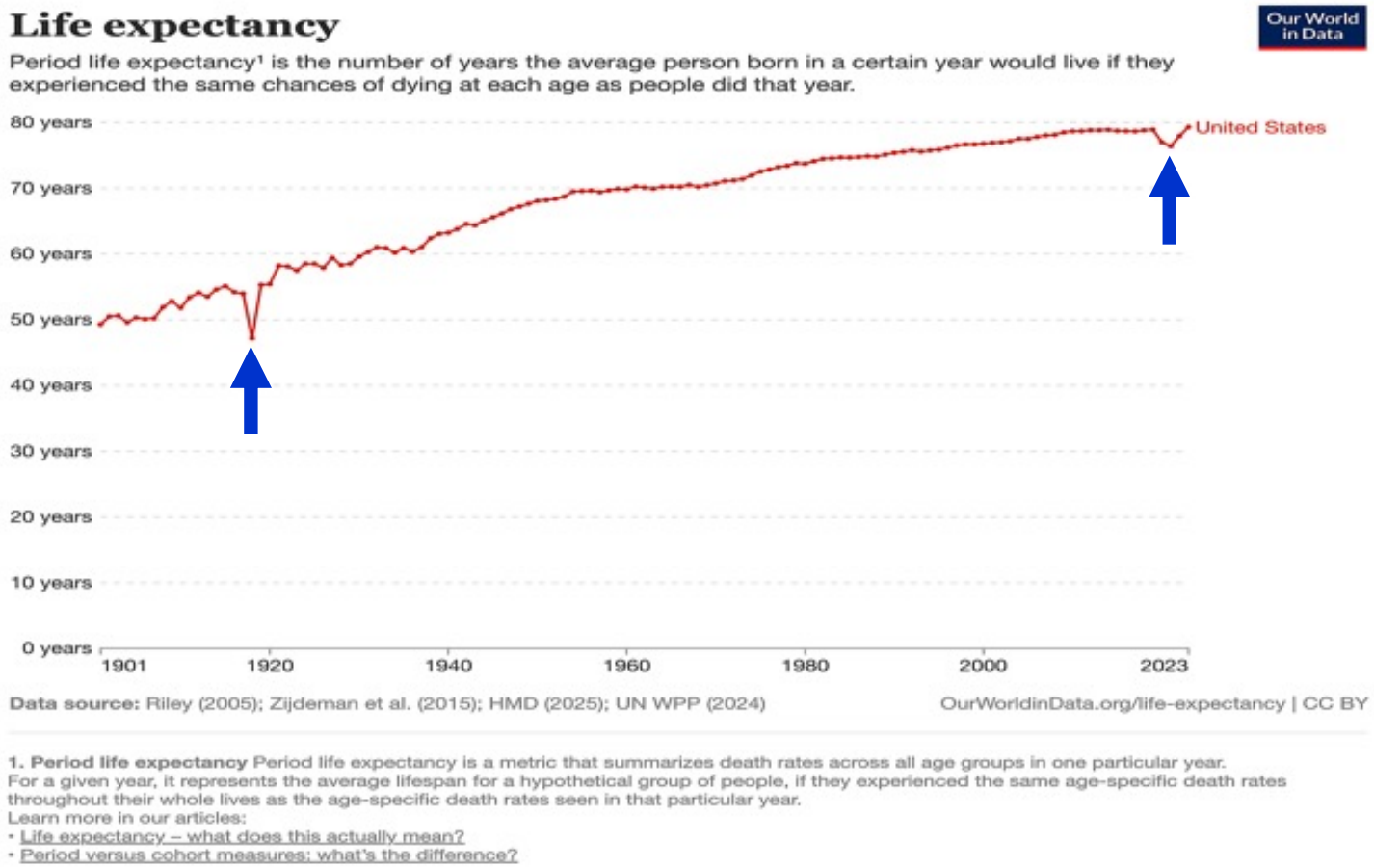
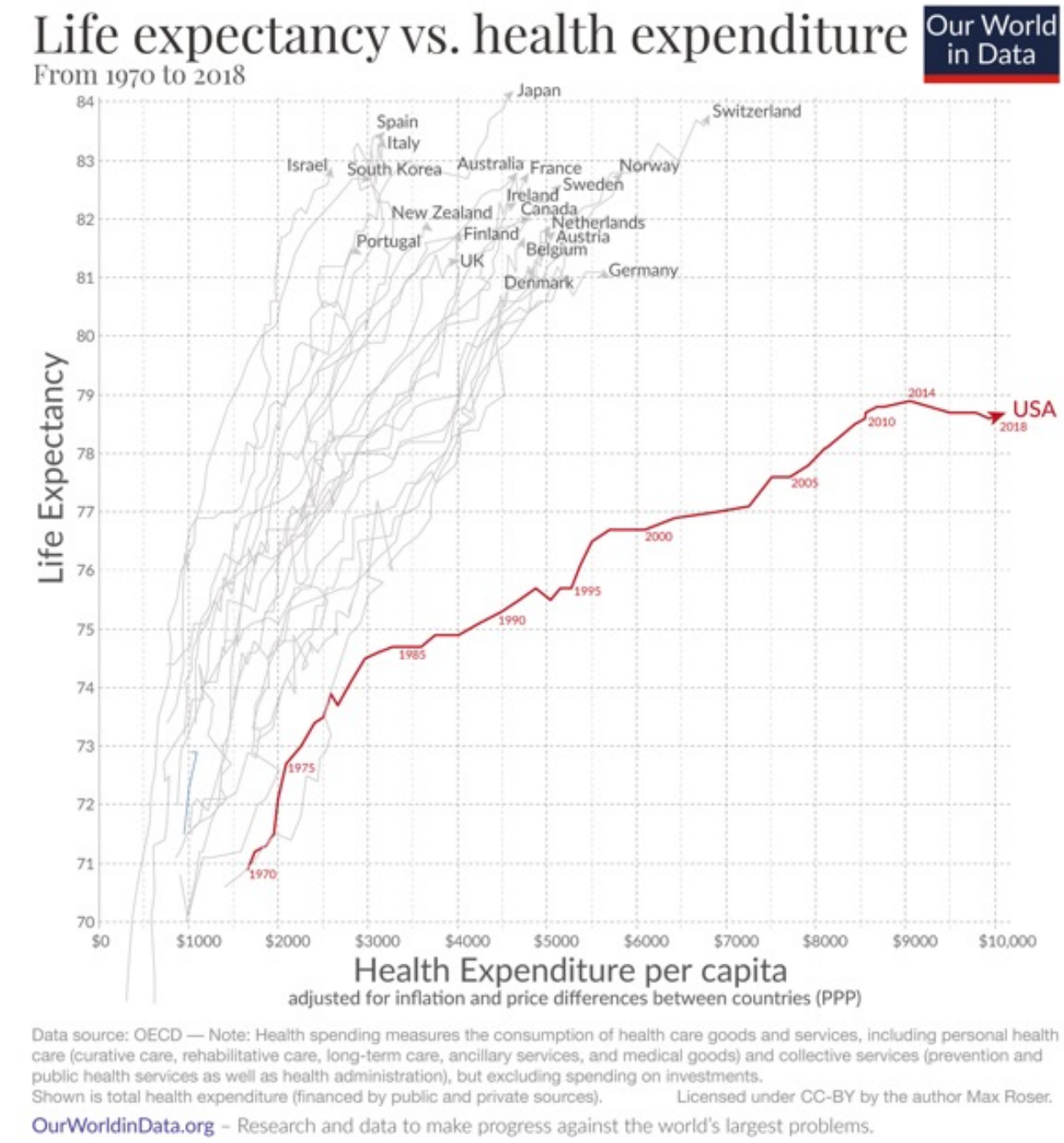
Life Expectancy Timeline for the US 1901-2023



https://ourworldindata.org/life-expectancy

From 1901 to 2023 there were two significant declines in life expectancy. These trends reached their respective lowest points in 1918 and 2021. Both appear to be pandemic-related.

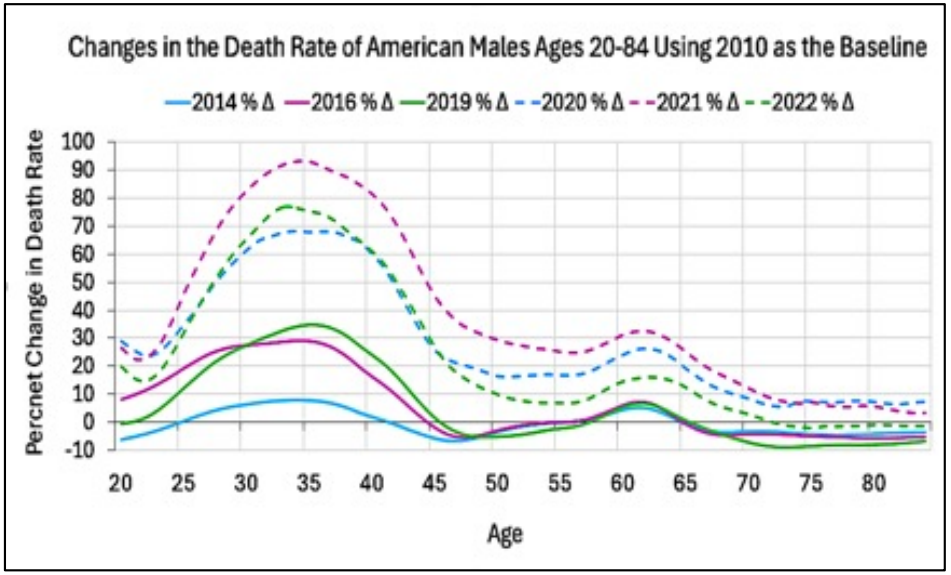


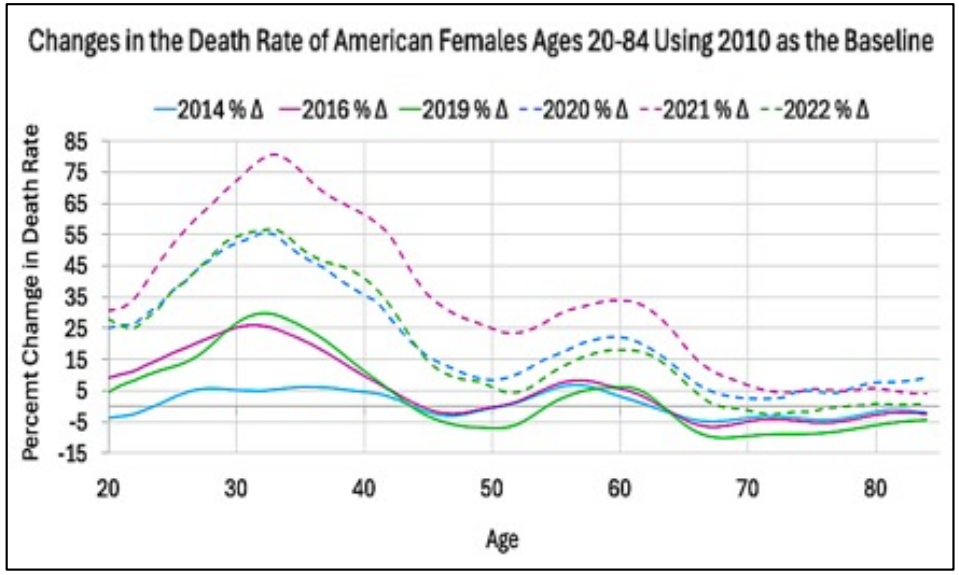
https://ourworldindata.org/us-life-expectancy-low

But this graph from “Our World in Data” shows US life expectancy already trending downwards in 2016.

Why did life expectancy in the US decline 3-4 years before the the reported emergence of COVID-19?

Death Rate Comparison in the US by Age and by Year





These numbers are calculated from raw data from the Actuarial Life Table of the US Social Security Administration https://www.ssa.gov/oact/STATS/table4c6.html

The drop in US life expectancy coincides with a near doubling of the death rate for Americans 30-40 years old in 2021.

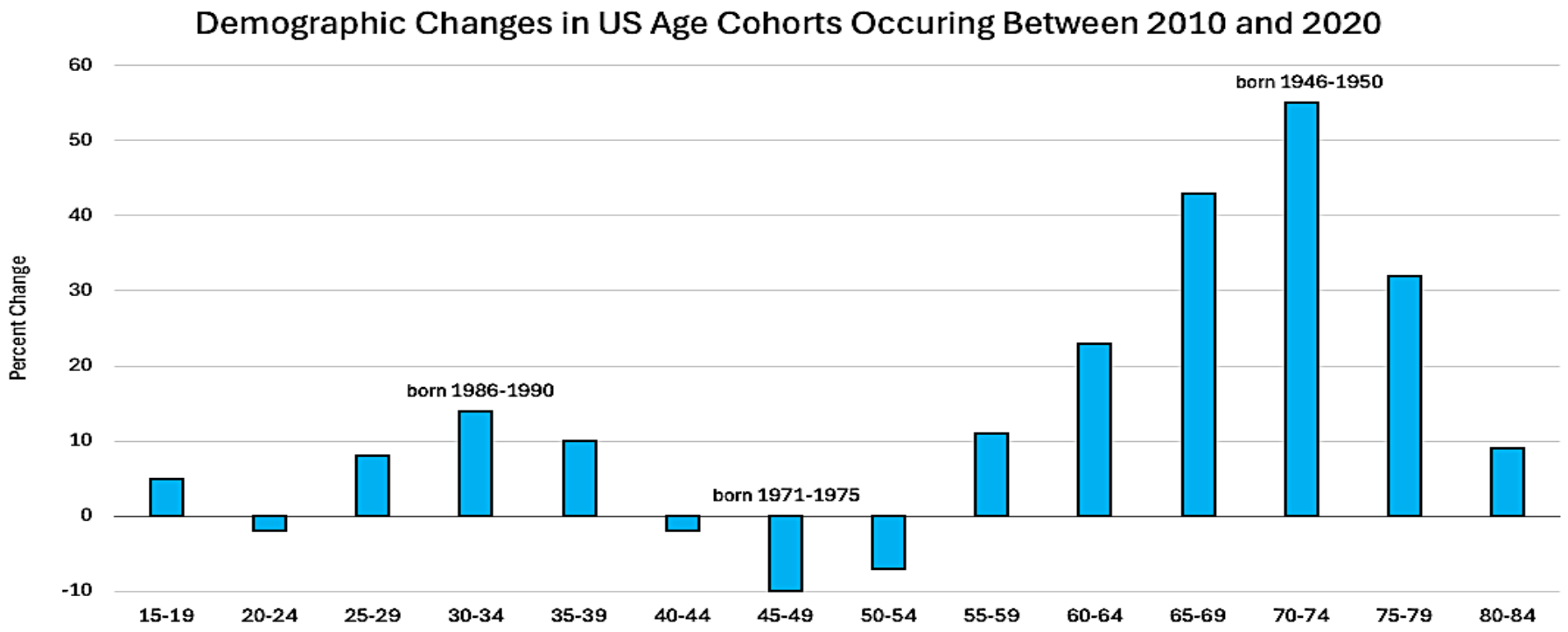
This upwards trend may have started as early as 2014.

But for Americans over 70 years, there was no increase in death rate until 2020, and even at its peak in 2021 the increase barely exceeded 20% over its lowest point in 2019.

Why did death rates rise more sharply for Americans between the ages 30 and 40 during a pandemic that mainly affected the elderly?

How many of these deaths can be attributed to COVID-19?

To answer this, we must take into account this demographic transition:



These numbers are calculated from raw data taken from Our Changing Population: United States. *USA Facts*. https://usafacts.org/data/topics/people-society/population-and-demographics/our-changing-population/?endDate=2021-01-01&startDate=2010-01-01

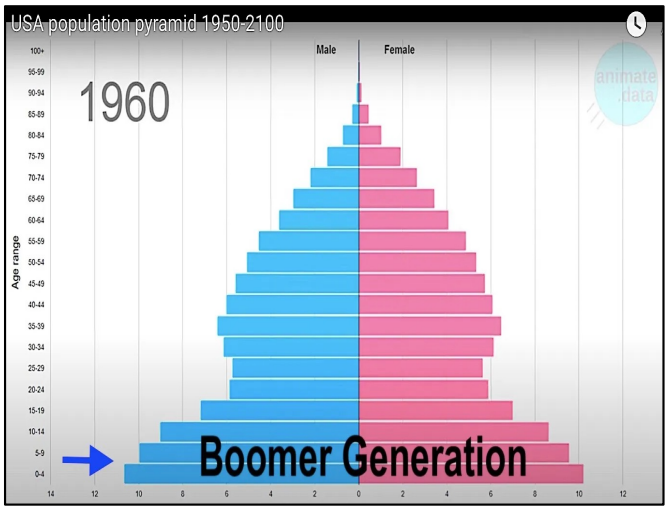
A massive spike in the population of Americans ages 60-79 increased the overall rate at which Americans were dying of old age by 2020.

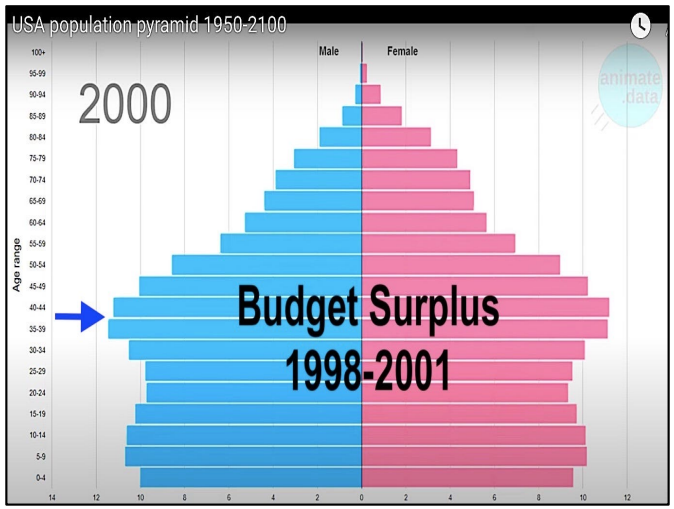
This may have played a role in the perception that hospitals were "overwhelmed" during the declared pandemic.

The term “boomer” refers to Americans born during the “baby boom” that happened after the end of World War II (1946 to 1964).

The budget surplus of 1998-2001 was largely driven by a critical mass of working Americans contributing record amounts of tax revenue. This is when these boomers were in their prime.

Ironically the same boomers that helped balance the budget may end up bankrupting social security after large numbers of them retire.

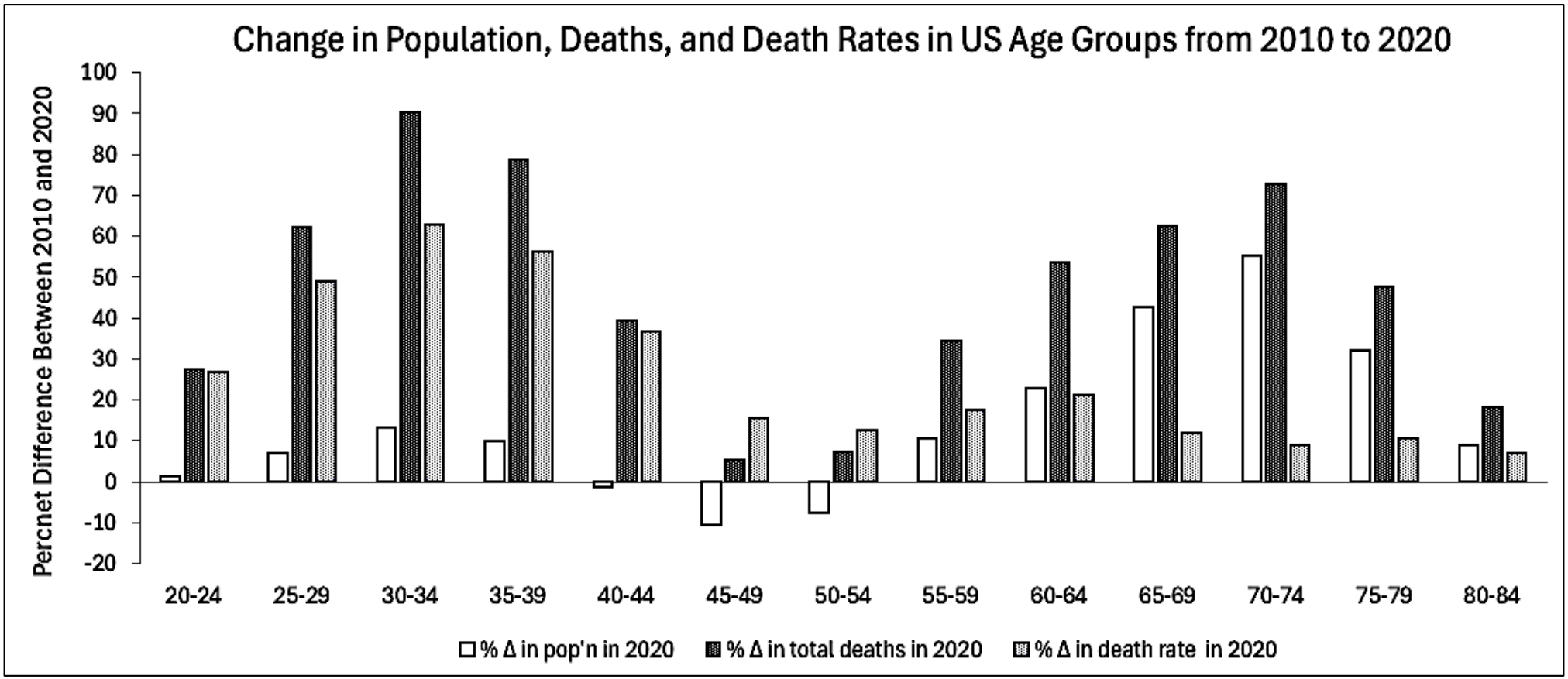




Video stills from AnimateData: https://www.youtube.com/@AnimateData

This graph indicates how combined changes in death rate and population size affected the changes in the total number of deaths per age group.

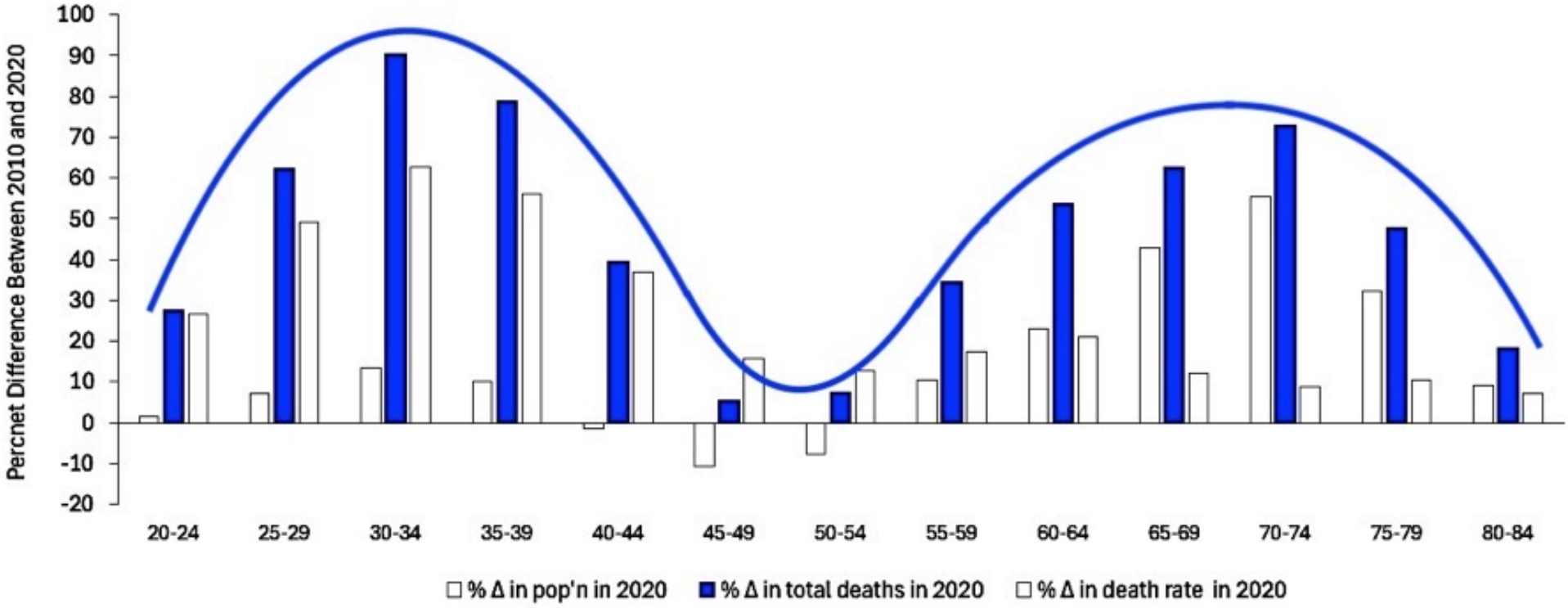
To better understand the implications of this data, we need to break it down:



The references for the original data are available at the end of this slide deck.

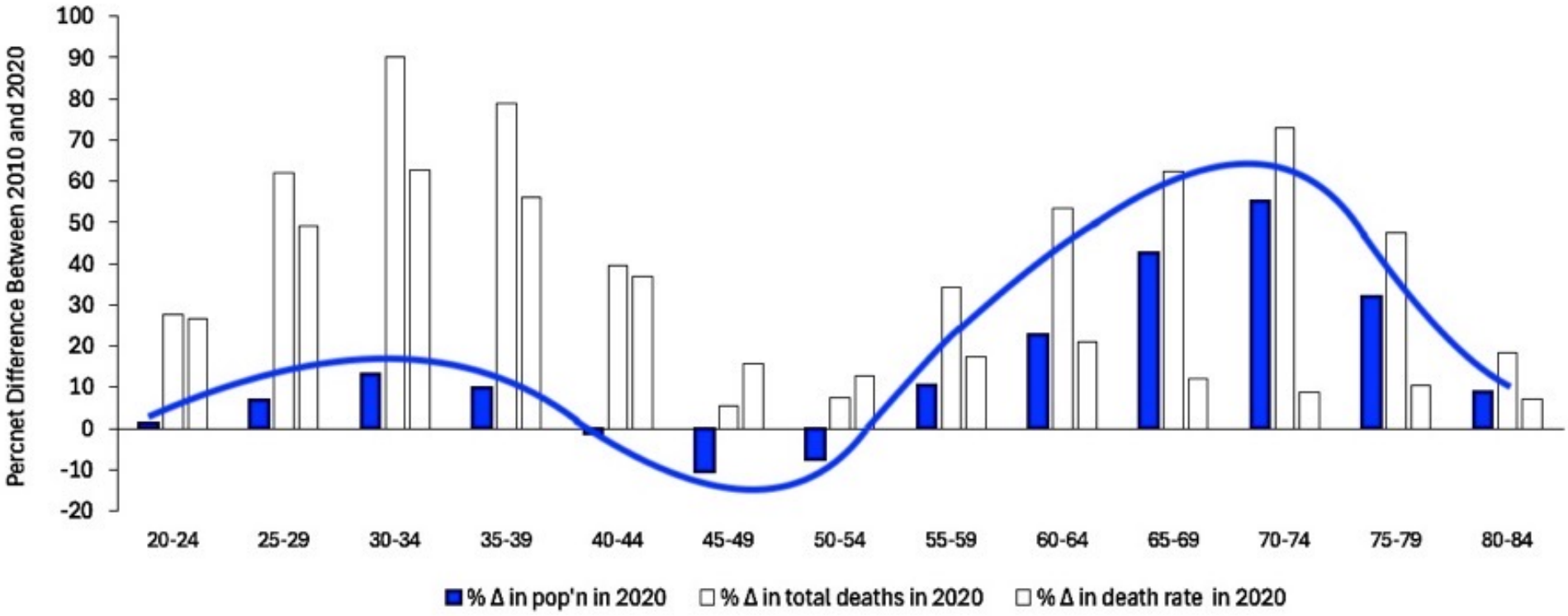
If we highlight the percent change in deaths per age group, we get a bimodal distribution with peaks between ages 25-39 and 60-79.

The age groups under these peaks (millennials and boomers) make up most of the 2020 increase in deaths.



If we highlight the percent change in population per age group, we just get the peak on the right (ages 60-79).

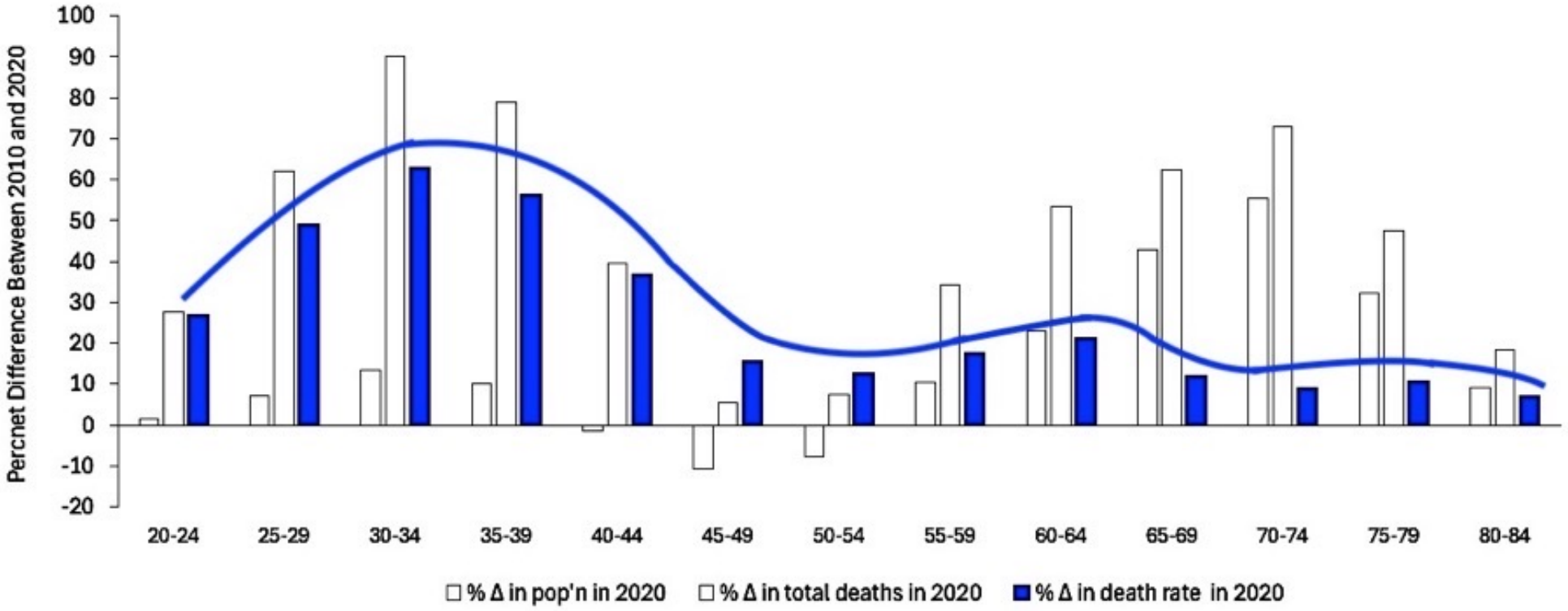
This indicates that most of the increase in deaths for this age group was caused by a surge in the population of aging boomers.

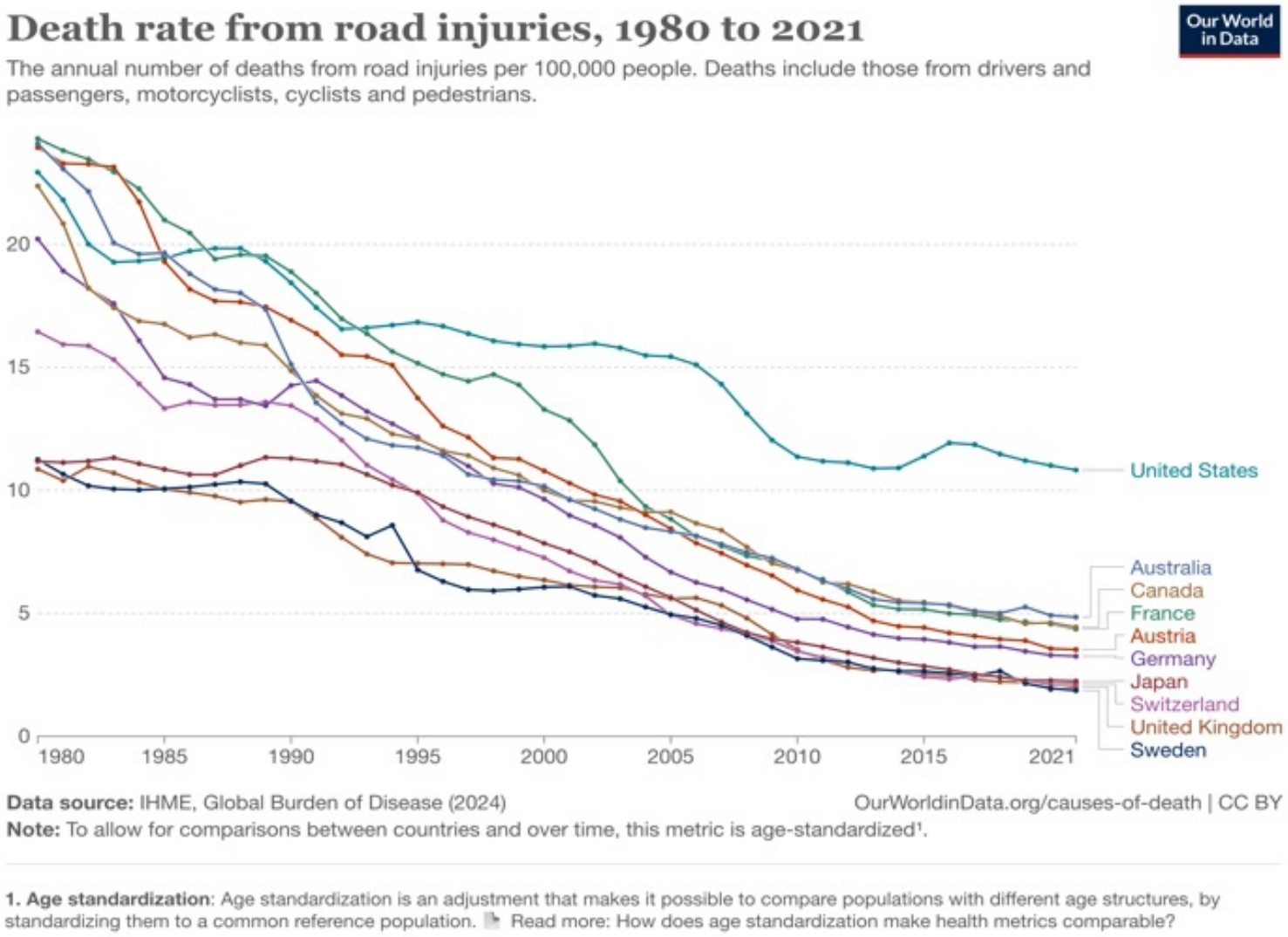


If we highlight the percent change in death rate per age group, we mainly get the peak on the left (ages 25-39).

This indicates that most of the increase in deaths for millennials was caused by the surge in the death rates indicated earlier by the actuarial life tables.

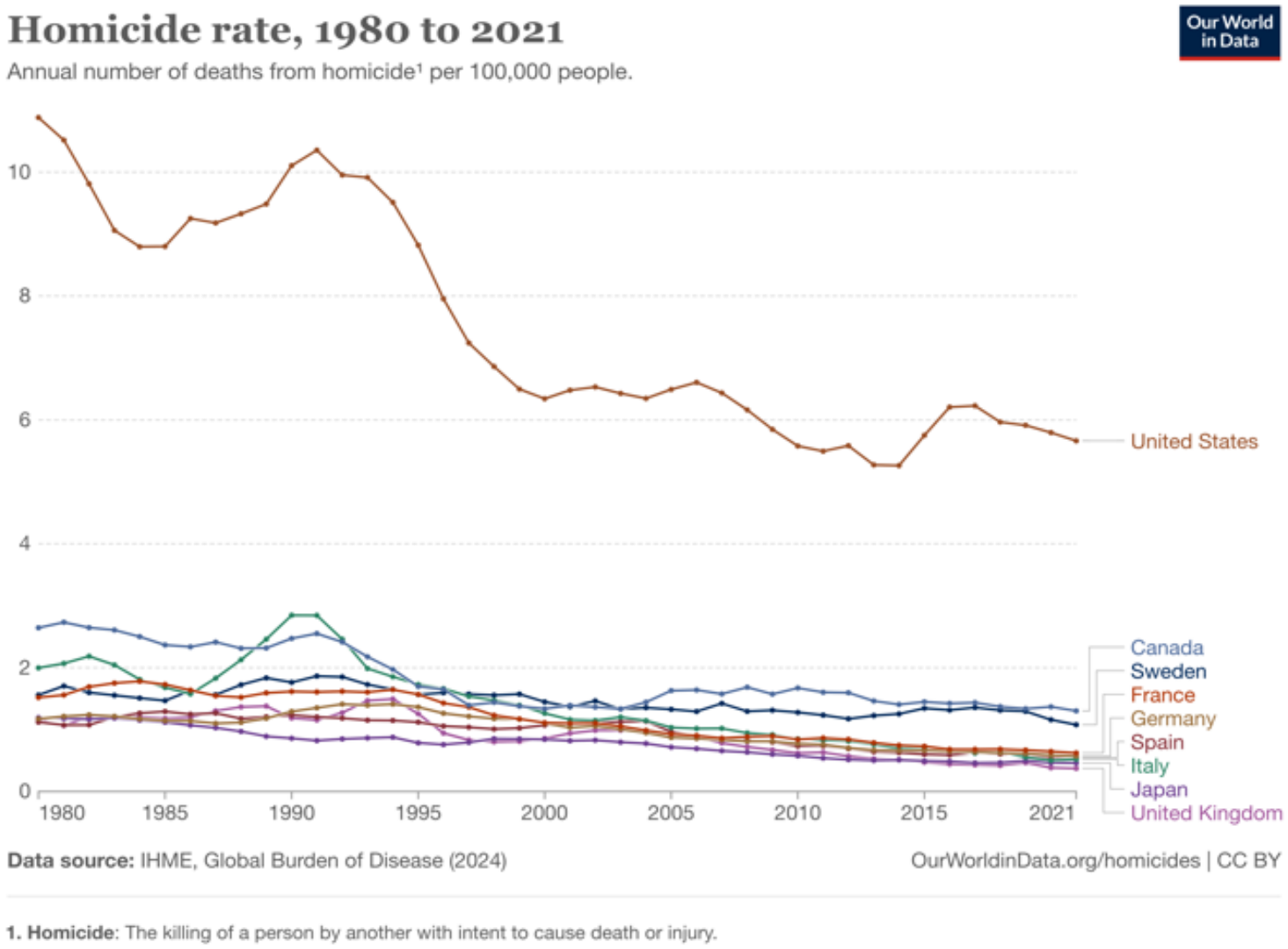
Why did Americans aged 25-39 die at such a high rate?





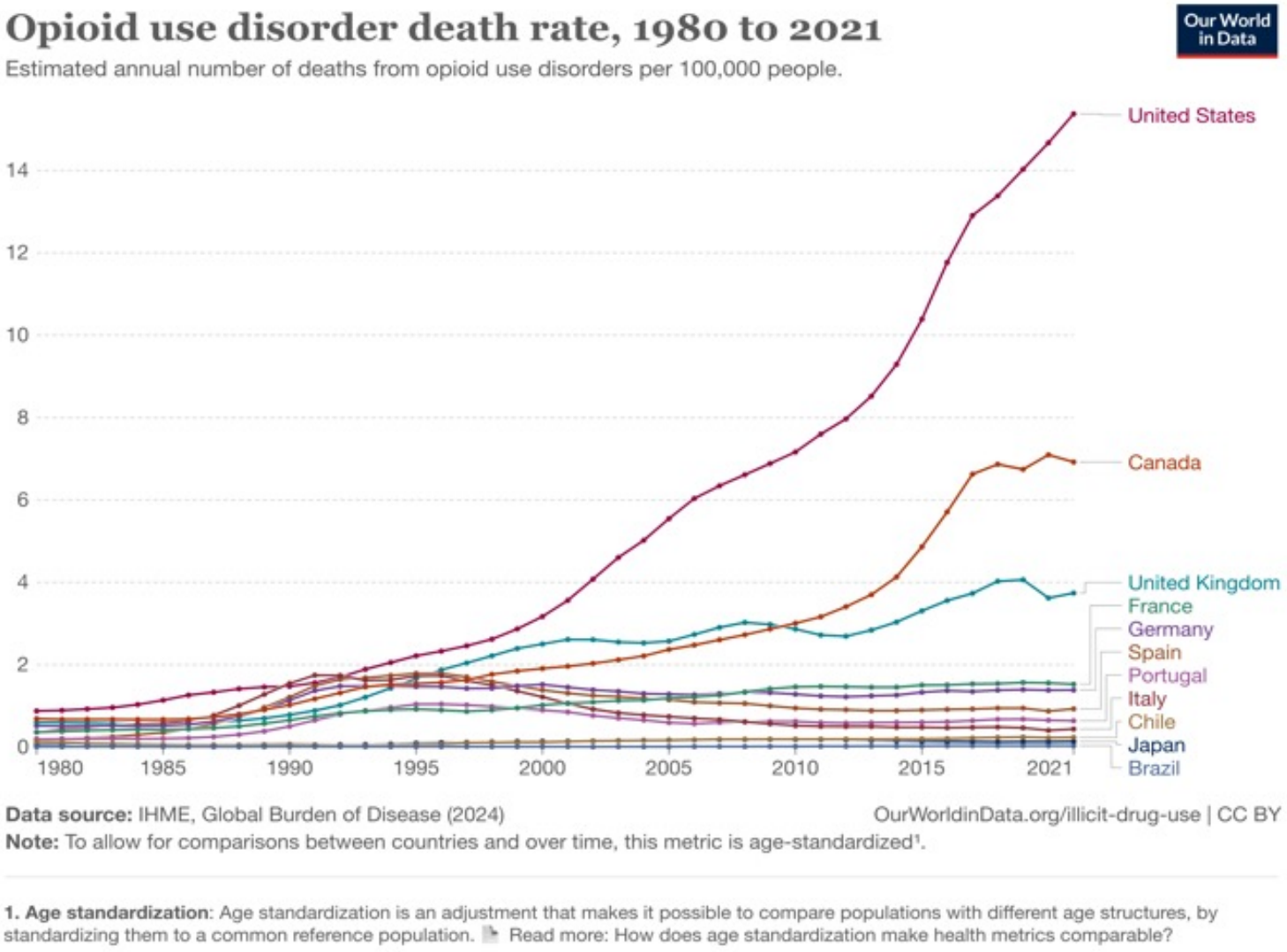
https://ourworldindata.org/us-life-expectancy-low

Road injuries played a role in the life expectancy gap between the US and other affluent nations between 2000 and 2021, but this gap did not grow after 2010.



https://ourworldindata.org/us-life-expectancy-low

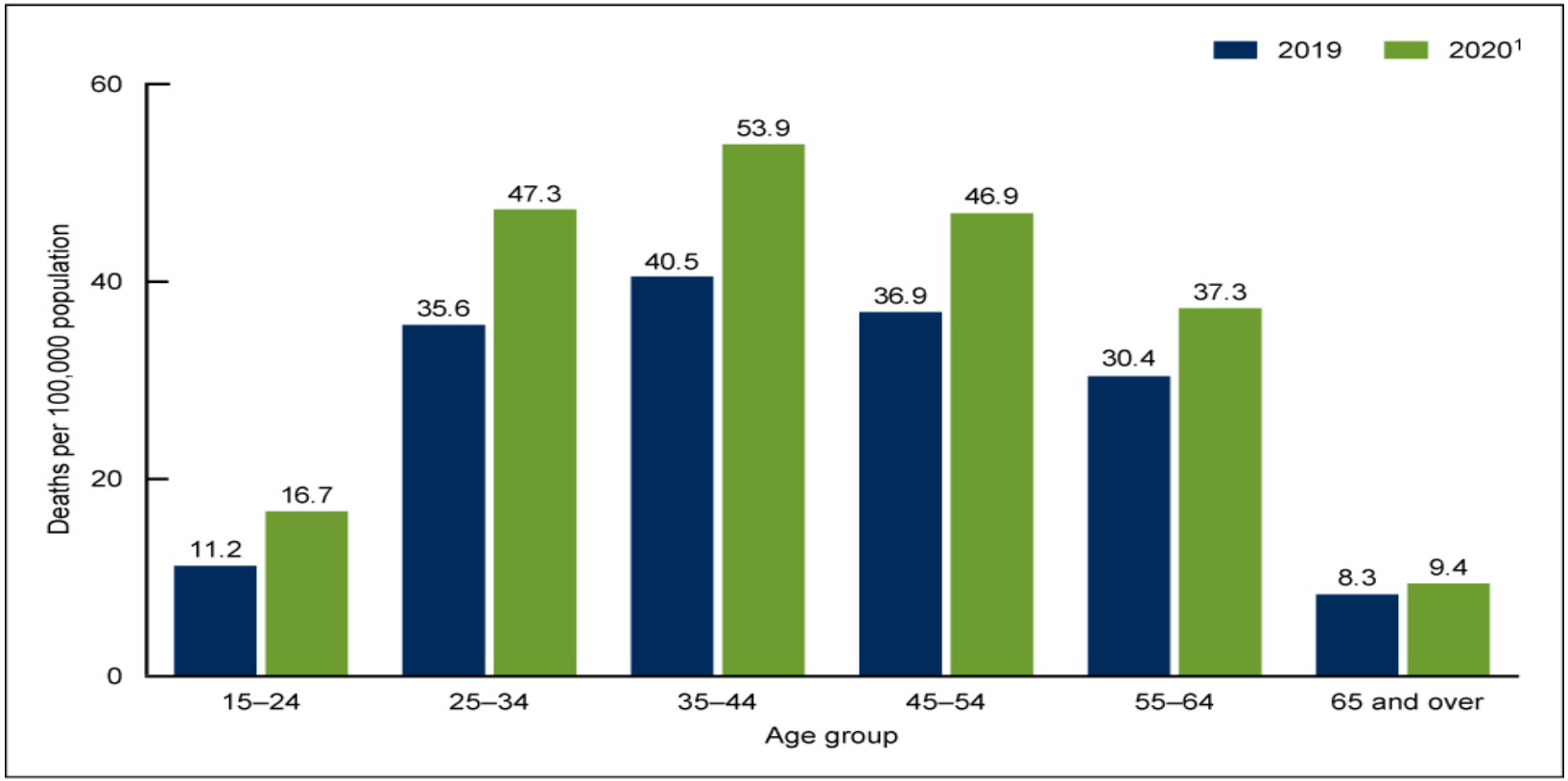
Homicides also played a role in the life expectancy gap between the US and other affluent nations, but this gap became narrower in 2000.



https://ourworldindata.org/us-life-expectancy-low

In sharp contrast to these other causes of death, opioid overdose deaths increased exponentially after 2010…

Figure 2. Drug overdose death rates among those aged 15 and over, by selected age group: United States, 2019 and 2020



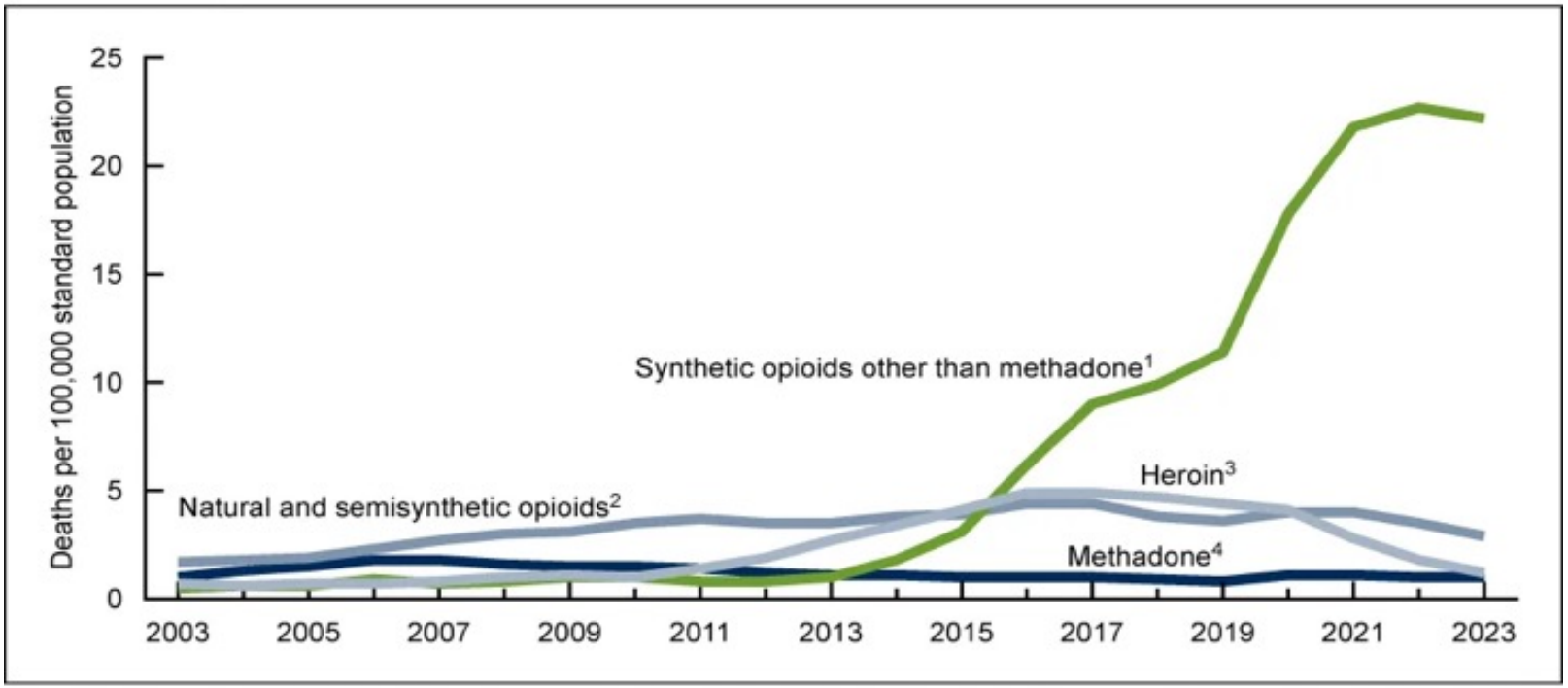
[1]Rates in 2020 were significantly higher than in 2019 for all age groups, $p < 0.05$.
NOTES: Drug overdose deaths are identified using the *International Classification of Diseases, 10th Revision* (ICD–10) underlying cause-of-death codes X40–X44, X60–X64, X85, and Y10–Y14. Access data table for Figure 2 at: https://www.cdc.gov/nchs/data/databriefs/db428-tables.pdf#2.
SOURCE: National Center for Health Statistics, National Vital Statistics System, Mortality.

Data Briefs Number 428. December 2021.
https://www.cdc.gov/nchs/products/databriefs/db428.htm

This chart from the CDC indicates that ages 25-54 were most affected by drug overdose deaths in the US during these years.

This concurs with the aforementioned spike in the death rate for ages 30-40.

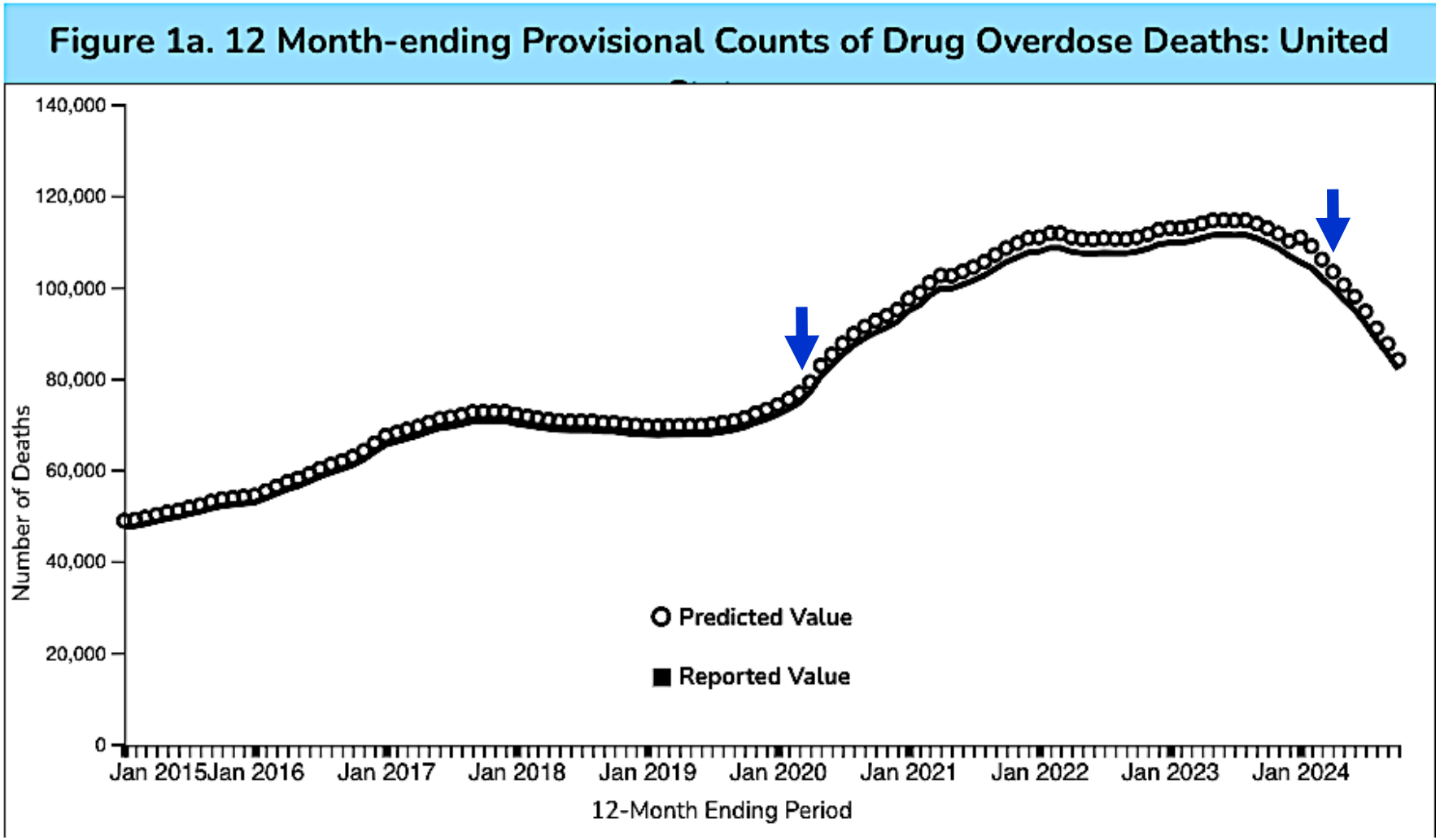
Figure 4. Age-adjusted rate of drug overdose deaths involving opioids, by type of opioid: United States, 2003–2023



[1]No significant trend from 2003 to 2013; significant increasing trend from 2013 to 2021, with different rates of change over time; no significant trend from 2021 to 2023 ($p < 0.05$). Rate in 2023 significantly lower than in 2022 ($p < 0.05$).
[2]Significant increasing trend from 2003 to 2010; no significant trend from 2010 to 2021; significant decreasing trend from 2021 to 2023 ($p < 0.05$).
[3]Significant increasing trend from 2003 to 2016, with different rates of change over time; significant decreasing trend from 2016 to 2023, with different rates of change over time ($p < 0.05$).
[4]Significant increasing trend from 2003 to 2006; significant decreasing trend from 2006 to 2017; no significant trend from 2017 to 2023 ($p < 0.05$).
NOTES: Drug overdose deaths are identified using the *International Classification of Diseases, 10th Revision* underlying cause-of-death codes X40–X44, X60–X64, X85, and Y10–Y14. Drug overdose deaths involving selected drug categories are identified by specific multiple cause-of-death codes: heroin, T40.1; natural and semisynthetic opioids, T40.2; methadone, T40.3; synthetic opioids other than methadone, T40.4. Deaths involving more than one opioid category (such as a death involving both methadone and a natural or semisynthetic opioid) are counted in both categories. The percentage of drug overdose deaths that identified the specific drugs involved varied by year, ranging from 75% to 79% from 2003 to 2013 and increasing from 81% in 2014 to 96% in 2023. Age-adjusted death rates were calculated using the direct method and the 2000 U.S. standard population.
SOURCE: National Center for Health Statistics, National Vital Statistics System, mortality data file.

Data Briefs Number 428. December 2021. https://www.cdc.gov/nchs/products/databriefs/db428.htm

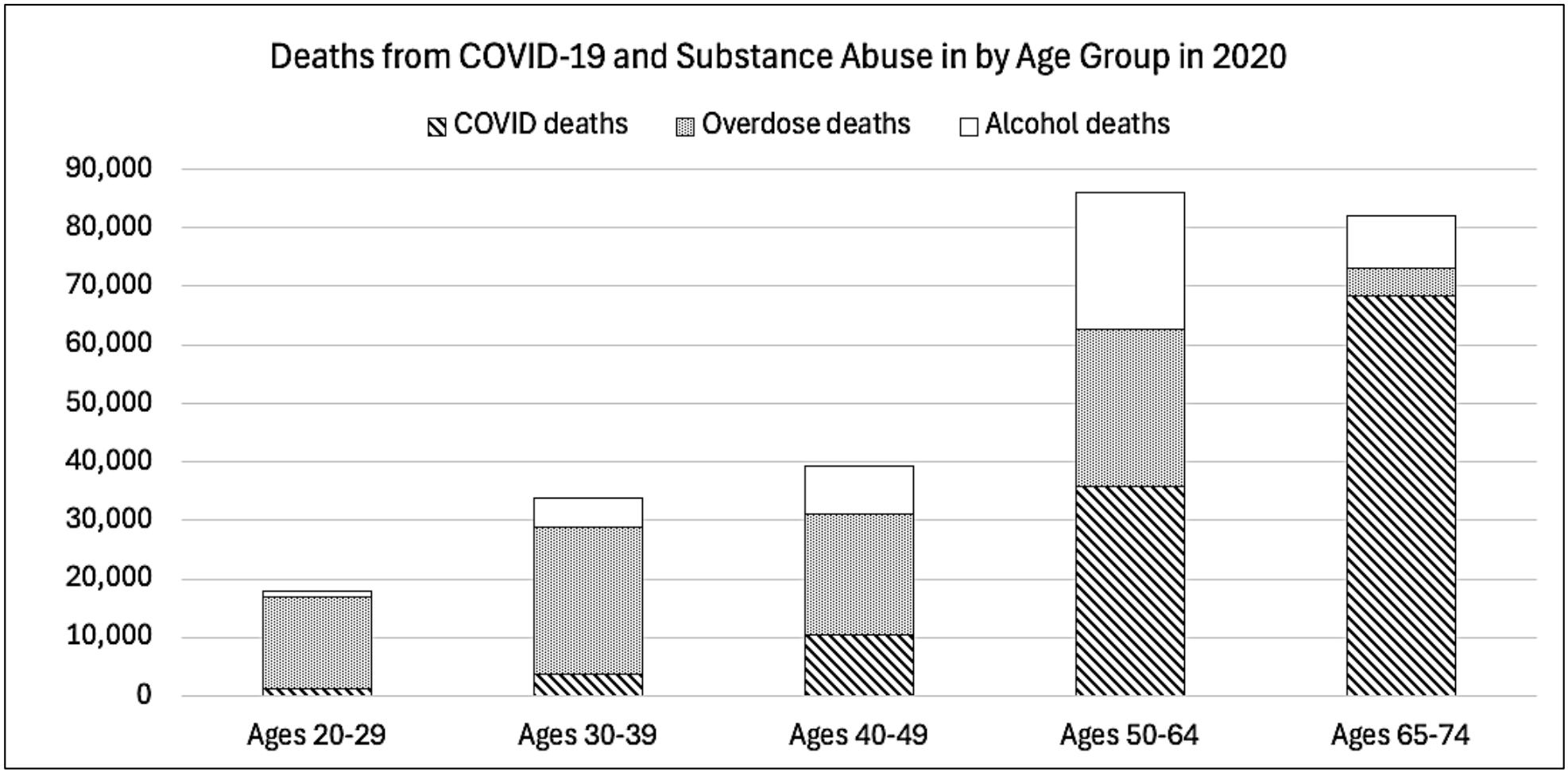
Death rates from synthetic opioids also reached their peak during the time period that is associated with the pandemic countermeasures.

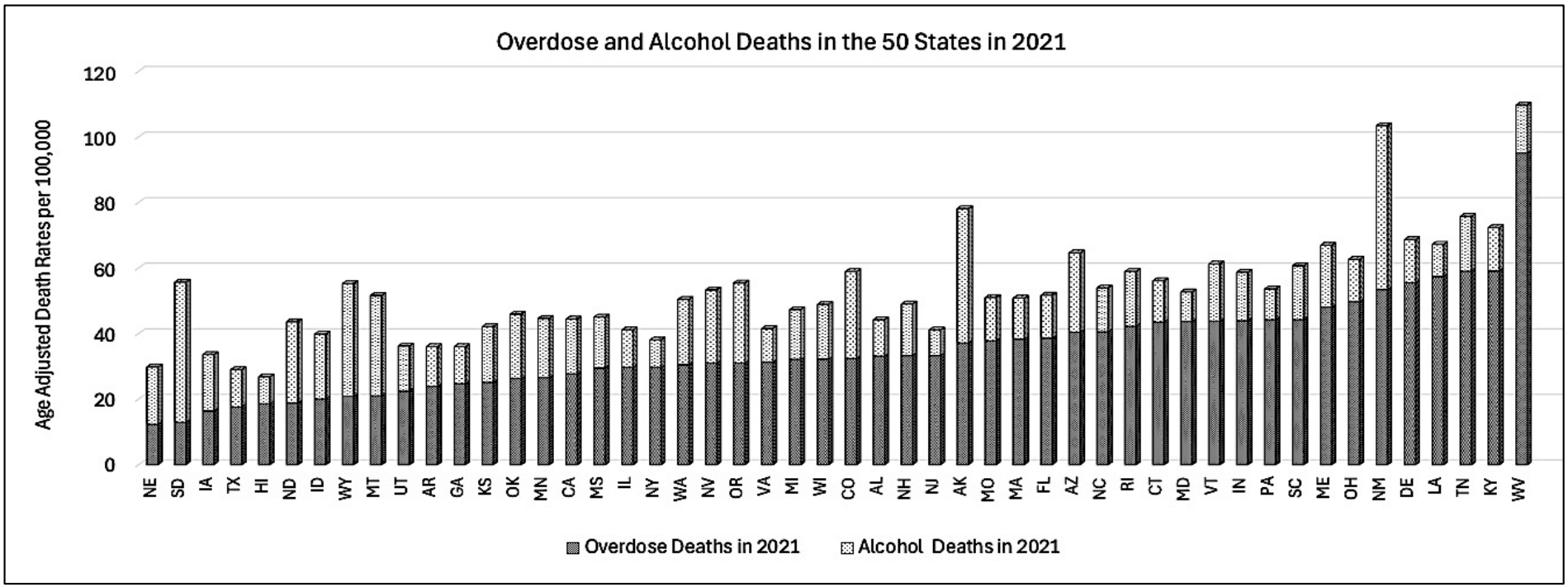


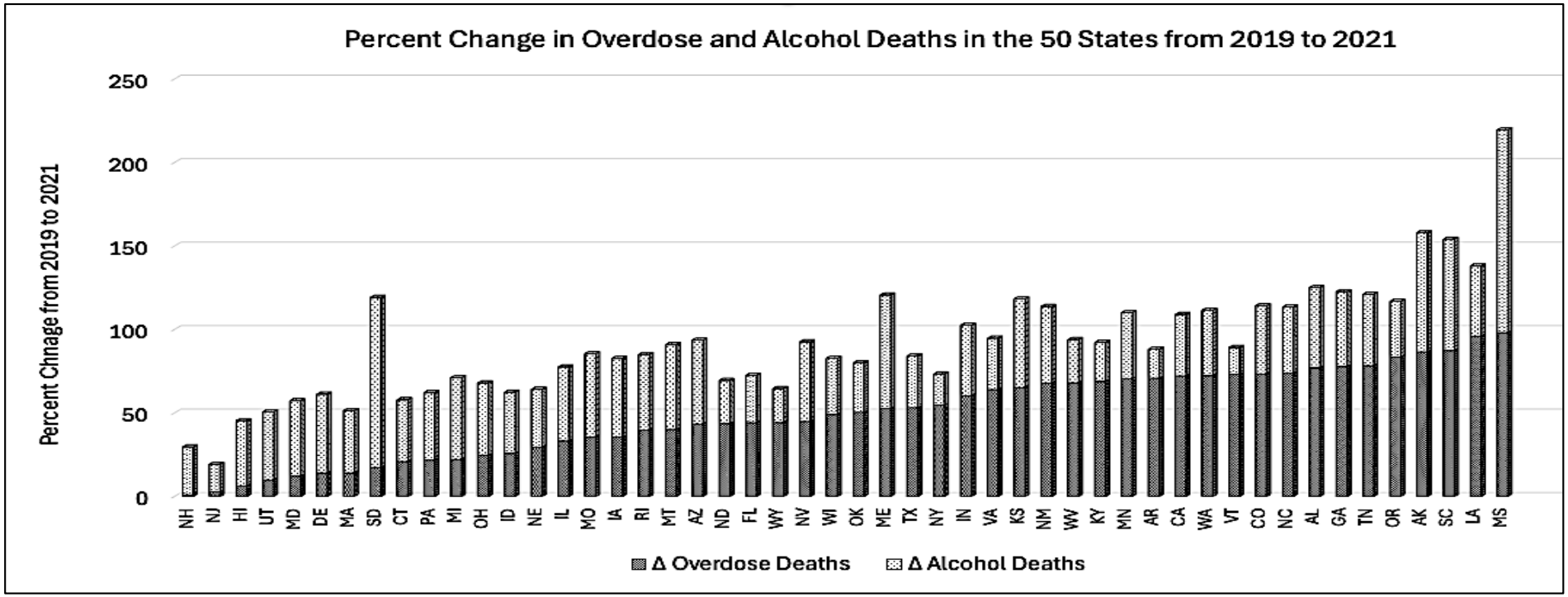
Data downloaded from the CDC: https://www.cdc.gov/nchs/nvss/vsrr/drug-overdose-data.htm

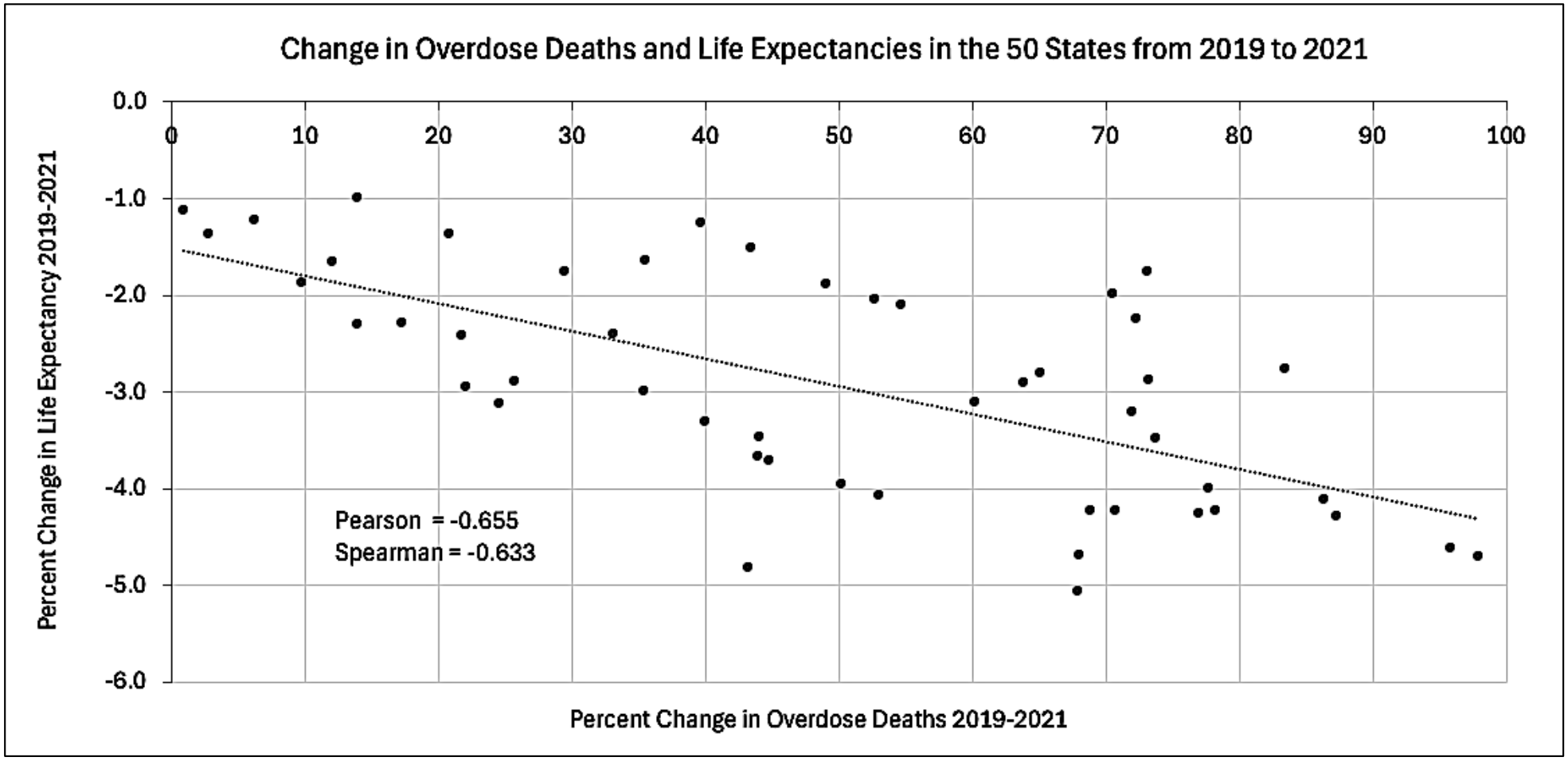
This interactive chart from the CDC indicates that about 416,000 Americans died from drug overdoses from January of 2020 to January of 2024.

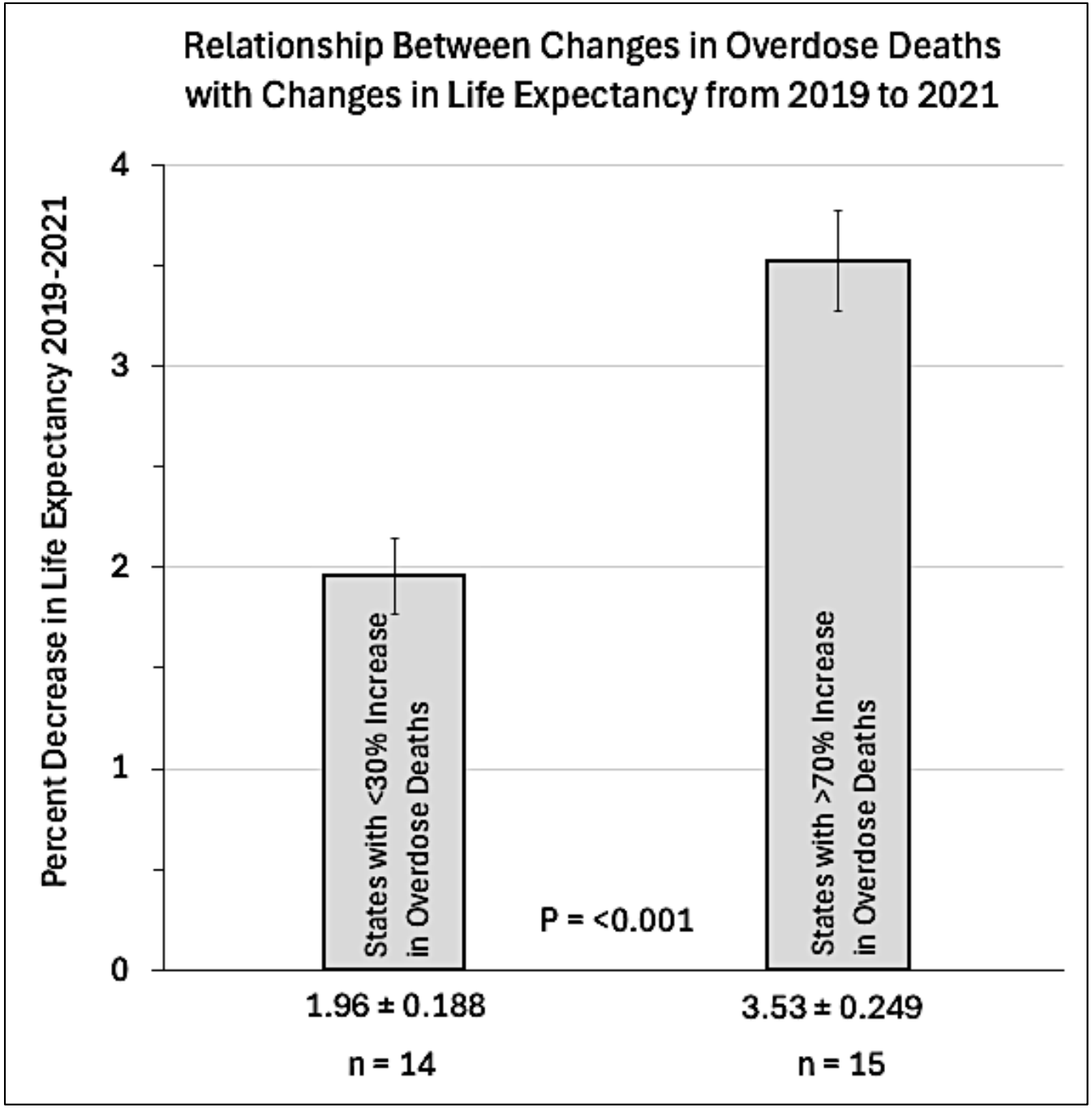
This averages to over 100,000 drug overdose deaths per year in the US during this time period.

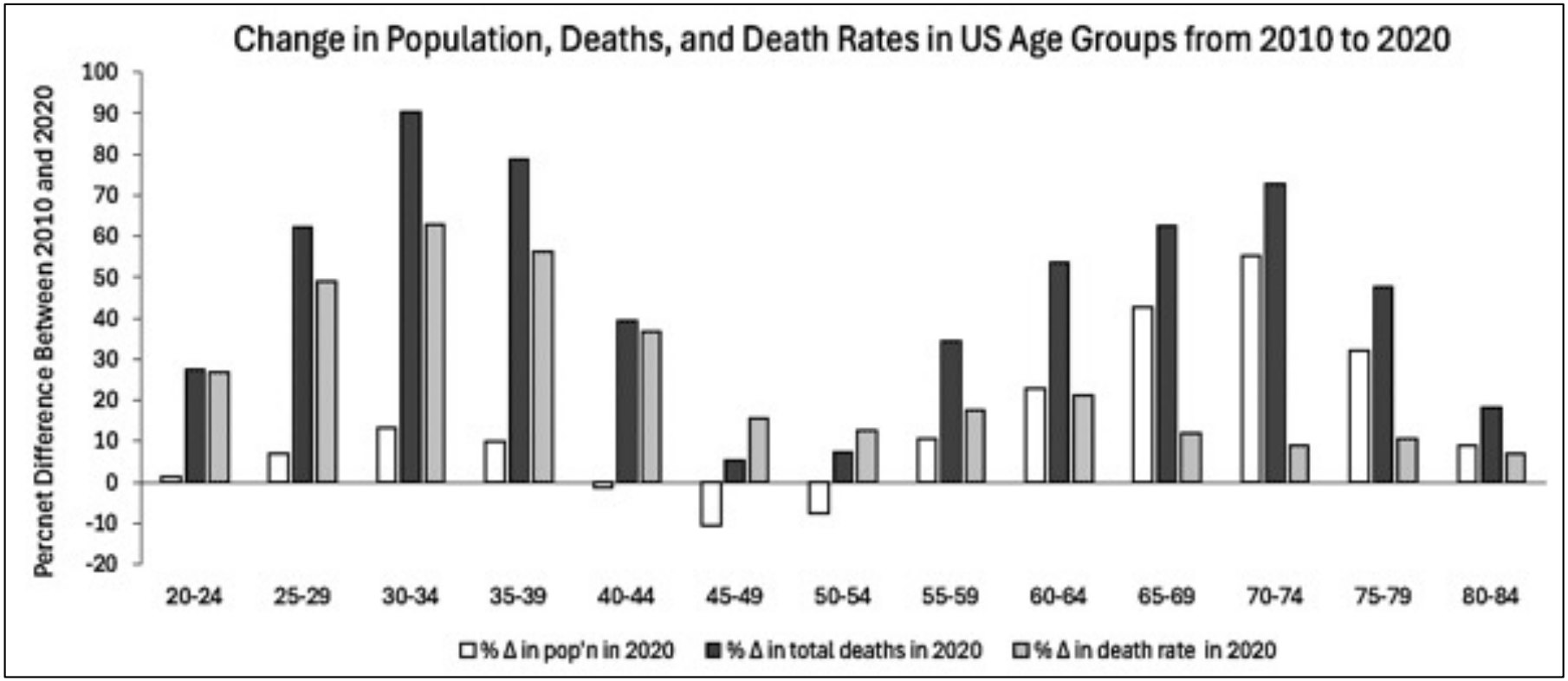

Deaths from COVID-19 and Substance Abuse in by Age Group in 2020
COVID deaths
Overdose deaths
Alcohol deaths
90,000
80,000
70,000
60,000
50,000
40,000
30,000
20,000
10,000
0
Ages 20-29
Ages 30-39
Ages 40-49
Ages 50-64
Ages 65-74


Overdose and Alcohol Deaths in the 50 States in 2021
Age Adjusted Death Rates per 100,000
120
100
80
60
40
20
0
NE SD IA TX HI ND ID WY MT UT AR GA KS OK MN CA MS IL NY WA NV OR VA MI WI CO AL NH NJ AK MO MA FL AZ NC RI CT MD VT IN PA SC ME OH NM DE LA TN KY WV
Overdose Deaths in 2021
Alcohol Deaths in 2021


Percent Change in Overdose and Alcohol Deaths in the 50 States from 2019 to 2021
Percent Chnage from 2019 to 2021
250
200
150
100
50
0
NH NJ HI UT MD DE MA SD CT PA MI OH ID NE IL MO IA RI MT AZ ND FL WY NV WI OK ME TX NY IN VA KS NM WV KY MN AR CA WA VT CO NC AL GA TN OR AK SC LA MS
Δ Overdose Deaths
Δ Alcohol Deaths


Change in Overdose Deaths and Life Expectancies in the 50 States from 2019 to 2021
Percent Change in Life Expectancy 2019-2021
0.0
-1.0
-2.0
-3.0
-4.0
-5.0
-6.0
0
10
20
30
40
50
60
70
80
90
100
Pearson = -0.655
Spearman = -0.633
Percent Change in Overdose Deaths 2019-2021


Relationship Between Changes in Overdose Deaths with Changes in Life Expectancy from 2019 to 2021
Percent Decrease in Life Expectancy 2019-2021
4
3
2
1
0
States with <30% Increase in Overdose Deaths
States with >70% Increase in Overdose Deaths
P = <0.001
1.96 ± 0.188
n = 14
3.53 ± 0.249
n = 15



References for the Data Used in the Bar Graphs:

Our Changing Population: US. *USA Facts*. https://usafacts.org/data/topics/people-society/population-and-demographics/our-changing-population/?endDate=2021-01-01&startDate=2010-01-01,

Annual death rate by age group, United States. *Our World in Data* https://ourworldindata.org/grapher/annual-deaths-by-age

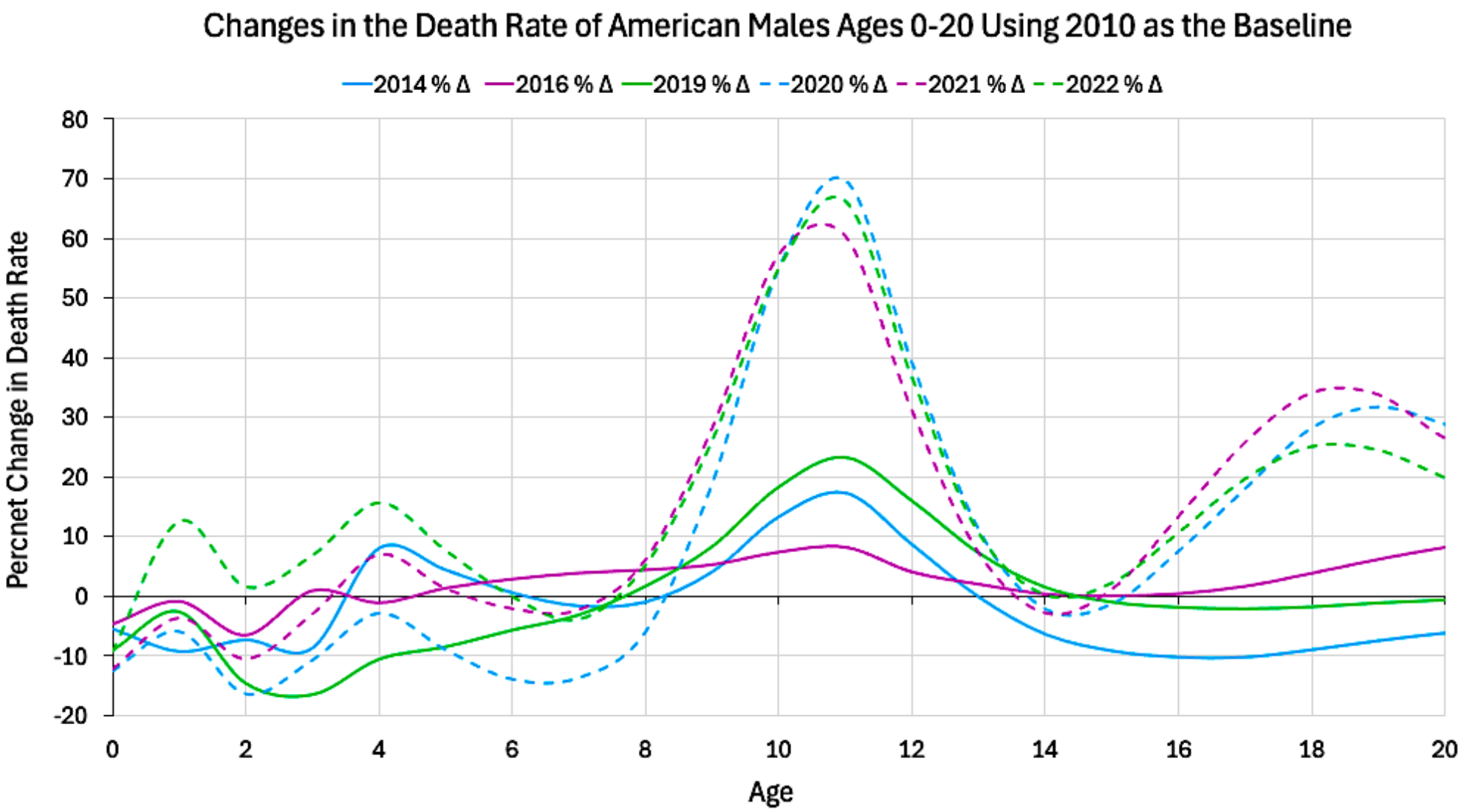
Annual death rate by age group, United States. *Our World in Data*. https://ourworldindata.org/grapher/annual-death-rate-by-age-group?time=2006,

Hat tip to **Mark Kulacz** (Housatonic) for linking the opioid epidemic to the decline in life expectancy and **Jonathan Couey** (Gigaohm Biological) for linking the demographic transition to the COVID-19 body count. All of this research is follow-up to ideas conveyed on their podcasts.

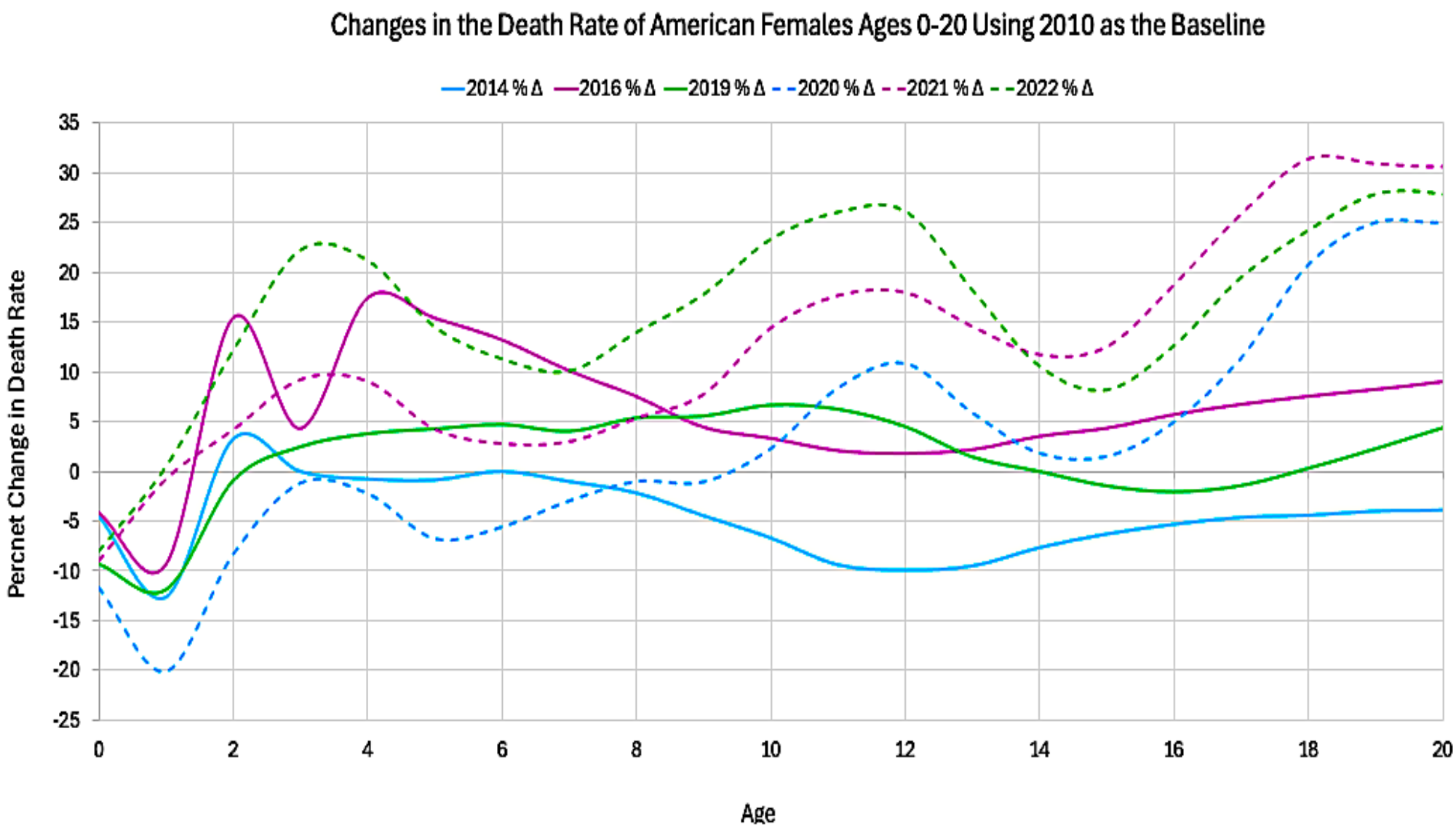
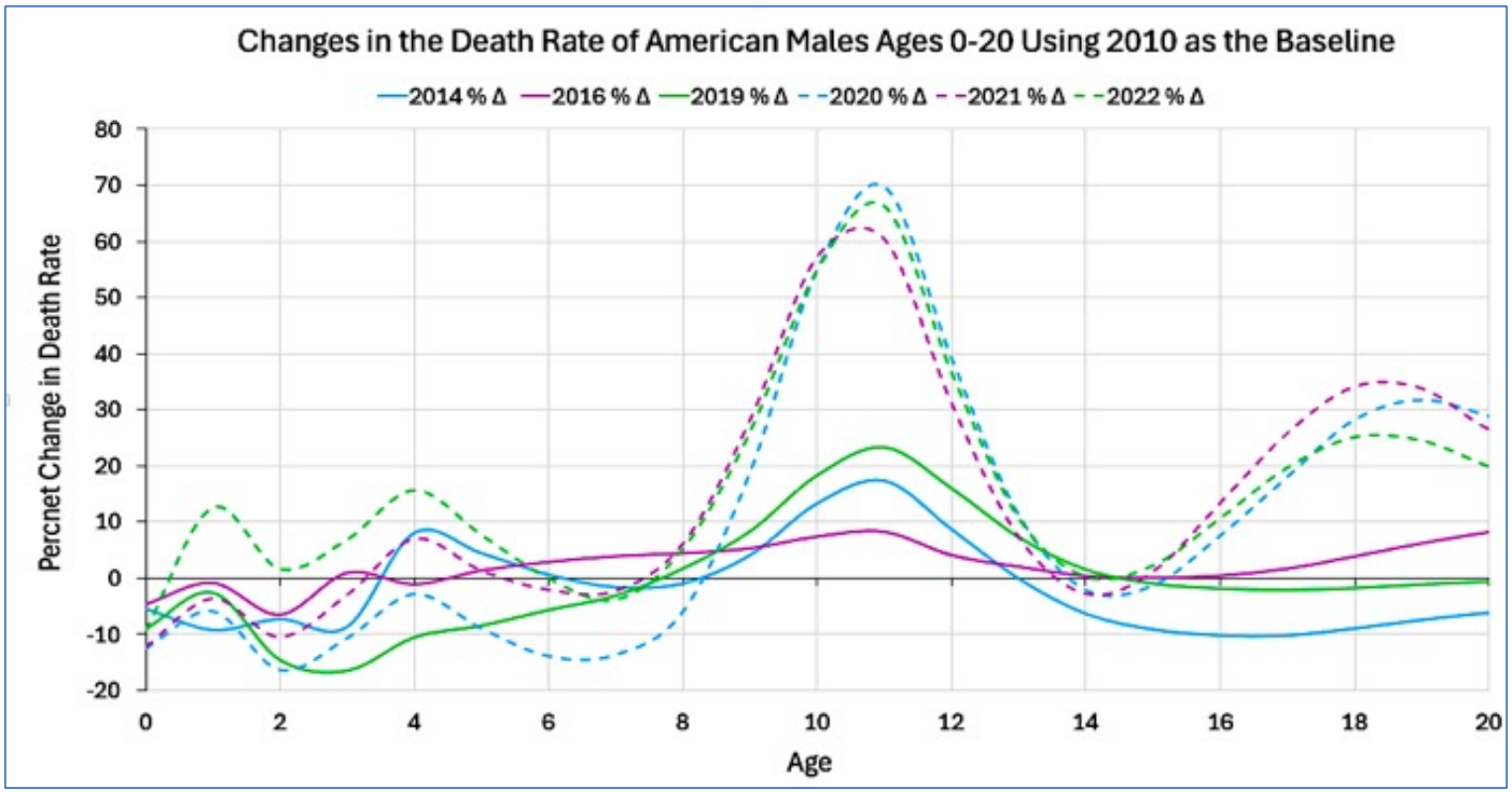
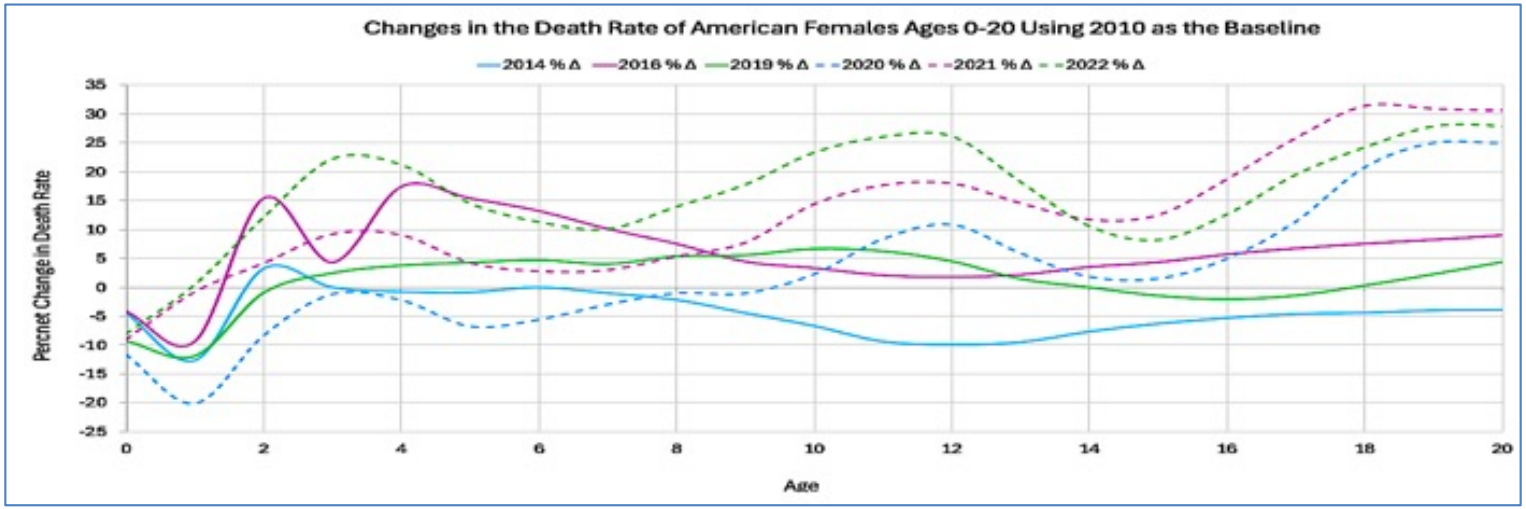
https://rumble.com/user/Housatonic

https://gigaohmbiological.com/

Addendum: There was an unusual surge in the death rate of American males ages 10-11.



This unexplained pattern is much less evident in females.



The difference is more evident when these graphs are displayed side-by-side.