Re-imagining prevention, aspiring to global health equity in a post-Covid-19 world

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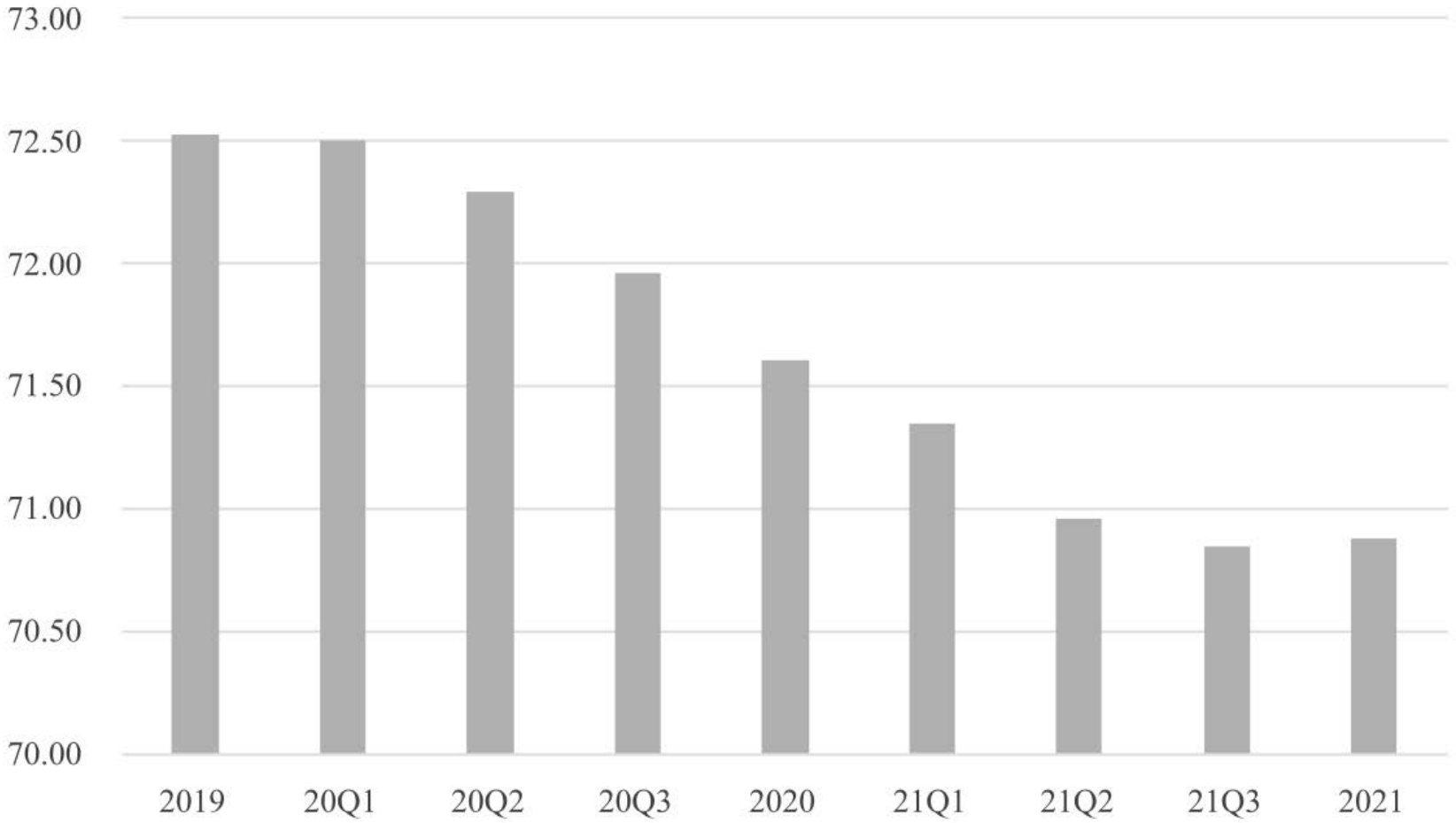
Boston University School of Public Health

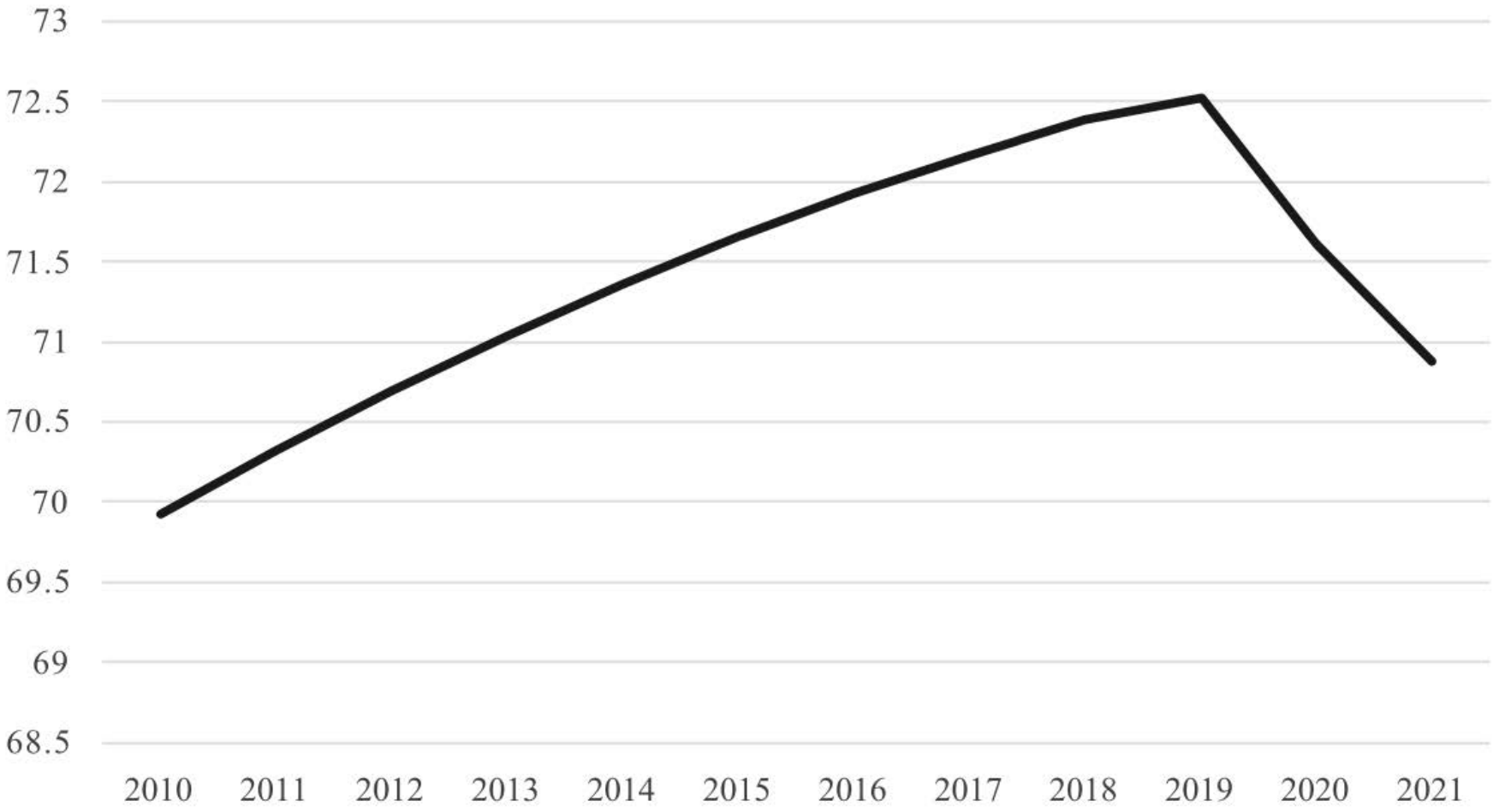
1. Why should the pandemic change anything?

FIGURE 3 Global life expectancy, by 12-month period ending in each quarter of 2020 and 2021 (both sexes, in years)



NOTE: YQn refers to the 12-month period ending at the end of the nth quarter of the year 2000 + Y (e.g., 20Q1 is the period including the last three quarters of 2019 and the first quarter of 2020).
SOURCE: 2019, United Nations (2019); 2010–2021, author's calculations (see the Appendix for details)

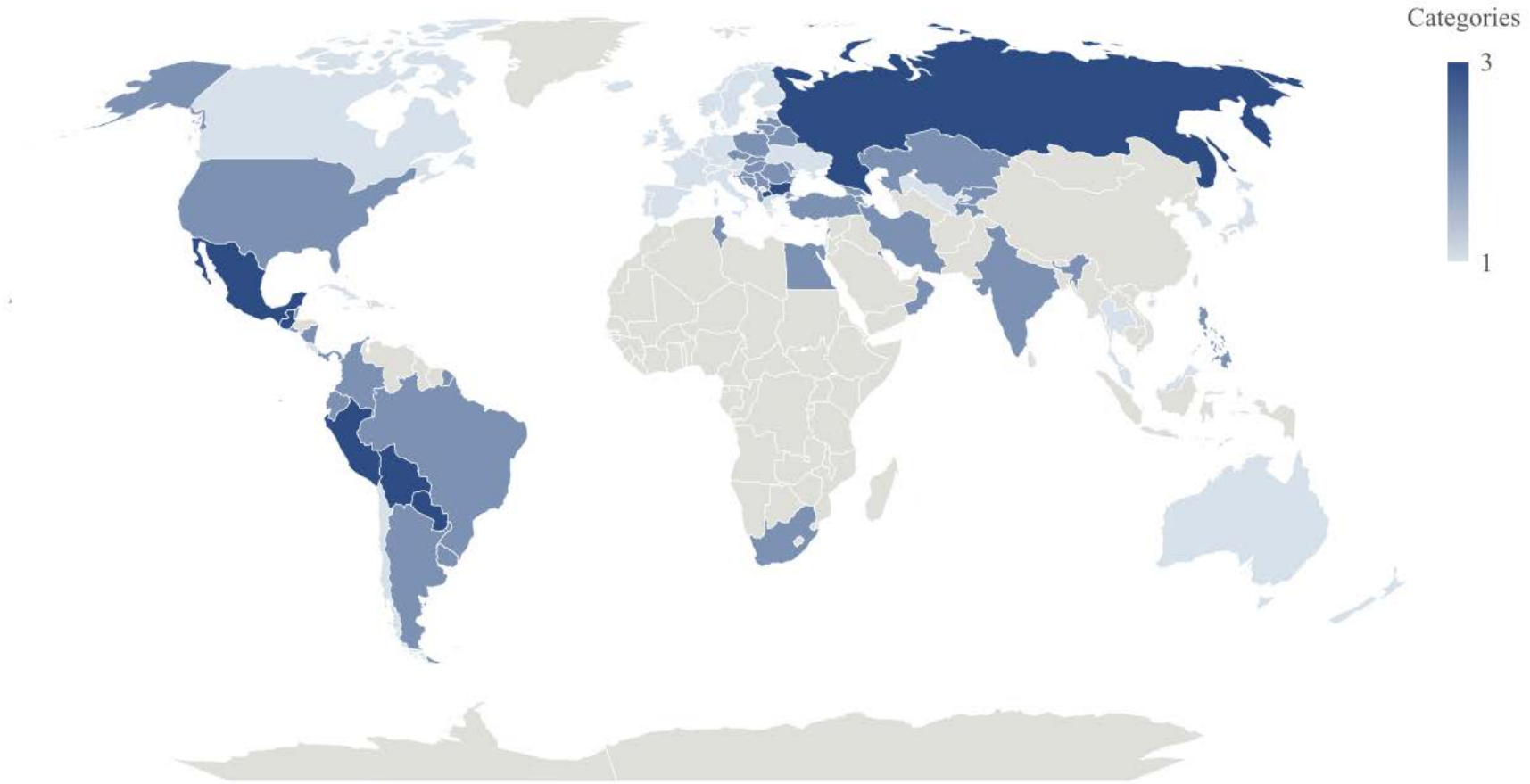
FIGURE 2 Global life expectancy, 2010–2021 (both sexes, in years)



SOURCE: 2010–2019, United Nations (2019); 2010–2021, author's calculations (see the Appendix for details)

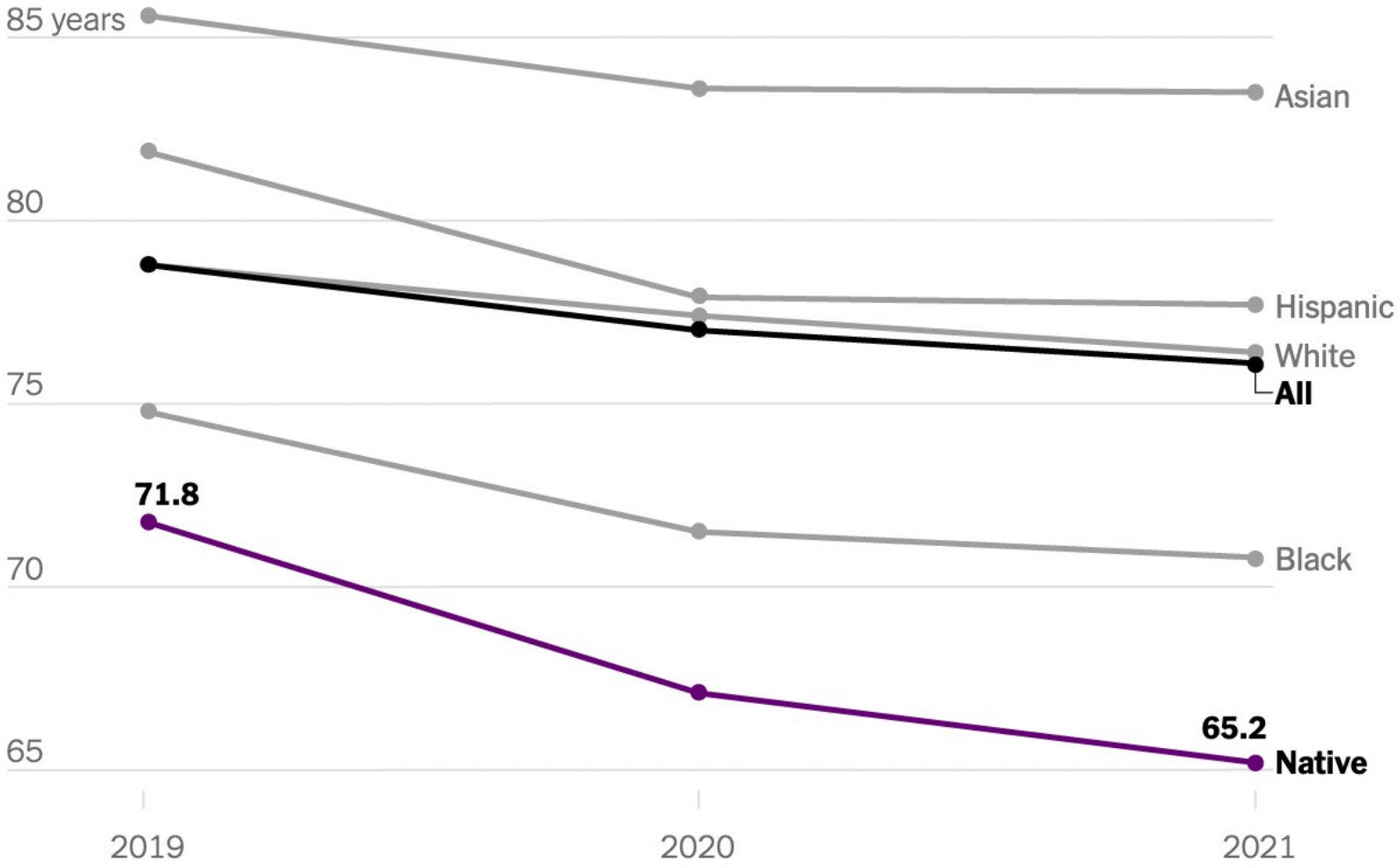
https://onlinelibrary.wiley.com/doi/10.1111/padr.12477

FIGURE 4 Annual change in life expectancy, 2019–2021 (both sexes, in year)



NOTES: Categories:
1: Maximum annual decline < 2 years
2: Maximum annual decline > 2 years, average annual decline <2 years
3: Average annual decline >2 years
SOURCES: Author's calculations (see supplementary files for details).

U.S. life expectancy

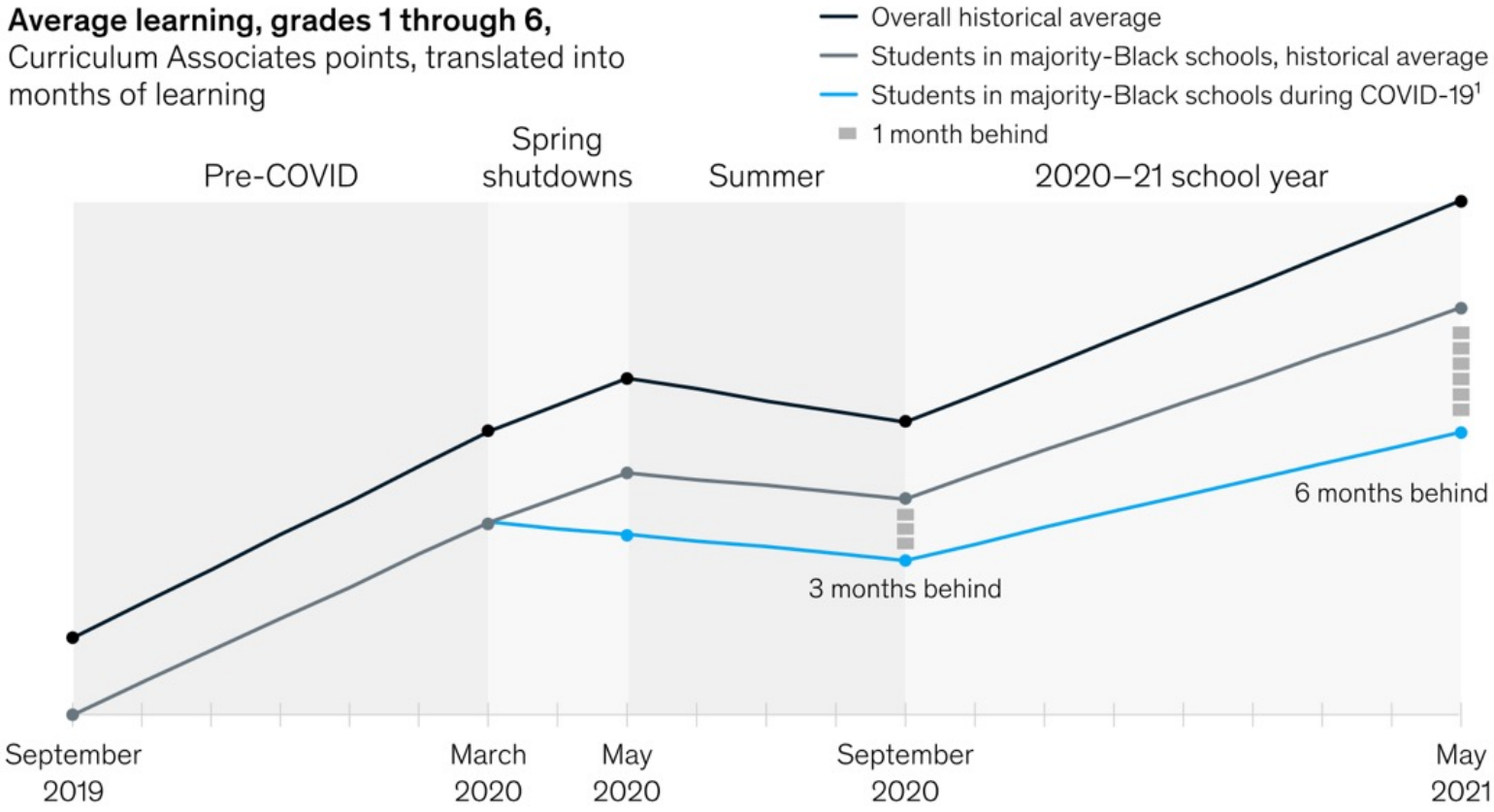


Note: Figures for white, Black, Asian and Native people exclude Hispanic people. • Source: The National Center for Health Statistics

https://www.nytimes.com/2022/09/08/briefing/covid-death-toll-native-americans.html?

Unfinished learning through the pandemic exacerbates historical inequities, especially for Black students.

Average learning, grades 1 through 6,
Curriculum Associates points, translated into months of learning



[1]Average fall 2020 achievement and learning loss represents schools with students who are >50% Black, Indigenous, and people of color because there were not enough majority-Black schools that had in-school assessments; average spring 2020 achievement and learning loss represents schools with >50% Black enrollment.
Source: Curriculum Associates i-Ready assessment data

McKinsey & Company

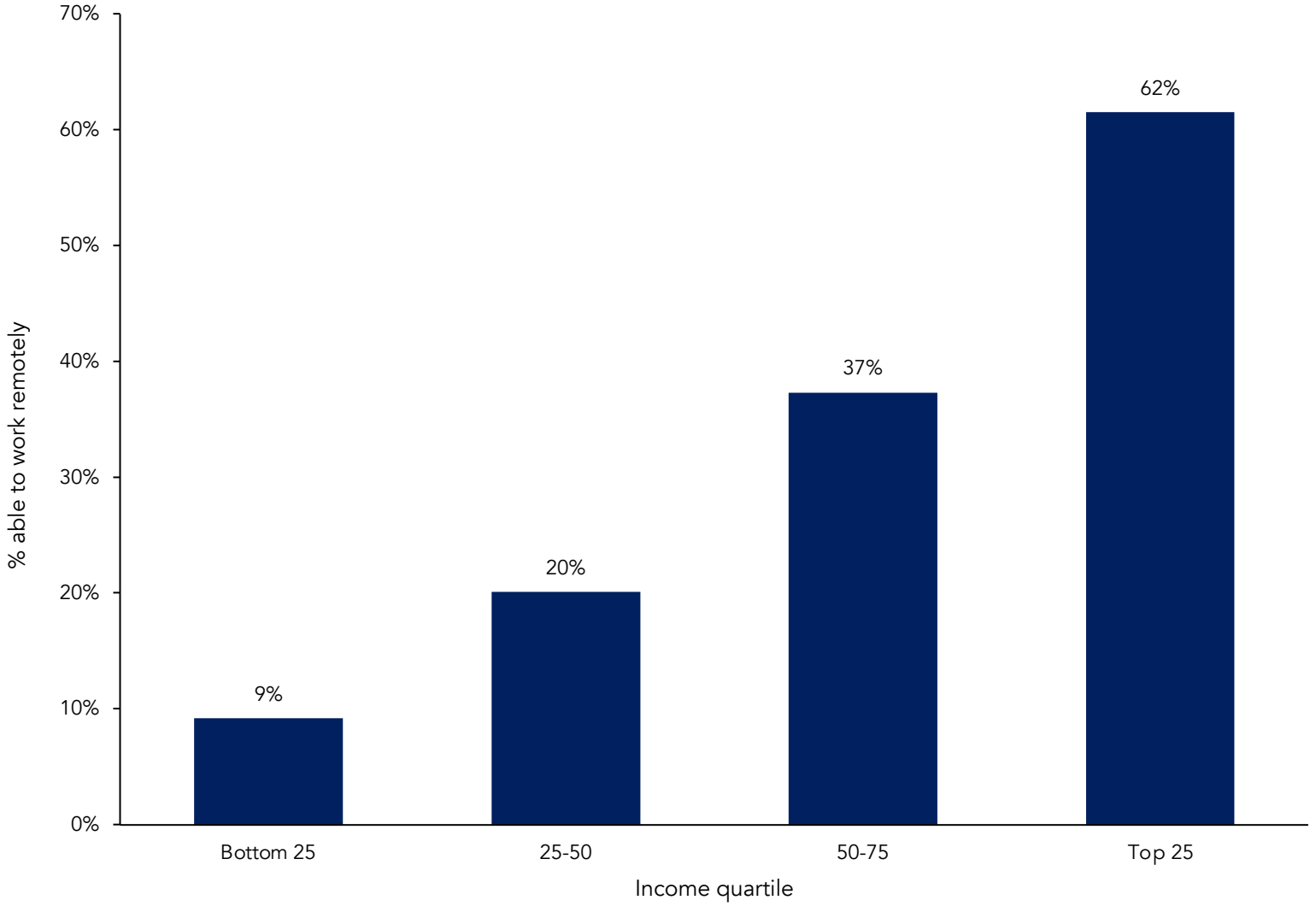
https://www.mckinsey.com/industries/education/our-insights/covid-19-and-education-the-lingering-effects-of-unfinished-learning.

2. What caused the problems of the pandemic?

1. Our social structures before the pandemic
2. Our health before the pandemic
3. Our investments in what could help during the pandemic

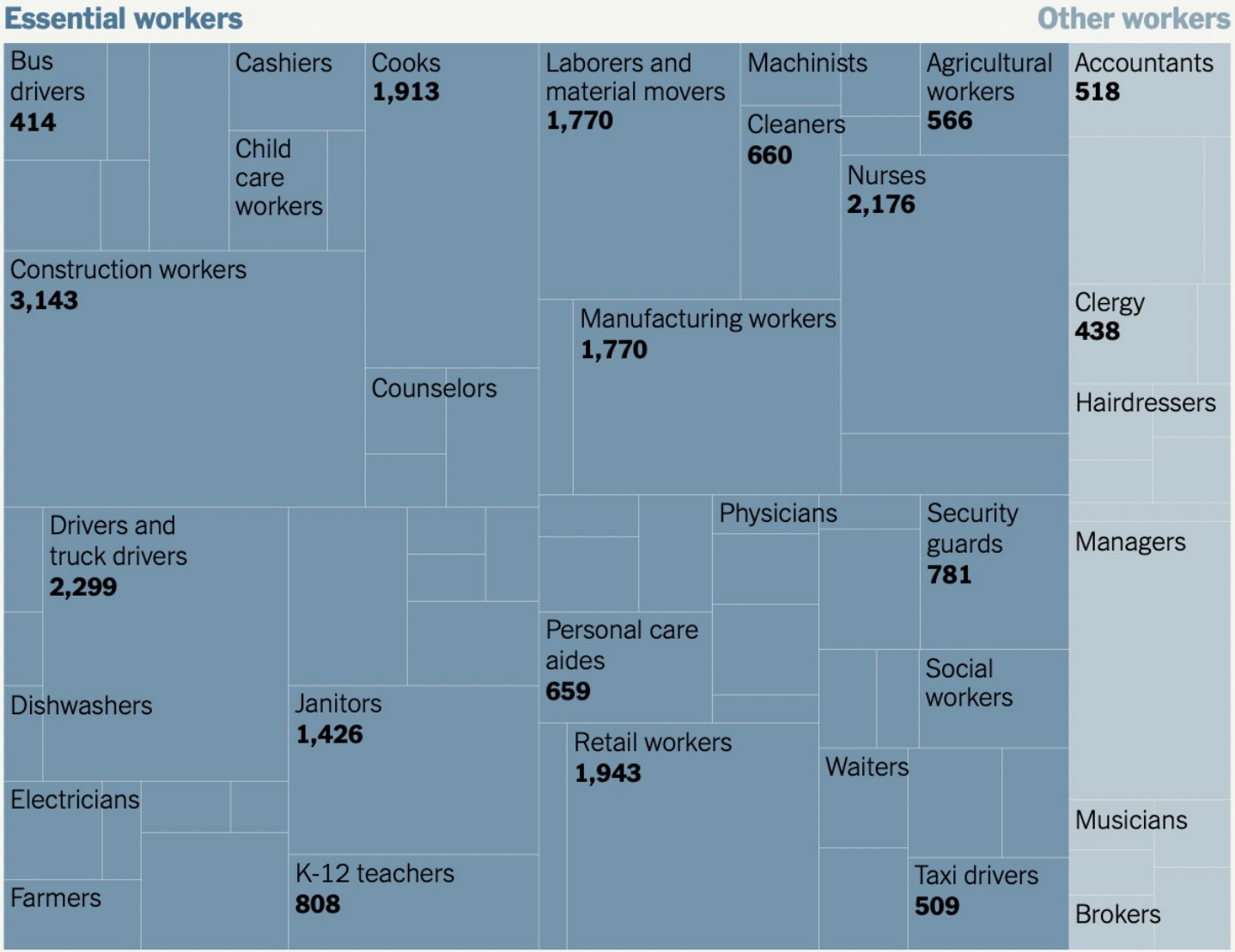
1. Our social structures before the pandemic
2. Our health before the pandemic
3. Our investments in what could help during the pandemic

Ability to work remotely



Data: Bureau of Labor Statistics

Covid-19 deaths by occupation in 2020



Note: Chart shows 37,905 deaths among workers age 64 and under in 46 states. Some similar occupational categories have been collapsed into larger representative categories. In some cases, similar occupations from different industries are grouped together. Not all occupations are labeled. | Source: Yea-Hung Chen et al., preprint via medRxiv

Black workers are more likely than other workers to be in front-line jobs

Black workers as a share of all workers in a given industry

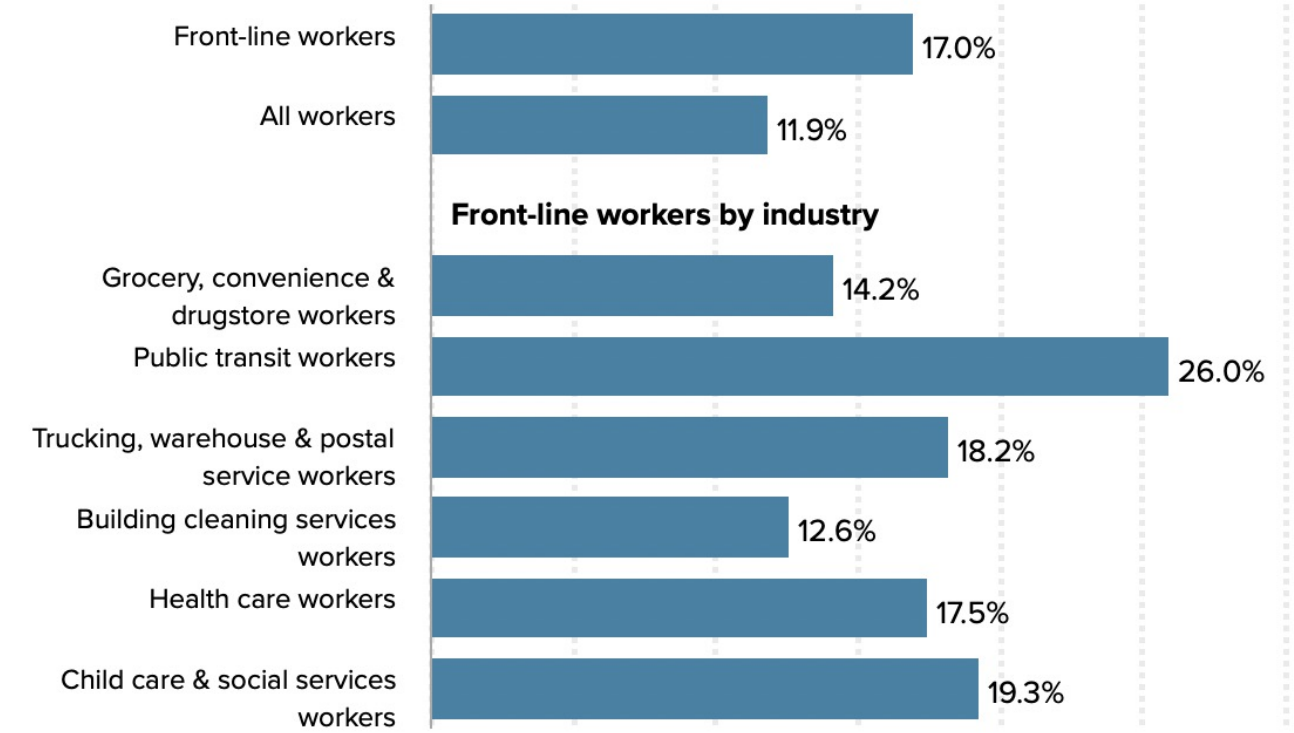


Chart | Data

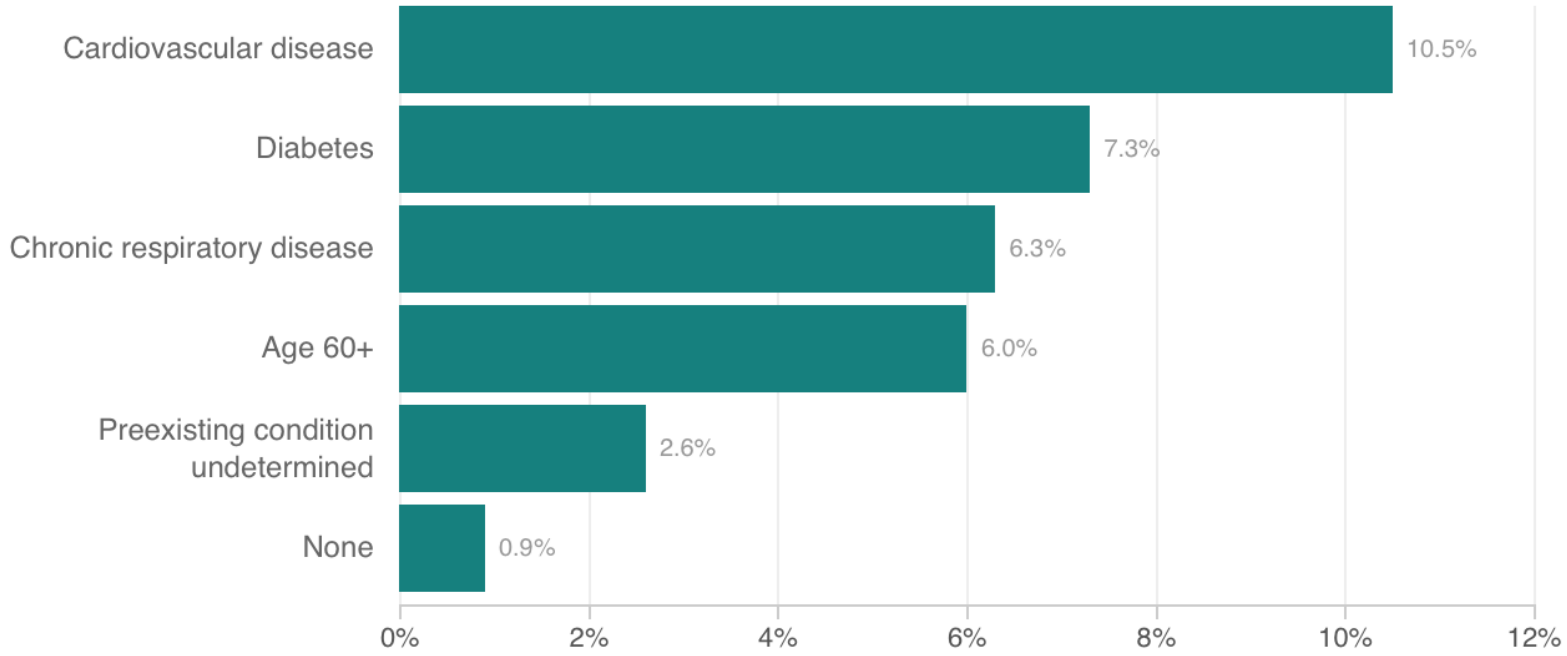
Notes: The front-line industry categories used here are the categories used in the CEPR report (see Source below for more information). Sample is a 2014–2018 five-year estimate.

Source: EPI analysis of data from the Center for Economic Policy Research (CEPR) report *A Basic Demographic Profile of Workers in Frontline Industries* (April 2020).

Economic Policy Institute

1. Our social structures before the pandemic
2. Our health before the pandemic
3. Our investments in what could help during the pandemic

Death Rate For COVID-19 Patients In China Higher For Those With Underlying Conditions

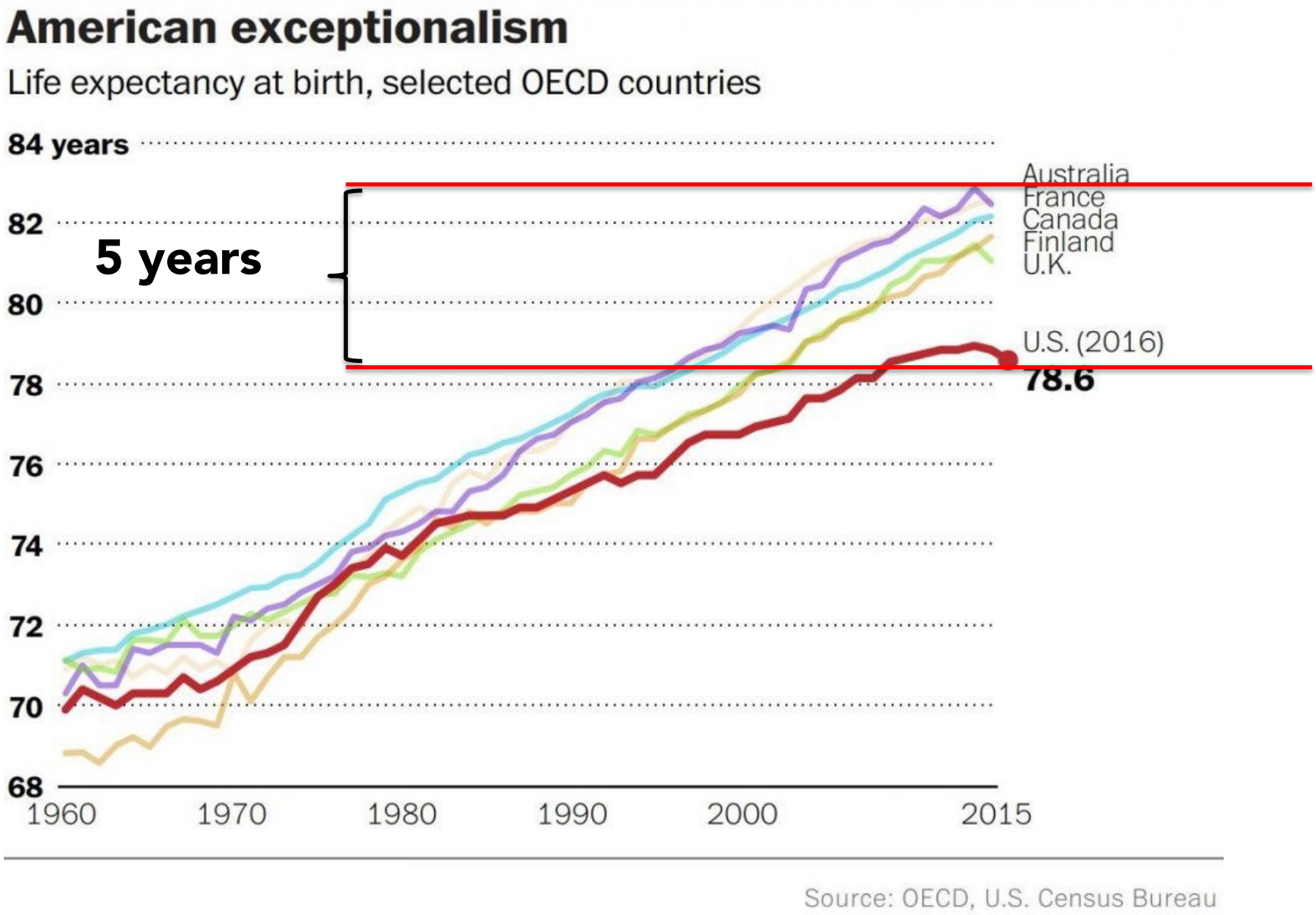


Notes: Preexisting condition death rates based on 504 deaths out of 20,812 cases.

Source: Chinese CDC

Credit: Ruth Talbot/NPR and Chris Zubak-Skees/Center for Public Integrity

https://www.npr.org/sections/health-shots/2020/04/01/824874977/underlying-health-disparities-could-mean-coronavirus-hits-some-communities-harde



https://tincture.io/lets-increase-life-expectancy-in-america-in-2018-a-new-year-for-opioids-social-determinants-c82c55d85283

Figure 1. Changes in Female Life Expectancy in the US and 21 Other High-Income Countries Between 2019 and 2020

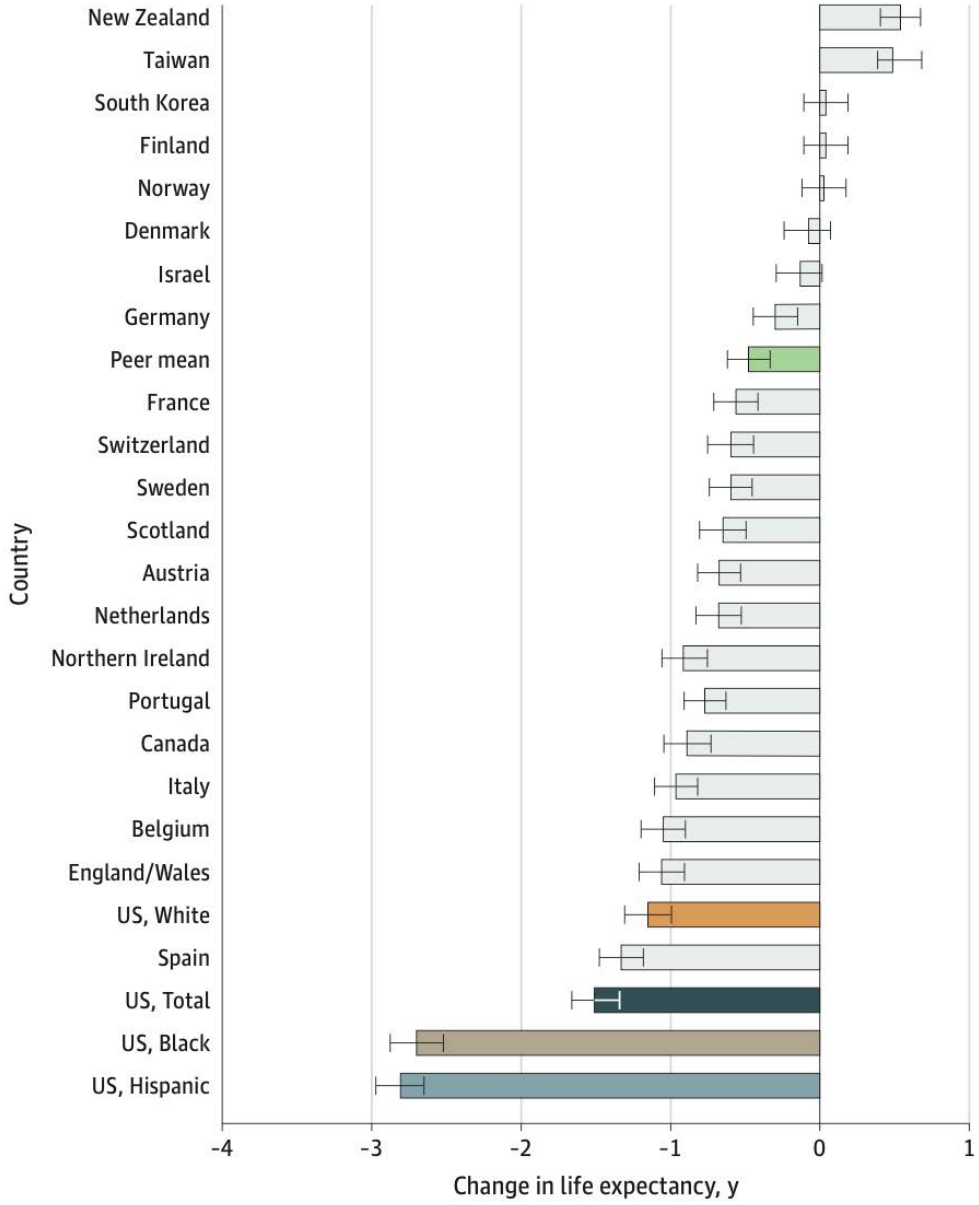
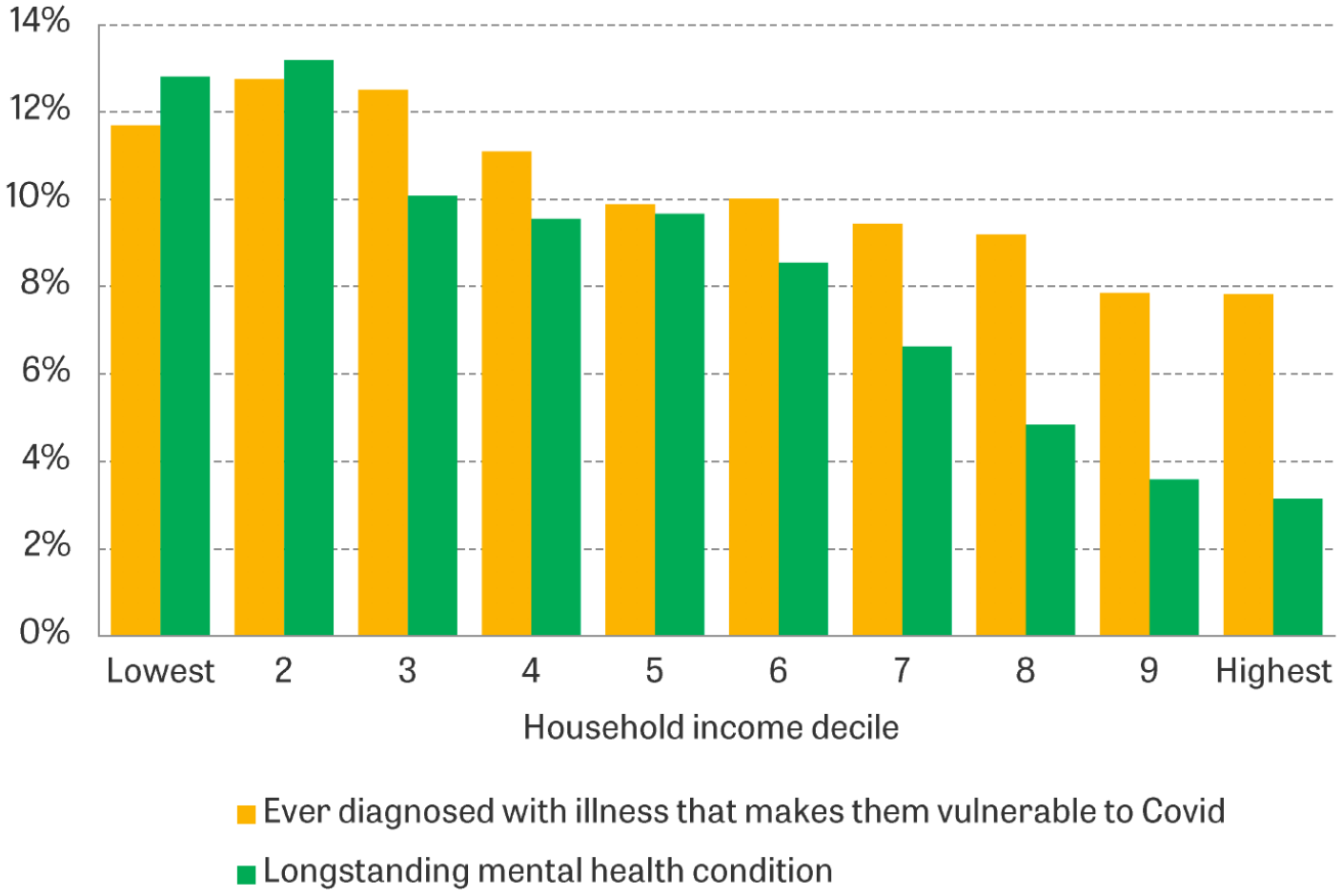


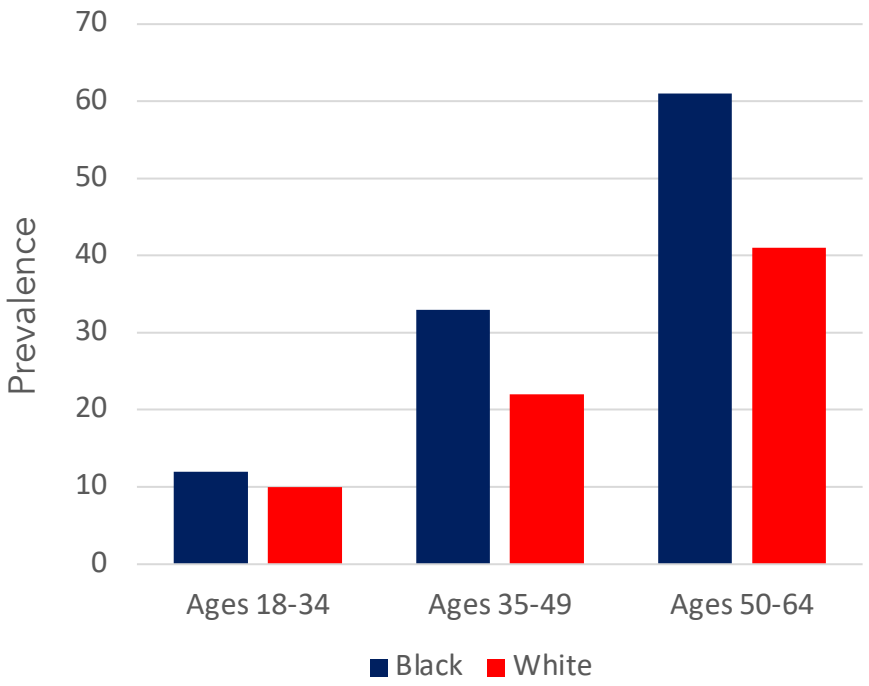
Figure 16. Medical vulnerability to COVID-19 or the effects of social isolation, by income



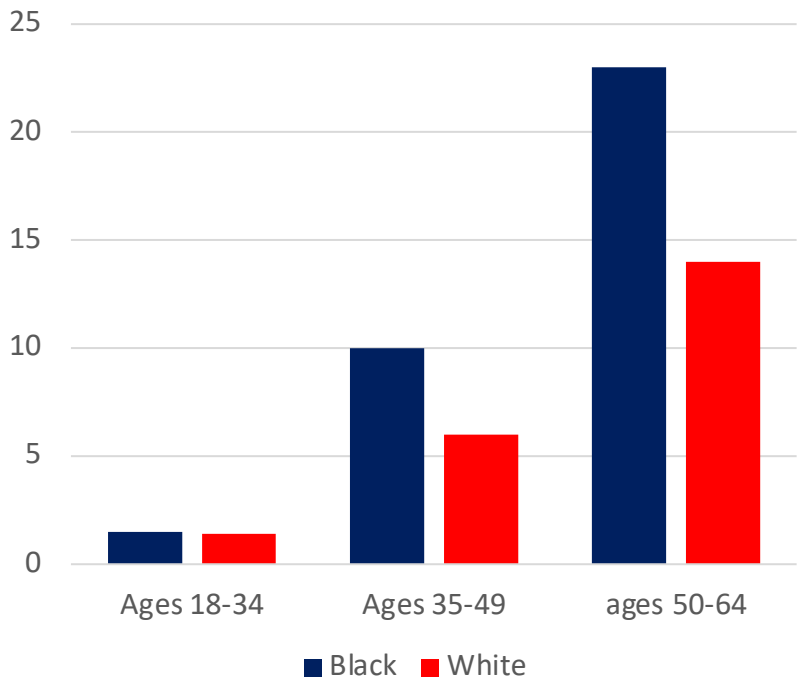
Note: Diagnoses include asthma, congestive heart failure, coronary heart disease, emphysema, chronic bronchitis, cancer or malignancy, diabetes and high blood pressure. Mental health based on self-reported mental health condition lasting or expected to last over 12 months. Deciles based on equivalised net household incomes, using modified OECD equivalence scale.

Source: Authors' calculations using UK Household Longitudinal Survey wave 9 (ever diagnosed) and Family Resources Survey 2018–19 (mental health).

High blood pressure

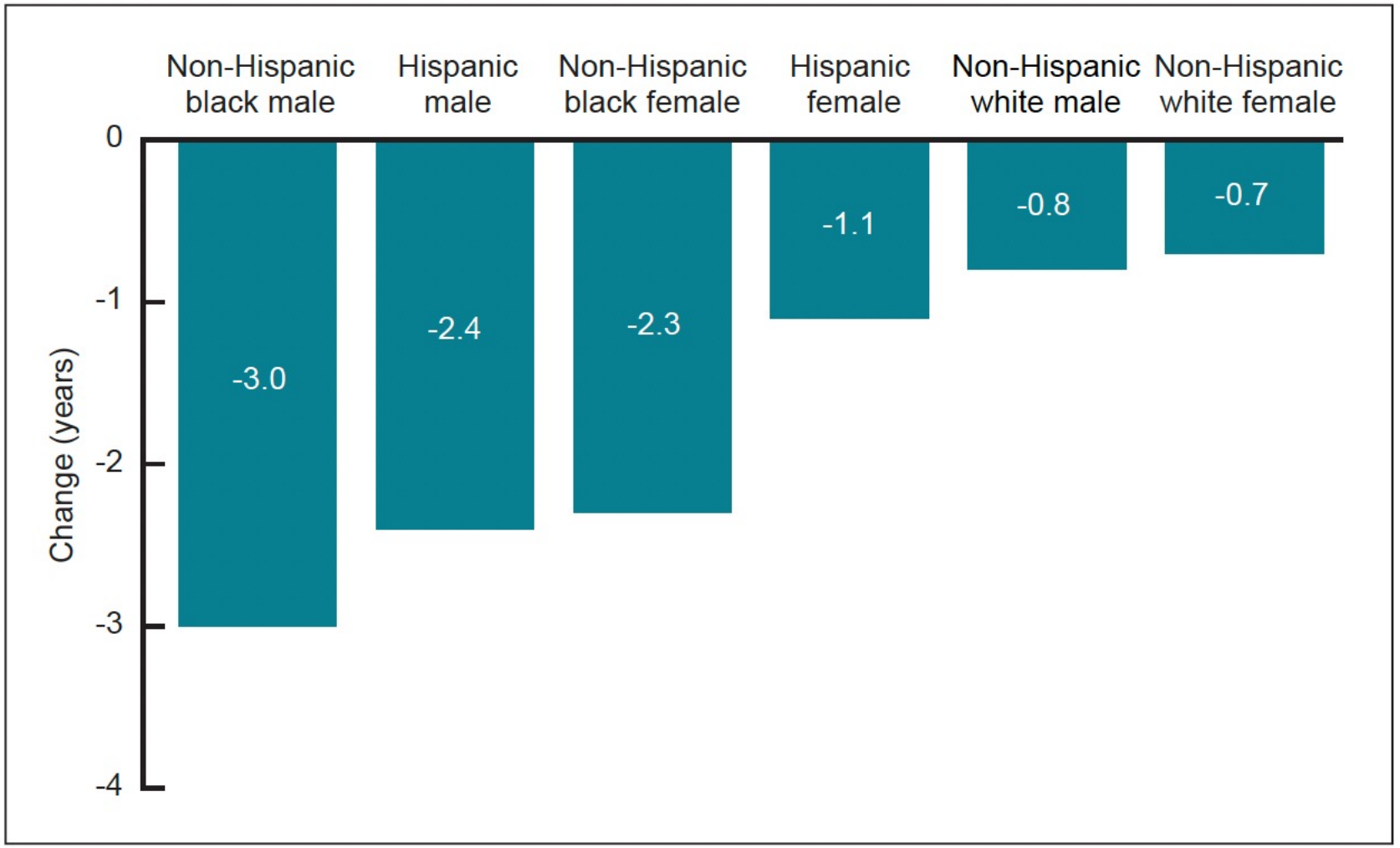


Diabetes



Vital Signs: African American Health. Centers for Disease Control and Prevention Web site. https://www.cdc.gov/vitalsigns/aahealth/index.html Accessed October 3, 2019.

Figure 4. Change in life expectancy at birth, by Hispanic origin and race and sex: United States, 2019 and 2020

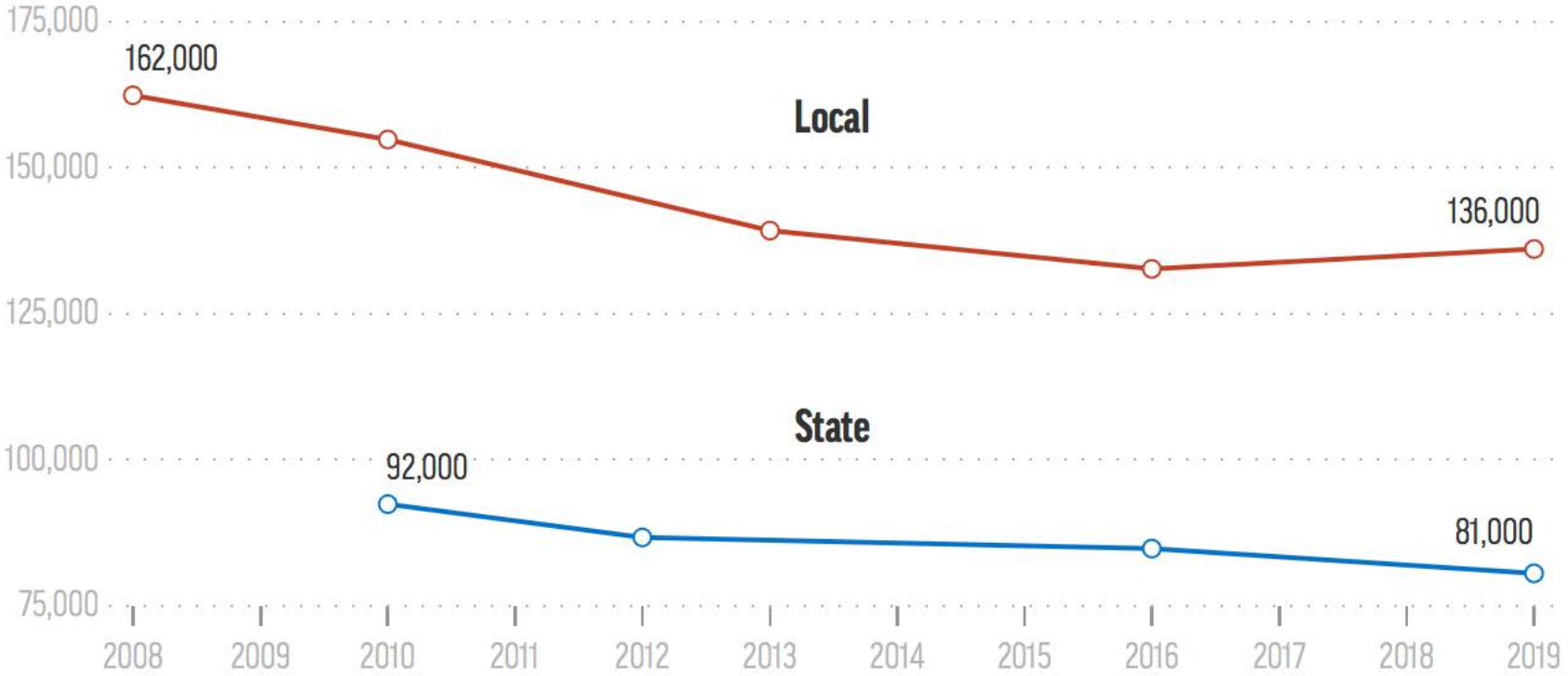


NOTES: Life expectancies for 2019 by Hispanic origin and race are not final estimates; see Technical Notes. Estimates are based on provisional data from January 2020 through June 2020.
SOURCE: National Center for Health Statistics, National Vital Statistics System, Mortality data.

https://www.cdc.gov/nchs/data/vsrr/VSRR10-508.pdf

1. Our social structures before the pandemic
2. Our health before the pandemic
3. Our investments in what could help during the pandemic

State and local public health workforces have shrunk



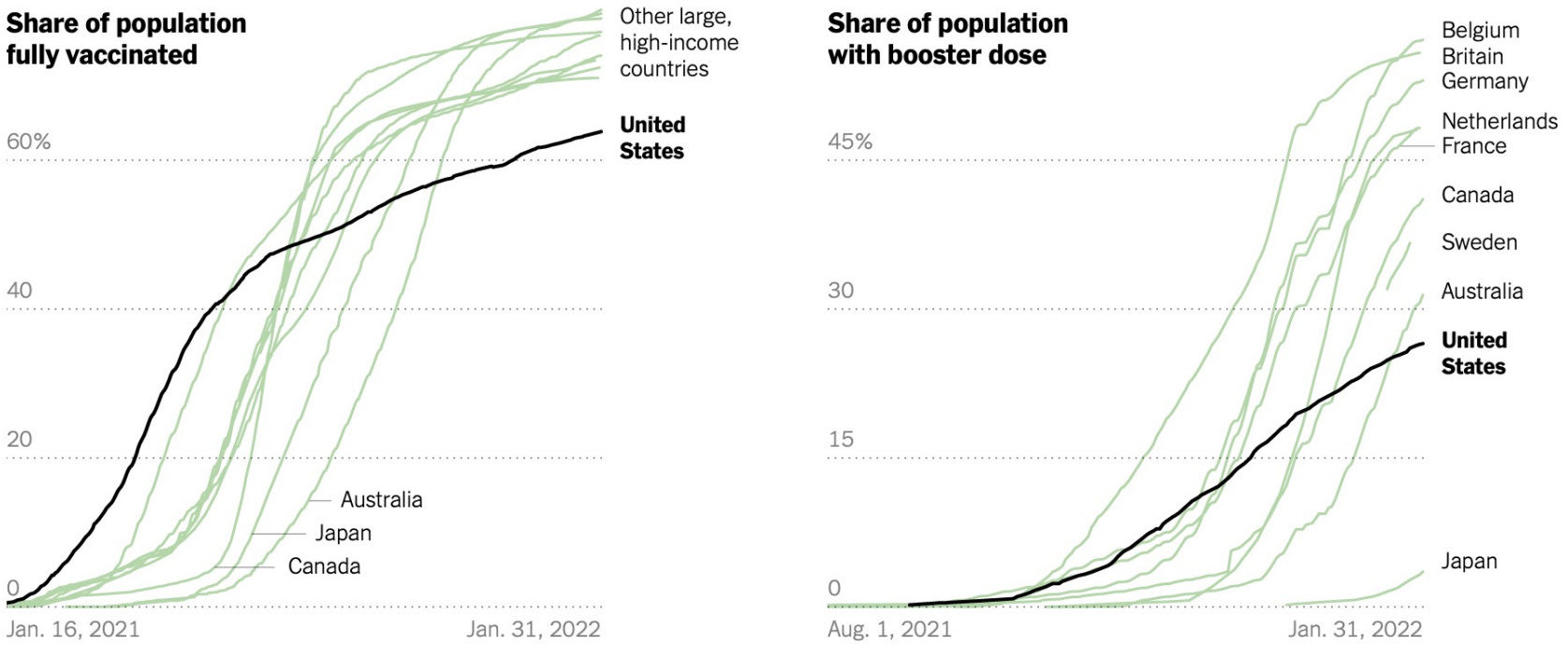
State figures are for full-time equivalent employees in state public health agencies excluding Kansas, New Jersey, Texas and Wyoming, which do not have comparable data. Local figures are for full-time equivalent employees of local health departments.
Source: Association of State and Territorial Health Officials, National Association of County and City Health Officials /
Graphic: Hannah Recht/KHN, Francois Duckett/AP

KHN AP

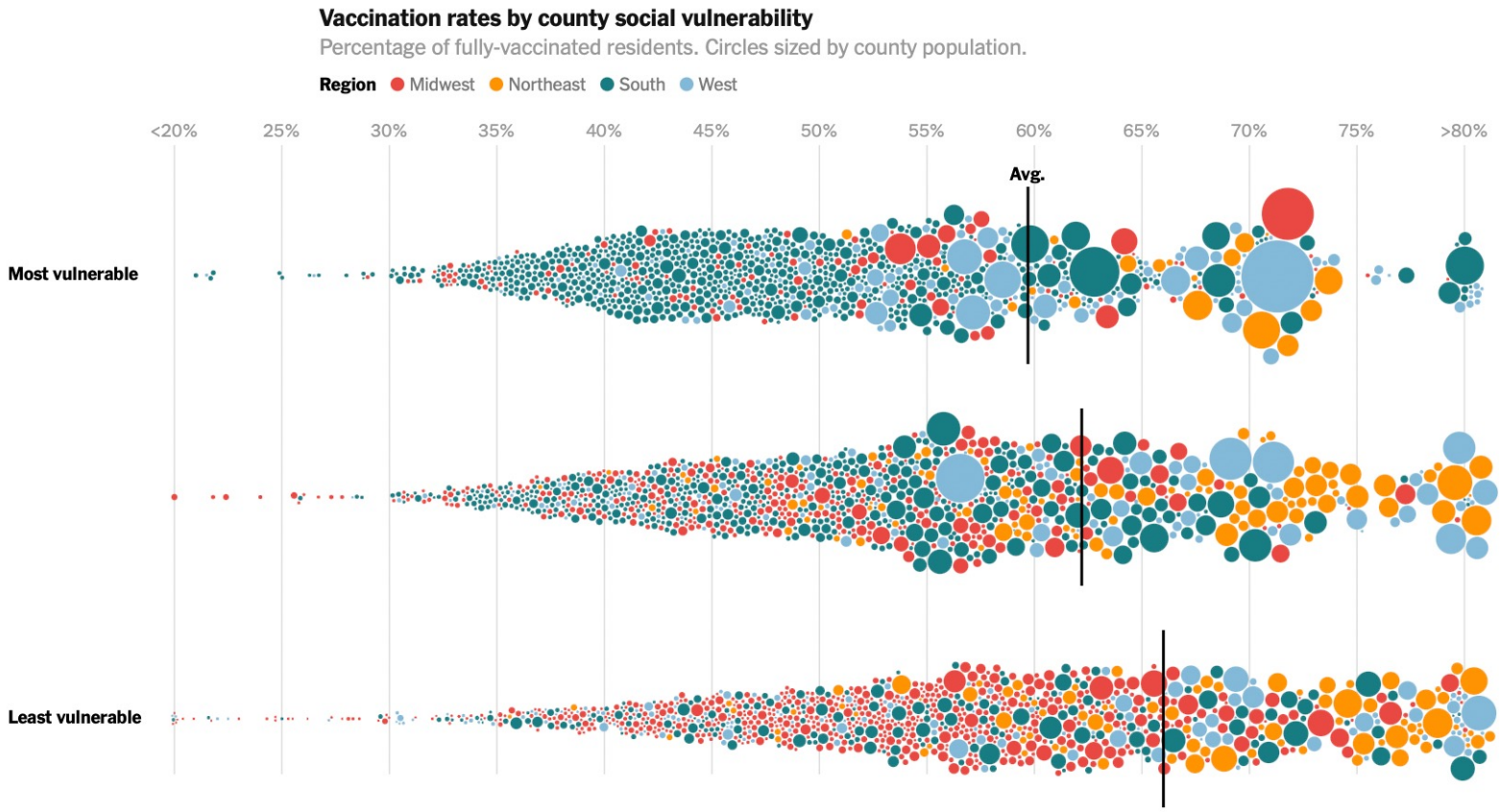
https://khn.org/news/us-public-health-system-underfunded-under-threat-faces-more-cuts-amid-covid-pandemic/

U.S. vaccinations lag behind other large, high-income countries

Despite beginning Covid-19 vaccinations months earlier than countries like Japan and Australia, a smaller share of people in the United States are now fully vaccinated.



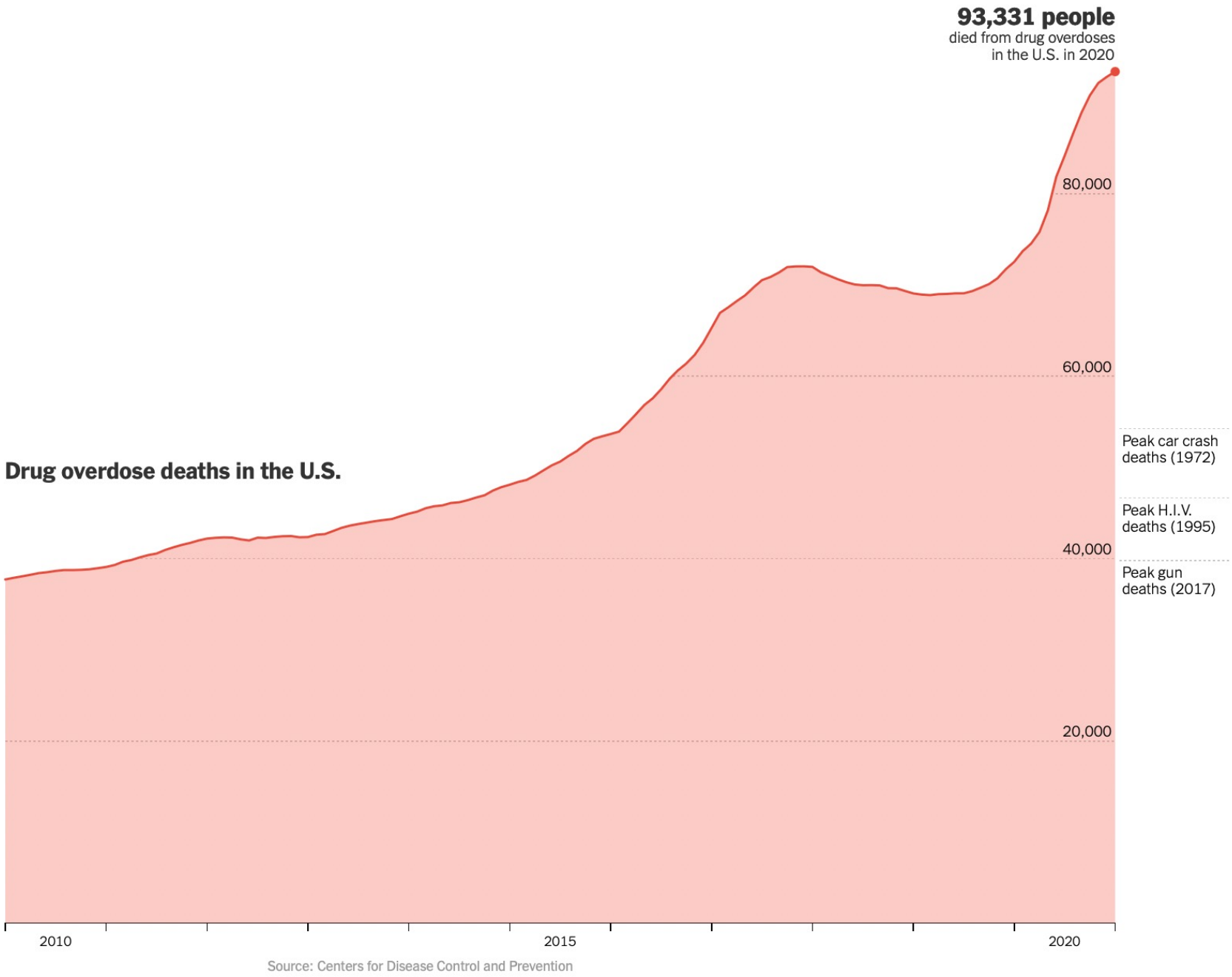
Sources: Our World in Data (world vaccinations); Centers for Disease Control and Prevention (U.S. vaccinations) • Note: Vaccination and booster data in some countries are available infrequently. Sweden data for booster doses is available only from Jan. 20, 2022.

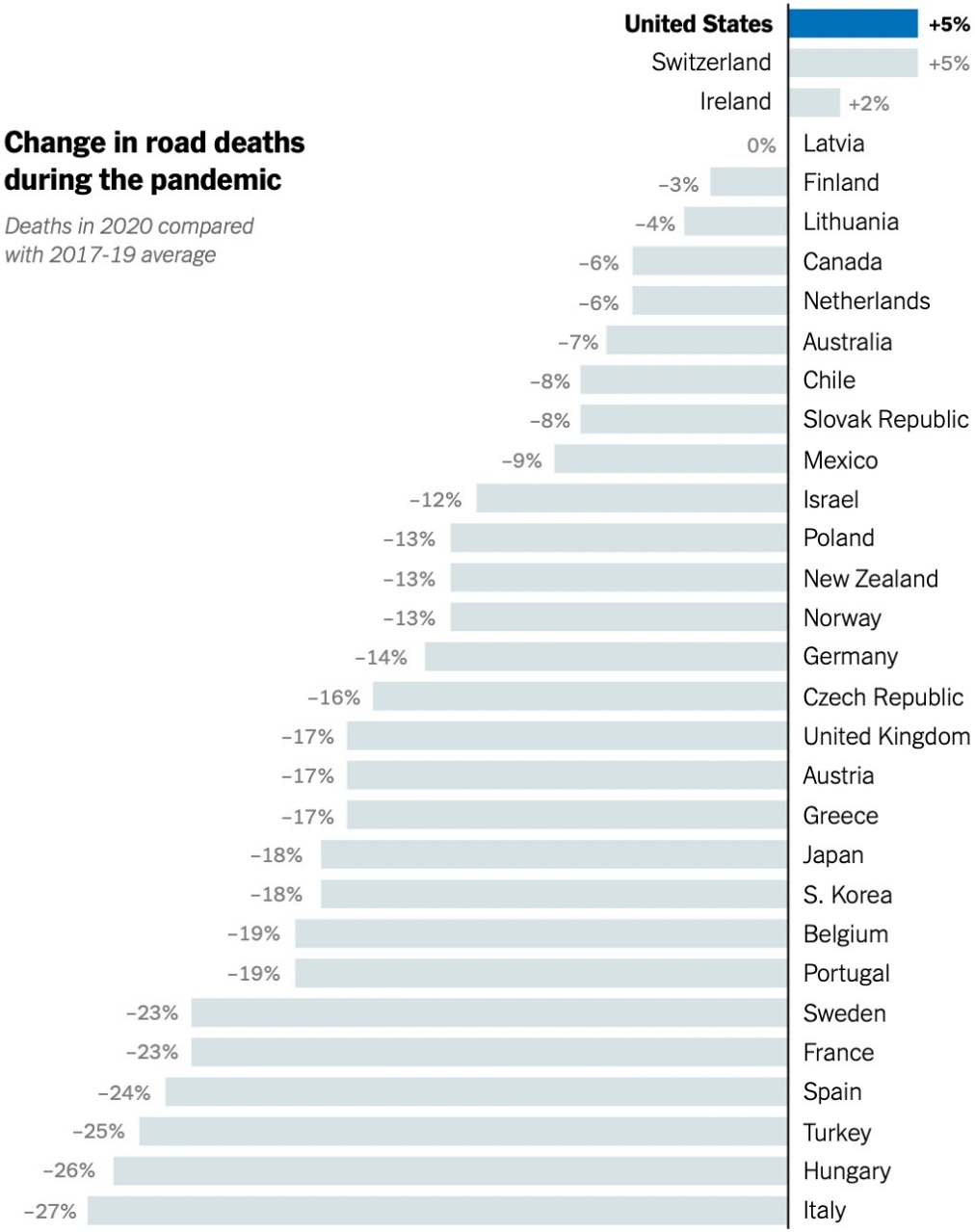


Sources: Centers for Disease Control and Prevention; Massachusetts Department of Public Health; U.S. Census Bureau | Note: No C.D.C. data available for some counties. Vermont was excluded because more than a quarter of data is missing.

https://www.nytimes.com/interactive/2020/us/covid-19-vaccine-doses.html

https://www.nbcnews.com/politics/donald-trump/timeline-trump-administration-s-response-coronavirus-n1162206
https://chicagocrusader.com/chicago/rising-omicron-cases-cdc-guidance-threatens-businesses


93,331 people
died from drug overdoses
in the U.S. in 2020
Drug overdose deaths in the U.S.
80,000
60,000
40,000
20,000
Peak car crash deaths (1972)
Peak H.I.V. deaths (1995)
Peak gun deaths (2017)
2010
2015
2020
Source: Centers for Disease Control and Prevention



Source: Organization for Economic Cooperation and Development • The New York Times

3. What the pandemic taught us


It’s not about the pandemic

“..the problems of any of us are the problems of all of us…”

Reid M, Abdool-Karim Q, Geng E, Goosby E (2021) How will COVID-19 transform global health post-pandemic? Defining research and investment opportunities and priorities. PLoS Med 18(3): e1003564. https://doi.org/10.1371/journal. pmed.1003564

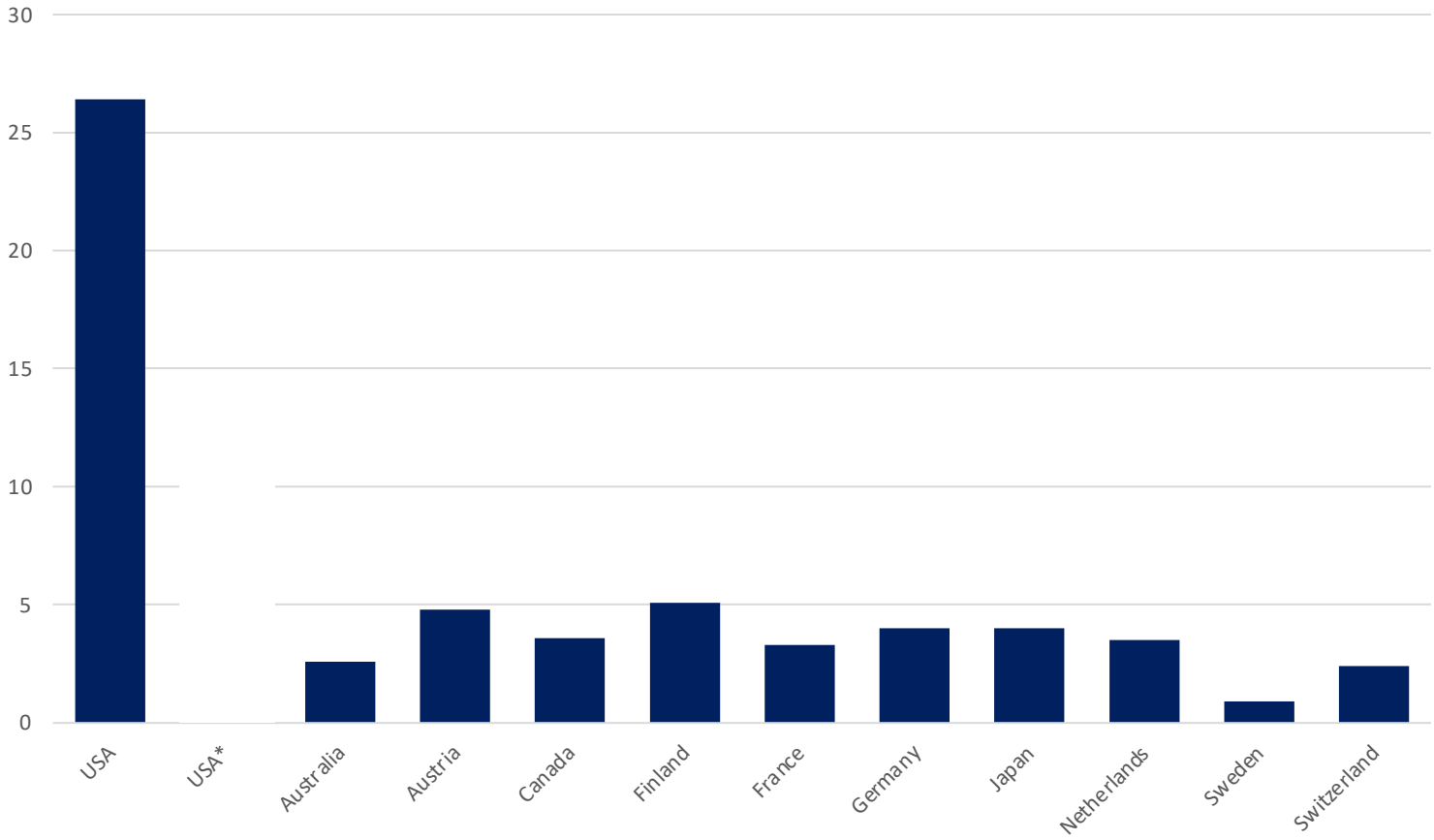
Table 1.2 Indirect costs to U.S. employers due to diabetes

Problem	Productivity losses	Costs ($ billion)
Reduced productivity days among persons not in labor force	14 million days	2.3
Work days absent	14 million days	3.3
Mortality	277,000 deaths	19.9
Reduced performance at work	114 million days	26.9
Reduced labor force participation due to disability	182 million days	37.5
Total	—	**89.9**

U.S. Department of Health and Human Services, Office of Surgeon General. (2021). Community Health and Economic Prosperity Engaging Businesses as Stewards and Stakeholders—A Report of the Surgeon General. Retrieved from https://www.hhs.gov/sites/default/files/chep-sgr-full-report.pdf

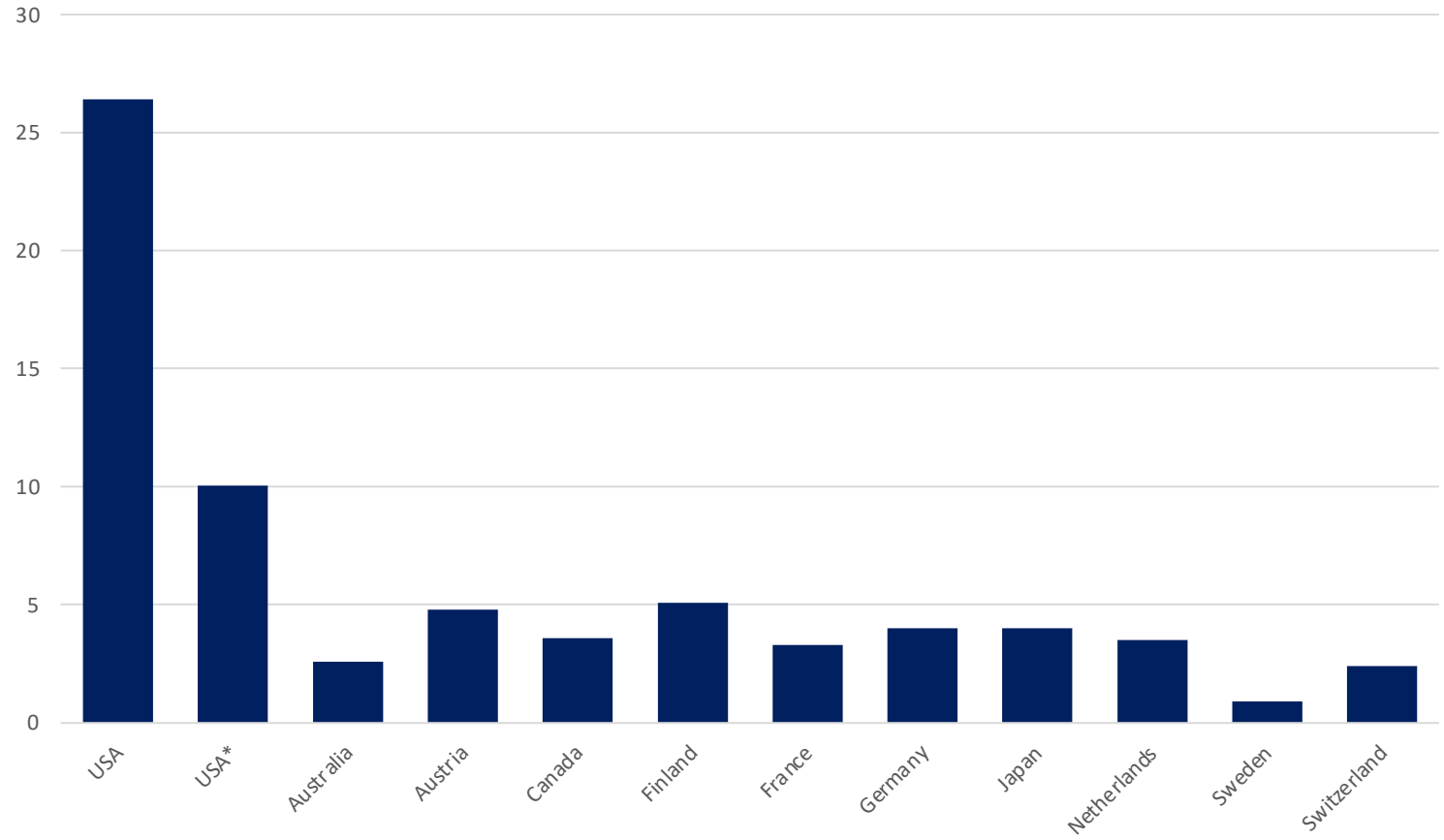
American Diabetes Association. (2018). Economic costs of diabetes in the U.S. in 2017. *Diabetes Care*, *41*(5), 917–928.

Maternal mortality, per 100,000 births



JAMA Intern Med. doi:10.1001/jamainternmed.2020.7484

Maternal mortality, per 100,000 births, including white Americans in 1% richest counties



JAMA Intern Med. doi:10.1001/jamainternmed.2020.7484

4. Re-imaging prevention in a post-Covid-19 world

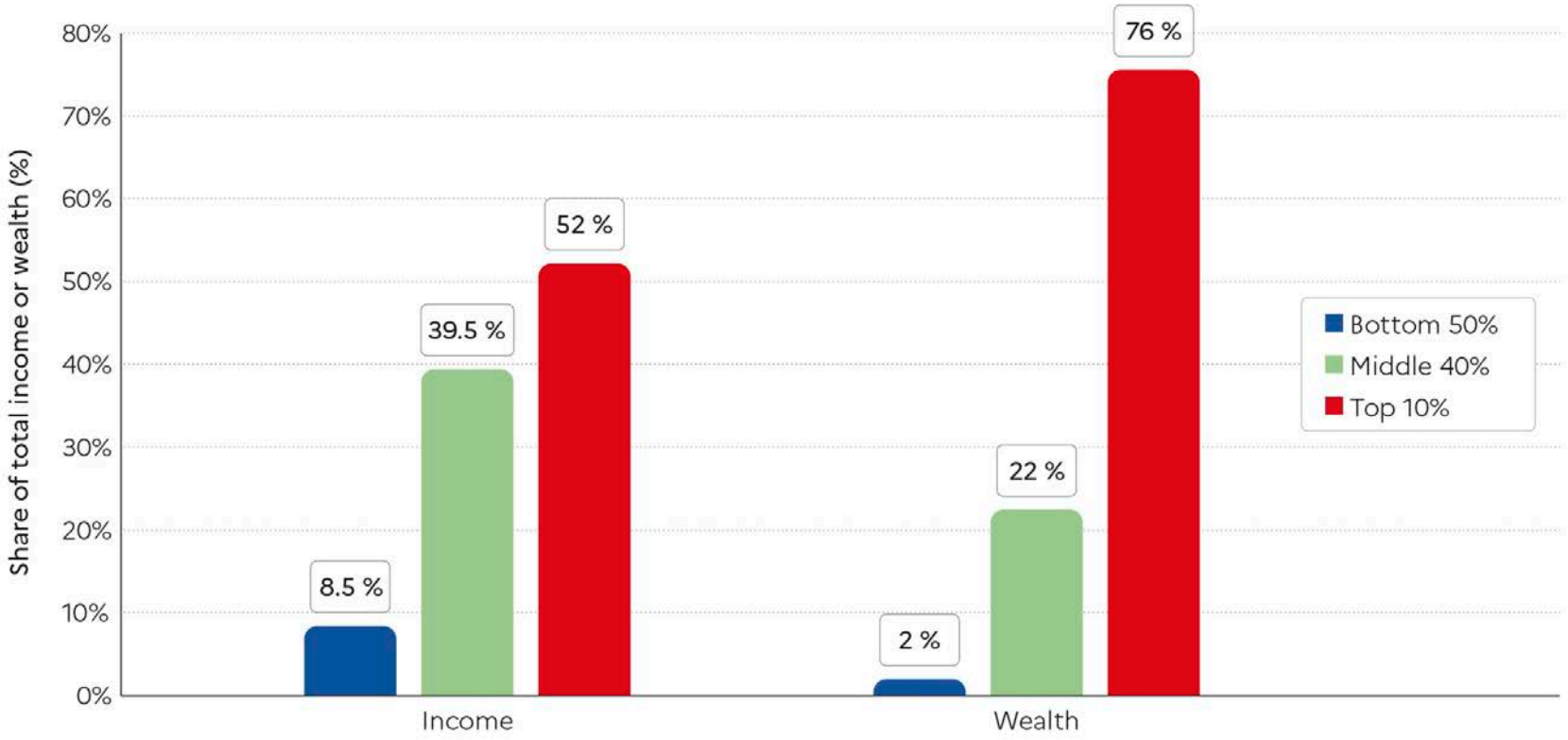
1. Centering equity
2. Better science to guide decision making
3. Self-awareness towards more consequential scholarship

1. Centering equity
2. Better science to guide decision making
3. Self-awareness towards more consequential scholarship

“Health equity is…the allocation of resources according to need, in a way that preventable differences in health outcomes are minimized, and access is fair.”

Maani N, Abdalla SM, Ettman C, Parsey L, Rhule E, Allotey P, Galea S. Global health equity requires global equity. Under review.
Culyer AJ, Wagstaff A. Equity and equality in health and health care. *Journal of Health Economics* 1993;12(4):431-57. doi: https://doi.org/10.1016/0167-6296(93)90004-X

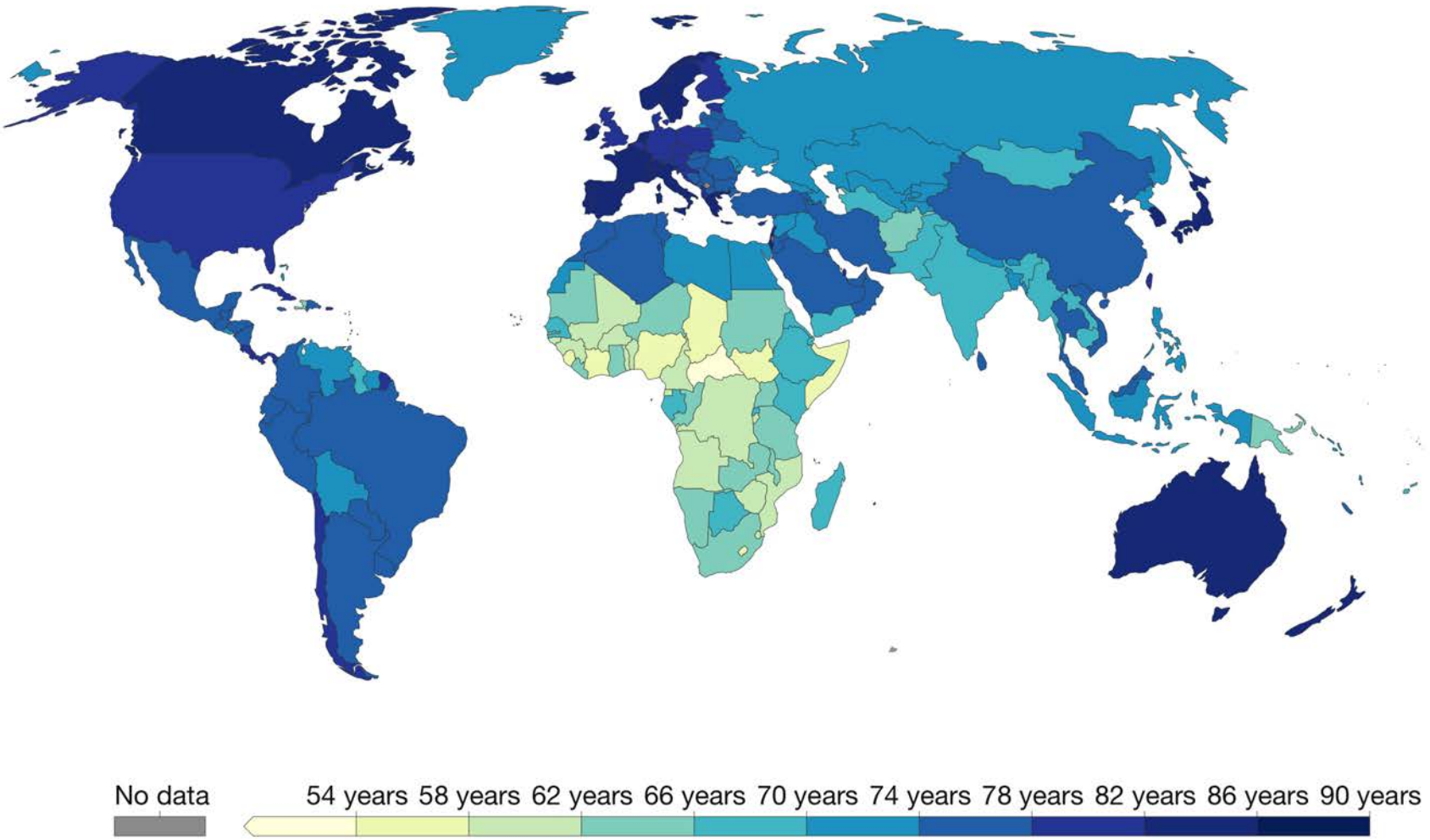
Figure 1 ***Global income and wealth inequality, 2021***



Interpretation: *The global 50% captures 8% of total income measured at Purchasing Power Parity (PPP). The global bottom 50% owns 2% of wealth (at Purchasing Power Parity). The global top 10% owns 76% of total Household wealth and captures 52% of total income in 2021. Note that top wealth holders are not necessarily top income holders. Incomes are measured after the operation of pension and unemployment systems and before taxes and transfers.* ***Sources and series:*** *wir2022.wid.world/methodology.*

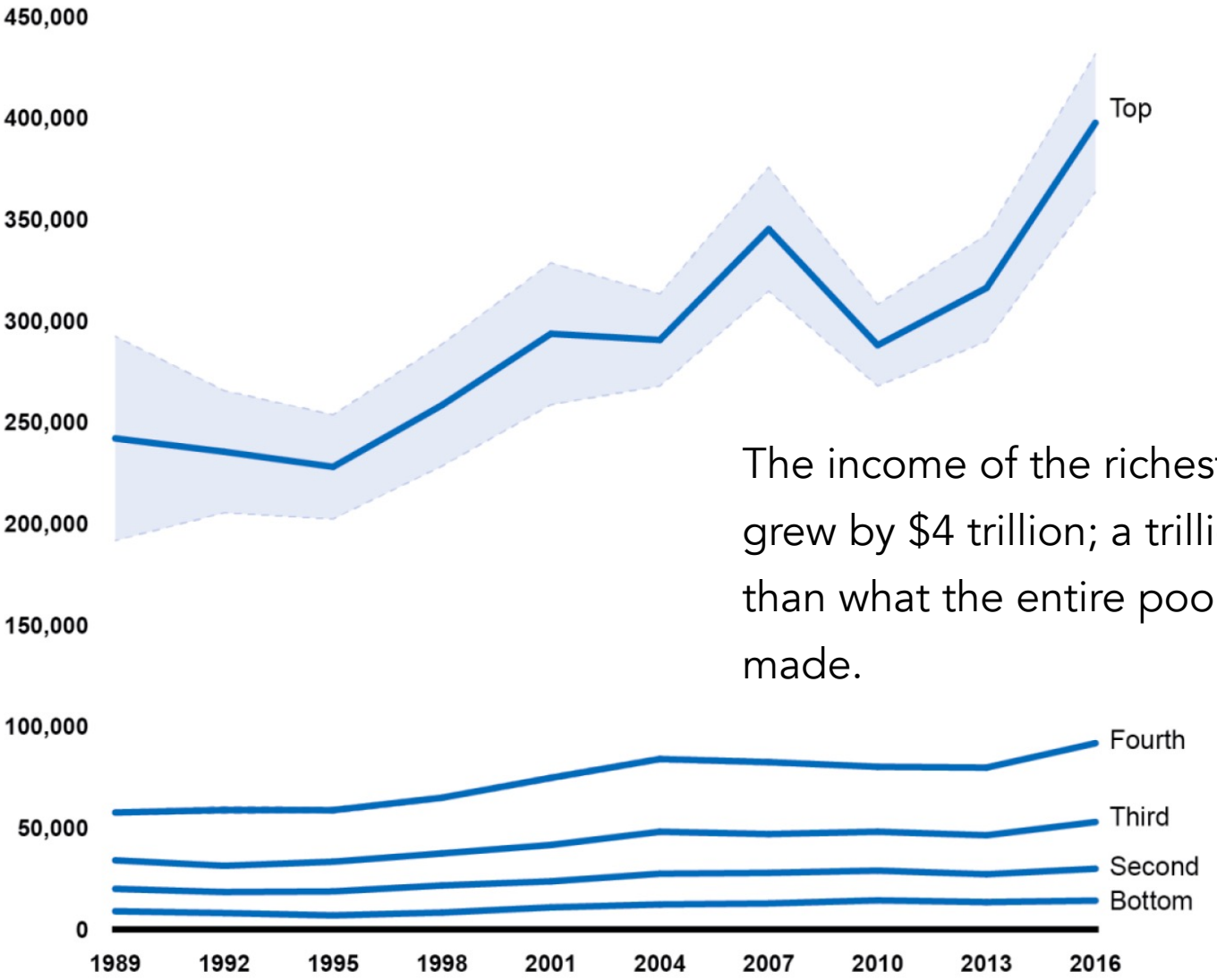
Life expectancy, 2019

Our World in Data



Source: Riley (2005), Clio Infra (2015), and UN Population Division (2019)
OurWorldInData.org/life-expectancy • CC BY
Note: Shown is period life expectancy at birth, the average number of years a newborn would live if the pattern of mortality in the given year were to stay the same throughout its life.

Figure 1: Estimated Average Household Income of Older Households by Income Quintiles, 1989 to 2016

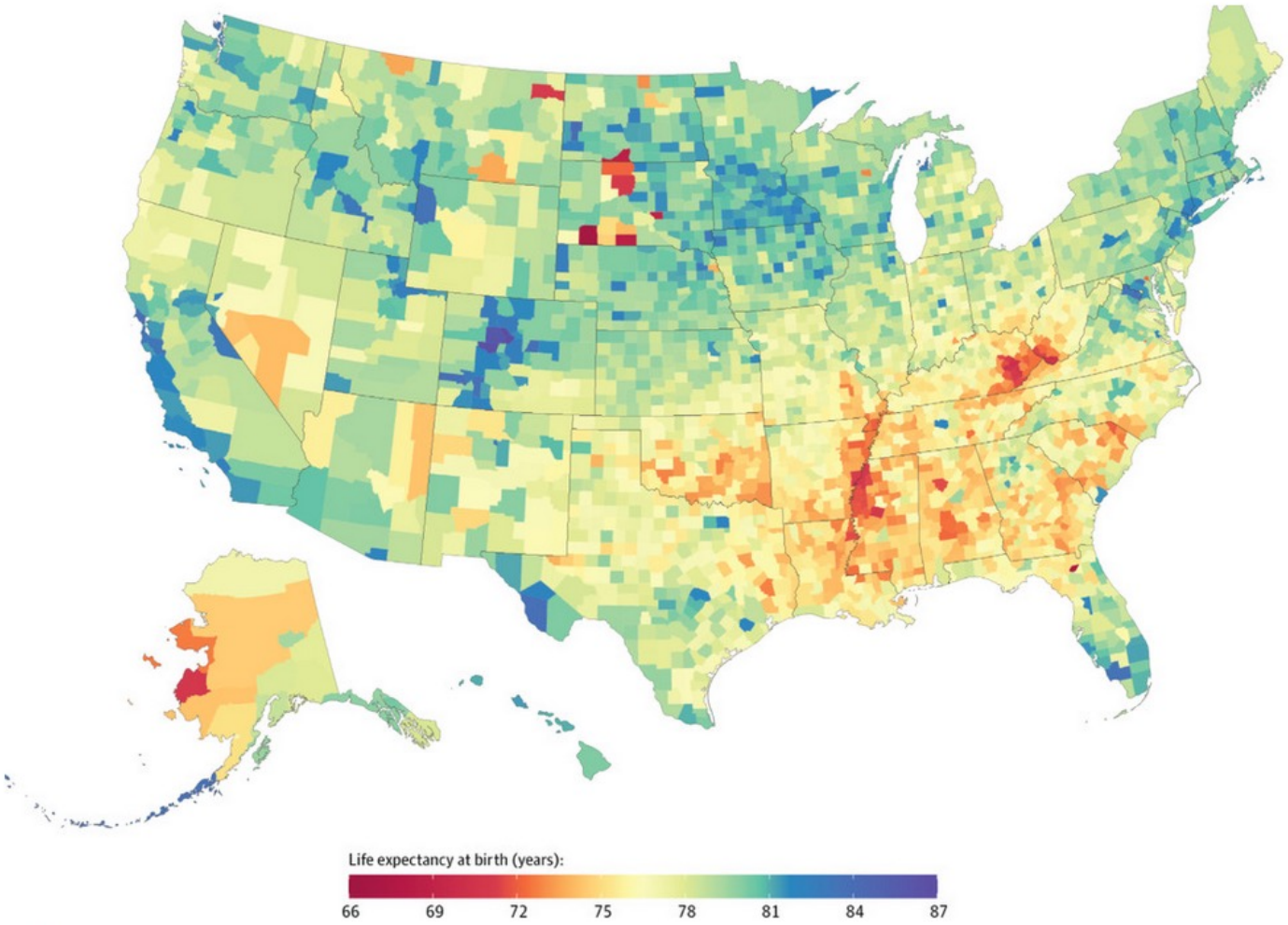


The income of the richest 20% grew by $4 trillion; a trillion more than what the entire poorest 80% made.

Source: GAO analysis of 1989 through 2016 Survey of Consumer Finances data. | GAO-19-587

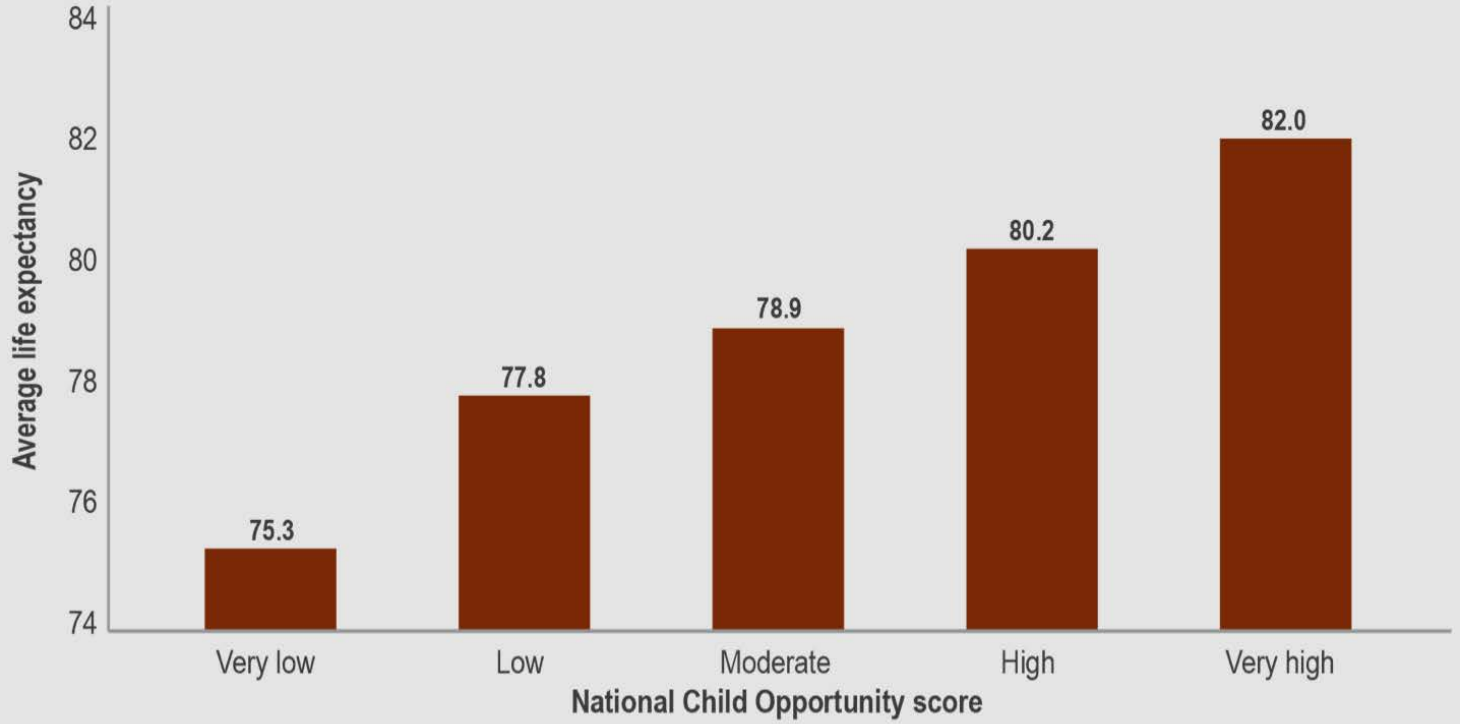
https://www.gao.gov/assets/710/700835.pdf

There is a 20-year gap between counties with the lowest and highest life expectancies



Belluz J, Frostenson S. These maps show how Americans are dying younger. It's not just the opioid epidemic. *Vox*. May 9, 2017. https://www.vox.com/2016/12/13/13926618/mortality-trends-america-causes-death-by-county Accessed May 14, 2017.

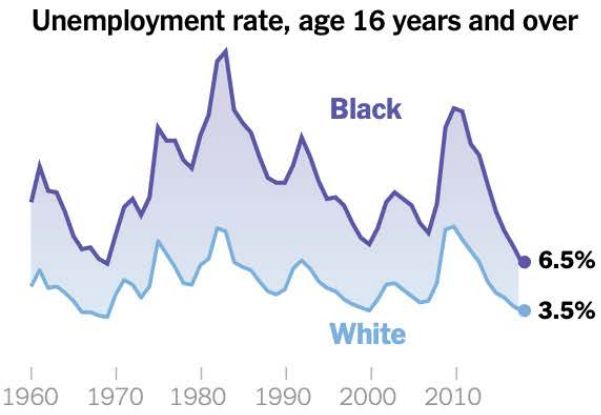
Figure 2.2 Child neighborhood opportunity level and average life expectancy at birth in the 100-largest U.S. metropolitan areas

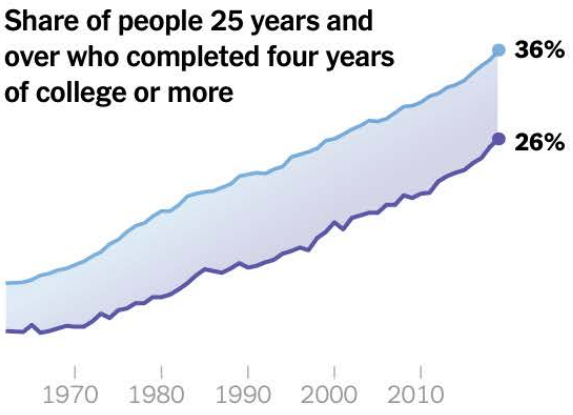


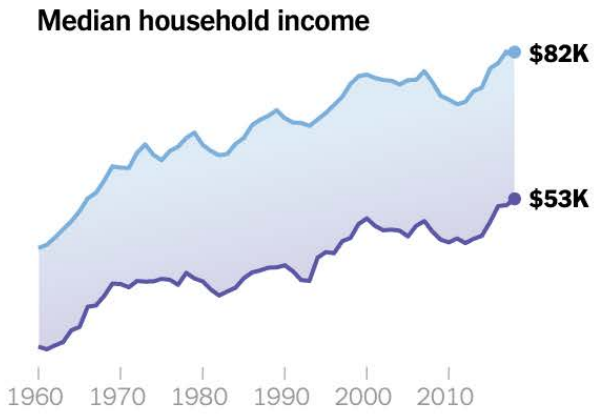
Notes: Life expectancy is the average number of years a person can expect to live at birth for individuals born in a given neighborhood (Census tract) for the years 2010–2015. Each neighborhood is assigned to one of five opportunity levels (very low, low, moderate, high, or very high) based on its COI 2.0 score. Each opportunity level contains 20% of the U.S. child population. Average life expectancy at birth was calculated across all Census tracts with the same opportunity level weighted by the population of children 0–17 years of age in each tract.

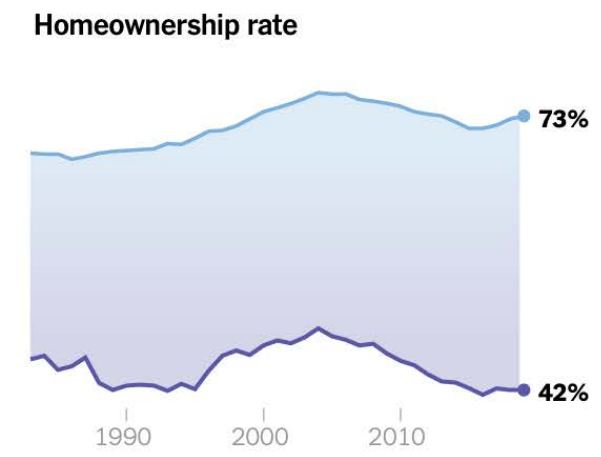
U.S. Department of Health and Human Services, Office of Surgeon General. (2021). Community Health and Economic Prosperity Engaging Businesses as Stewards and Stakeholders—A Report of the Surgeon General. Retrieved from https://www.hhs.gov/sites/default/files/chep-sgr-full-report.pdf

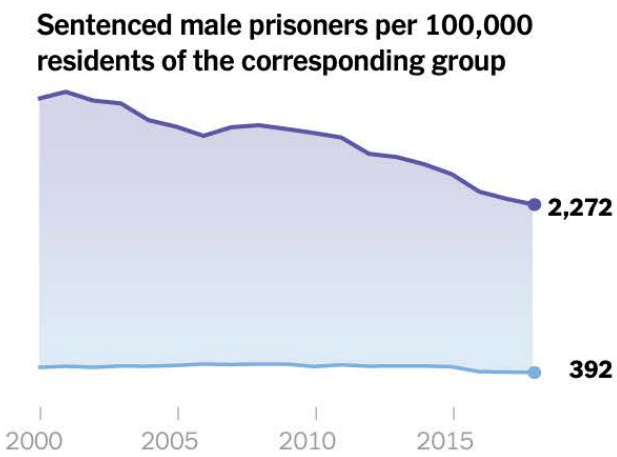
Child Opportunity Index 2.0, 2019: diversitydatakids.org. (n.d.). *Child Opportunity Index 2.0, 2019*. Waltham, MA: Brandeis University, The Heller School for Social Policy and Management, Institute for Child Youth and Family Policy; and Life expectancy data from the U.S. Small-Area Life Expectancy Estimates Project (CDC-NCHS).

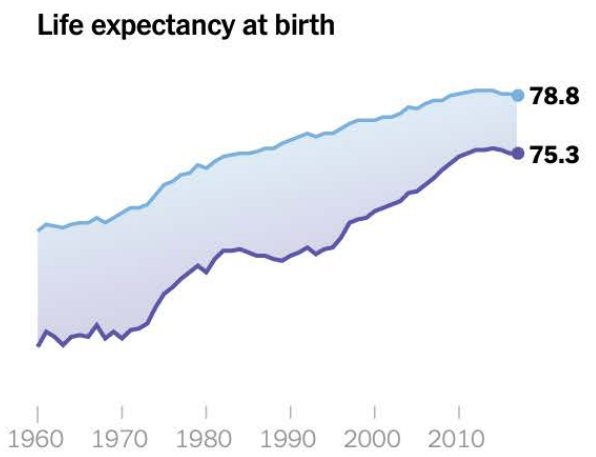












https://www.nytimes.com/interactive/2020/06/19/opinion/politics/opportunity-gaps-race-inequality.html?action=click&module=Opinion&pgtype=Homepage

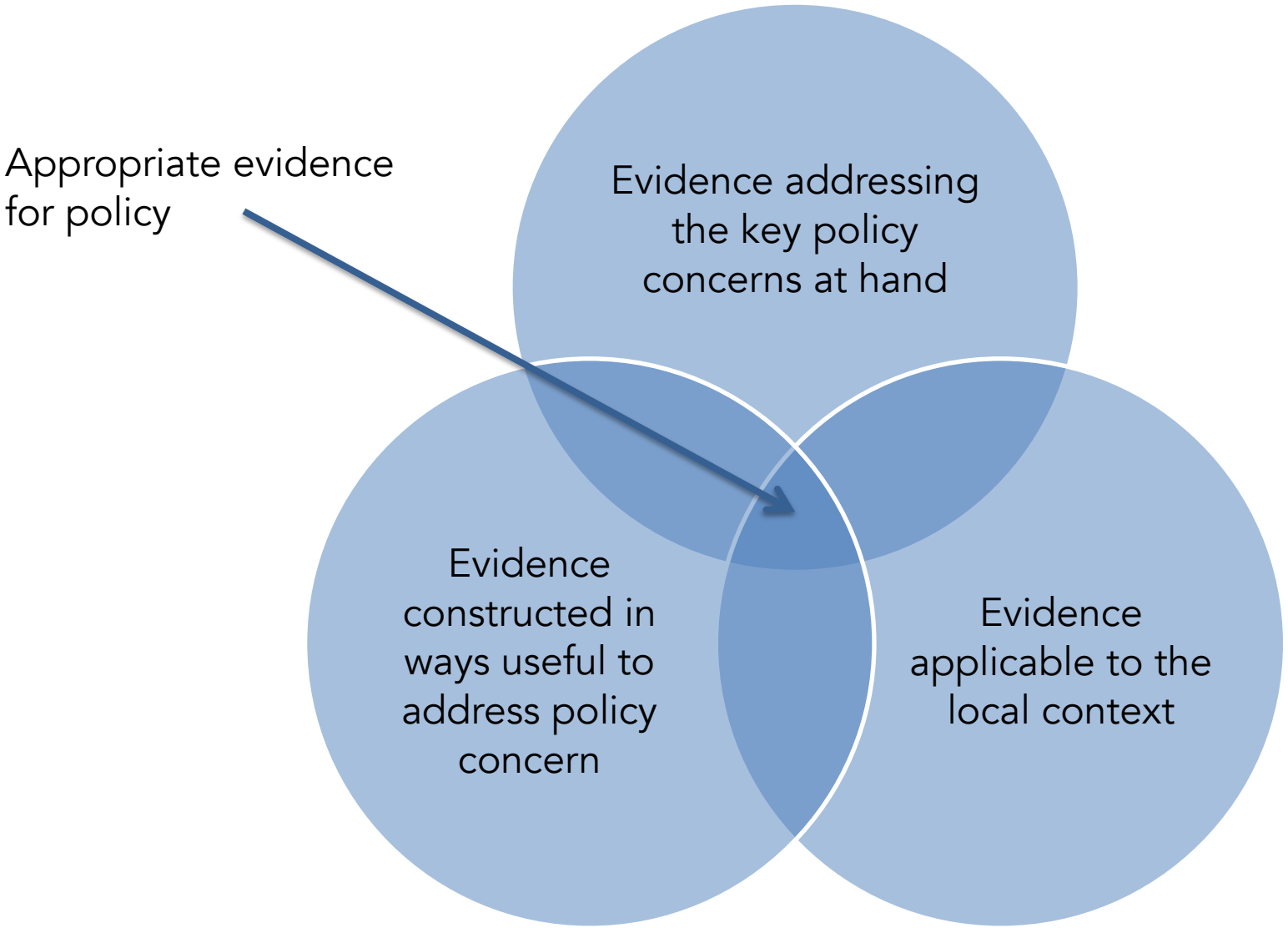
Therefore, **global health equity** would mean a world where health is equitably distributed between and within countries

1. Centering equity
2. Better science to guide decision making
3. Self-awareness towards more consequential scholarship

Follow the Science?

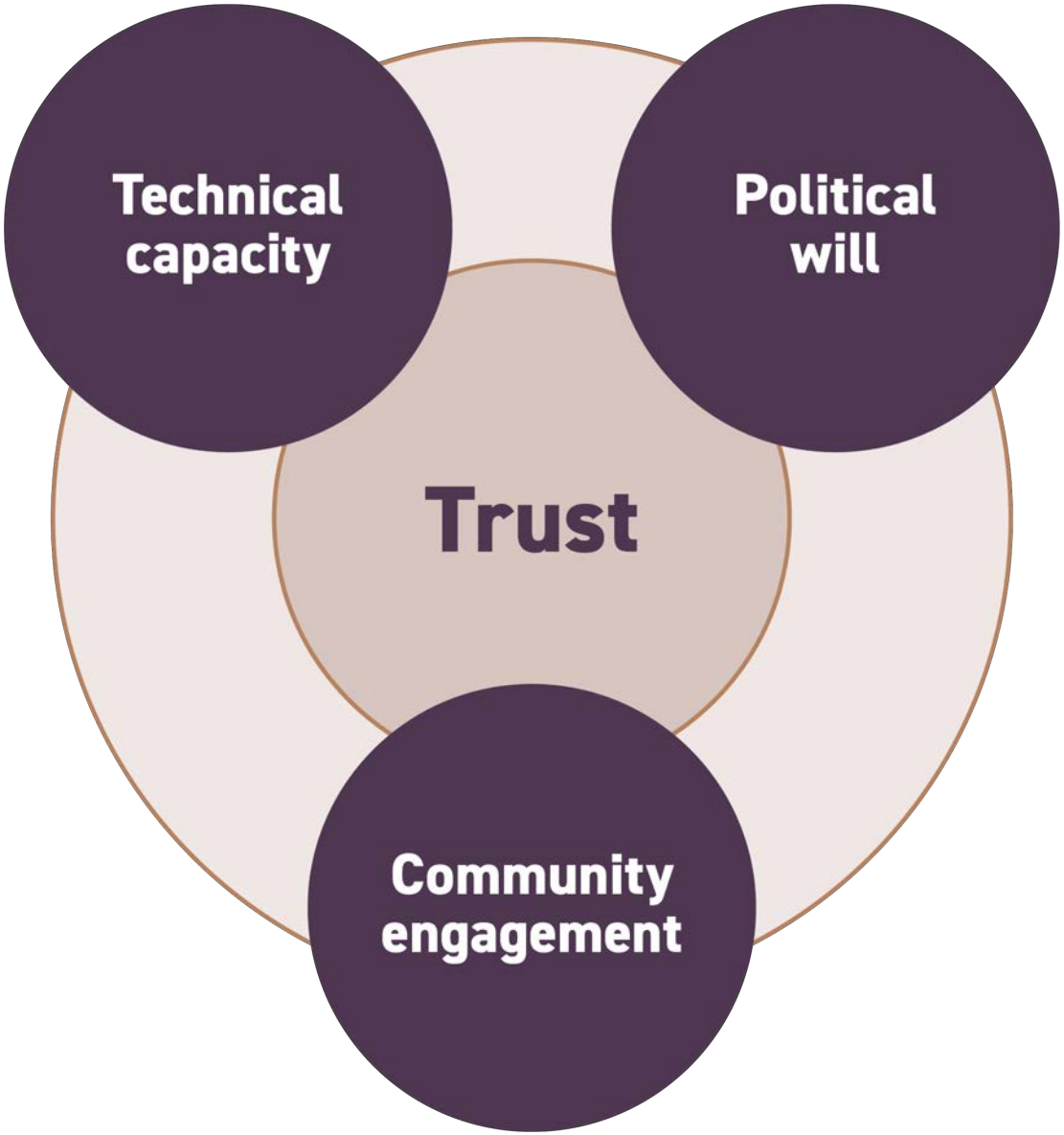
If only it were so easy.

Appropriate evidence for the policy context



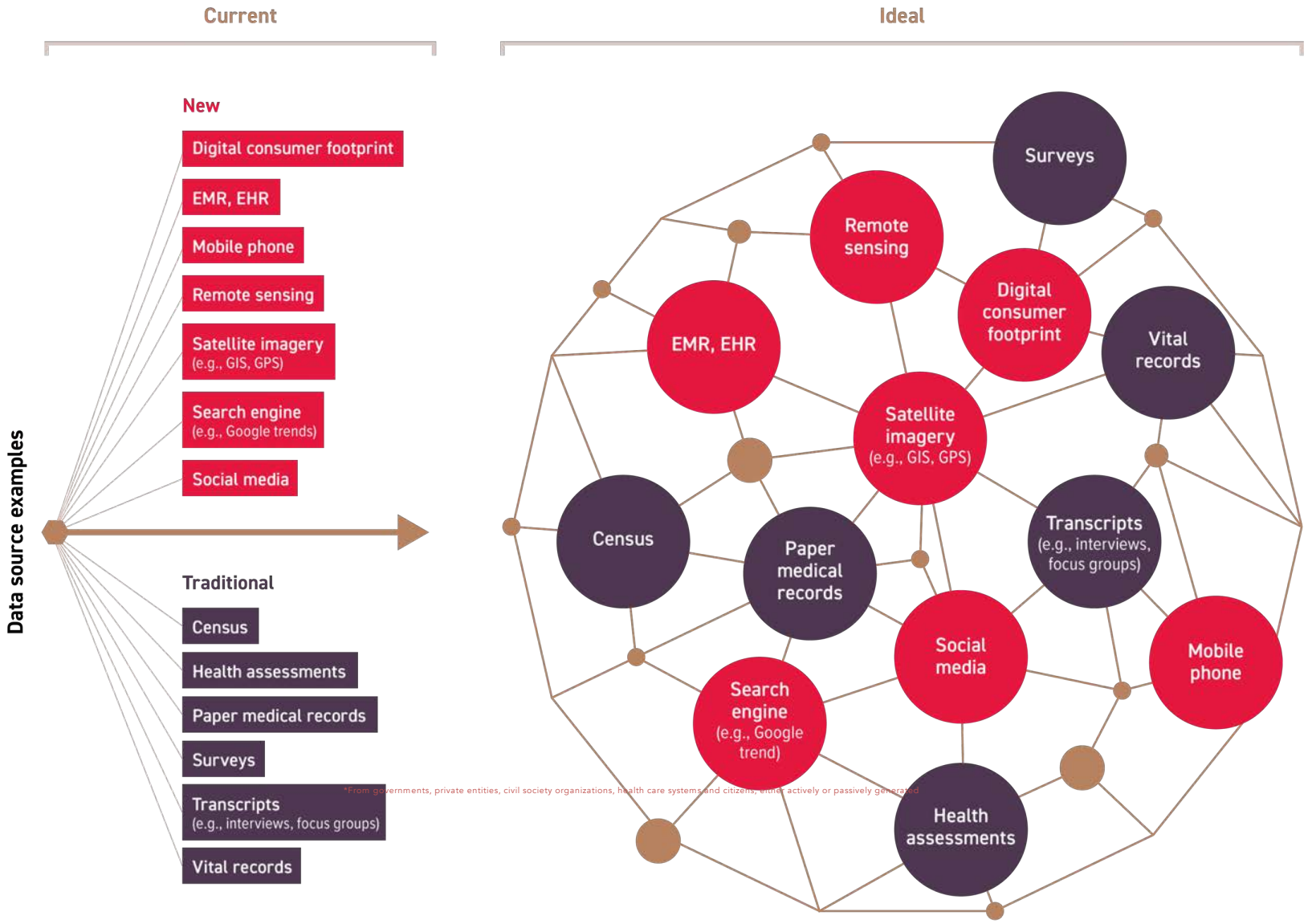
Parkhurst J. The politics of evidence: From evidence-based policy to the good governance of evidence. Routledge. 2016

Key elements for actionable and impactful decision making



https://static1.squarespace.com/static/5e2ca08b9fdf240fb1abb55b/t/617aae3927d4790b590aef4e/1635429947691/3DCommission_Report_SDoH_Oct+12_final.pdf

Better approaches to data to promote health equity



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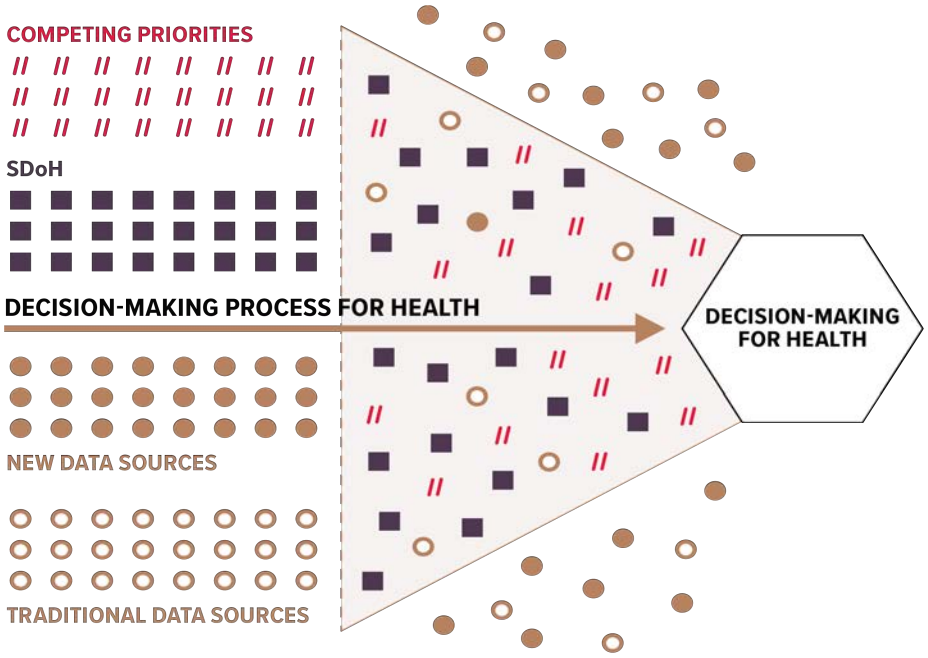
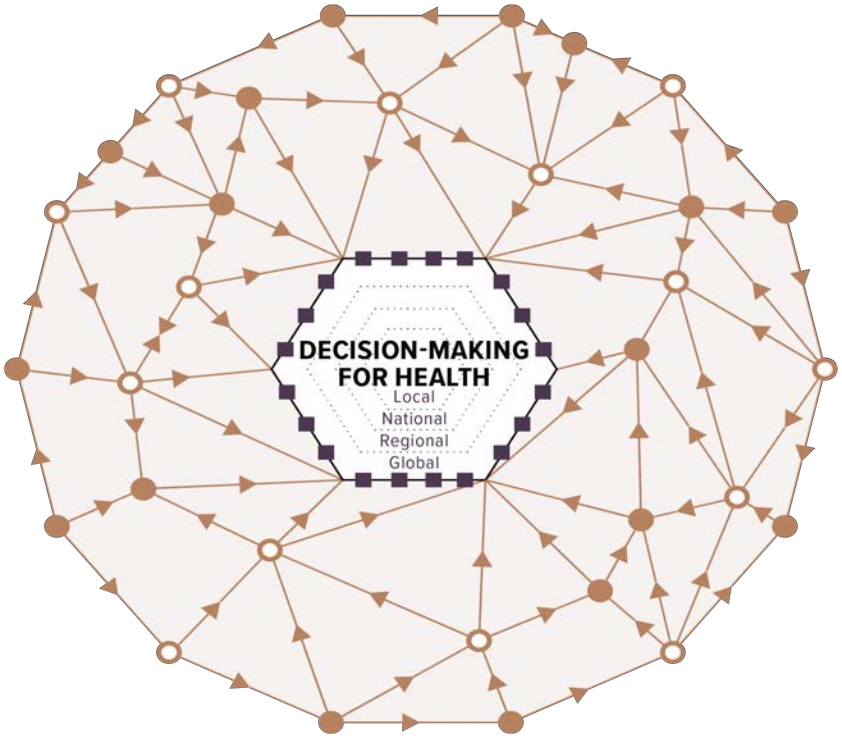
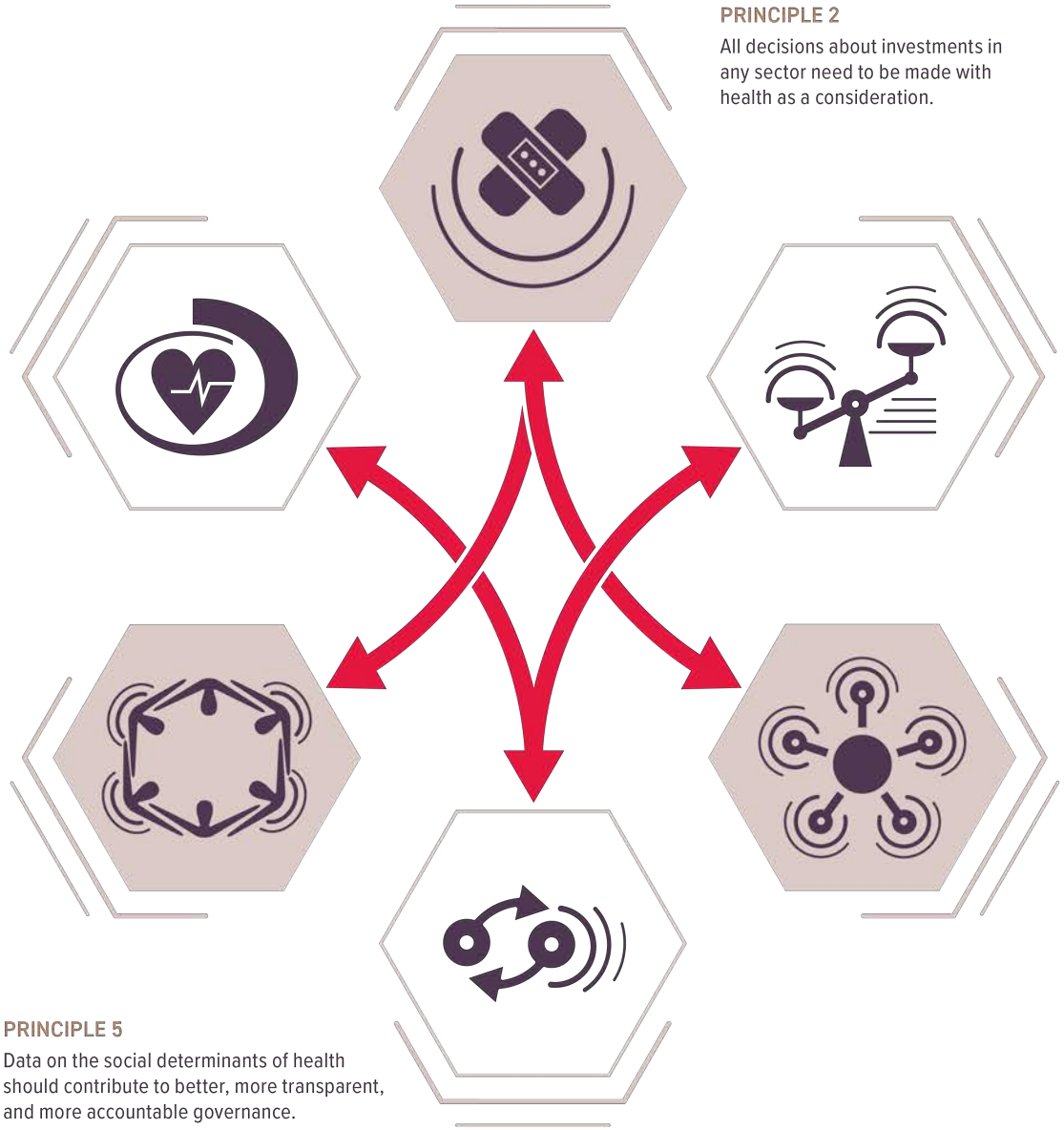
Better approaches to decision-making to promote health equity





3-D Commission principles



PRINCIPLE 1

Evidence-informed decision-making to promote healthy societies needs to go beyond health care and incorporate data on the broader determinants of health.

PRINCIPLE 2

All decisions about investments in any sector need to be made with health as a consideration.

PRINCIPLE 3

Decision-making that affects the health of populations needs to embrace health equity, while also acknowledging potential trade-offs between short- and long-term costs and benefits.

PRINCIPLE 4

All available data resources on the determinants of health should be used to inform decision-making about health.

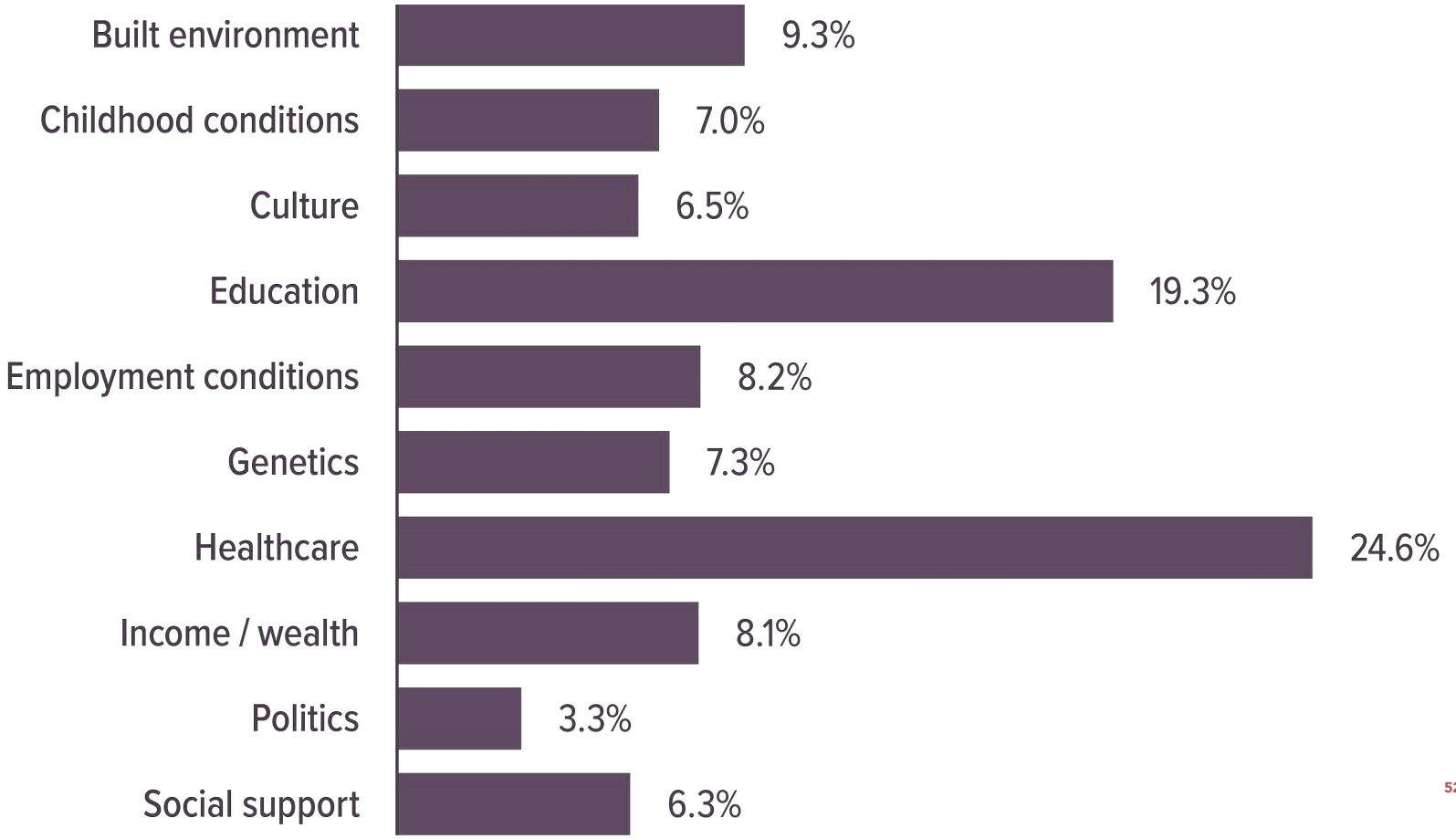
PRINCIPLE 5

Data on the social determinants of health should contribute to better, more transparent, and more accountable governance.

PRINCIPLE 6

Evidence-informed decision-making to promote healthy societies needs to be participatory and inclusive of multiple and diverse perspectives.

What primarily causes your health?



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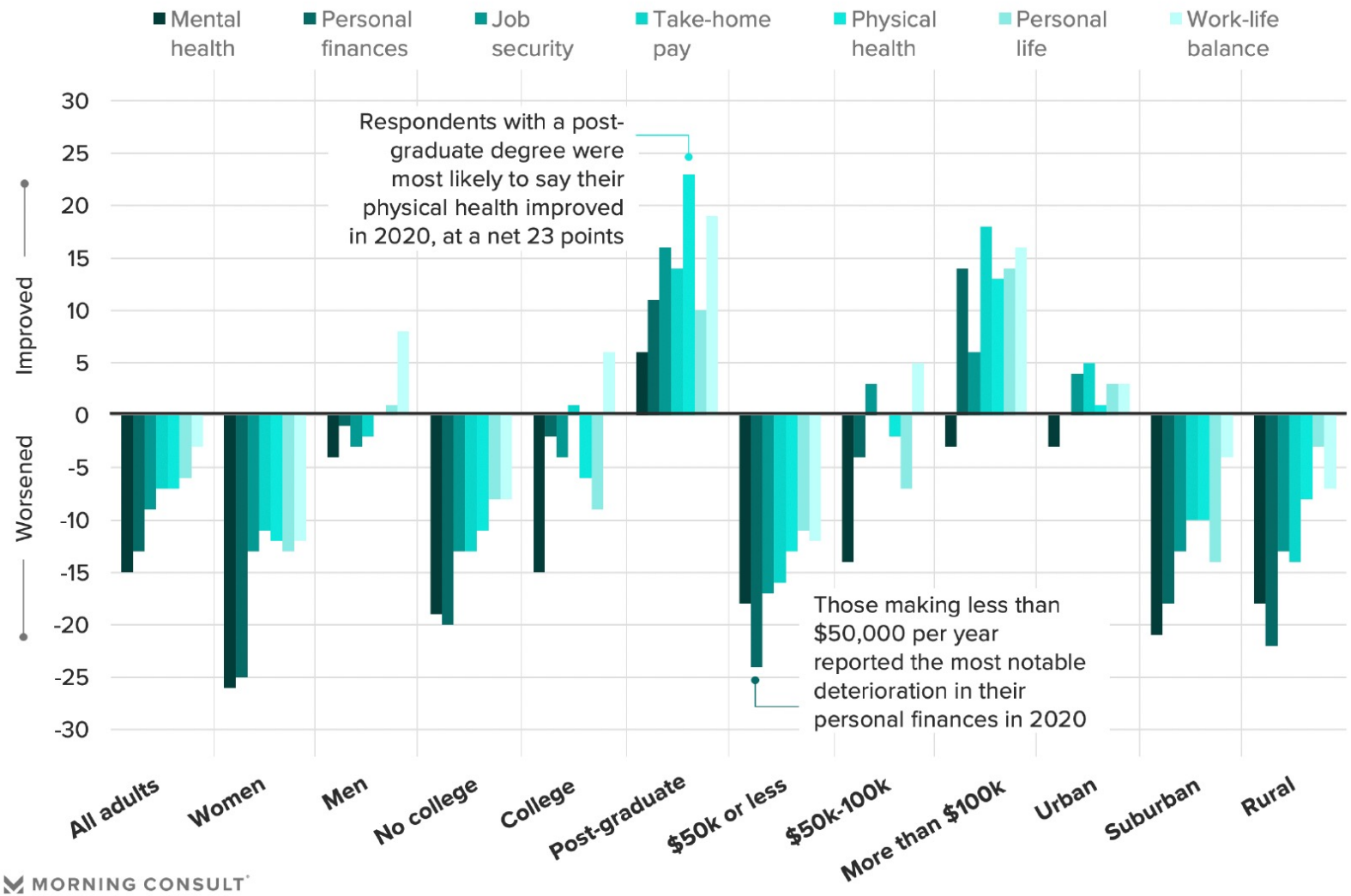
1. Centering equity
2. Better science to guide decision making
3. Self-awareness towards more consequential scholarship

https://www.newscientist.com/article/2280607-zero-covid-countries-have-done-best-and-its-not-too-late-to-switch/. https://www.cnn.com/2021/08/22/australia/australia-morrison-zero-covid-19-borders-intl-hnk/index.html

https://www.nytimes.com/2022/03/20/world/asia/china-zero-covid.html

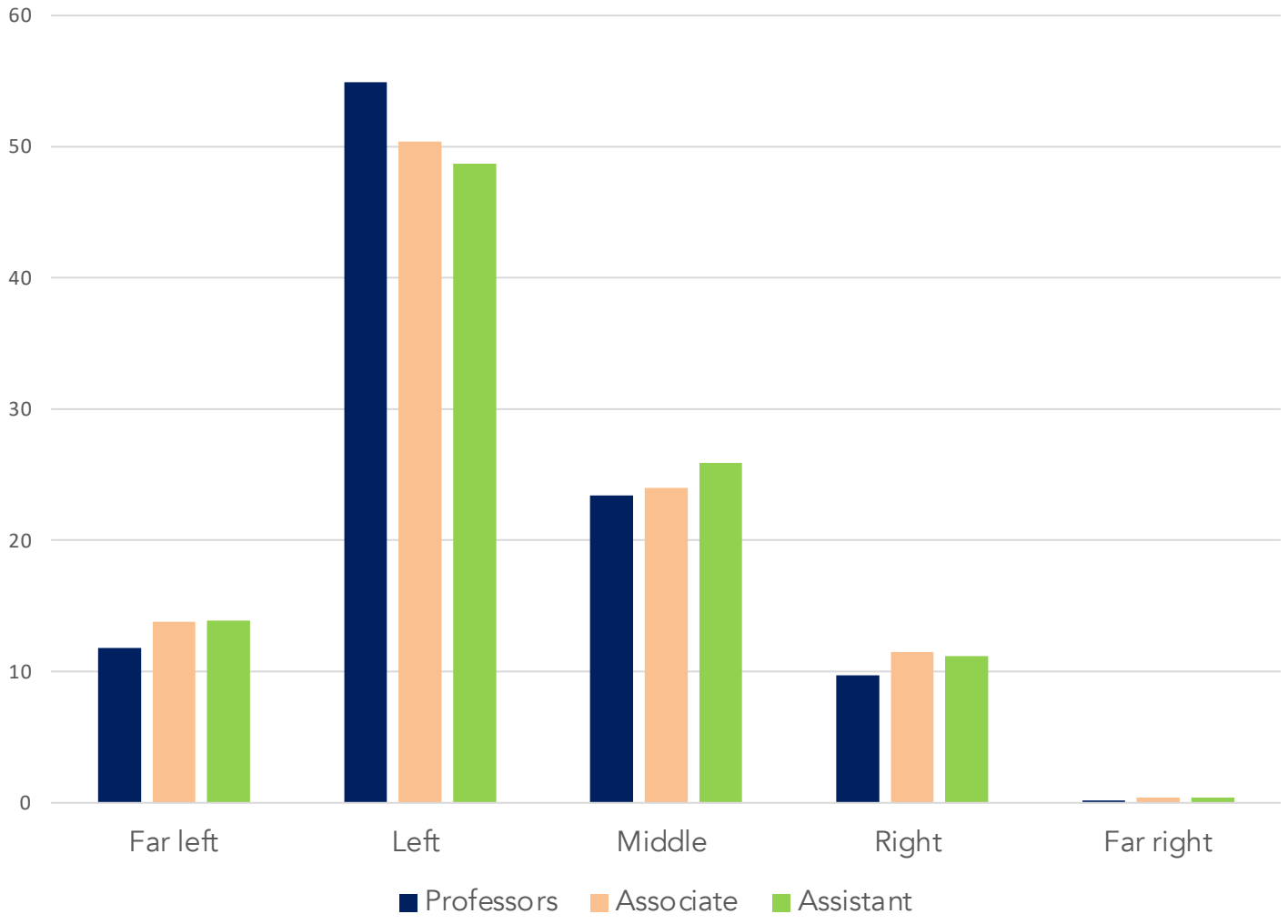
Share who said the following factors improved for them in 2020 minus the share who said those factors have worsened:



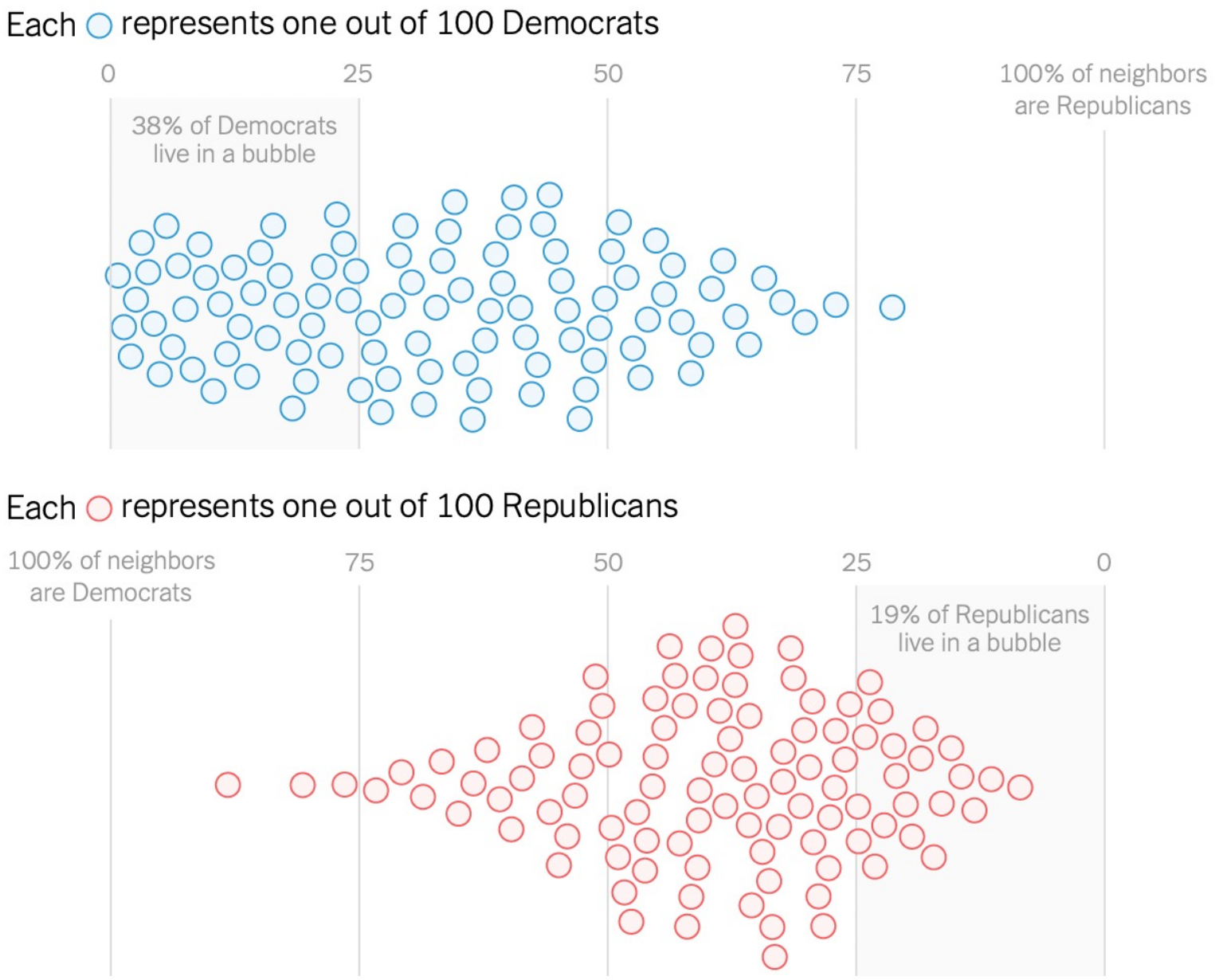
MORNING CONSULT

Poll conducted Dec. 17-20, 2020, among 2,200 U.S. adults, with a margin of error of +/-2%.

https://morningconsult.com/2021/01/19/an-inaugural-inflection-point-ushering-in-a-new-era-of-marketing-amid-a-polarized-public/

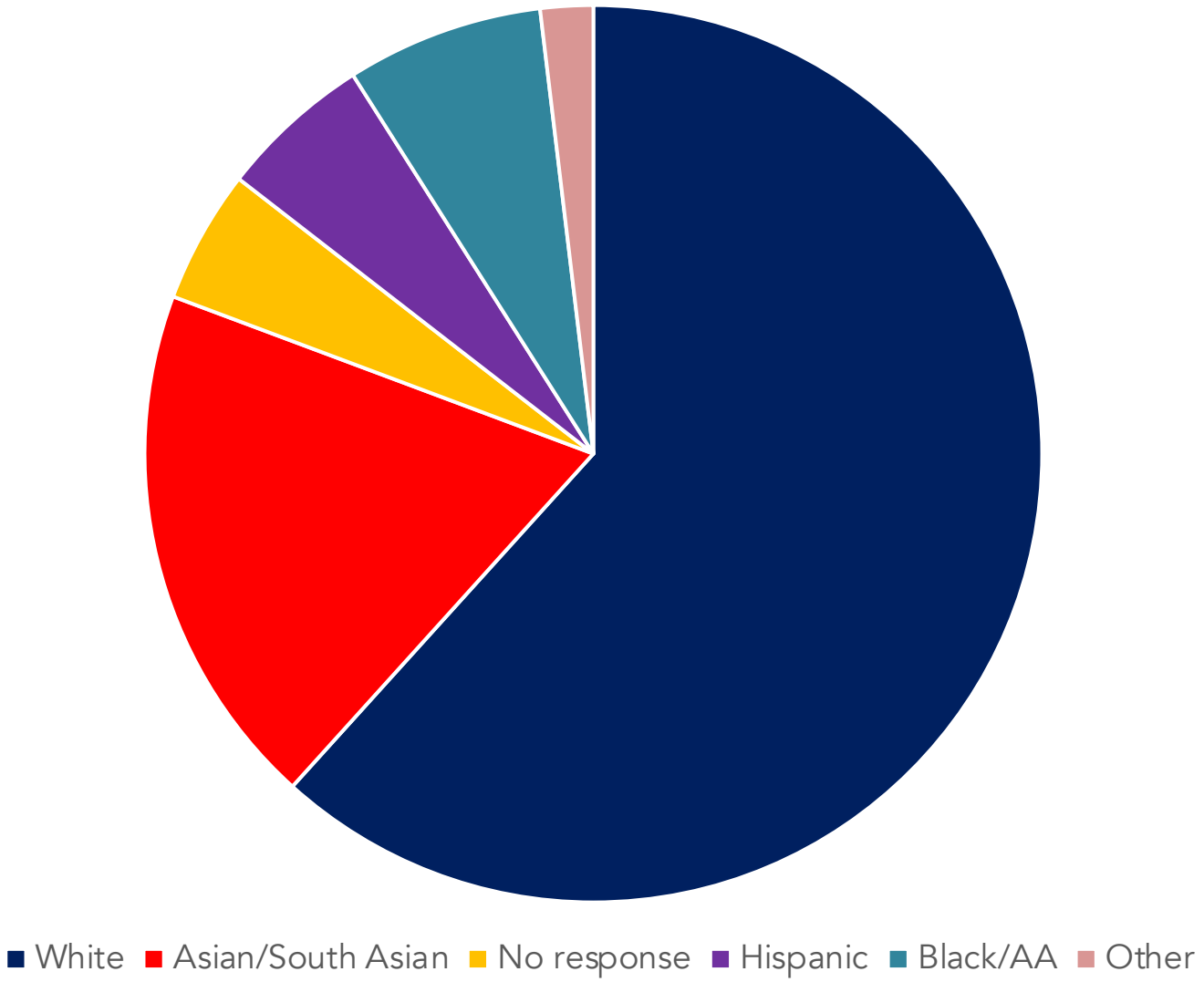


https://www.insidehighered.com/news/2012/10/24/survey-finds-professors-already-liberal-have-moved-further-left



https://www.nytimes.com/interactive/2021/04/30/opinion/politics/bubble-politics.html?action=click&module=Opinion&pgtype=Homepage

Epidemiologists today



Courtesy of Enrique Schisterman. DeVilbiss et al, *Under review*

	Number of publication outputs (% of world total)*	Number of publication outputs with authors from LMICs (% of country total)
UK	63 759 (5·75%)	2452 (3·85%)
France	48 895 (4·41%)	1868 (3·82%)
Australia	32 789 (2·95%)	1228 (3·75%)
Canada	43 936 (3·96%)	1462 (3·33%)
Germany	69 990 (6·31%)	1915 (2·74%)
USA	317 950 (28·65%)	7806 (2·46%)
Spain	32 622 (2·94%)	766 (2·35%)
Italy	66 464 (5·99%)	1289 (1·94%)
China	254 171 (22·90%)	1884 (0·74%)
Top nine country total	773 975 (69·74%)	14 805 (1·91%)
World total	1 109 800	68 893 (6·21%)

Data are n (%) or n. LMICs=low-income and middle-income countries. *The outputs of the nine individual countries sum to 83·86%, but the combined total is only 69·74% because of double counting of collaborative papers.

Table: **Total global cancer research publication outputs in the 10 years before the COVID-19 pandemic (February, 2010, to February, 2020) from the top nine output countries, as a percentage of world total cancer research publications and percentage of publications with coauthors from LMICs**

Mukherji D et al. Global cancer research in the post-COVID world. The Lancet Oncology. 2021;22:1652-1654.

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Invited Commentary

Invited Commentary: Reckoning With Our Biases in Epidemiology

Sandro Galea*

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1. Be clear about our biases
2. Ensure diversity and inclusion in science
3. Lean on open discussion and debate

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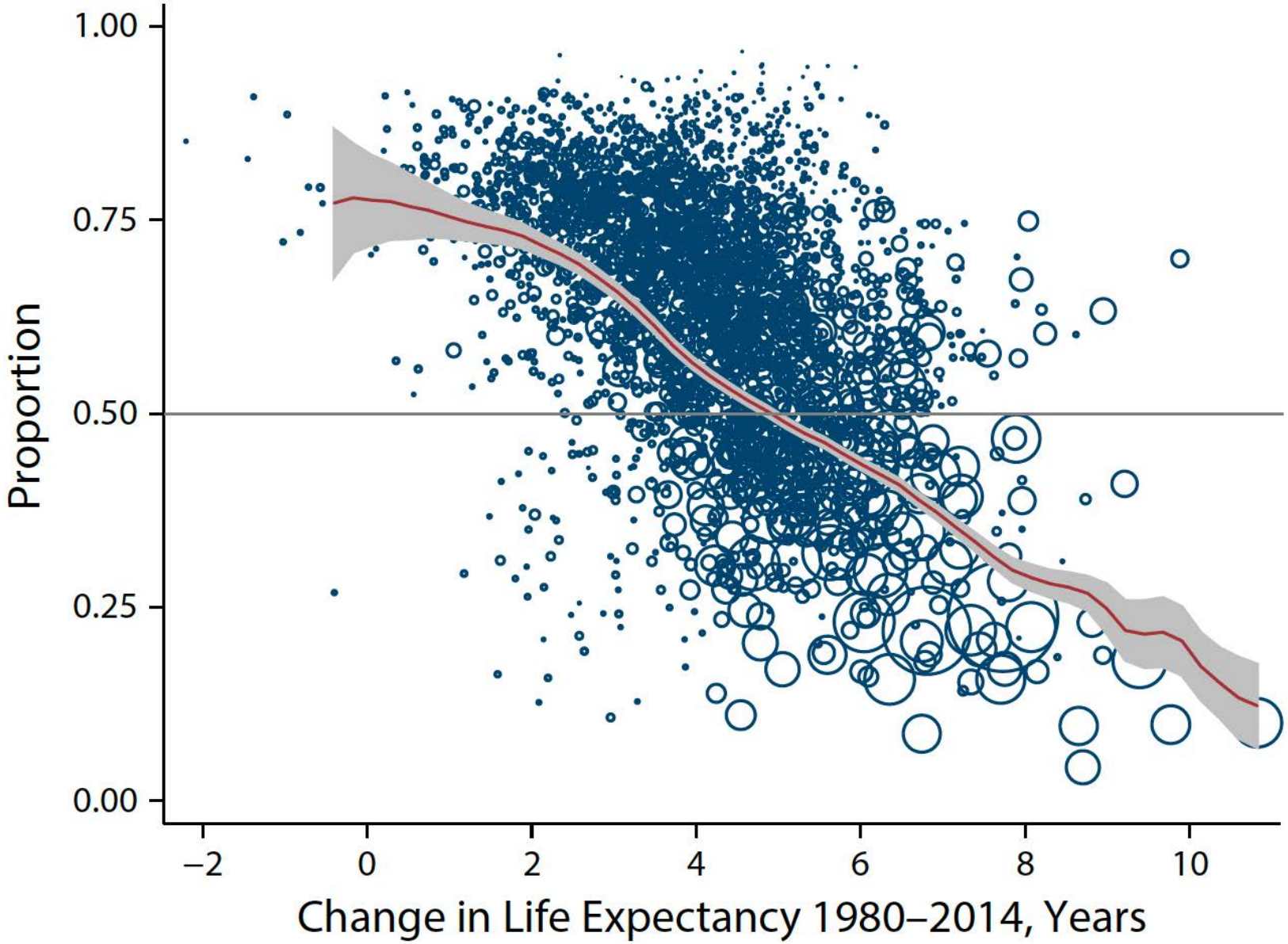
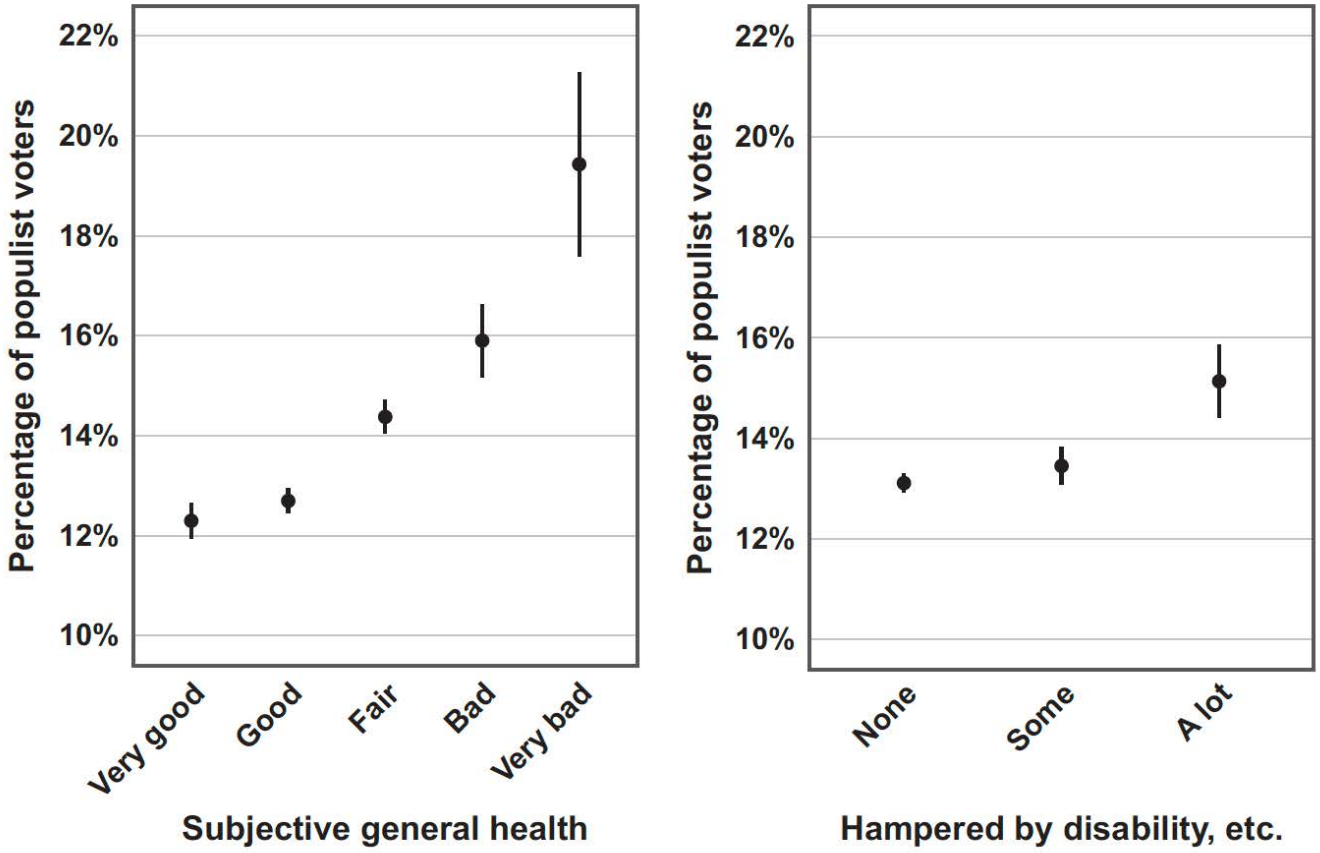
presenters in the field's pre-eminent scientific meeting than men. The scientific and moral arguments for promoting diversity of engagement by persons of all identities in the field are abundantly clear, calling for efforts to mitigate the effect of these in-group biases. I offer 3 suggestions for how we can achieve better diversity in our field 1) increase our discussions of the importance of diversity and raise consciousness about the issue consistently 2) ensure that only blinded, peer-reviewed presentations are advanced at professional meeting; and 3) publish only blinded, peer-reviewed papers in leading journals in the field. These steps—together with broader system-wide

5. The cost of not preventing disease



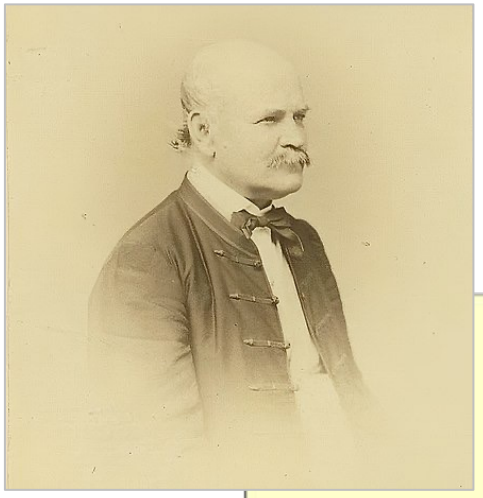
Bor J. Diverging Life Expectancies and Voting Patterns in the 2016 US Presidential Election. AJPH. 2017;107(10): 1560-1562. doi: 10.2105/AJPH.2017.303945

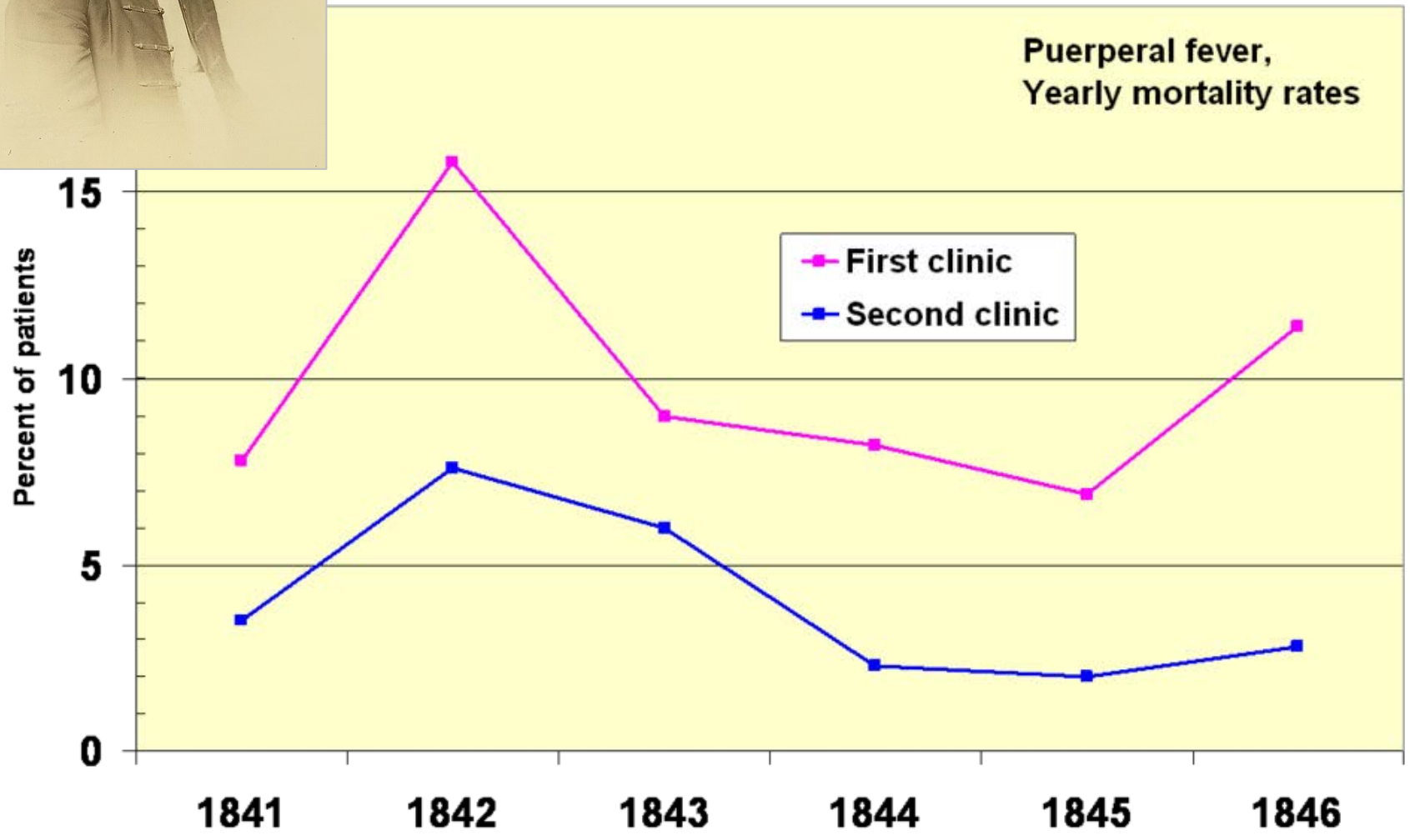
FIGURE 1. Unadjusted Percentage of Right-Wing Populist Voters by Health Status across Europe from 2002–2020



Note: Percentages are weighted by the ESS's poststratification weights. Black bars denote 95% confidence intervals. Estimates are not adjusted for other predictors of right-wing populist voting.

6. Two closing stories





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

https://www.forbes.com/sites/tomflynn/2019/07/16/the-carolina-team-that-helped-fuel-a-uswnts-title/#28a2dd245c6e

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