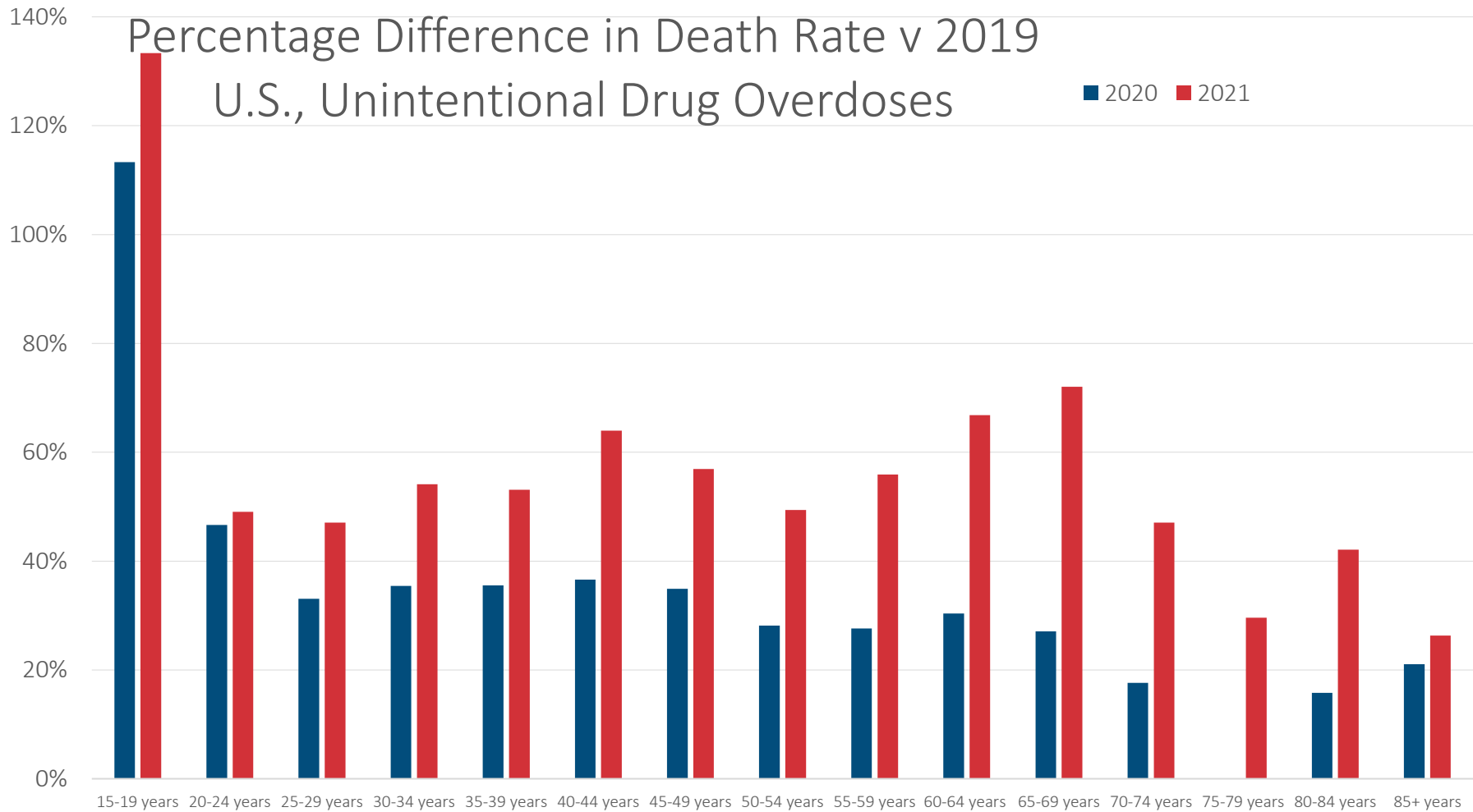
- 2018
- 2019
- 2020
- 2021
- 2022 (through October)



Source: CDC Wonder, data as of 12 May 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-cd8.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/cmfi9.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 April 22, 2023, reported as of May 7, 2023.

Accessed at <http://wonder.cdc.gov/mcd-icd10-provisional.html> on 12 May 2023.

# Dropbox link to spreadsheets and slides

Folder link:

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

Can view/download.

Has current and previous versions of data and slides

# 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/>