

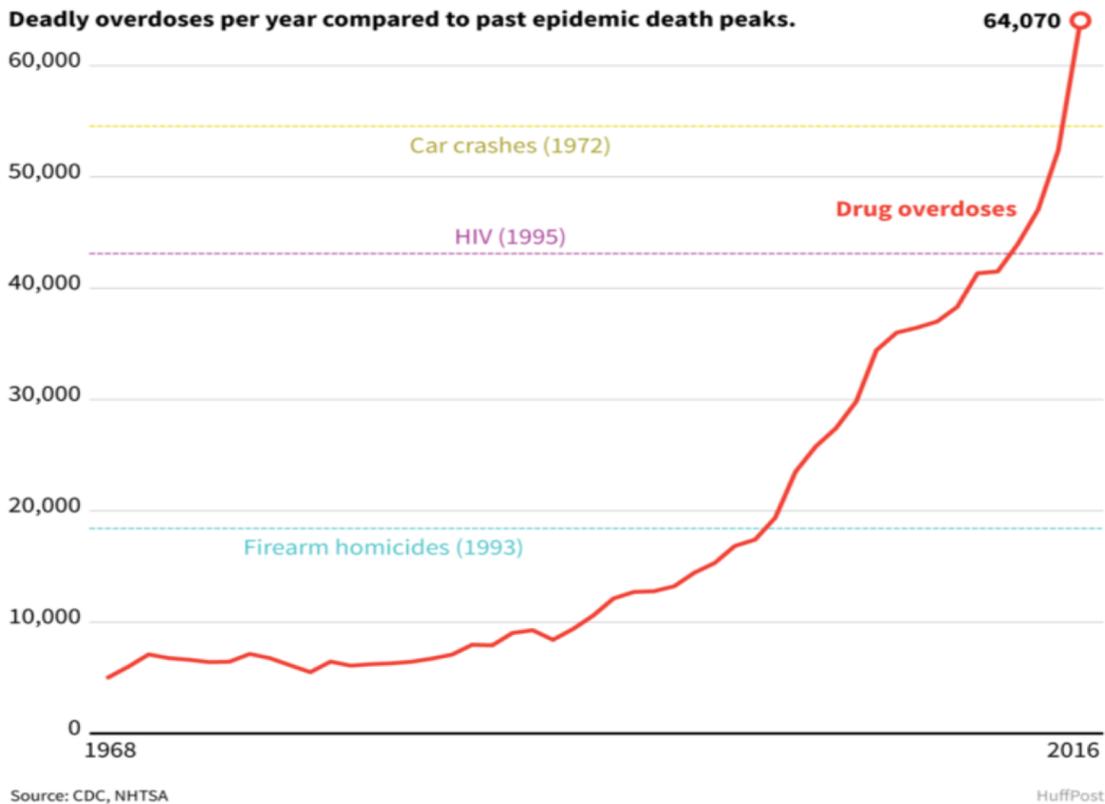
The opioid epidemic in context

Sandro Galea, MD, DrPH

1. The epidemic of our time

Drug Overdose Deaths Are Outpacing Other Public Health Epidemics

Deadly overdoses per year compared to past epidemic death peaks.



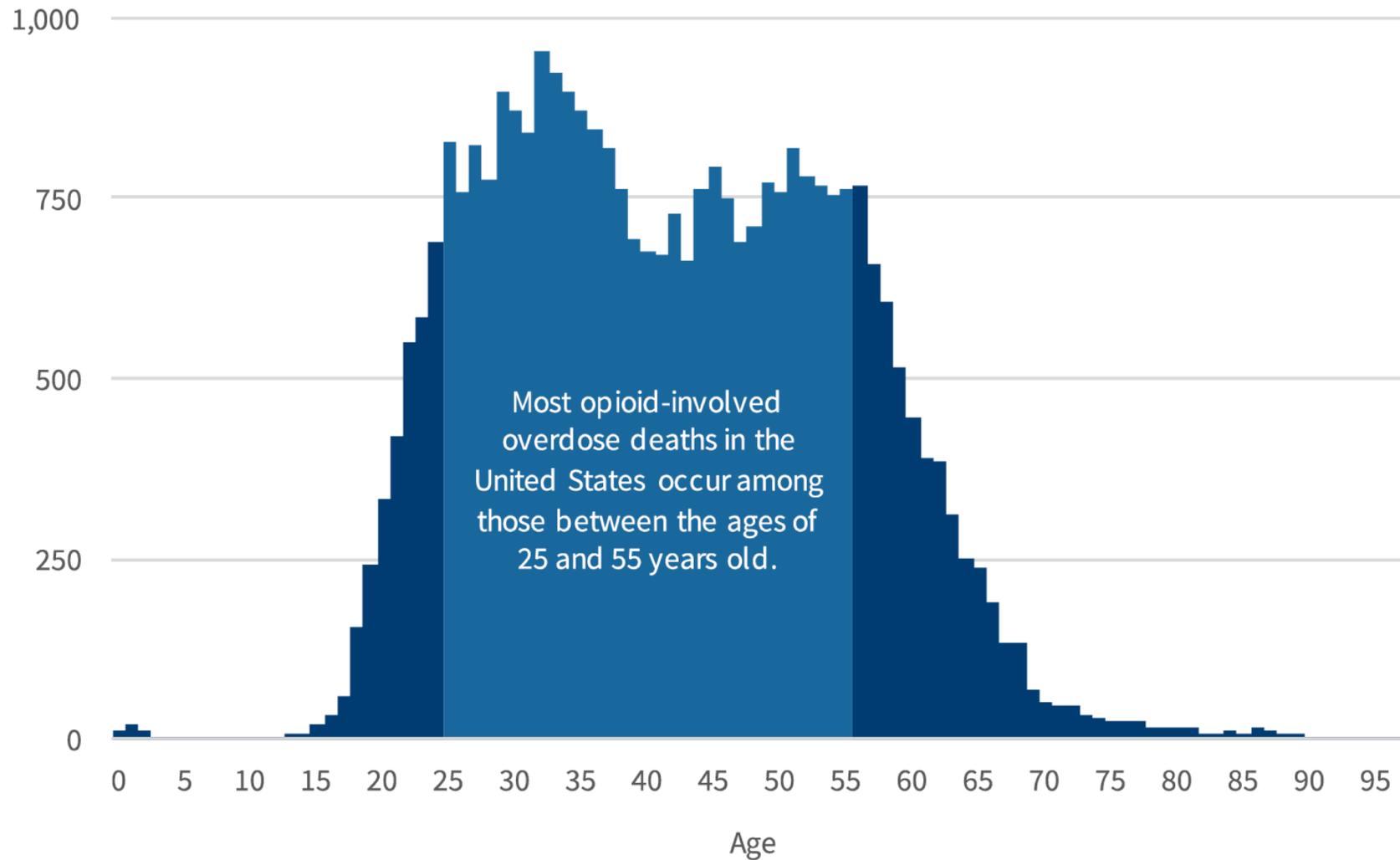
Source: CDC, NHTSA

HuffPost

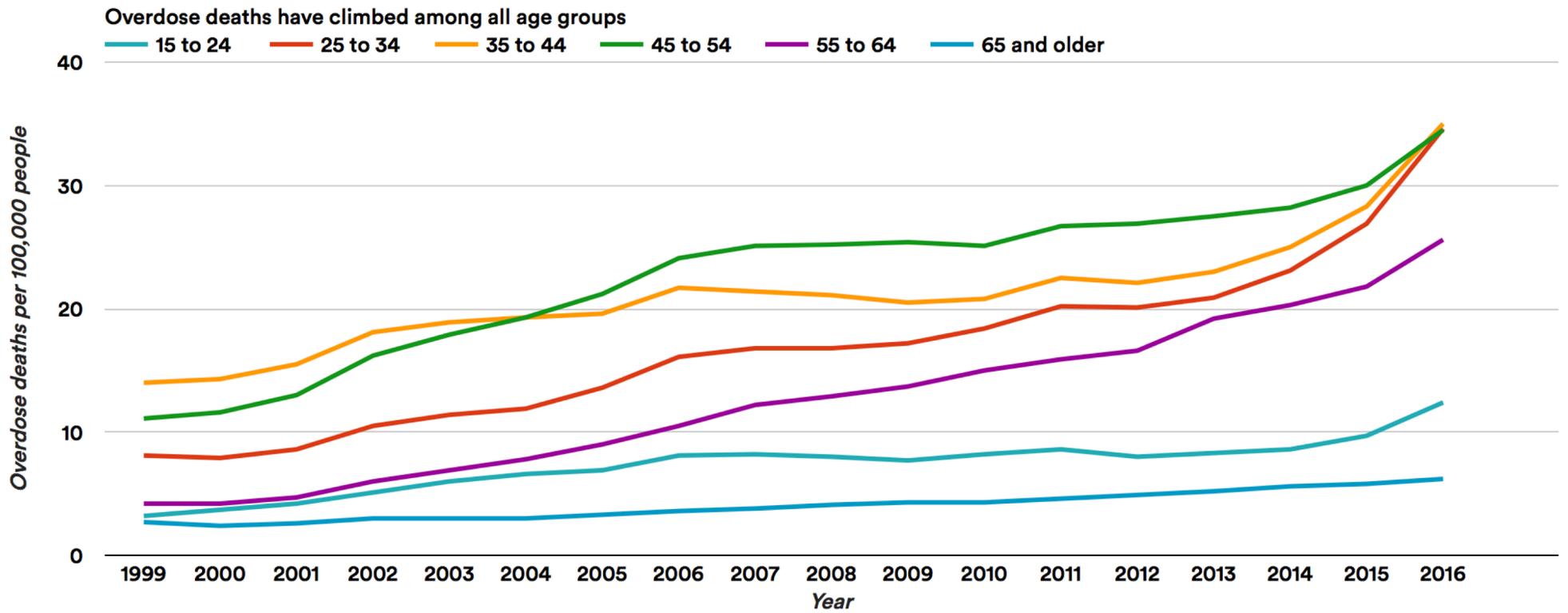
ALISSA SCHELLER/HUFFPOST

Figure 2. Opioid-involved Overdose Deaths by Age in 2015

(Number of deaths)



Source: CDC Wonder database, multiple cause of death files

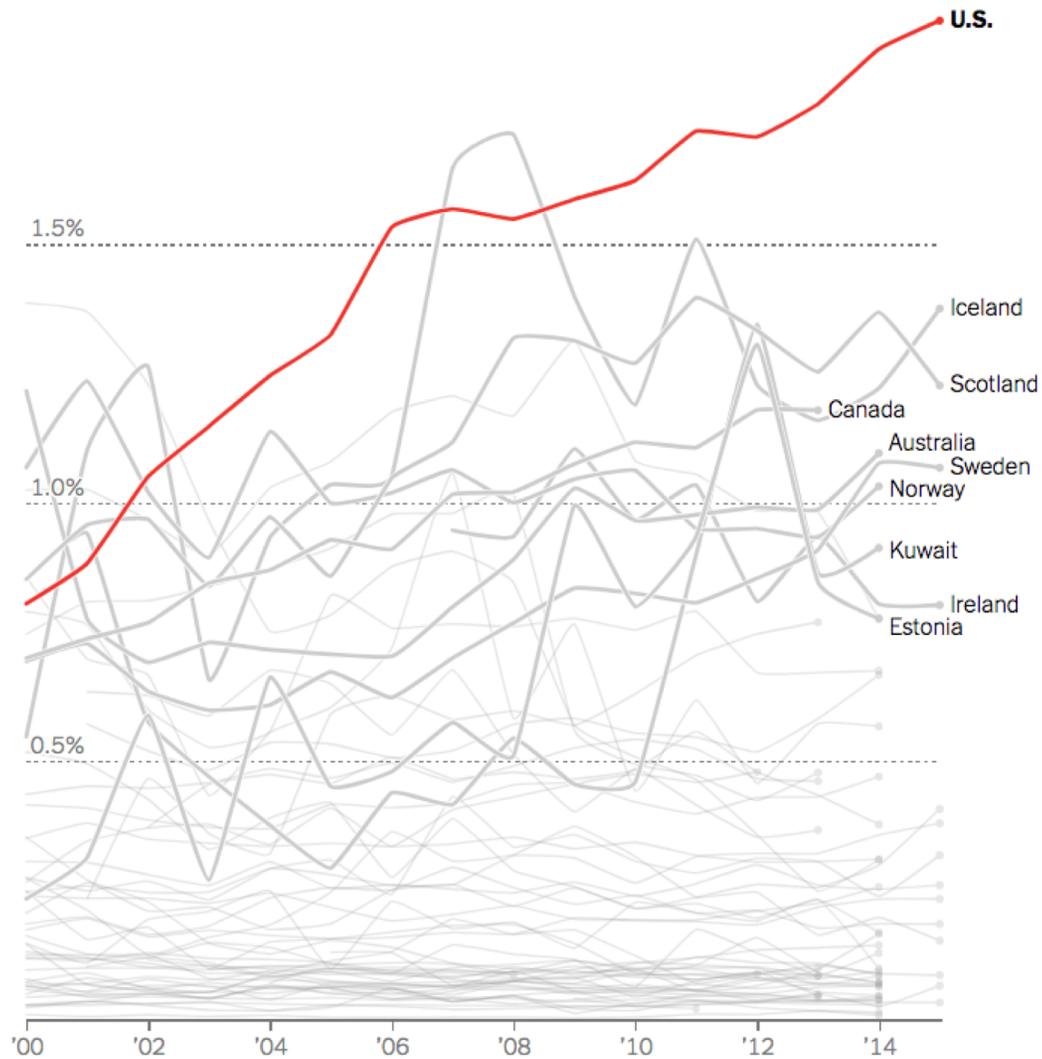


MEGAN THIELKING / STAT. SOURCE: DRUG OVERDOSE DEATHS IN THE UNITED STATES, 1999-2016. NATIONAL CENTER FOR HEALTH STATISTICS.

STAT

Thielking M. Life expectancy in the US is falling – and drug overdose deaths are soaring. STAT News. December 21, 2017.
https://www.statnews.com/2017/12/21/life-expectancy-drug-overdose/?utm_source=STAT+Newsletters&utm_campaign=c1b19906f4-MR&utm_medium=email&utm_term=0_8cab1d7961-c1b19906f4-118704945

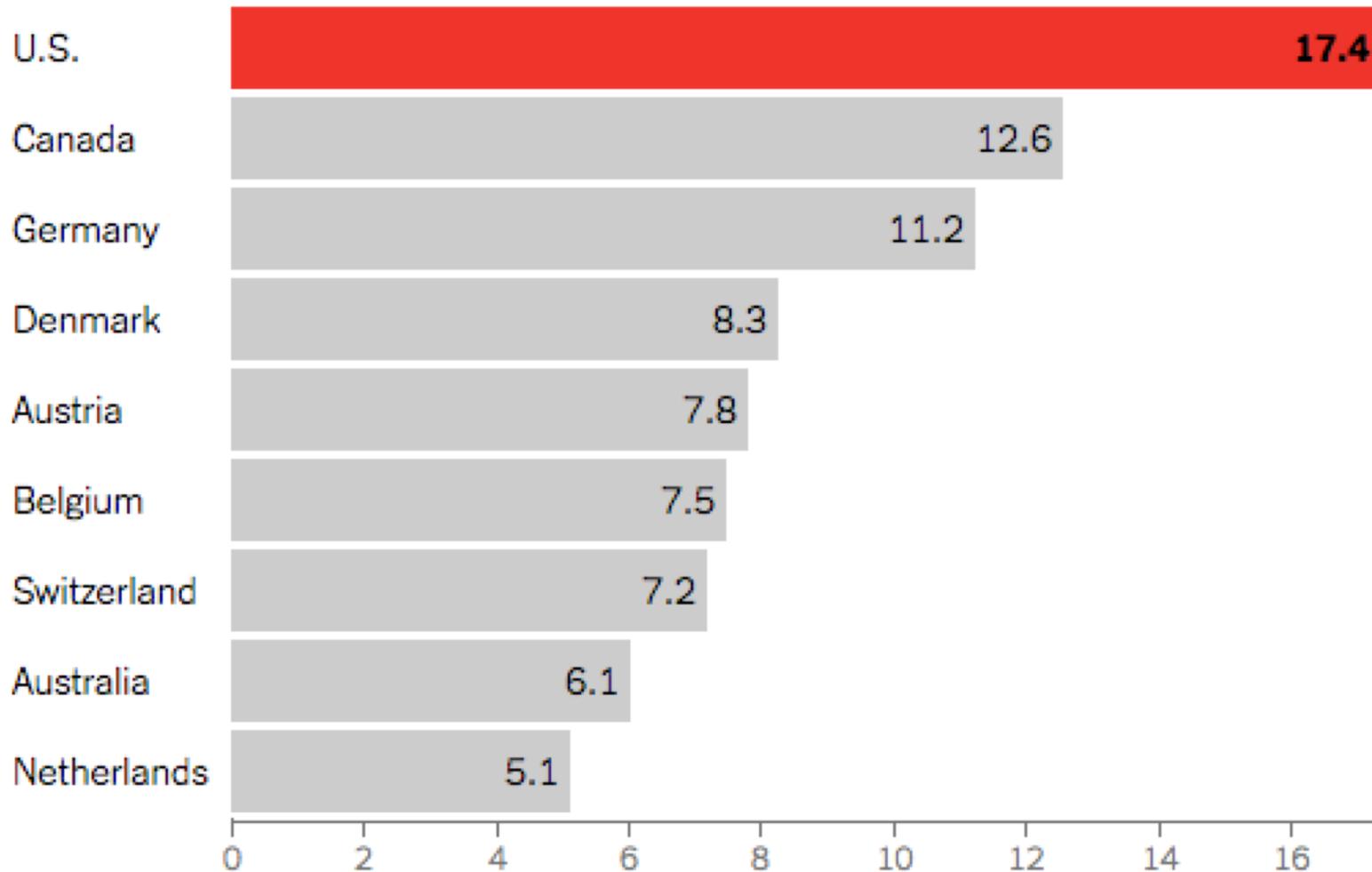
Percentage of deaths classified as drug-related



The chart includes both deaths from drug poisoning and those caused by drug-related mental disorders.

Sources: W.H.O.; Statistics Canada; Ireland Central Statistics Office; National Records of Scotland; National Center for Health Statistics, Centers for Disease Control and Prevention

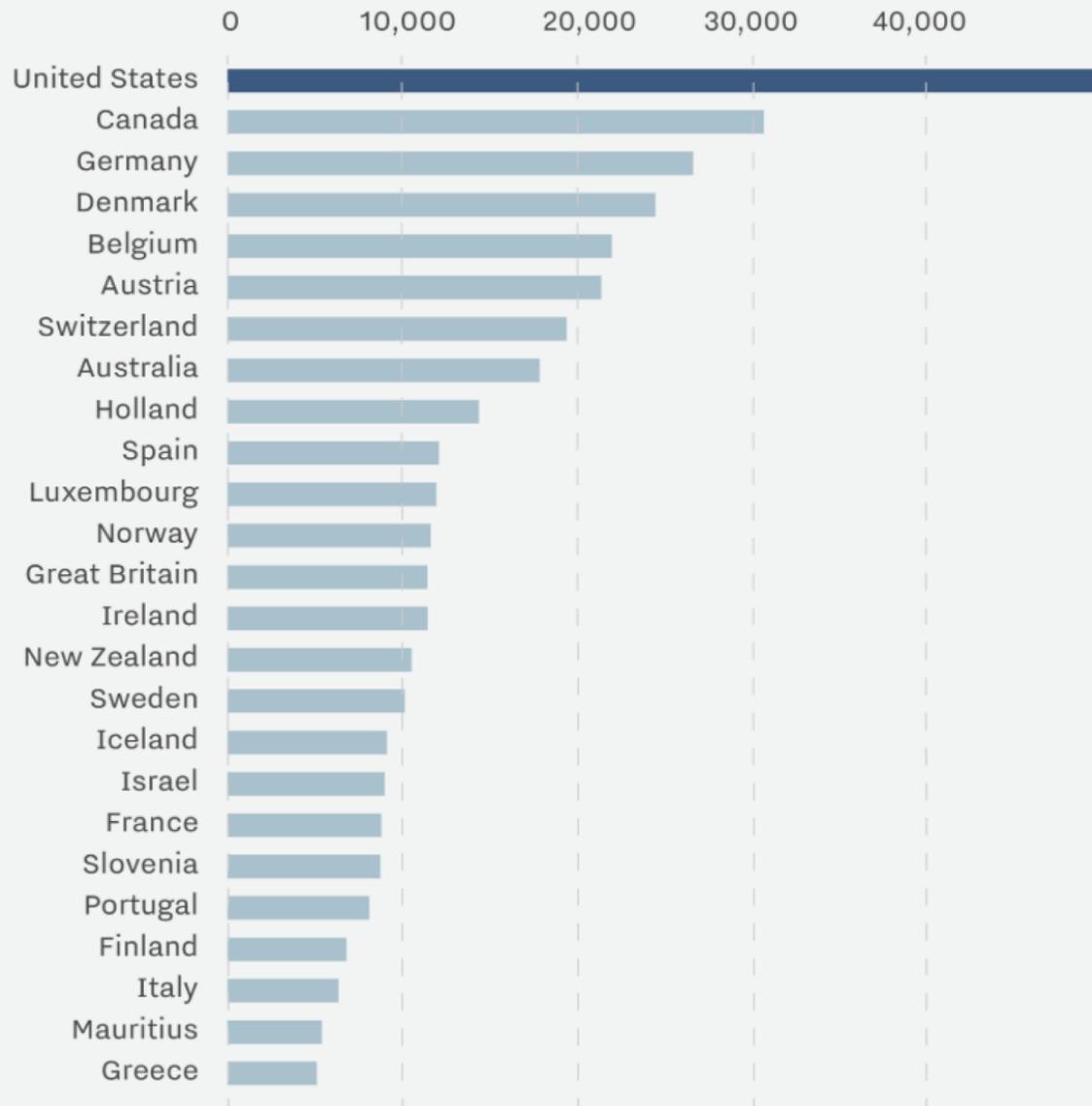
Average days of opioid use per resident per year



Values are three-year rolling averages for 2013 to 2015.

Source: International Narcotics Control Board

Standard daily opioid dose for every 1 million people

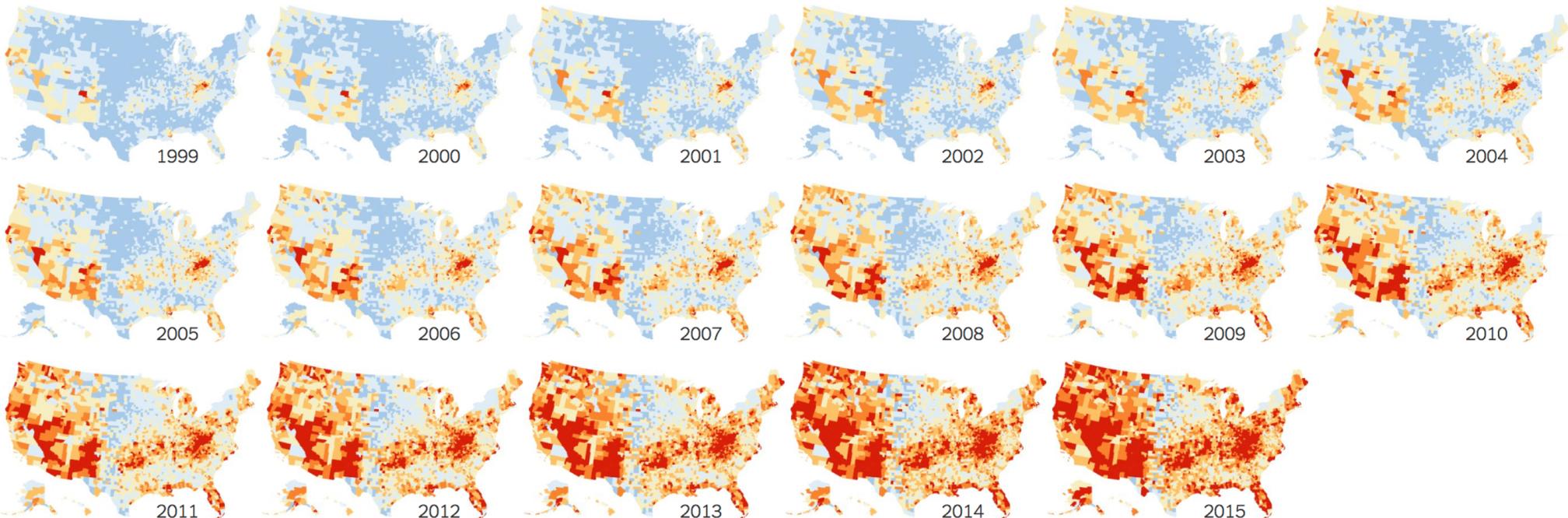
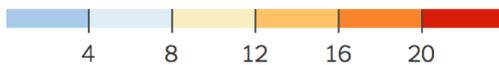


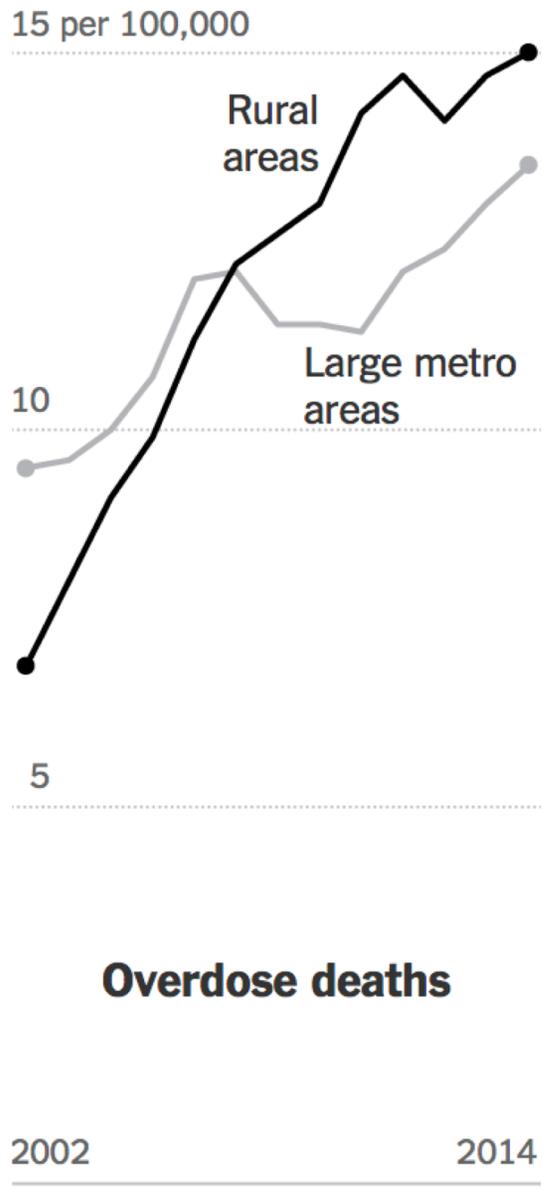
Source: United Nations International Narcotics Control Board

Credit: Sarah Frostenson

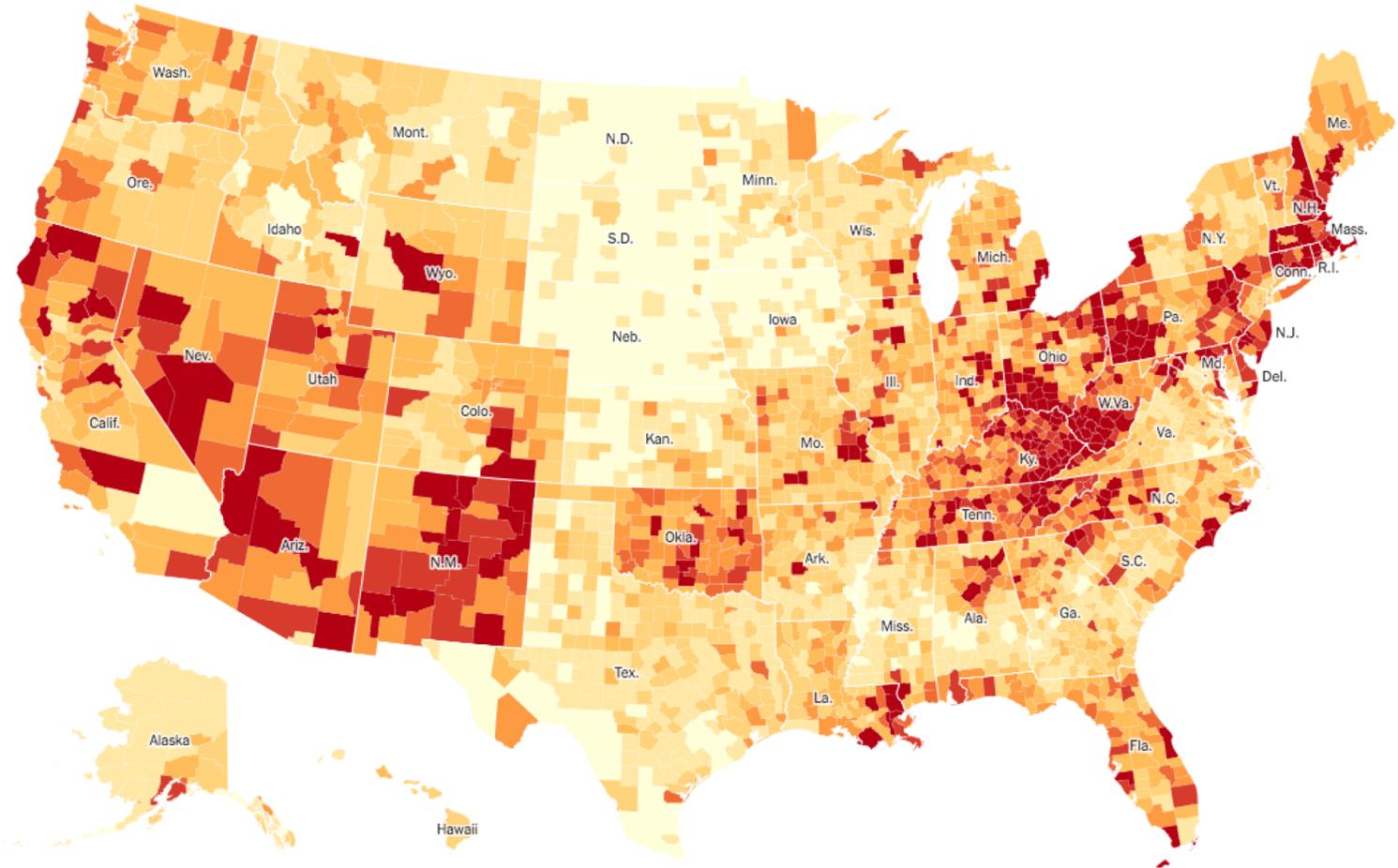
2. The geography of an epidemic

Overdose deaths per 100,000





Overdose deaths



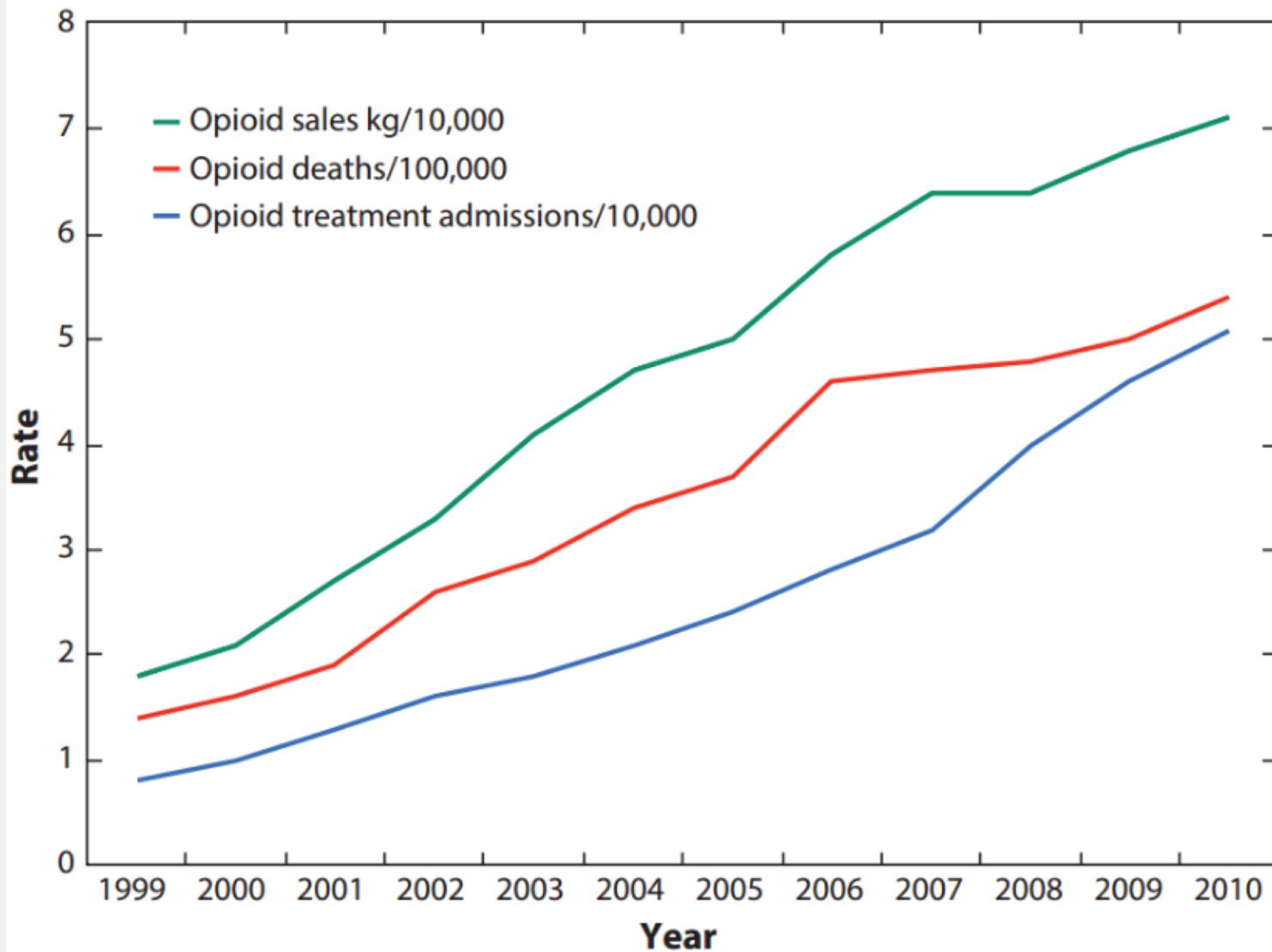
2015 drug overdose deaths per 100,000 residents

6 9 12 15 18 21 24

In counties with fewer than 20 drug overdose deaths, the map combines observed totals with modeled estimates.
 Source: National Center for Health Statistics, Centers for Disease Control and Prevention

Katz J. Short Answers to Hard Questions About the Opioid Crisis. *The New York Times*. August 10, 2017.
<https://www.nytimes.com/interactive/2017/08/03/upshot/opioid-drug-overdose-epidemic.html? r=0> Accessed December 30, 2017.

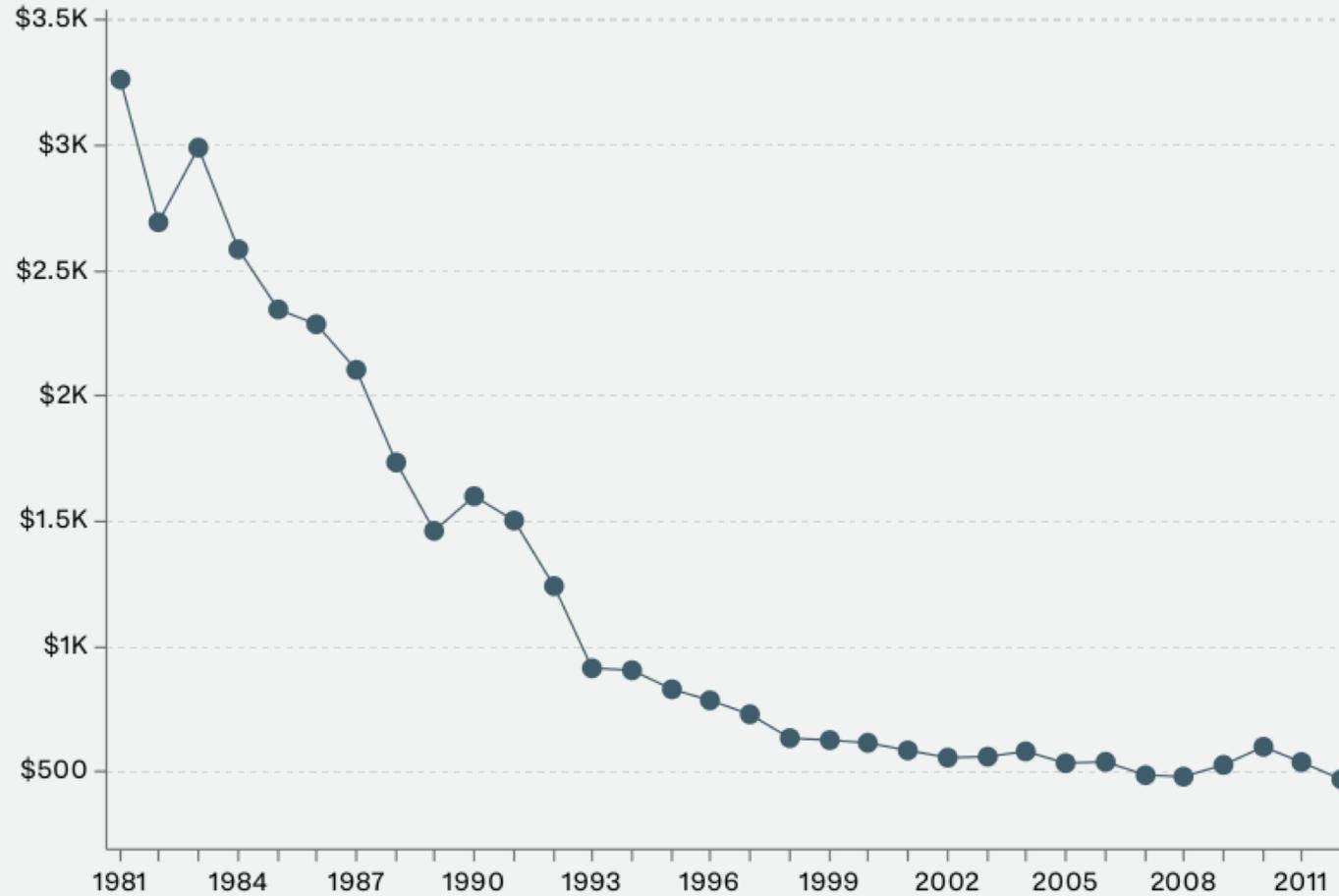
3. The changing drivers of the epidemic



Annual Review of Public Health

The price of heroin

Per pure gram in inflation-adjusted dollars

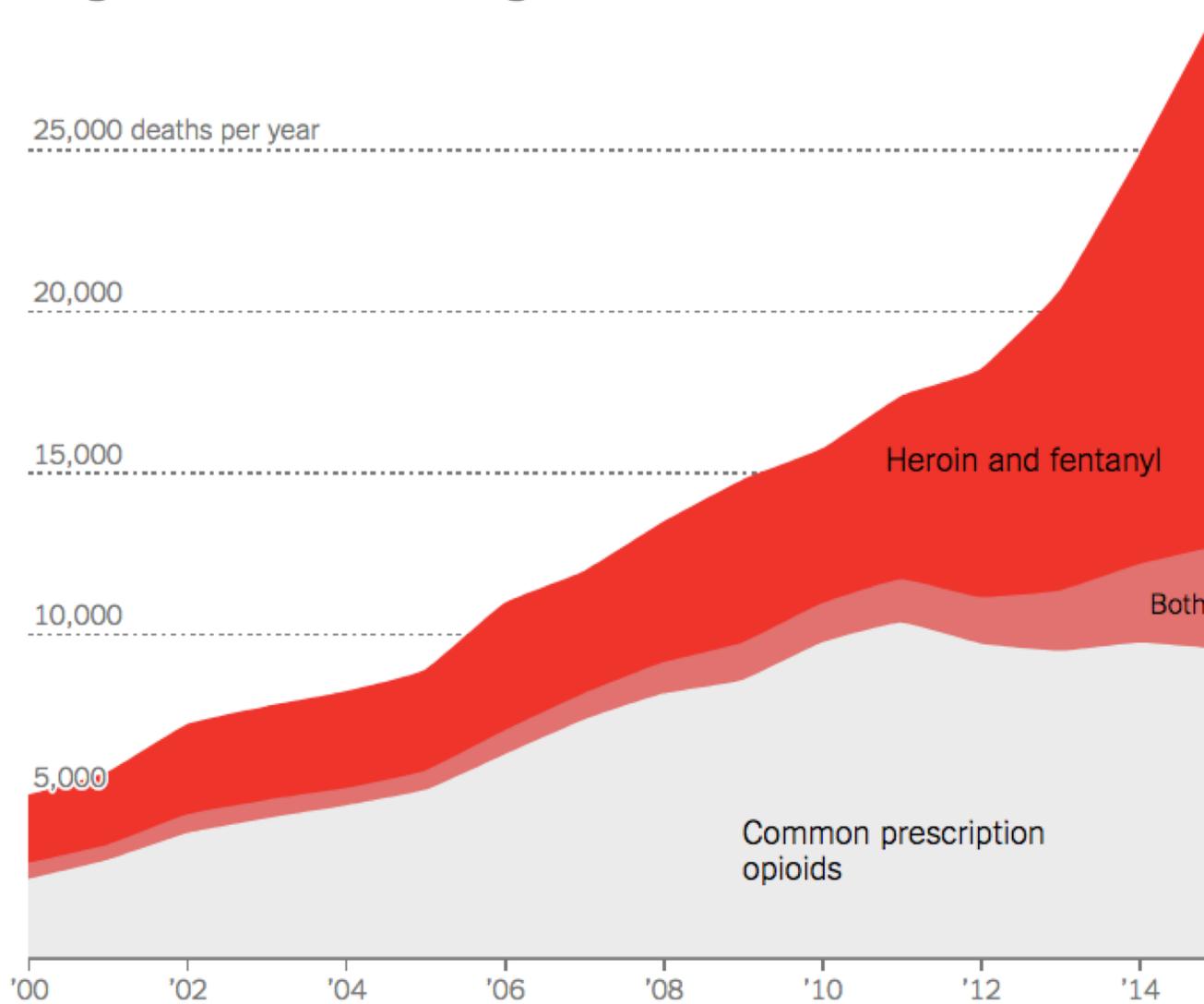


Source: [White House Office of National Drug Control Policy](#)

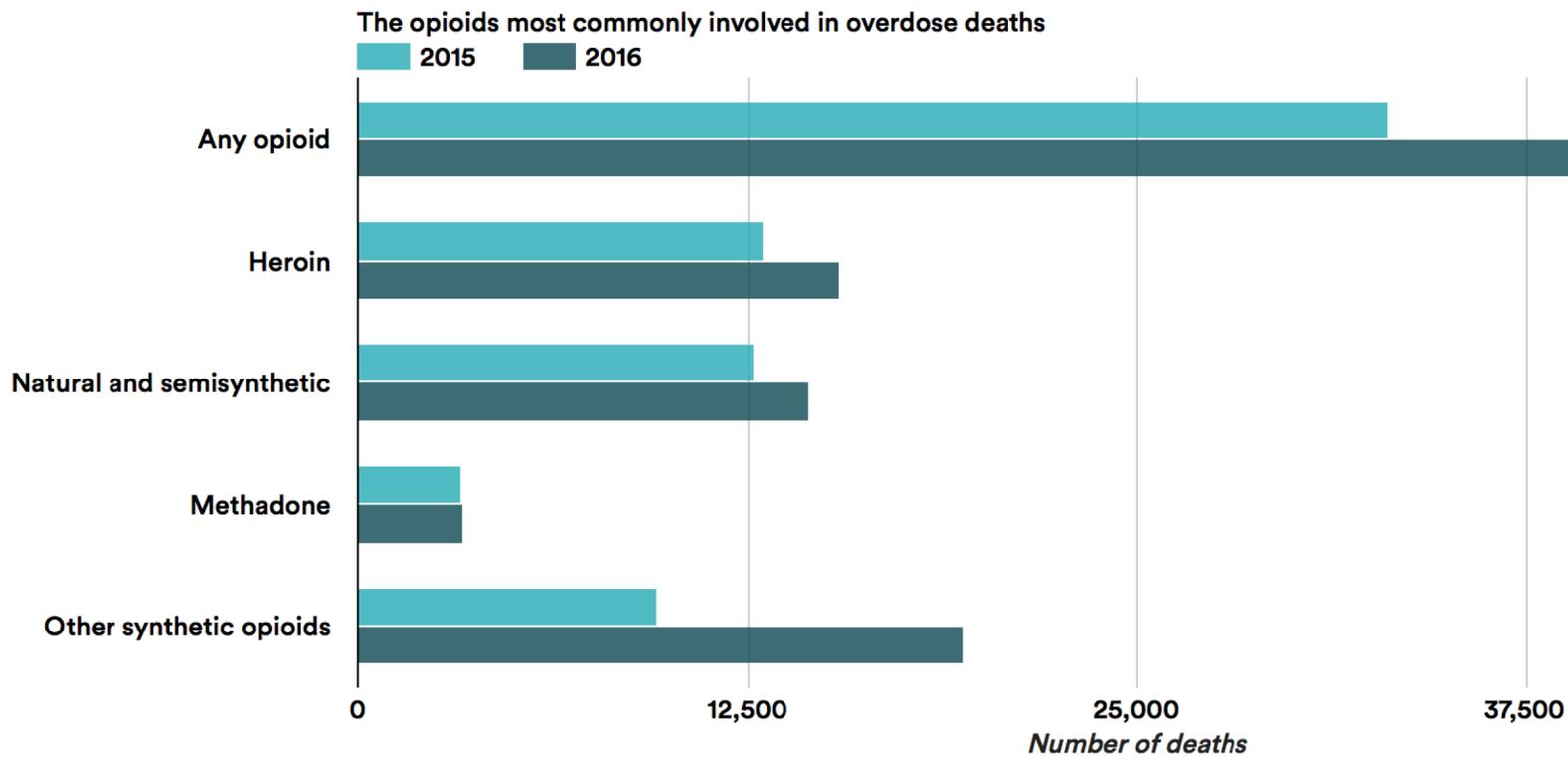
Lopez G, Frostenson S. How the opioid epidemic became America's worst drug crisis ever, in 15 maps and charts. Vox. March 23, 2017.

<http://www.vox.com/science-and-health/2017/3/23/14987892/opioid-heroin-epidemic-charts> Accessed March 26, 2017.

Drug overdose deaths involving ...



Source: National Center for Health Statistics, Centers for Disease Control and Prevention



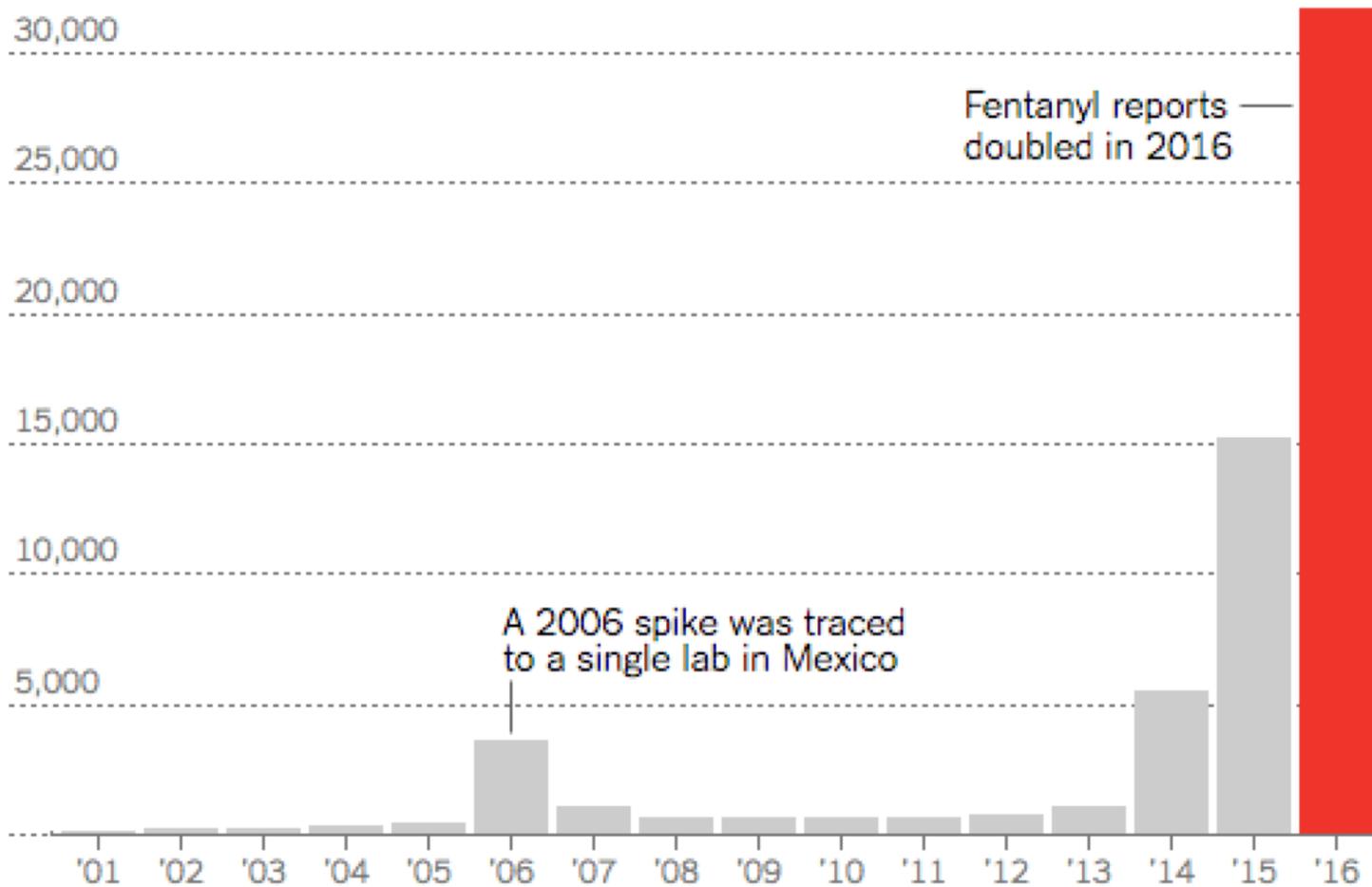
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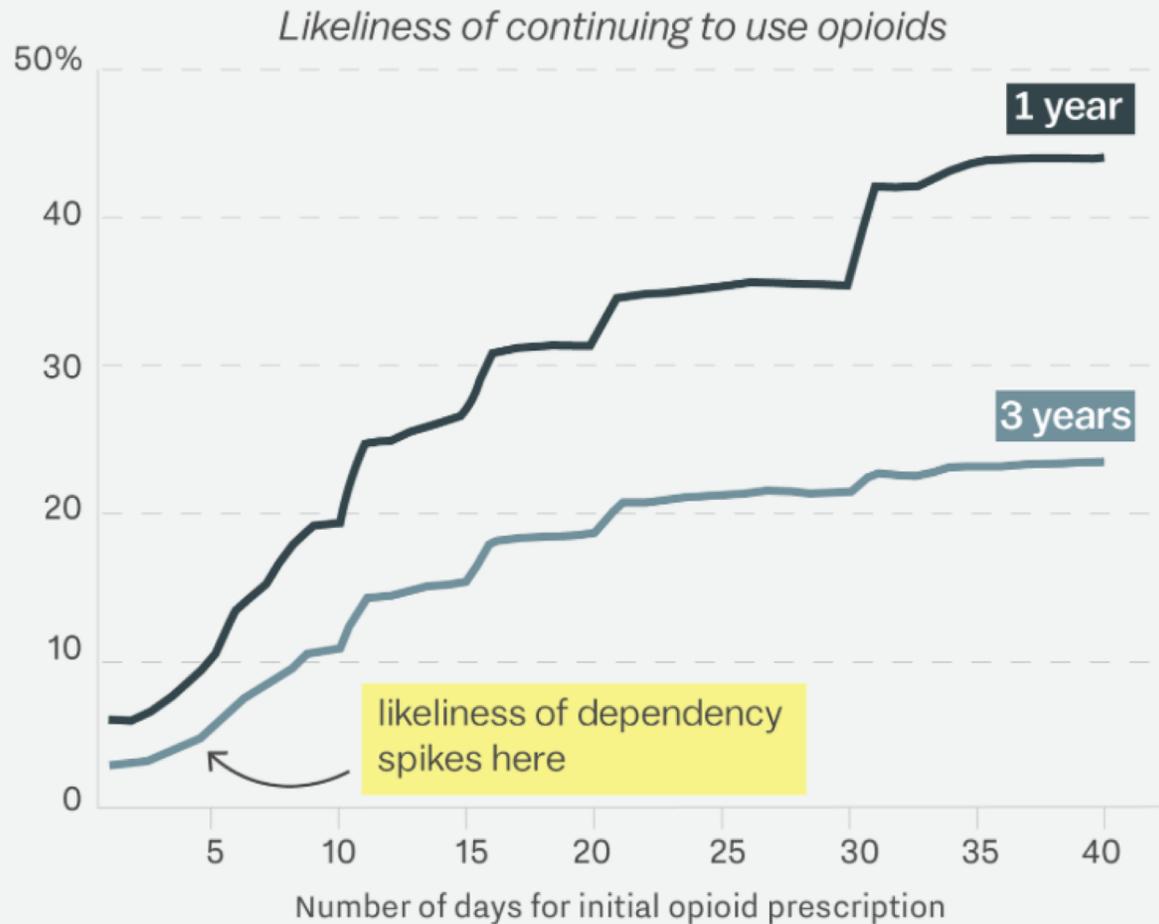
Drug seizures containing fentanyl



Source: D.E.A. National Forensic Laboratory Information System

4. The backdrop that made the epidemic possible

Risk of continued opioid use increases at 4-5 days

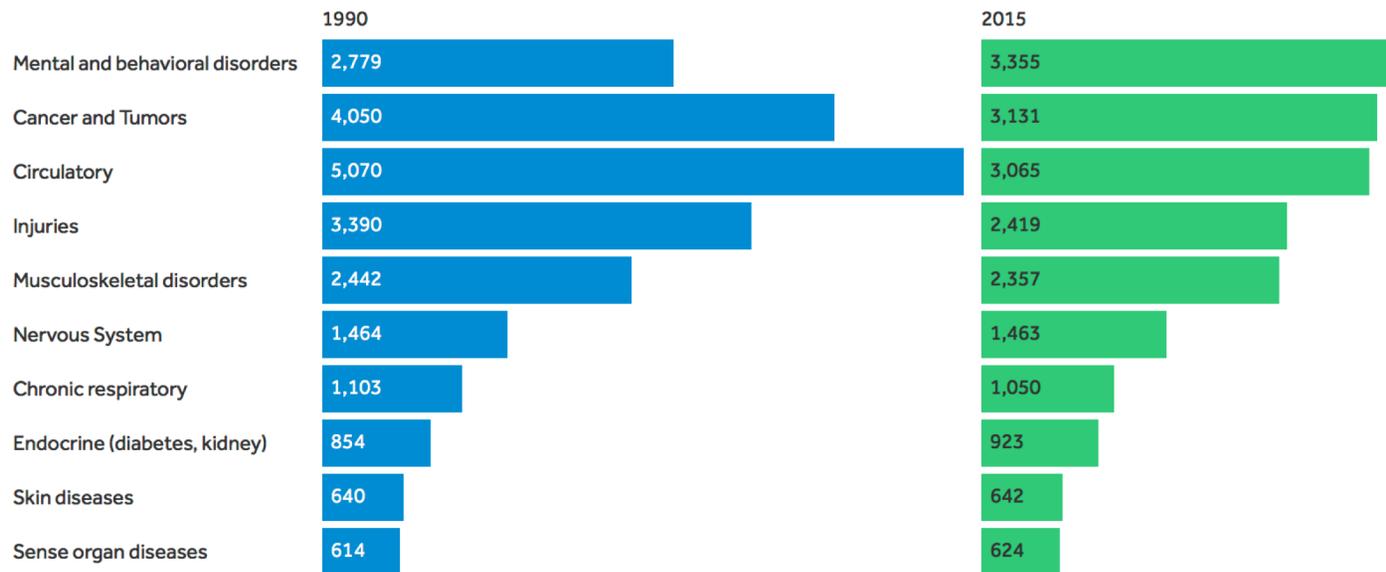


Source: Centers for Disease Control and Prevention

Credit: Sarah Frostenson

U.S. disease burden has decreased in past 25 years for circulatory, cancer, and injuries

Age standardized disability adjusted life years (DALYs) rate per 100,000 population, both sexes, 1990 and 2015

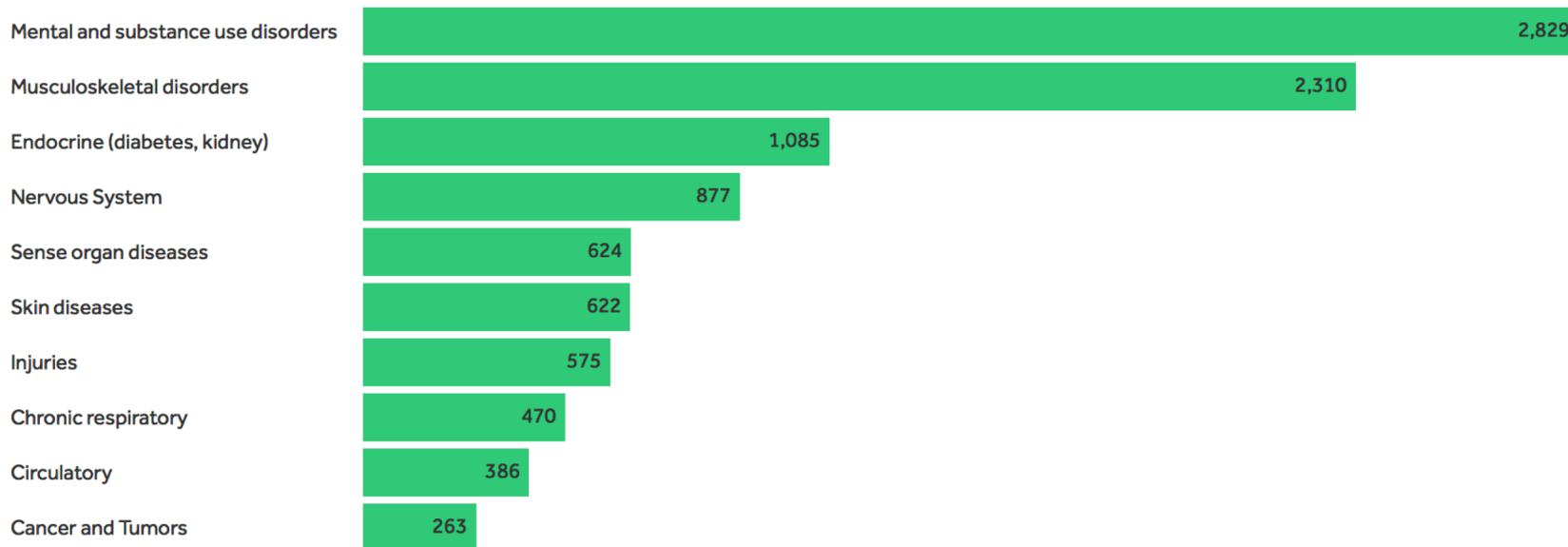


Source: Kaiser Family Foundation analysis of data from Institute for Health Metrics and Evaluation. Global Burden of Disease Study 2015 (GBD 2015) Data Downloads • Get the data • PNG

Peterson-Kaiser
Health System Tracker

Mental health and musculoskeletal disorders are the leading causes of years lost to disability in the U.S.

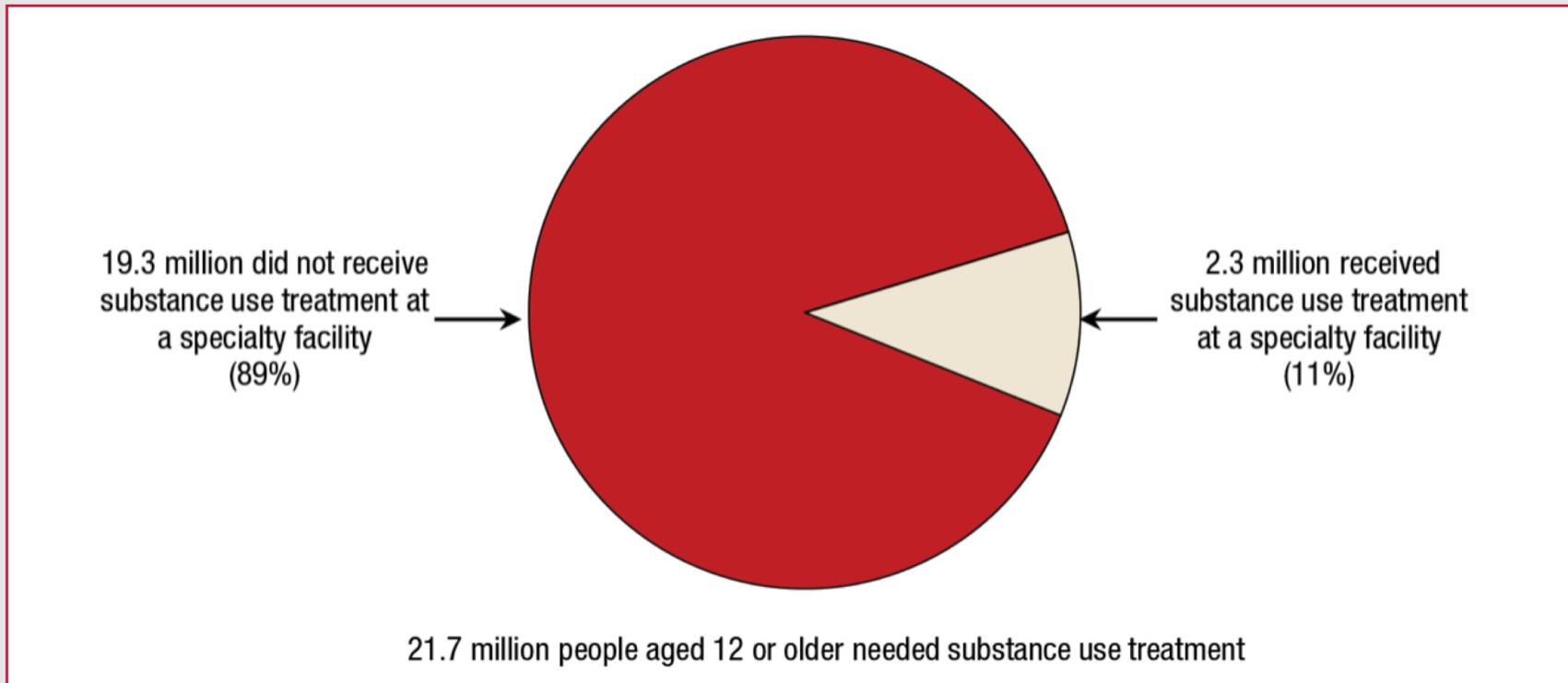
Age standardized years lived with disability (YLD) rate per 100,000 population, both sexes, 2015



Source: [Kaiser Family Foundation analysis of data from Institute for Health Metrics and Evaluation. Global Burden of Disease Study 2015 \(GBD 2015\) Data Downloads](#) | 

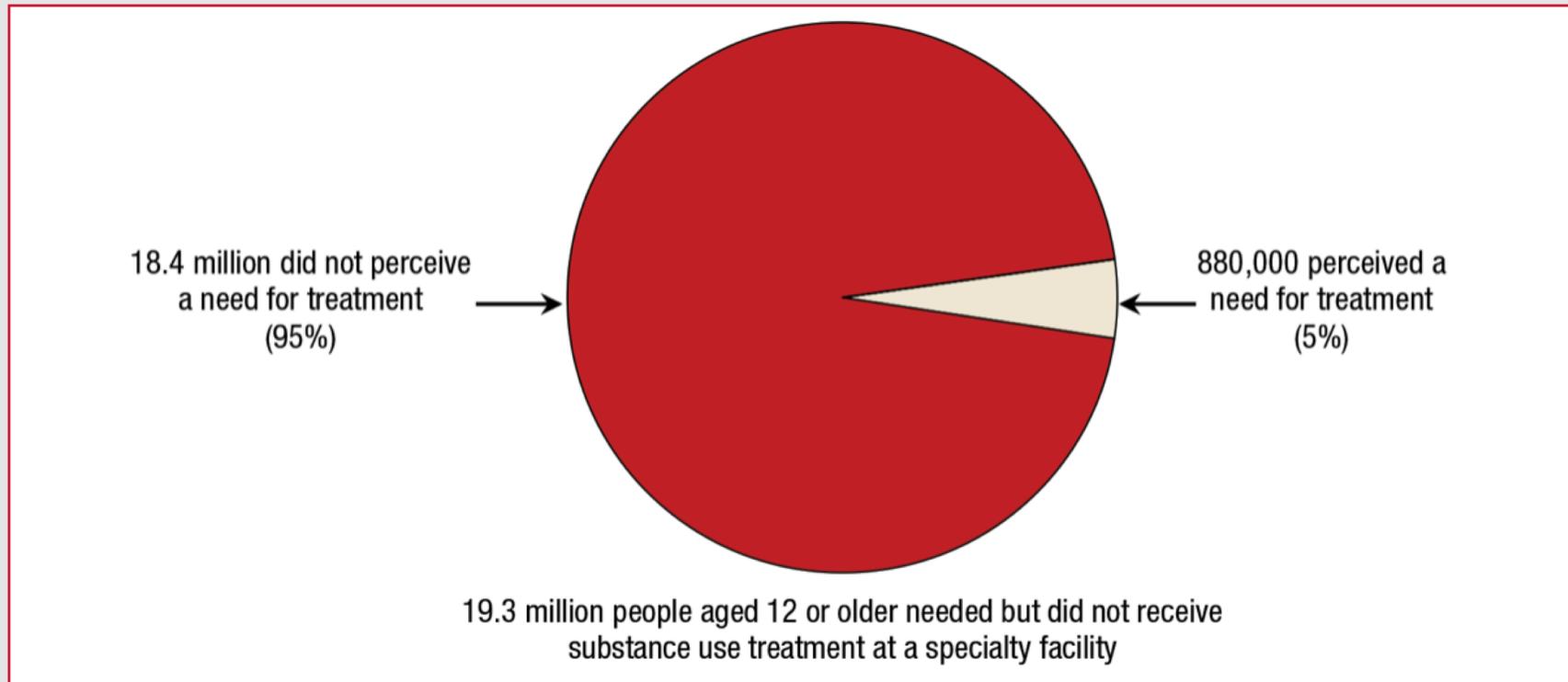
Peterson-Kaiser
Health System Tracker

Figure 2. Receipt of substance use treatment at a specialty facility in the past year among people aged 12 or older who needed substance use treatment in the past year: 2015



Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health (NSDUH), 2015.

Figure 4. Perceived need for substance use treatment among people aged 12 or older who needed but did not receive substance use treatment in the past year: 2015



Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health (NSDUH), 2015.

4. The cost of the epidemic

Table 2: Estimated Cost of the Opioid Crisis in 2015 (2015 \$)

VSL Assumption	Fatality Costs	Non-fatality Costs	Total Costs
Age-dependent	\$431.7 billion	\$72.3 billion	\$504.0 billion
Low	\$221.6 billion	\$72.3 billion	\$293.9 billion
Middle	\$393.9 billion	\$72.3 billion	\$466.2 billion
High	\$549.8 billion	\$72.3 billion	\$622.1 billion

Note: We assign the VSL of 18 to 24 year-olds for fatalities in the 0 to 17 year-old group, and we assign the VSL of 55 to 62 year-olds for fatalities in the over-62 year-old group. Two fatalities had no reported age; they were assigned the average VSL over all other fatalities. We also adjust Aldy and Viscusi's figures for the effects of inflation and real income growth, following the procedure described in the U.S. DOT (2016), p. 8.

Source: Aldy and Viscusi (2008); U.S. Department of Transportation (2016); CDC WONDER database, multiple cause of death files; Substance Abuse and Mental Health Services Administration (2016); Ruhm (2017); CEA calculations.

2.8% of GDP

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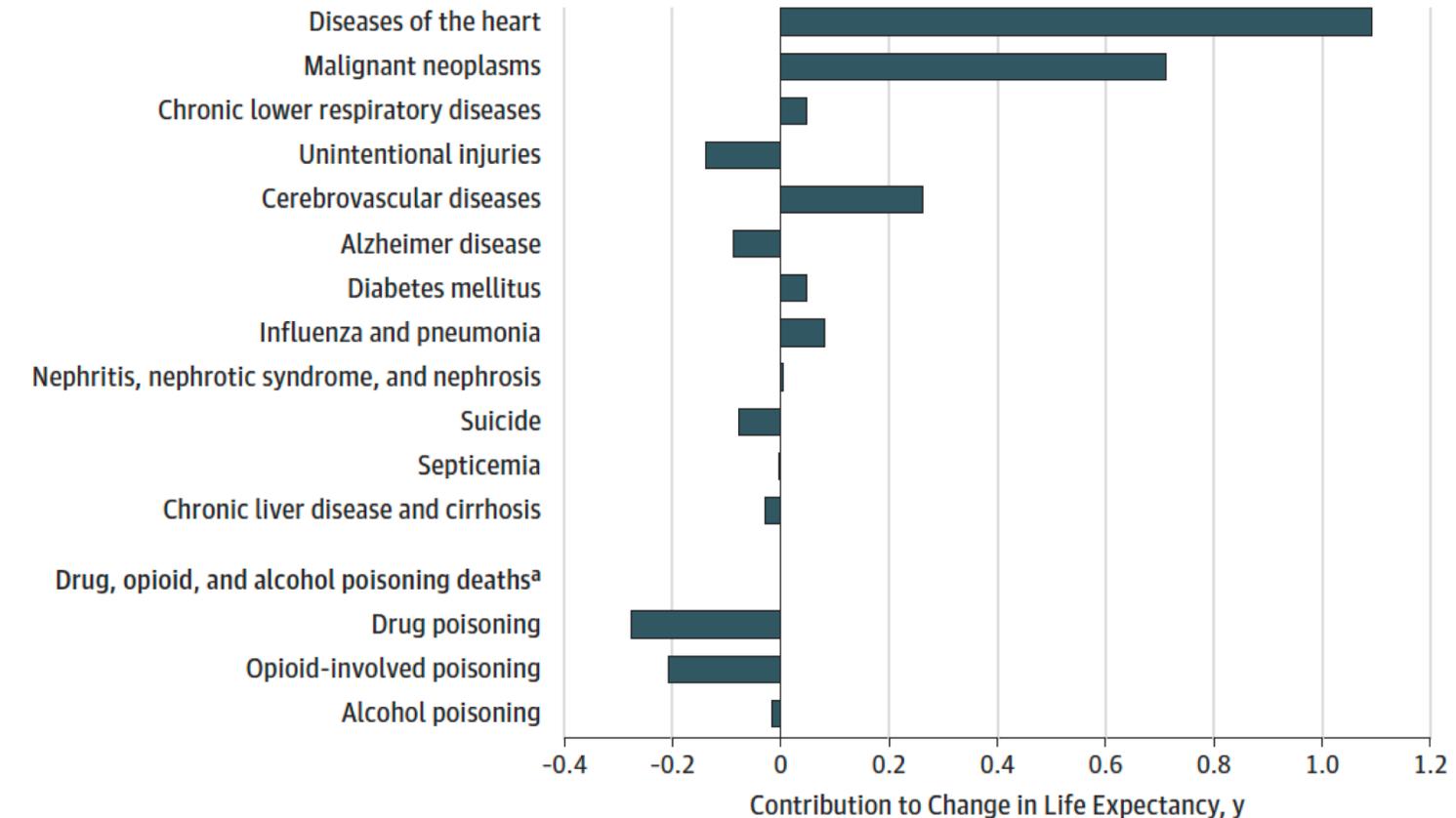
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Figure. Contributions of Selected Causes of Death to the Change in Life Expectancy in the United States, 2000-2015

12 Leading causes of death (ranked highest to lowest according to No. of deaths in year 2015)

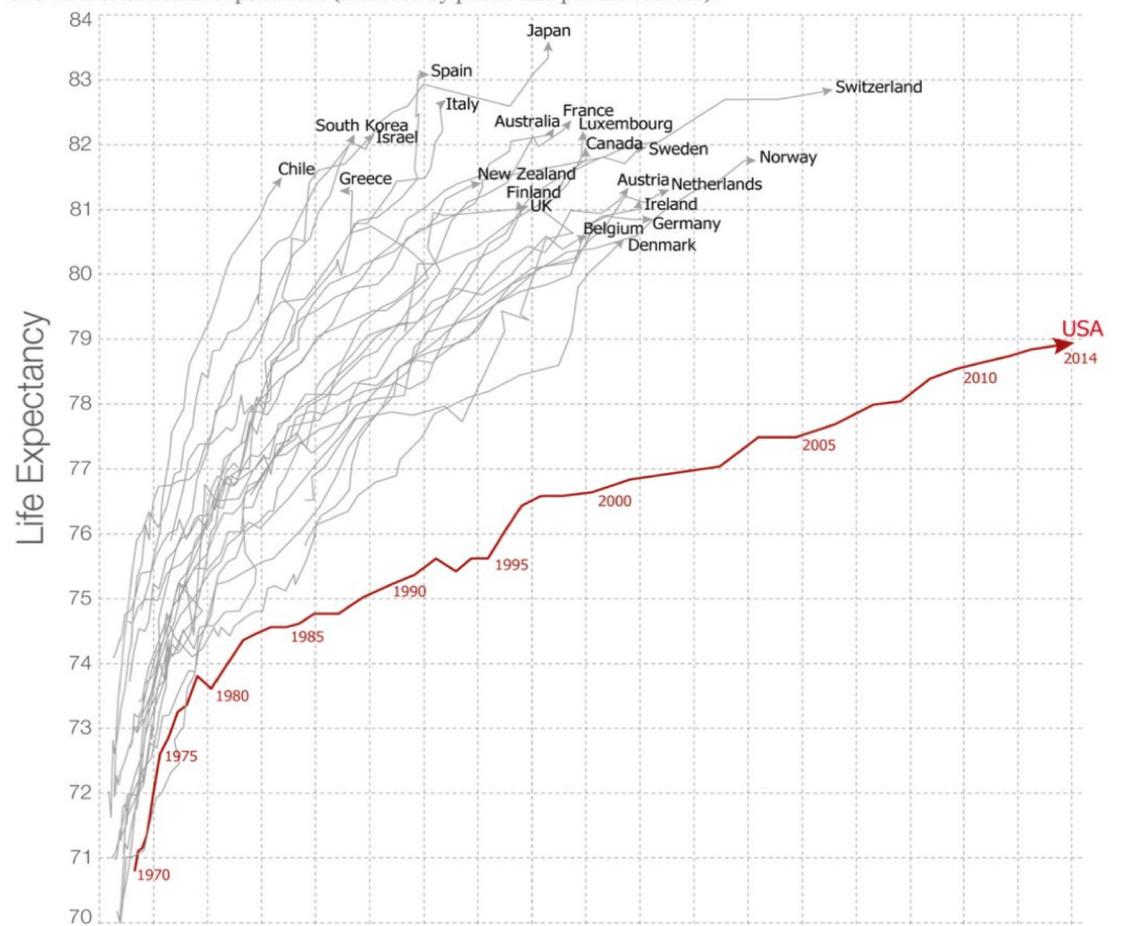


5. Our attention to the foundations of health

Life expectancy vs. health expenditure over time (1970-2014)

Our World
in Data

Health spending measures the consumption of health care goods and services, including personal health care (curative care, rehabilitative care, long-term care, ancillary services and medical goods) and collective services (prevention and public health services as well as health administration), but excluding spending on investments. Shown is total health expenditure (financed by public and private sources).

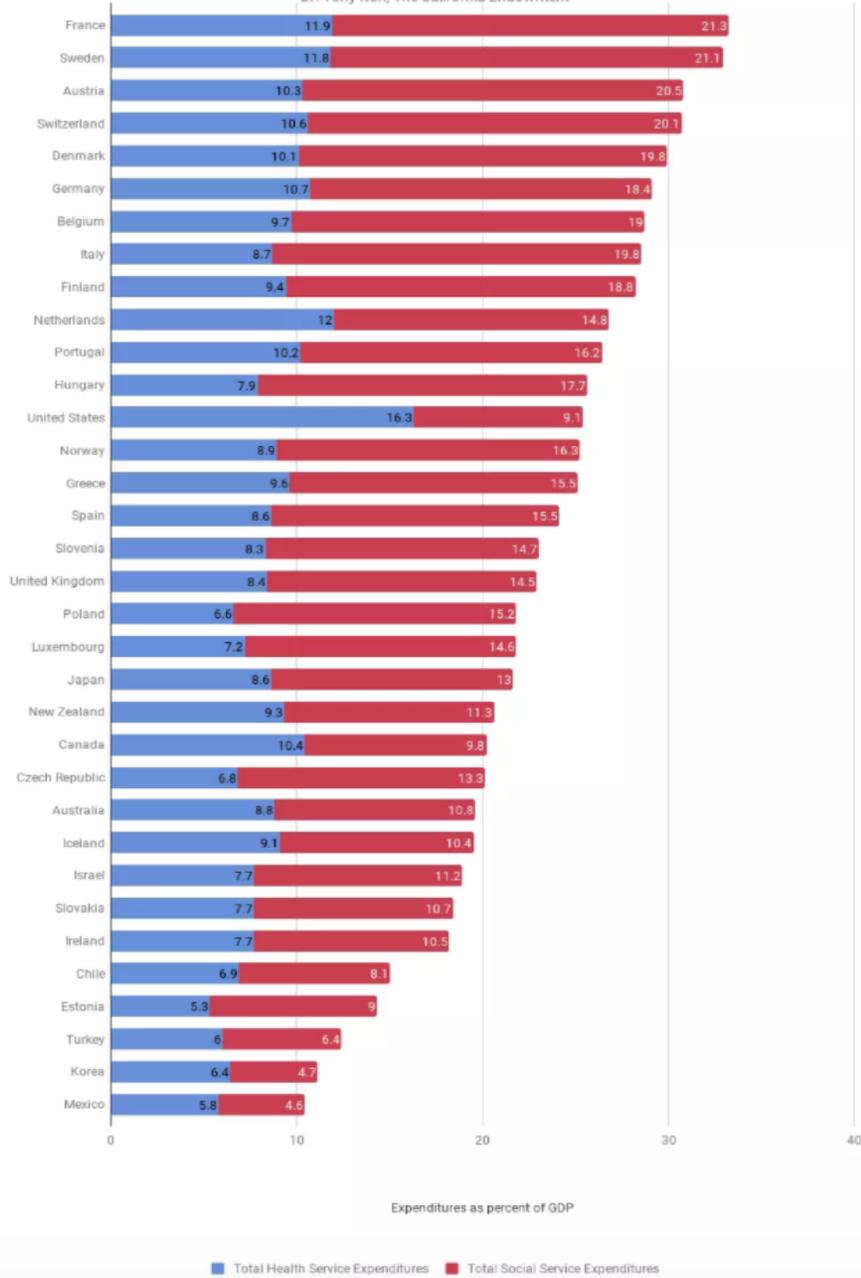


Our World in Data. "The link between health spending and life expectancy: The US is an outlier."

<<https://ourworldindata.org/the-link-between-life-expectancy-and-health-spending-us-focus>> Accessed September 7, 2016

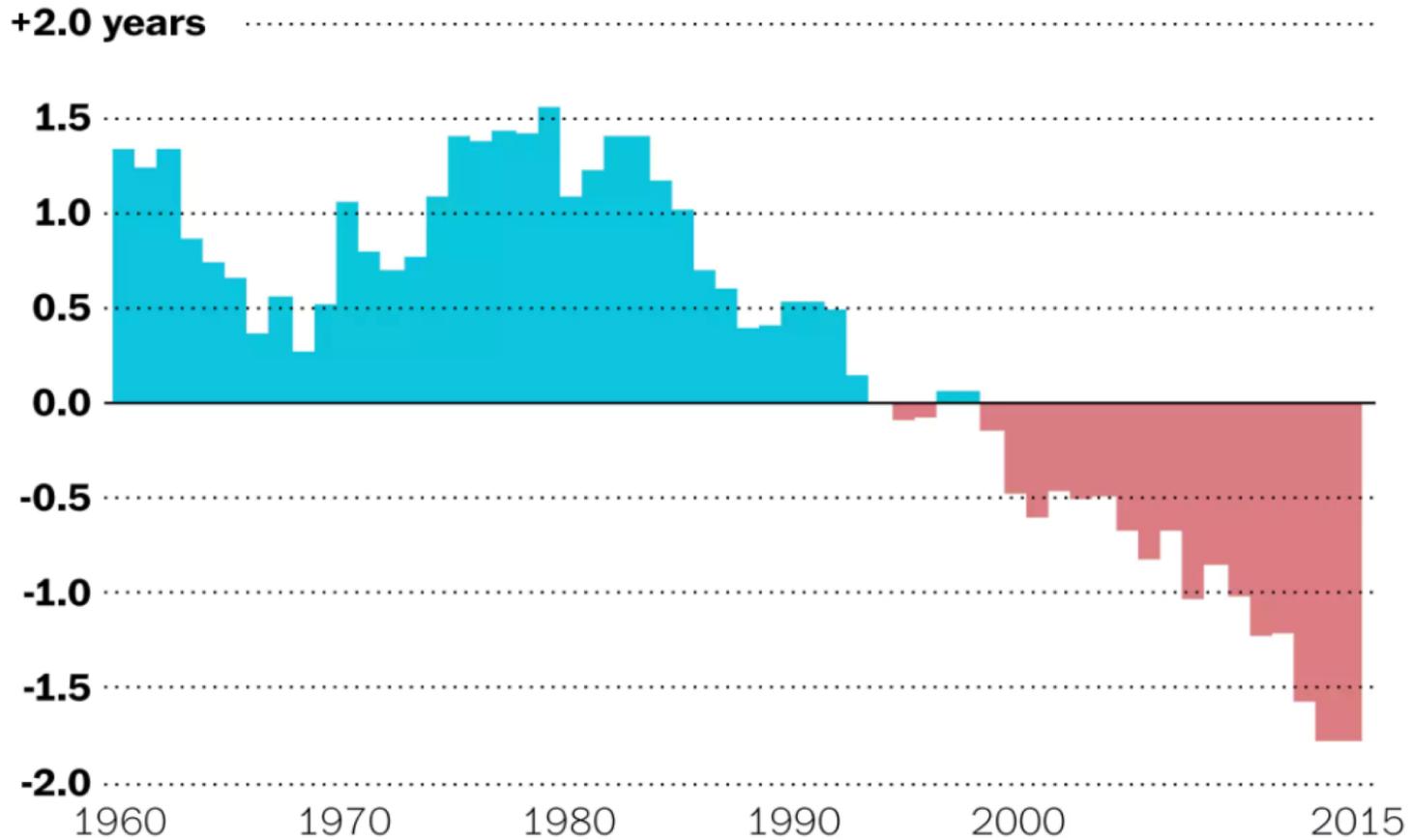
Health Service Expenditures vs Social Service Expenditures in OECD

Dr. Tony Iton, The California Endowment



American exceptionalism

Difference between average American life expectancy, and OECD average life expectancy, 1960 –2015



WAPO.ST/**WONKBLOG**

Source: OECD, U.S. Census Bureau

Ingraham C. Americans are dying younger than people in other rich nations. *Washington Post*. December 27, 2017.

https://www.washingtonpost.com/news/wonk/wp/2017/12/27/americans-are-dying-younger-than-people-in-other-rich-nations/?utm_term=.d8ef8a27023a Accessed December



https://en.wikipedia.org/wiki/Blind_Willie_Johnson

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