



# Social and Economic Policies Can Help Reverse Americans' Declining Health

---

By Steven H. Woolf   September 2021

GETTY IMAGES/GARY HERSHORN

# Contents

- 1 Introduction and summary**
- 3 The decline in U.S. health**
- 5 What shapes health**
- 13 Future threats to America's health**
- 15 Policy solutions**
- 18 Conclusion**
- 19 About the author and acknowledgments**
- 20 Endnotes**

# Introduction and summary

For decades, the health of U.S. citizens has been getting progressively worse than the health of citizens in other high-income countries, and the United States' health disparities have widened. As of 2018, the United States ranked 46th in life expectancy worldwide.<sup>1</sup> Its infant mortality rate—the probability that a newborn will not survive to its first birthday—was 65 percent higher than the average infant mortality rate in the European Union.<sup>2</sup> In 71 other countries, female infants are more likely to reach age 65 than those born in the United States.<sup>3</sup>

This is a paradox, as the United States has the highest gross domestic product in the world<sup>4</sup> and is home to some of the greatest scientists and medical centers. But it is not a new problem. These disparities have existed for decades and have worsened year after year.<sup>5</sup> And within the United States, the divide has widened between those who have opportunities for good health and access to high-quality health care and those who face systematic barriers.

The world saw the U.S. “health disadvantage” firsthand during the COVID-19 pandemic, when more people died from the virus in the United States than in any other country and when U.S. death rates were starkly higher among people of color.<sup>6</sup> The decline in U.S. health status, however, began decades ago in the 1980s.<sup>7</sup>

Now, the health of Americans is in a precarious place. This matters not only because Americans live with more sickness and die sooner than their peers in other rich nations, but also because a decline in the nation's health has ripple effects—on the economy, workforce productivity, health care costs, the fitness of military recruits, and national security.<sup>8</sup> These ripple effects extend over time; the traumas faced by today's children and the adverse conditions they inherit from their parents shape their future and the health trajectory of the nation.

This report explains the reasons for the U.S. health disadvantage and suggests policy solutions. It explains that health outcomes in the United States are shaped less by health care than by living conditions such as education, income, food security,

housing, neighborhoods, and the environment. These conditions are less favorable in the United States than in other high-income countries.

Meaningful change to restore the health of Americans and reduce inequities requires a concerted effort by the nation to close the gap with other countries—an effort that must include investments in schools, jobs, economic opportunity, and community infrastructure.

# The decline in U.S. health

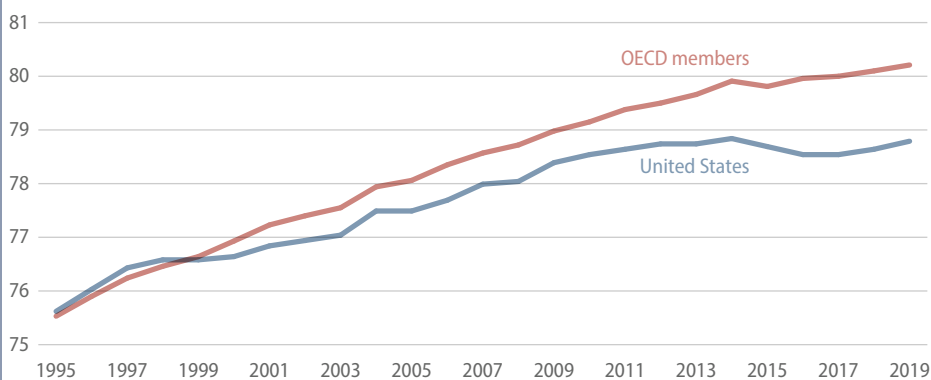
Life expectancy has increased over the past century in industrialized countries, including the United States.<sup>9</sup> But in the 1990s, the pace of the U.S. increase began to slow, and by 1999, the nation's life expectancy had fallen below the Organization for Economic Cooperation and Development (OECD) average.<sup>10</sup> (see Figure 1) In the ensuing years, life expectancy in other countries continued to outpace life expectancy in the United States, widening the gap between it and other countries. In 1980, U.S. life expectancy was 1 1/2 years higher than the OECD average;<sup>11</sup> by 2018, it was 1 1/2 years below the OECD average.<sup>12</sup>

The United States has also experienced widening inequities since the 1970s—not only the growing wealth gap<sup>13</sup> but also deeper health disparities.<sup>14</sup> Indeed, differences in health based on income are larger in the United States than in other developed countries.<sup>15</sup> For example, a study that compared adults ages 55–64 in the United States and in England found that the health gap between the bottom 20 percent and top 20 percent of the income distribution was greater in the United States on 13 of 16 health measures.<sup>16</sup>

FIGURE 1

**For decades, life expectancy in the US has failed to keep pace with average life expectancy in Organization for Economic Cooperation and Development (OECD) countries**

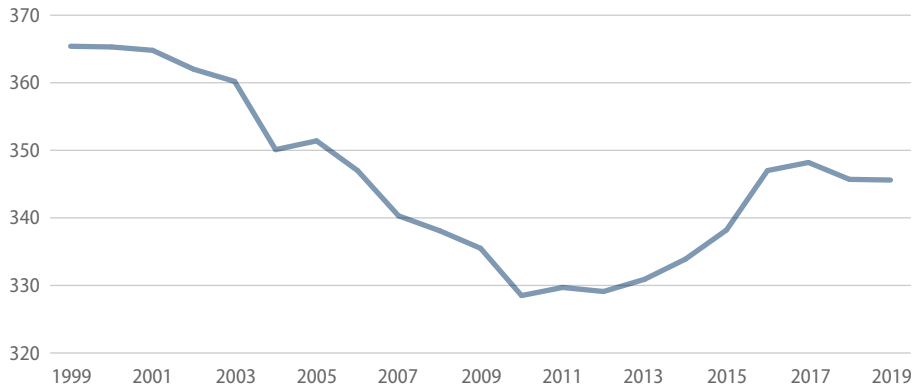
U.S. life expectancy and average life expectancy in OECD member countries, 1995–2019



Source: World Bank, "Life expectancy at birth, total (years)," available at <https://data.worldbank.org/indicator/SP.DYN.LE00.IN> (last accessed September 2021).

**FIGURE 2**  
**U.S. mortality rates among working-age people  
have been increasing since 2010**

Age-adjusted, all-cause mortality rates per 100,000 among U.S. adults  
ages 25–64 years, 1999–2019



Source: World Bank, "Life expectancy at birth, total (years)," available at <https://data.worldbank.org/indicator/SP.DYN.LE00.IN> (last accessed September 2021).

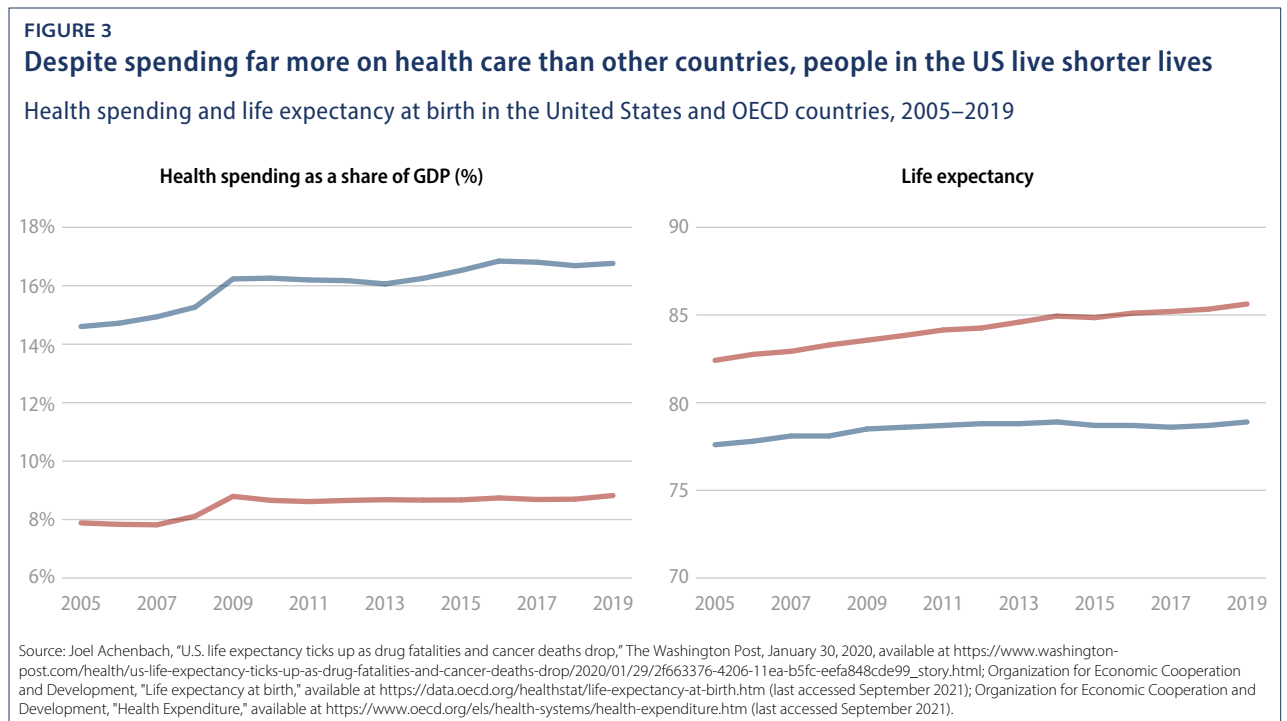
The decline has intensified in the past decade. U.S. life expectancy stopped increasing in 2010, and death rates in the working age population (ages 25–64) began to climb.<sup>17</sup> (see Figure 2) From 2014 to 2017, U.S. life expectancy fell for three years in a row.<sup>18</sup> Meanwhile, life expectancy in peer countries continued to rise. By 2018, U.S. life expectancy was three years below the average for 16 high-income countries,<sup>19</sup> and death rates for young and middle-aged Americans were increasing across all racial groups.<sup>20</sup> In 2019, a special committee of the National Academies of Sciences, Engineering, and Medicine was convened to investigate the increase in working-age mortality.<sup>21</sup>

And then came the COVID-19 pandemic. In 2020, the United States experienced the world's highest death toll from COVID-19—377,883 in 2020<sup>22</sup> and more than 700,000 by September 2021.<sup>23</sup> Even after adjusting for population size, the United States had among the highest per capita mortality rates in the world.<sup>24</sup> Whereas the pandemic reduced life expectancy in 16 peer countries by an average of 0.2 years, it reduced U.S. life expectancy by 1.9 years—8.5 times more.<sup>25</sup> A study in *The BMJ* found that the gap in life expectancy between the United States and these peer countries reached historic proportions in 2020, widening to 4.7 years.

# What shapes health

What explains the declining health of Americans? It is certainly not health care spending. For decades, U.S. spending on health care—in aggregate and per capita—has vastly exceeded the spending of other countries, including those with better health outcomes.<sup>26</sup> (see Figure 3) The passage of the Affordable Care Act in 2009 broadened access to health insurance, but the U.S. health care system continues to underperform compared with other countries; it is less accessible to the population, costlier, more fragmented, and less efficient.<sup>27</sup>

For the past decade, the United States has spent more than \$3 trillion per year on health care, with 2020 expenditures approaching \$4 trillion.<sup>28</sup> Yet the decline in Americans' health has continued. This is because health is about more than health care. Health care accounts for only 10 to 20 percent of outcomes.<sup>29</sup>



The United States' health disadvantage also cannot be attributed to the health disparities that exist among its various racial and ethnic groups. Some politicians dismiss the unfavorable health statistics of the United States by arguing that other countries with better health outcomes—such as Japan and Switzerland—have more homogenous populations. It is true that policies rooted in systemic racism have produced inequities in health outcomes in the United States that are far worse among Black, Indigenous, and other people of color, but even the advantaged white population in the United States experiences poorer health than its peers in other countries. Studies show, for example, that white Americans have higher mortality rates than white people in Britain,<sup>30</sup> and rich Americans die earlier and have more disease than rich people in other countries.<sup>31</sup> What ails America is systemic and affects everyone. And what drives the stark inequities in health, from the widening wealth gap to racism itself, is also systemic to the United States. For generations, policies of exclusion have placed the burden of poor health disproportionately on people of color, low- and middle-income families, and other marginalized groups.

Health is shaped less by health care than by living conditions and environment.<sup>32</sup> It depends greatly on personal behaviors—including exercise; nutritious eating; limiting tobacco, alcohol, and drugs; and receiving appropriate health care. But it takes more than personal determination to maintain a healthy lifestyle and get health care.<sup>33</sup> People who want to make healthy choices cannot do so if those choices are unavailable, unaffordable, or discriminatory where they live, work, study, and play—or if systemic societal barriers block the doors to opportunity and better health. Environmental factors also limit healthy choices, as when neighborhoods and communities lack access to clean air, land, and water, as well as safety from violence or severe extreme weather events, especially those exacerbated by climate change.

---

## Place matters to health

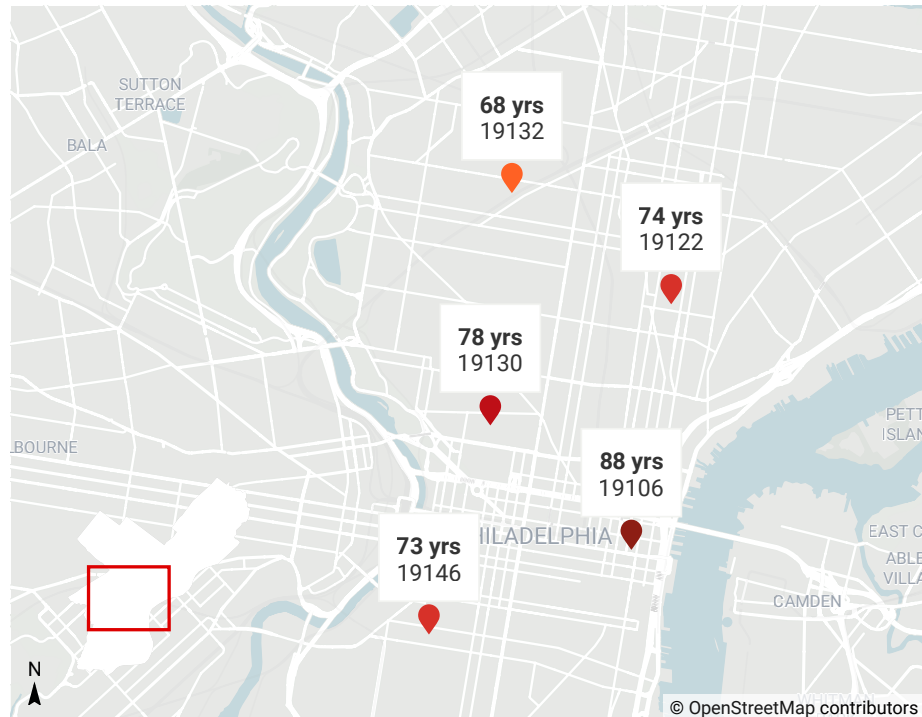
Scientists have shown that the most powerful predictors of an individual's health are education, income, employment, housing, and healthy neighborhoods.<sup>34</sup> The infrastructure outside individual homes shapes the community's health: Our ZIP code is more important than our genetic code. In most U.S. cities, life expectancy can differ by as much as 15 to 20 years across census tracts. For example, while life expectancy in Philadelphia's historic district—ZIP code 19106—is 88 years, just five miles away in North Philadelphia—ZIP code 19132—life expectancy is 20 years shorter, at 68 years.<sup>35</sup> (see Figure 4)



FIGURE 4

## Life expectancy varies greatly across Philadelphia neighborhoods

Life expectancy by ZIP code in Philadelphia, 2003–2012



Source: Virginia Commonwealth University Center of Society and Health, "20 Years in Philadelphia," available at <https://societyhealth.vcu.edu/media/society-health/pdf/LE-Map-Philly-Methods.pdf> (last accessed September 2021).

People and communities are surrounded by examples of why place matters to health:

- Health requires clean air, land, and water; housing that is free of lead and asbestos; and safe neighborhoods that are free of violence and illicit drugs.
- Healthy neighborhoods need zoning laws that restrict the density of fast-food restaurants, liquor stores, and tobacco outlets.
- Healthy eating requires access to stores that sell fresh produce and other nutritious foods at affordable prices.
- Exercise and regular physical activity require clean air to inhale and safe areas with green space, sidewalks and bicycle paths, parks, and playgrounds. People also need access to affordable public transportation to avoid long, sedentary commutes by car.
- Healthy neighborhoods are located a safe distance from highways, power plants, and factories that emit toxic pollutants. They are outside flood plains, have tree canopies that protect residents from heat-related illnesses, and are less vulnerable to other threats from climate change.

- Health requires neighborhoods that are unsegregated and inclusive, free of concentrated poverty and other vestiges of racism, and economically vibrant.
- Healthy neighborhoods offer access to affordable, inclusive, and equitable health care—particularly primary care, dentists, and behavioral health services, including those related to mental health and substance abuse.
- Healthy states and localities are served by public health and environmental agencies that have adequate funding and resources to identify health threats, track diseases, and protect populations’ health and safety.
- Healthy communities nurture child health and development and support families with babies and toddlers, from before birth and through early childhood development.
- Healthy communities have public schools with adequate funding, facilities, and resources to deliver a high-quality, inclusive, and equitable education, as well as broadband service for education and jobs.

---

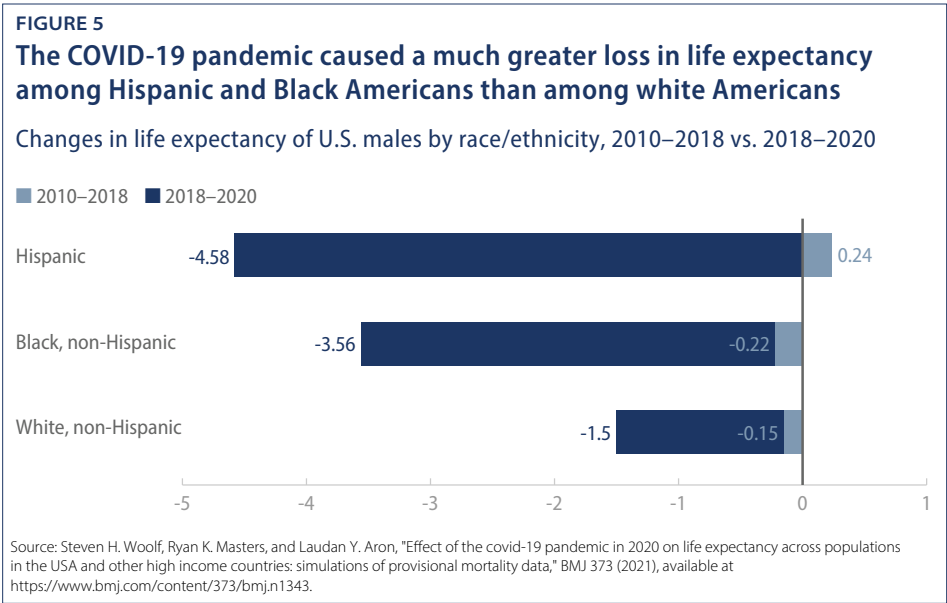
## Health inequities

Many Americans cannot afford to live in healthy neighborhoods. Structural barriers to economic well-being and other conditions conducive to good health have produced deep health divides in the U.S. population—by race/ethnicity, gender, sexual orientation, educational attainment, income, employment, health insurance coverage, immigrant status, disability, and geography.

The largest health inequities in the United States exist among Native American and Black populations. As long ago as 1899, W.E.B. Du Bois documented stark health disparities in the Black wards of Philadelphia.<sup>36</sup> And from 2016 to 2018, the death rate of the U.S. Black population was still 24 percent higher than among whites.<sup>37</sup> The origins of these disparities lie in America’s history of genocide, enslavement, Jim Crow laws, and segregation—such as redlining. But inequities persist today, because people of color continue to face discrimination, systemic racism, and institutional barriers that prevent wealth-building, obtaining a good education, getting hired and promoted, buying a home, accessing health care, living in safe and healthy environments, and pursuing opportunities for economic advancement.<sup>38</sup>

People of color are disproportionately exposed to neighborhood conditions that compromise their health and safety. They are more likely to live in segregated communities and to live in food deserts that have limited access to stores that sell affordable healthy food; they are also more likely to have limited access to housing that is healthy and

affordable, a built environment that offers playgrounds and safe conditions for outdoor physical activity, good schools and jobs, health care and child care, and a tax base to support local infrastructure and social services.<sup>39</sup> People of color are also more likely to live near facilities, such as power plants, that emit toxic pollutants.<sup>40</sup> Their neighborhoods are more likely to be unshaded, producing “heat islands,”<sup>41</sup> where ambient temperatures claim lives in hot weather. Moreover, residents of low-income neighborhoods tend to be vulnerable to flooding and other severe weather events, as well as to have fewer disaster-recovery resources to rebuild their lives after catastrophes occur.<sup>42</sup>



The impact of these disparities was vividly displayed during the COVID-19 pandemic. People of color, who are more likely to live in overcrowded conditions, were less able to socially distance and faced heightened exposure to the virus. They were also more likely to be economically dependent on jobs as front-line workers and to lack the kinds of jobs or financial cushion that would allow them to stay home or work virtually. Once infected, Black and brown people were more likely to develop complications because of heightened “comorbidities”—the legacy of systemic racism that causes people of color to have higher rates of heart disease and other risk factors for hospitalizations and deaths. In the first half of 2020, compared with non-Hispanic whites, the risk of dying from COVID-19 was 3.6 times higher among non-Hispanic Black Americans, 2.8 times higher among Hispanic Americans, 2.2 times higher among non-Hispanic American Indians and Alaskan Natives, and 1.6 times higher among non-Hispanic Asians.<sup>43</sup>

Whereas life expectancy among non-Hispanic whites fell by 1.4 years during 2020, life expectancy among Hispanic and non-Hispanic Black Americans fell by 3.3 and 3.9 years, respectively. (see Figure 5) In fact, life expectancy for Black men fell to its lowest level since 1998 (67.7 years), and a long-standing Hispanic life expectancy advantage over the white population almost disappeared.

Yet even as death rates among communities of color remain unacceptably high, within the past decade, the largest increase in death rates in the working-age population has occurred among white Americans, particularly those with low incomes and those living in rural areas.<sup>44</sup> Families struggling with stagnant wages, job insecurity, and diminishing hope for a brighter future were vulnerable to opioid addiction, which first took hold in the white population and later spread to people of color.<sup>45</sup> The framing of U.S. policies around race was evident in the nation's response to the drug crisis: For decades, drug addiction was treated as a crime among people of color and was not accepted as a public health problem until the opioid crisis erupted in the white population.<sup>46</sup> Across all racial groups, drug overdoses now represent the leading cause of rising mortality rates in young and middle-aged adults.<sup>47</sup>

The lesson is clear: White or Black, the prerequisites for good health are the same. Health depends on economic well-being, and economic well-being requires access to good jobs that pay livable wages; earnings that allow families to save and build assets; quality and nutritious foods; housing and transportation that is affordable and does not consume resources needed for good health; environments that do not cause illness; schools that can prepare children to compete for 21st century jobs, from pre-K to college; and early childhood conditions that promote healthy development and a successful future. People of color systematically face greater barriers to these opportunities, and their health suffers. This outcome is not a matter of personal choice; racial health disparities are produced by the choices of society, not individual people.

---

## Both policies and priorities matter to health

What determines whether the nation, states, cities, and neighborhoods have adequate and equitable access to health and well-being comes down to policy—not just policies regarding Medicare, Medicaid, and other aspects of medicine but also, and more importantly, policies that affect economic well-being and the other living conditions that powerfully influence health.<sup>48</sup> The health of Americans depends on the actions—or inaction—of federal, state, and local governments to make health and well-being a priority and to fund the necessary infrastructure. Health is also shaped by the private

sector and the decisions made by supermarkets, restaurants, manufacturers, builders, developers, investors, financial institutions, employers, unions, health care systems, and community organizations.

As the COVID-19 pandemic has demonstrated, public health requires the federal government to provide states the resources they need to prevent disease and promote health. It has also illustrated the dangers of politicizing public health policy and putting lives at risk to pursue political agendas. Keeping communities healthy requires state governments to eschew preemption laws<sup>49</sup> and give local jurisdictions the freedom to institute—or ban—policies to protect the health of their residents and address local needs.<sup>50</sup> Increasingly in recent years, however, governors have wielded this authority to override local leaders and block policies limiting tobacco and electronic cigarettes, improving food labeling, and aiming to promote gun safety.<sup>51</sup> These efforts spilled into the public eye during the COVID-19 pandemic, when governors prevented mayors and local governments from enforcing mask mandates or prohibiting gatherings even in the face of climbing COVID-19 hospitalizations.<sup>52</sup> In addition, local jurisdictions cannot prioritize local needs without engaging and empowering the community, especially residents of vulnerable neighborhoods, who know best what threatens their health and safety.

Indeed, in the policy arena lies the answer to why the health of Americans has fallen behind advances in other countries.<sup>53</sup> What differentiates the United States from these countries with better health outcomes is not its form of government or commitment to free enterprise—peer nations are also large democracies with capitalist economies—it is its policy priorities.

Other countries that have historically enjoyed longer life expectancy and better health outcomes spend less per capita on health care and more on the human and physical infrastructure for good health.<sup>54</sup> They place a higher priority on access to education, stable jobs, livable wages, and people-oriented programs that help young and poor families get through hard times without sacrificing the health of their children. Differences in policy priorities have consequences, as seen in OECD data. (see text box below)

In the past decade, per capita spending on the prevention of disease has decreased in the United States.<sup>55</sup> And when Americans get sick, they encounter a health care delivery system that underperforms in comparison with other countries. Americans' access to health care is more limited than access for patients in other countries, where universal health care and low out-of-pocket expenses are common.<sup>56</sup> As of 2016, one third (33 percent) of Americans reported having to forego care due to cost,<sup>57</sup> a larger percentage

than in other countries—such as Switzerland (22 percent), New Zealand (18 percent), France (17 percent), Canada (16 percent), Australia (14 percent), Norway (10 percent), the Netherlands (8 percent), Sweden (8 percent), England (7 percent), and Germany (7 percent).<sup>58</sup> Moreover, medical bankruptcies produced by devastating health care expenses, a common occurrence in the United States, are rare elsewhere.

## U.S. standing among the 38 OECD member countries

- U.S. public spending on family benefits ranks third to last.<sup>59</sup> The United States is the only OECD country that does not mandate paid family and medical leave for new parents.<sup>60</sup>
- U.S. parents face the largest financial disincentives to enter employment with child care costs.<sup>61</sup>
- U.S. undergraduate students pay the highest tuition and receive the least financial aid.<sup>62</sup>
- U.S. 15-year-olds rank 31st on mathematical performance.<sup>63</sup>
- Only Turkey and Chile provide lower income benefits for jobless families.<sup>64</sup>
- The United States has the second-highest poverty rate<sup>65</sup> and ranks sixth on income inequality.<sup>66</sup>

Compared with U.S. cities, the cityscape in other high-income countries is more conducive to walking and cycling,<sup>67</sup> promotes public transit,<sup>68</sup> and offers greater access to fresh produce and other healthy foods.<sup>69</sup> According to one study, in most European countries, 25 to 35 percent of trips involve walking or cycling.<sup>70</sup> Another study found that access to healthy foods was better in a number of European countries—the Netherlands, France, Switzerland, Austria, Belgium, Denmark, Sweden, Australia, Ireland, Italy, Luxembourg, and Portugal—than in the United States.<sup>71</sup> U.S. environmental policy, meanwhile, ranks 24th in the world.<sup>72</sup>

# Future threats to America's health

These differences in policy priorities not only explain the past—why U.S. health standing declined relative to that of other countries—but they also expose current vulnerabilities in and future threats to the nation's health, such as pandemics and climate change. The world saw this firsthand during the COVID-19 pandemic. Differences in how the United States approached policy decisions—at both the national and state levels—help explain why the country experienced so many more deaths than its peers.<sup>73</sup>

Unless the systemic problems laid bare during the COVID-19 pandemic are rectified, the United States will remain vulnerable to future pandemics<sup>74</sup> and to the increasing threats posed by climate change. Natural and man-made disasters—as well as severe weather events such as hurricanes, flooding, extreme heat, and uncontained forest fires—bring immediate threats to safety and affect public health.<sup>75</sup> Flooded roads block access to food and health care. Disruption of drinking water and sanitation systems can lead to outbreaks of infectious diseases.<sup>76</sup> Power outages cut off electricity to intensive care units at hospitals, expose the vulnerable to hypothermia or heat stroke, and increase the risk of home heart attacks and other complications among victims struggling to escape.<sup>77</sup> Airborne ash from large-area fires is carried aloft and affects respiratory health across large regions.<sup>78</sup> And the stress from these events can harm mental health and trigger alcohol and drug abuse.<sup>79</sup>

If the burning of fossil fuels and the rate of greenhouse gas emissions are not significantly curbed, U.S. children are certain to inherit new public health threats, such as deadlier heat waves<sup>80</sup> and wildfires,<sup>81</sup> drought and water shortages,<sup>82</sup> lower crop yields resulting from loss of habitat and pollinating insects,<sup>83</sup> the spread of insect- and food-borne diseases,<sup>84</sup> and the unleashing of new microbes that are currently trapped in melting sea ice.<sup>85</sup> Large populations displaced by climate change will emigrate to other countries, including the United States.<sup>86</sup> Mass migration may occur within the United States as populations relocate to escape areas with intolerable flooding or heat.



People watch as the Bobcat Fire burns land in Monrovia, California, on September 15, 2020.

Photo: Getty Images/Ringo Chiu

The window of opportunity to avert these outcomes is closing fast.<sup>87</sup> The planet is running out of time, and so is the United States. To prevent the planet from warming more than 1.5 degrees, a danger level flagged by climate scientists, the world would need to cut carbon emissions to “net zero” by 2050.<sup>88</sup> This would require the U.S. power sector to cut carbon emissions to 20 percent of 2005 levels by 2030 and to achieve a 100 percent clean power sector by 2035.

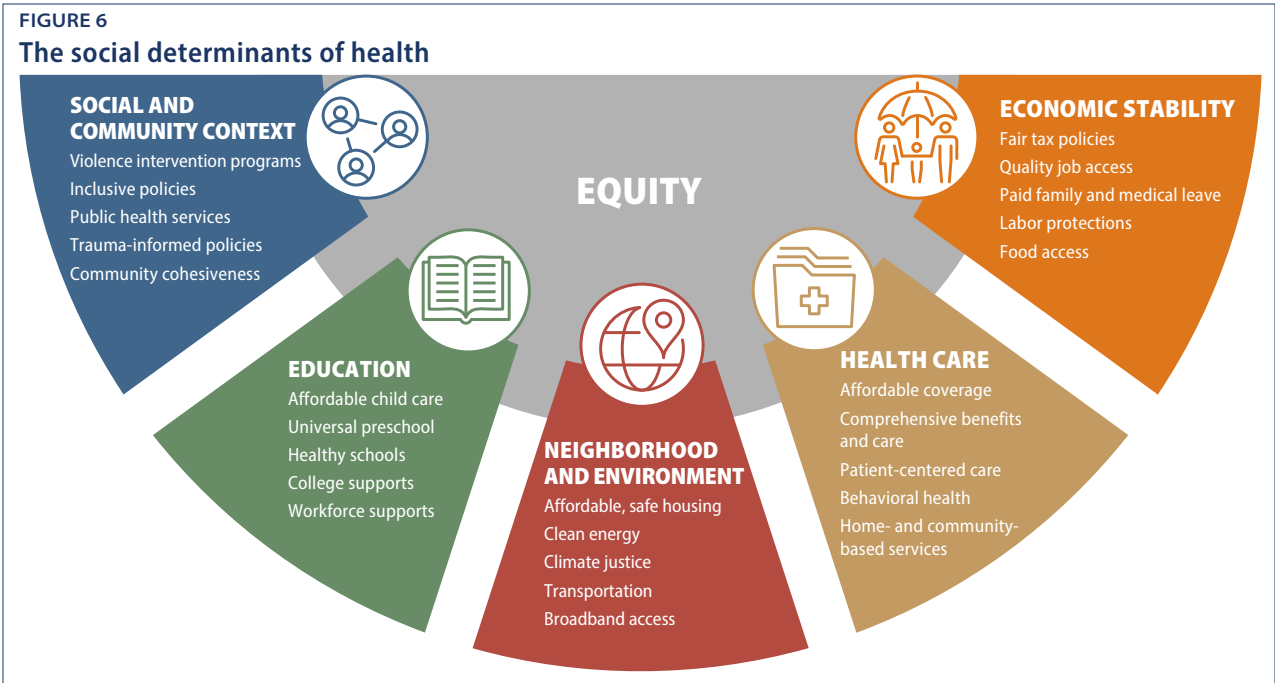
The prescription is clear: The nation needs better systems for disaster preparedness and a strong plan to confront the root causes of climate change so that flooding and other severe weather events do not become more common. Moreover, it needs strong systems to identify health threats, track the spread of disease, implement solutions to keep people healthy, and have the capacity to treat large populations with injuries or illness.



# Policy solutions

Traditional health policies alone will not solve the decline in U.S. health or the deep health inequities that exist among Americans. Broadening health insurance coverage or spending more on scientific research will not do enough to curb the increase in mortality rates.

Meaningful change in the health of Americans requires new policies that target all of the drivers of health: not only health care but also education, economic stability, neighborhoods and environments, and social and community well-being. (see Figure 6)



Americans' health depends on the infrastructure of their communities. Thus, the nation's priorities in health policy should be proposals to create good jobs, increase wages, reduce economic hardship, ensure food and housing security, improve transportation to doctors and jobs, promote infant and child development, ensure a quality education, make college affordable, widen broadband access, and protect people from climate change—particularly for disadvantaged and vulnerable communities. Americans also need affordable, high-quality health care, which requires better financing and coordination. All of these services must be inclusive, accessible, climate resilient, and free of discrimination.

Government and the private health care industry need to be smarter about their investments in health care. Neither health insurance nor medical breakthroughs can save lives if communities struggle with accessibility and affordability of services. Every American community deserves high-quality, inclusive, and affordable physical, mental health, and substance abuse services; providers who accept insurance; and a reliable public health infrastructure. The nation must expand health insurance coverage; widen access to health care, including preventive care, treatment, and medications; and reduce health care costs—and it must do so while addressing systemic racism and inequities within the health care system that have contributed to great disparities in health outcomes.<sup>89</sup>

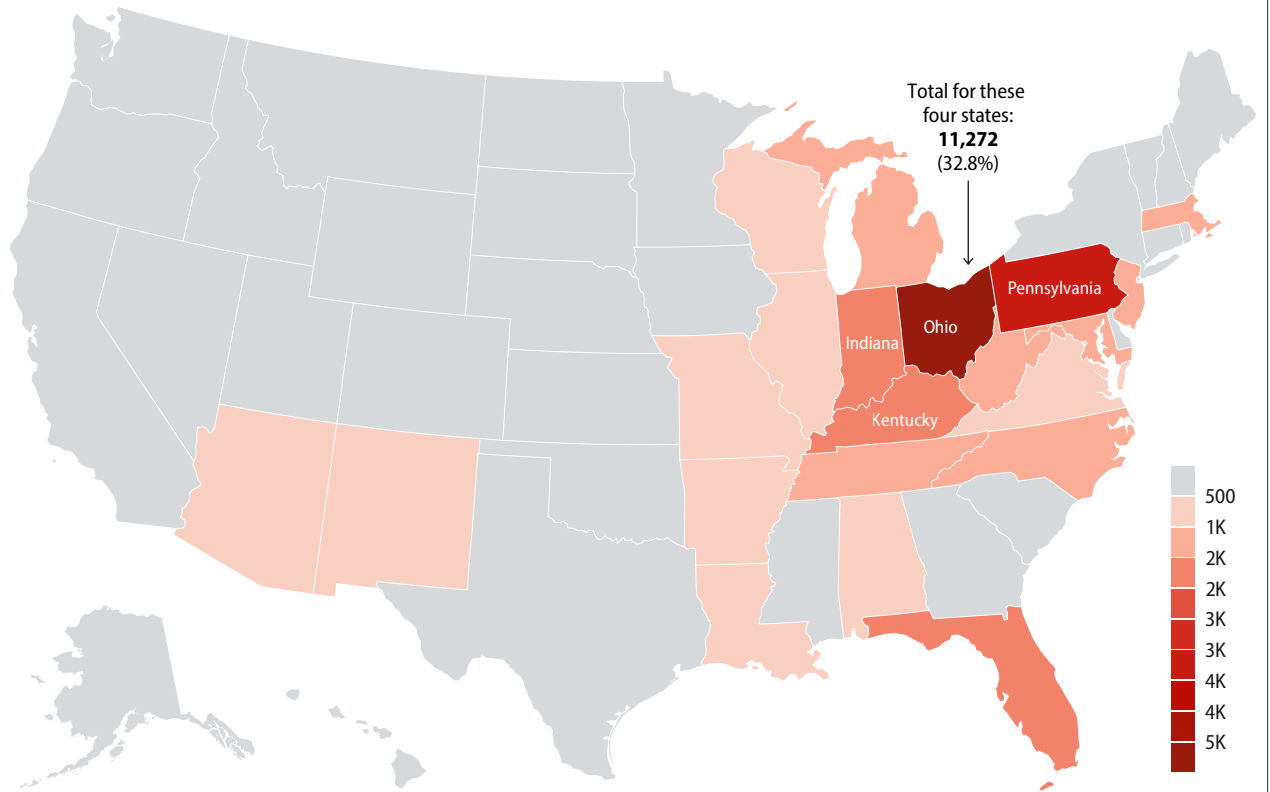
The strains on public health were evident during the COVID-19 pandemic, as were the consequences of chronic underfunding of state and local health departments. The United States needs to strengthen its public health infrastructure to include funding for the Centers for Disease Control and Prevention as well as state and local health departments.

Investing in families is important in every state, and for all Americans, but it is especially important for low-income and middle-class Americans; communities that have faced historic racism and discrimination, such as people of color and LGBTQ+ communities; and struggling communities that the 21st century economy has left behind. The largest increases in deaths among working-age adults have occurred in communities in the industrial Midwest and Appalachia that were devastated by the collapse of the manufacturing and coal mining sectors and by the chronic disinvestment that followed. According to one study published in the *Journal of the American Medical Association*, from 2010 to 2017, four Ohio Valley states—Ohio, Pennsylvania, Indiana, and Kentucky—accounted for one-third of the nation's excess deaths caused by increasing mortality among working-age adults.<sup>90</sup> (see Figure 7) Meanwhile, historic disinvestment in communities of color has marginalized many urban and rural areas. Bringing aid to America's middle class, especially in hard-hit areas, is vital to reversing the decline in U.S. life expectancy.

FIGURE 7

### One-third of excess working-age U.S. deaths occurred in four Ohio Valley states

Excess deaths in US caused by increases in all-cause mortality rates, by state, ages 25–64, 2010–2017



Source: Steven H. Woolf and Heidi Schoemaker, “Life Expectancy and Mortality Rates in the United States, 1959–2017,” *Journal of the American Medical Association* 322 (20) (2019): 1996–2016, available at <https://jamanetwork.com/journals/jama/article-abstract/2756187>.

Fortunately, the policies that can transform public health do not require a new slate of proposals; they are in the economic recovery plans that policymakers are already exploring. Health outcomes can be improved, and health inequities reduced, through the investments that these plans would make in education, jobs, income, food security, housing, transportation, clean and safe communities, health care, and public health. This legislation includes the American Rescue Plan, which the Biden administration passed in March 2021;<sup>91</sup> the Infrastructure Investment and Jobs Act that the Senate passed in August 2021;<sup>92</sup> and proposed investments in families—“human infrastructure”—contained in the reconciliation bill currently under debate in Congress.<sup>93</sup>

# Conclusion

Large infrastructure investments are costly, but America cannot afford the alternative. Failing to restore the economic well-being of American families threatens not only their pocketbooks but also their health and lifespans. U.S. life expectancy has been falling behind that of other countries for 30 years, the decline has intensified in the past decade, and inequities have widened. COVID-19 has lowered life expectancy to values not seen for two decades, with disproportionate impacts on people of color. Doing nothing to change course will have predictable consequences: Americans will remain in poorer health and will die at higher rates, and their children will be destined to live shorter lives.

The nation's health trajectory also threatens its economy. It is the American workforce, those ages 25 to 64 years, that is experiencing the largest increase in death rates.<sup>94</sup> As a recent surgeon general's report warned, the decline in U.S. health threatens the business community, which is competing against overseas businesses with healthier workers and lower health care costs. It also threatens the armed forces, which are finding an increasing number of applicants unfit for duty.<sup>95</sup> Poor health threatens national security and, as COVID-19 demonstrated, exposes vulnerabilities that endanger the country when future disasters occur.

Investing in U.S. infrastructure will cost trillions of dollars, but failing to act and surrendering America's future to illness comes at too high a price.

---

## About the author

**Steven H. Woolf, M.D., M.P.H.** is a senior fellow at the Center for American Progress. He is also a professor of family medicine and population health at Virginia Commonwealth University School of Medicine.

---

## Acknowledgments

The author would like to thank Jill Rosenthal, Nicole Rapfogel, Maura Calsyn, Marquisha Johns, Emily Gee, and the following teams for their guidance and input: Early Childhood, Economy, K-12 Education, Energy and Environment, Health, Poverty, and Racial Equity and Justice, as well as CAP's Editorial and Art teams for their contributions.

---

## Endnotes

- 1 World Bank, "Life expectancy at birth, total (years)," available at <https://data.worldbank.org/indicator/SP.DYN.LE00.IN> (last accessed September 2021).
- 2 World Bank, "Mortality rate, infant (per 1,000 live births)," available at <https://data.worldbank.org/indicator/SP.DYN.IMRT.IN> (last accessed September 2021).
- 3 World Bank, "Survival to age 65, female (% of cohort)," available at <https://data.worldbank.org/indicator/SP.DYN.TO65.FE.ZS> (last accessed September 2021).
- 4 World Bank, "GDP (current US\$)," available at <https://data.worldbank.org/indicator/NY.GDP.MKTP.CD> (last accessed September 2021).
- 5 Eileen M. Crimmins, Samuel H. Preston, and Barney Cohen, *Explaining Divergent Levels of Longevity in High-Income Countries* (Washington: The National Academies Press, 2011); Steven H. Woolf and Laudan Aron, *U.S. Health in International Perspective: Shorter Lives, Poorer Health* (Washington: The National Academies Press, 2013); National Academies of Sciences, Engineering, and Medicine and others, *High and Rising Mortality Rates Among Working-Age Adults* (Washington: The National Academies Press, 2021); Steven H. Woolf, Ryan K. Masters, and Laudan Y. Aron, "Effect of the covid-19 pandemic in 2020 on life expectancy across populations in the USA and other high income countries: simulations of provisional mortality data," *BMJ* 373 (1343) (2021), available at <https://www.bmj.com/content/373/bmj.n1343>; Hannes Schwandt and others, "Inequality in Mortality between Black and White Americans by Age, Place, and Cause, and in Comparison to Europe, 1990-2018" (Cambridge, MA: National Bureau of Economic Research, 2021), available at <https://www.nber.org/papers/w29203>.
- 6 Johns Hopkins University and Medicine, "Coronavirus Resource Center," available at <https://coronavirus.jhu.edu/map.html> (last accessed September 2021).
- 7 Woolf and Aron, *U.S. Health in International Perspective: Shorter Lives, Poorer Health*; National Academies of Sciences, Engineering, and Medicine and others, *High and Rising Mortality Rates Among Working-Age Adults*.
- 8 U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, and Office of the Associate Director for Policy and Strategy, "Community Health and Economic Prosperity: Engaging Businesses as Stewards and Stakeholders—A Report of the Surgeon General" (Atlanta: 2021), available at <https://www.hhs.gov/sites/default/files/chep-sgr-full-report.pdf>; Heather Maxey, Sandra Bishop-Josef, and Ben Goodman, "Unhealthy and Unprepared" (Washington: Council for a Strong America, 2018), available at <https://www.strongnation.org/articles/737-unhealthy-and-unprepared>; Ans Irfan and others, "National Security Risks and the American Weak Link," *Think Global Health*, October 14, 2020, available at <https://www.thinkglobalhealth.org/article/national-security-risks-and-american-weak-link>; Steven H. Woolf and Laudan Y. Aron, "COVID-19 pandemic may be winding down but Americans are still sick and dying," *The Hill*, July 6, 2021, available at <https://thehill.com/opinion/healthcare/561680-covid-19-pandemic-may-be-ending-but-americans-are-still-sick-and-dying?rnd=1625591555>.
- 9 James C. Riley, *Rising Life Expectancy: A Global History* (Cambridge, United Kingdom: Cambridge University Press, 2001).
- 10 World Bank, "Life expectancy at birth."
- 11 The Organization for Economic Cooperation and Development (OECD) is an international organization that includes most of the world's highest-income countries.
- 12 World Bank, "Life expectancy at birth."
- 13 Katherine Schaeffer, "6 facts about economic inequality in the U.S.," Pew Research Center, February 7, 2020, available at <https://www.pewresearch.org/fact-tank/2020/02/07/6-facts-about-economic-inequality-in-the-u-s/>.
- 14 Olga Khazan, "America's Health-Inequality Problem," *The Atlantic*, June 5, 2017, available at <https://www.theatlantic.com/health/archive/2017/06/america-has-the-third-worst-level-of-health-inequality-in-the-world/529158/>; Frederick J. Zimmerman and Nathaniel W. Anderson, "Trends in Health Equity in the United States by Race/Ethnicity, Sex, and Income, 1993-2017," *JAMA Network Open* 2 (6) (2019): e196386, available at <https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2736934>.
- 15 Mauricio Avendano and others, "Health Disadvantage in US Adults Aged 50 to 74 Years: A Comparison of the Health of Rich and Poor Americans With That of Europeans," *American Journal of Public Health* 99 (3) (2009): 540-548, available at <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2661456/>; Joachim O. Hero, Alan M. Zaslavsky, and Robert J. Blendon, "The United States Leads Other Nations In Differences By Income In Perceptions Of Health And Health Care," *Health Affairs* 36 (6) (2017): 1032-1040, available at <https://www.healthaffairs.org/doi/full/10.1377/hlthaff.2017.0006>.
- 16 HwaJung Choi and others, "Comparison of Health Outcomes Among High- and Low-Income Adults Aged 55 to 64 Years in the US vs England," *JAMA Internal Medicine* 180 (9) (2020): 1185-1193, available at <https://pubmed.ncbi.nlm.nih.gov/32897385/>.
- 17 National Academies of Sciences, Engineering, and Medicine and others, *High and Rising Mortality Rates Among Working-Age Adults*.
- 18 Lenny Bernstein, "Life expectancy declines again, a dismal trend not seen since World War I," *The Washington Post*, November 29, 2018, available at [https://www.washingtonpost.com/national/health-science/us-life-expectancy-declines-again-a-dismal-trend-not-seen-since-world-war-i/2018/11/28/ae58bc8c-f28c-11e8-bc79-68604ed88993\\_story.html](https://www.washingtonpost.com/national/health-science/us-life-expectancy-declines-again-a-dismal-trend-not-seen-since-world-war-i/2018/11/28/ae58bc8c-f28c-11e8-bc79-68604ed88993_story.html).
- 19 The 16 countries included in the study are Austria, Belgium, Denmark, Finland, France, Israel, the Netherlands, New Zealand, Norway, South Korea, Portugal, Spain, Sweden, Switzerland, Taiwan, and the United Kingdom. See Steven H. Woolf and others, "Changes in midlife death rates across racial and ethnic groups in the United States: systematic analysis of vital statistics," *The BMJ* 362 (2018), available at <https://www.bmj.com/content/362/bmj.k3096>.
- 20 Woolf, "Changes in midlife death rates across racial and ethnic groups in the United States."
- 21 National Academies of Sciences, Engineering, and Medicine and others, *High and Rising Mortality Rates Among Working-Age Adults*.
- 22 Farida B. Ahmad and others, "Provisional Mortality Data — United States, 2020," *Morbidity and Mortality Weekly Report* 70 (14) (2021): 519-552, available at <https://www.cdc.gov/mmwr/volumes/70/wr/pdfs/mm7014-H.pdf>.

- 23 Johns Hopkins University and Medicine, "Coronavirus Resource Center."
- 24 Alyssa Bilinski and Ezekiel J. Emanuel, "COVID-19 and Excess All-Cause Mortality in the US and 18 Comparison Countries," *The Journal of the American Medical Association* 324 (20) (2020): 2100–2102, available at <https://pubmed.ncbi.nlm.nih.gov/33044514/>.
- 25 Woolf and Aron, "Effect of the covid-19 pandemic in 2020 on life expectancy across populations in the USA and other high income countries."
- 26 Joel Achenbach, "U.S. life expectancy ticks up as drug fatalities and cancer deaths drop," *The Washington Post*, January 30, 2020, available at [https://www.washingtonpost.com/health/us-life-expectancy-ticks-up-as-drug-fatalities-and-cancer-deaths-drop/2020/01/29/2f663376-4206-11ea-b5fc-efaf848cde99\\_story.html](https://www.washingtonpost.com/health/us-life-expectancy-ticks-up-as-drug-fatalities-and-cancer-deaths-drop/2020/01/29/2f663376-4206-11ea-b5fc-efaf848cde99_story.html) Accessed September 3, 2021.
- 27 Elias Mossialos and others, "International Profiles of Health Care Systems" (New York: The Commonwealth Fund, 2017), available at [https://www.commonwealthfund.org/sites/default/files/documents/\\_\\_\\_media\\_files\\_publications\\_fund\\_report\\_2017\\_may\\_mossialos\\_intl\\_profiles\\_v5.pdf](https://www.commonwealthfund.org/sites/default/files/documents/___media_files_publications_fund_report_2017_may_mossialos_intl_profiles_v5.pdf).
- 28 Centers for Medicare and Medicaid Services, "National Health Expenditure Data," available at <https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/NationalHealthAccountsHistorical> (last accessed September 2021).
- 29 Committee on Population and others, *Measuring the Risks and Causes of Premature Death: Summary of Workshops* (Washington: The National Academies Press, 2015).
- 30 James Banks and others, "Disease and disadvantage in the United States and in England," *The Journal of the American Medical Association* 295 (17) (2006): 2037–2045, available at <https://pubmed.ncbi.nlm.nih.gov/16670412/>; Melissa L. Martinson, Julien O. Teitler, and Nancy E. Reichman, "Health Across the Life Span in the United States and England," *American Journal of Epidemiology* 173 (8) (2011): 858–865, available at <https://academic.oup.com/aje/article/173/8/858/156597>.
- 31 Schwandt and others, "Inequality in Mortality between Black and White Americans by Age, Place, and Cause, and in Comparison to Europe"; Avendano and others, "Health Disadvantage in U.S. Adults Aged 50 to 74 Years"; Eileen M. Crimmins, Samuel H. Preston, and Barney Cohen, *International Differences in Mortality at Older Ages: Dimensions and Sources* (Washington: The National Academies Press, 2010), pp. 313–332; Crimmins, Preston, and Cohen, *Explaining Divergent Levels of Longevity in High-Income Countries*; Ezekiel J. Emanuel and others, "Comparing Health Outcomes of Privileged US Citizens With Those of Average Residents of Other Developed Countries," *JAMA Internal Medicine* 181 (3) (2020): 339–344, available at <https://jamanetwork.com/journals/jamainternalmedicine/fullarticle/2774561>.
- 32 Howard Frumkin, *Environmental Health: From Global to Local* (San Francisco: Jossey-Bass, 2016).
- 33 Kelly D. Brownell and others, "Personal Responsibility And Obesity: A Constructive Approach To A Controversial Issue," *Health Affairs* 29 (3) (2010): 379–387, available at <https://www.healthaffairs.org/doi/full/10.1377/hlthaff.2009.0739>.
- 34 Steven H. Woolf, "Progress In Achieving Health Equity Requires Attention To Root Causes," *Health Affairs* 36 (6) (2017): 984–991, available at <https://pubmed.ncbi.nlm.nih.gov/28583955/>.
- 35 Virginia Commonwealth University Center on Society and Health, "Mapping Life Expectancy: Philadelphia," April 6, 2016, available at <https://societyhealth.vcu.edu/work/the-projects/mapsphiladelphia.html>.
- 36 W.E.B. Du Bois, *The Philadelphia Negro* (Philadelphia: University of Philadelphia Press, 2007).
- 37 Maureen R. Benjamins and others, "Comparison of All-Cause Mortality Rates and Inequities Between Black and White Populations Across the 30 Most Populous US Cities," *JAMA Network Open* 4 (2021), available at <https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2775299>.
- 38 David R. Williams, Jourdyn A. Lawrence, and Brigette A. Davis, "Racism and Health: Evidence and Needed Research," *Annual Review of Public Health* 40 (2019): 105–125, available at <https://www.annualreviews.org/doi/abs/10.1146/annurev-publhealth-040218-043750>; Zinzi D. Bailey and others, "Structural racism and health inequities in the USA: evidence and interventions," *The Lancet* 389 (10077) (2017): 1453–1463, available at [https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(17\)30569-X/fulltext](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(17)30569-X/fulltext).
- 39 Williams, Lawrence, and Davis, "Racism and Health"; Center for American Progress, "U.S. Child Care Deserts," available at <https://www.childcaresdeserts.org/> (last accessed September 2021); Sheryll Cashin, *White Space, Black Hood: Opportunity Hoarding and Segregation in the Age of Inequality* (Boston: Beacon Press, 2021).
- 40 Tim Donaghy and Charlie Jiang, "Fossil Fuel Racism: How Phasing Out Oil, Gas, and Coal Can Protect Communities" (Washington: Greenpeace, Gulf Coast Center for Law and Policy, and Red Black and Green New Deal, 2021), available at <https://www.greenpeace.org/usa/reports/fossil-fuel-racism/>; Environmental Integrity Project, "Environmental Justice and Refinery Pollution: Benzene Monitoring Around Oil Refineries Showed More Communities at Risk in 2020" (Washington: 2021), available at <https://environmentalintegrity.org/wp-content/uploads/2021/04/Benzene-Report-embargoed-for-4.29.21-1.pdf>.
- 41 Jeremy S. Hoffman, Ph.D., "Throwing Shade in RVA," available at <https://jeremyscotthoffman.com/throwing-shade> (last accessed September 2021).
- 42 Bailey and others, "Structural racism and health inequities in the USA"; Maureen R. Benjamins and Fernando G. De Maio, *Unequal Cities: Structural Racism and the Death Gap in America's Largest Cities* (Baltimore: Johns Hopkins University Press, 2021).
- 43 Mary T. Bassett, Jarvis T. Chen, and Nancy Krieger, "Variation in racial/ethnic disparities in COVID-19 mortality by age in the United States: A cross-sectional study," *PLoS Medicine* 18 (2) (2020): e1003402, available at <https://journals.plos.org/plosmedicine/article?id=10.1371/journal.pmed.1003402>.
- 44 National Academies of Sciences, Engineering, and Medicine and others, *High and Rising Mortality Rates Among Working-Age Adults*; Anne Case and Angus Deaton, "Mortality and Morbidity in the 21st Century," *Brookings Papers on Economic Activity* 389 (10077) (2017): 397–476, available at <https://www.brookings.edu/wp-content/uploads/2017/08/casetextsp17bpea.pdf>.
- 45 Daniel Ciccarone, "The Triple Wave Epidemic: Supply and Demand Drivers of the US Opioid Overdose Crisis," *International Journal on Drug Policy* 71 (2019): 183–188, available at <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6675668/>.
- 46 Carmel Shachar and others, "Criminal Justice or Public Health: A Comparison of the Representation of the Crack Cocaine and Opioid Epidemics in the Media," *Journal of Health Politics, Policy and Law* 45 (2) (2020): 211–239, available at <https://pubmed.ncbi.nlm.nih.gov/31808806/>.
- 47 Woolf, "Changes in midlife death rates across racial and ethnic groups in the United States."

- 48 Ateendar S. Venkataramani, Rourke O'Brien, and Alexander C. Tsai. "Declining Life Expectancy in the United States: The Need for Social Policy as Health Policy," *The Journal of the American Medical Association* 325 (7) (2021): 621–622, available at <https://jamanetwork.com/journals/jama/article-abstract/2776338>.
- 49 According to the Public Health Law Center at the Mitchell Hamline School of Law, "Preemption occurs when, by legislative or regulatory action, a 'higher' level of government (state or federal) eliminates or reduces the authority of a 'lower' level over a given issue." See Public Health Law Center at the Mitchell Hamline School of Law, "Preemption," available at <https://www.publichealthlawcenter.org/topics/preemption-public-health> (last accessed September 2021).
- 50 Jennifer L. Pomeranz and Mark Pertschuk, "State Preemption: A Significant and Quiet Threat to Public Health in the United States," *American Journal of Public Health* 107 (6) (2017): 900–902, available at <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5425871/>.
- 51 American Public Health Association, "Impact of Preemptive Laws on Public Health," November 3, 2015, available at <https://www.apha.org/policies-and-advocacy/public-health-policy-statements/policy-database/2016/01/11/11/08/impact-of-preemptive-laws-on-public-health>.
- 52 Scott Burris and others, "COVID-19 Policy Playbook: Legal Recommendations for a Safer, More Equitable Future" (Boston: Public Health Law Watch, 2021).
- 53 Clare Bambra, Debbie Fox, and Alex Scott-Samuel, "Towards a politics of health," *Health Promotion International* 20 (2) (2005): 187–193, available at <https://academic.oup.com/heapro/article/20/2/187/827479>.
- 54 Mauricio Avendano and Ichiro Kawachi, "Why do Americans have shorter life expectancy and worse health than do people in other high-income countries?," *Annual Review of Public Health* 25 (2014): 307–325, available at <https://pubmed.ncbi.nlm.nih.gov/24422560/>; Jason Beckfield and Clare Bambra, "Shorter lives in stingier states: Social policy shortcomings help explain the US mortality disadvantage," *Social Science & Medicine* 171 (2016): 30–38, available at <https://pubmed.ncbi.nlm.nih.gov/27865604/>; Samuel Preston and Yana Vierboom, "Why do Americans die earlier than Europeans?," *The Guardian*, May 4, 2021, available at <https://www.theguardian.com/commentisfree/2021/may/04/why-do-americans-die-earlier-than-europeans>; Elizabeth H. Bradley and others, "Health and social services expenditures: associations with health outcomes," *BMJ Quality and Safety* 20 (10) (2011): 826–831, available at <https://qualitysafety.bmj.com/content/20/10/826>.
- 55 David U. Himmelstein and Steffie Woolhandler, "Public Health's Falling Share of US Health Spending," *American Journal of Public Health* 106 (1) (2016): 56–57, available at <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4695931/>.
- 56 Peterson-KFF Health System Tracker, "Out-of-pocket spending," available at <https://www.healthsystemtracker.org/indicator/access-affordability/out-of-pocket-spending/> (last accessed September 2021).
- 57 The Commonwealth Fund's International Health Policy Survey defines access barriers due to cost as at least one of the following: "did not fill/skipped prescription, did not visit doctor with medical problem, and/or skipped medical treatment or test."
- 58 The Commonwealth Fund, "Selected Health and System Statistics," available at <https://www.commonwealthfund.org/international-health-policy-center/system-stats> (last accessed September 2021).
- 59 Organization for Economic Cooperation and Development, "Public spending on family benefits," available at [https://www.oecd.org/els/soc/PF1\\_1\\_Public\\_spending\\_on\\_family\\_benefits.pdf](https://www.oecd.org/els/soc/PF1_1_Public_spending_on_family_benefits.pdf) (last accessed September 2021).
- 60 Gretchen Livingston and Deja Thomas, "Among 41 countries, only U.S. lacks paid parental leave," Pew Research Center, December 16, 2019, available at <https://www.pewresearch.org/fact-tank/2019/12/16/u-s-lacks-mandated-paid-parental-leave/>.
- 61 Organization for Economic Cooperation and Development, "Financial disincentive to enter employment with childcare costs," available at <https://data.oecd.org/benwage/financial-disincentive-to-enter-employment-with-childcare-costs.htm#indicator-chart> (last accessed September 2021).
- 62 Organization for Economic Cooperation and Development, "Education at a Glance 2017" (Paris: 2017), available at [https://www.oecd-ilibrary.org/education/education-at-a-glance-2017\\_eag-2017-en](https://www.oecd-ilibrary.org/education/education-at-a-glance-2017_eag-2017-en).
- 63 Organization for Economic Cooperation and Development, "Mathematics performance (PISA)," available at <https://data.oecd.org/pisa/mathematics-performance-pisa.htm> (last accessed September 2021).
- 64 Organization for Economic Cooperation and Development, "Adequacy of minimum income benefits," available at <https://data.oecd.org/benwage/adequacy-of-minimum-income-benefits.htm> (last accessed September 2021).
- 65 Organization for Economic Cooperation and Development, "Poverty rate," available at <https://data.oecd.org/inequality/poverty-rate.htm?context=OECD> (last accessed September 2021).
- 66 Organization for Economic Cooperation and Development, "Income inequality," available at <https://data.oecd.org/inequality/income-inequality.htm> (last accessed September 2021).
- 67 Ralph Buhler and John Pucher, "Walking and Cycling in Western Europe and the United States," *TR News* 280 (2012): 34–42, available at <http://onlinepubs.trb.org/onlinepubs/trnews/trnews280westerneuropa.pdf>.
- 68 Joseph Stromberg, "The real reason American public transportation is such a disaster," *Vox*, August 10, 2015, available at <https://www.vox.com/2015/8/10/9118199/public-transportation-subway-buses>.
- 69 Michaelleen Doucleff, "Where In The World Is The Best Place For Healthy Eating?," NPR, January 15, 2014, available at <https://www.npr.org/sections/the-salt/2014/01/14/262465619/where-in-the-world-is-the-best-place-for-healthy-eating>.
- 70 Buhler and Pucher, "Walking and Cycling in Western Europe and the United States."
- 71 Ben Grossman-Cohen, "Good enough to eat" (Nairobi, Kenya: Oxfam, 2014), available at <https://www.oxfamamerica.org/explore/research-publications/good-enough-to-eat/>.
- 72 Zachary A. Wending and others, "Environmental Performance Index 2020" (New Haven, CT: Yale Center for Environmental Law and Policy, 2020), available at <https://epi.yale.edu/downloads/epi2020report20210112.pdf>.
- 73 William P. Hanage and others, "COVID-19: US federal accountability for entry, spread, and inequities-lessons for the future," *European Journal of Epidemiology* 35 (11) (2020): 995–1006, available at <https://pubmed.ncbi.nlm.nih.gov/33136249/>; Drew Altman, "Understanding the US failure on coronavirus—an essay by Drew Altman," *The BMJ* 370 (2020): m3417, available at <https://www.bmj.com/content/370/bmj.m3417>; Richard W. Parker, "Why America's Response to the COVID-19 Pandemic Failed: Lessons from New Zealand's Success," *Administrative Law Review* 73 (1) (2021): 77–103, available at [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=3794725](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3794725).



- 74 Thomas J. Bollyky and Stewart M. Patrick, "Improving Pandemic Preparedness: Lessons From COVID-19" (New York: Council on Foreign Relations, 2020), available at <https://www.cfr.org/report/pandemic-preparedness-lessons-covid-19>.
- 75 Centers for Disease Control and Prevention, "Climate and Health: Regional Health Effects," available at <https://www.cdc.gov/climateandhealth/effects/default.htm> (last accessed September 2021).
- 76 L. Sinsi and R. Aertgeerts, "Guidance on Water Supply and Sanitation in Extreme Weather Events" (Copenhagen: World Health Organization, 2011), available at [https://www.euro.who.int/\\_data/assets/pdf\\_file/0016/160018/WHOGuidanceFVLR.pdf](https://www.euro.who.int/_data/assets/pdf_file/0016/160018/WHOGuidanceFVLR.pdf).
- 77 Joan A. Casey and others, "Power Outages and Community Health: a Narrative Review," *Current Environmental Health Reports* 7 (4) (2020): 371–383, available at <https://pubmed.ncbi.nlm.nih.gov/33179170/>.
- 78 Daniel A. Jaffe and others, "Wildfire and prescribed burning impacts on air quality in the United States," *Journal of the Air and Waste Management Association* 70 (6) (2020): 583–615, available at <https://www.tandfonline.com/doi/full/10.1080/10962247.2020.1749731>.
- 79 Substance Abuse and Mental Health Services Administration, "Disaster Preparedness, Response, and Recovery," available at <https://www.samhsa.gov/disaster-preparedness> (last accessed September 2021).
- 80 George Luber and Michael McGeehin, "Climate change and extreme heat events," *American Journal of Preventive Medicine* 35 (5) (2008): 429–435, available at <https://pubmed.ncbi.nlm.nih.gov/18929969/>; Katherine G. Arbutnott and Shakoor Hajat, "The health effects of hotter summers and heat waves in the population of the United Kingdom: a review of the evidence," *Environmental Health* 16 (119) (2017): 1–13, available at <https://ehjournal.biomedcentral.com/articles/10.1186/s12940-017-0322-5>.
- 81 Rongbin Xu and others, "Wildfires, Global Climate Change, and Human Health," *New England Journal of Medicine* 383 (22) (2020): 2173–2181, available at <https://www.nejm.org/doi/full/10.1056/NEJMs2028985>.
- 82 Center for Climate and Energy Solutions, "Drought and Climate Change," available at <https://www.c2es.org/content/drought-and-climate-change/> (last accessed September 2021).
- 83 Ali Raza and others, "Impact of Climate Change on Crops Adaptation and Strategies to Tackle Its Outcome: A Review," *Plants* 8 (2) (2019): 34, available at <https://www.mdpi.com/2223-7747/8/2/34>.
- 84 Nick H. Ogden and Philippe Gachon, "Climate change and infectious diseases: What can we expect?," *Canada communicable disease report* 45 (4) (2019): 76–80, available at <https://pubmed.ncbi.nlm.nih.gov/31285696/>.
- 85 Amr El-Sayed and Mohamed Kamel, "Future threat from the past," *Environmental Science and Pollution Research* 28 (2) (2021): 1287–1291, available at <https://pubmed.ncbi.nlm.nih.gov/33068243/>.
- 86 Guy S. Goodwin-Gill and Jane McAdam, "UNHCR and Climate Change, Disasters, and Displacement" (Geneva: U.N. High Commissioner for Refugees, 2017), available at <https://www.refworld.org/pdfid/59413c7115.pdf>.
- 87 John Podesta and others, "A 100 Percent Clean Future" (Washington: Center for American Progress, 2019), available at <https://www.americanprogress.org/issues/green/reports/2019/10/10/475605/100-percent-clean-future/>.
- 88 Intergovernmental Panel on Climate Change, "AR6 Climate Change 2021: The Physical Science Basis," available at <https://www.ipcc.ch/report/ar6/wg1/> (last accessed September 2021).
- 89 Centers for Disease Control and Prevention, "COVID-19: Health Equity Considerations & Racial & Ethnic Minority Groups," available at <https://www.cdc.gov/coronavirus/2019-ncov/community/health-equity/race-ethnicity.html> (last accessed September 2021).
- 90 Steven H. Woolf and Heidi Schoomaker, "Life Expectancy and Mortality Rates in the United States, 1959–2017," *The Journal of the American Medical Association* 322 (20) (2019): 1996–2016, available at <https://jamanetwork.com/journals/jama/article-abstract/2756187>.
- 91 American Rescue Plan Act of 2021, Public Law 2, 117th Cong., 1st sess. (March 11, 2021), available at <https://www.congress.gov/bills/117th-congress/house-bill/1319/text>.
- 92 Infrastructure Investment and Jobs Act of 2021, H.R. 3684, 117th Cong., 1st sess. (August 10, 2021), available at <https://www.govtrack.us/congress/bills/117/hr3684>.
- 93 The White House, "The Build Back Better Agenda," available at <https://www.whitehouse.gov/build-back-better/> (last accessed September 2021).
- 94 National Academies of Sciences, Engineering, and Medicine and others, *High and Rising Mortality Rates Among Working-Age Adults*.
- 95 Maxey, Bishop-Josef, and Goodman, "Unhealthy and Unprepared."

---

## Our Mission

The Center for American Progress is an independent, nonpartisan policy institute that is dedicated to improving the lives of all Americans, through bold, progressive ideas, as well as strong leadership and concerted action. Our aim is not just to change the conversation, but to change the country.

## Our Values

As progressives, we believe America should be a land of boundless opportunity, where people can climb the ladder of economic mobility. We believe we owe it to future generations to protect the planet and promote peace and shared global prosperity.

And we believe an effective government can earn the trust of the American people, champion the common good over narrow self-interest, and harness the strength of our diversity.

## Our Approach

We develop new policy ideas, challenge the media to cover the issues that truly matter, and shape the national debate. With policy teams in major issue areas, American Progress can think creatively at the cross-section of traditional boundaries to develop ideas for policymakers that lead to real change. By employing an extensive communications and outreach effort that we adapt to a rapidly changing media landscape, we move our ideas aggressively in the national policy debate.

