POPULATION HEALTH ALLIANCE

November 2021

Issue Brief

The Health of Populations and Social Determinants of Health

PART 1: *"Taking Stock: Historical Context and How the Pandemic Is Changing the Face of Social Determinants of Health and Health Equity"*

By Mary Jane Osmick, MD

POPULATION HEALTH ALLIANCE

The premier Association for improving population health

About PHA

Established in 1998, Population Health Alliance (PHA) is the industry's only multi-stakeholder professional and trade association solely focused on population health management, representing stakeholders (e.g, health systems, health plans, employer solutions, academia, biopharma and technology companies) from across the health care ecosystem that seek to improve health outcomes optimize the consumer and provider experience and drive affordability.

www.populationhealthalliance.org | @PHAVoice

About the Author

Mary Jane Osmick, MD is a board-certified internal medicine physician executive with extensive experience leading organizations in health care delivery. She practiced for 17 years as a primary care, general internist, served as a senior medical leader of a 150-employed physician network, as medical director for regional and national health insurers, and a clinical leader for vendor organizations focusing on managing the health and well-being of employer populations. MJ currently focuses on clinical advisory and consultant roles with the goal of building organizational capacity to integrate social determinants into the fabric of population health management programs. With other population health experts, she currently teaches a focus on social determinants of health and health equity at Thomas Jefferson University, College of Population Health in a program entitled, "Population Health Academy – Essentials."

Issue Brief

Part one of the series of issues briefs on:
The Health of Populations and SDOH

"Taking Stock: Historical Context and How the Pandemic Is Changing the Face of Social Determinants of Health and Health Equity"

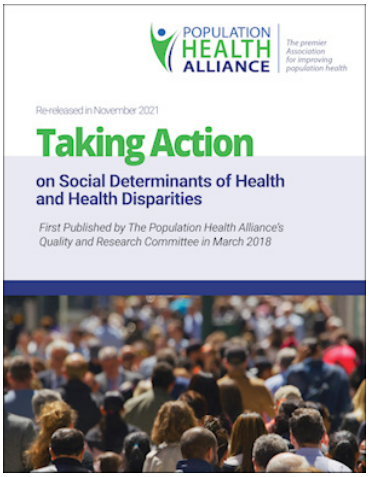
By Mary Jane Osmick, MD

Key Point Summary

- A 50-plus-year history of robust global and US research, consensus commissions, frameworks, and health care quality improvement initiatives provide strong evidence that an individual's health and longevity are linked to the socioeconomic conditions and related exposures to various social determinants under which they live (the social gradient in health).
- The COVID-19 pandemic has magnified the criticality of social determinants of health (SDOH) as key drivers in who becomes infected, is hospitalized, and dies of the virus. Data and research demonstrate how individuals living at the lower end of the social gradient in health experience the pandemic differently from those at higher social gradient levels.
- Although the US has been aware of health inequity based on SDOH for decades, little progress has been made in closing those gaps in the last 25 years.
- Current events and documented COVID-19-related health disparities are spurring action on responding to unmet social needs and highlighting the urgency of improving health inequity within the US public and private sectors.

I. Introduction

In 2018 and 2019, the Population Health Alliance (PHA) published a whitepaper and eBook entitled, "Social Determinants of Health – Taking Action." At the time, the transition from fee-for-service health care delivery to risk-bearing contracts and value-based alternative payment models was beginning to take hold. PHA recognized the importance of how unmet social needs result in differences in individual and population health outcomes and higher costs of care. PHA asked a group of experts with practical knowledge of the health care industry to develop an evidence-based primer offering current research, frameworks, tools, and resources to assist member organizations in integrating social care needs into their clinical delivery systems.



Since the original publication, the political, social, technological, and health care landscape in the US has experienced seismic shifts, and updates to the primer are required. These updates will be presented through a set of issue briefs offered over the course of the next year. This first brief, "Taking Stock: Historical Context and How the Pandemic Is Changing the Face of Social Determinants of Health and Health Equity," sets the stage and defines the context for the briefs that follow.

This brief begins by reviewing a 50-plus-year history selected for relevance to SDOH and health equity, with a goal of helping clarify how we have arrived at our current state. It then focuses on current research that highlights how COVID-19 has exacerbated long-standing health and wealth disparities in populations, considering how societal structures and geography drive ill health and mortality in our most vulnerable populations. Finally, it discusses how the history and research bring us to a point of required action on health inequity, considering what it might take to change.

Future PHA briefs will focus on the impact of COVID-19 on other aspects of SDOH.

II. Historical Context

How we got here… Social Determinants of Health and Heath Equity

The terms ***social determinants of health***, or SDOH, and ***health equity*** are now commonplace in our public health and health care delivery system lexicon. This brief uses the following definitions:

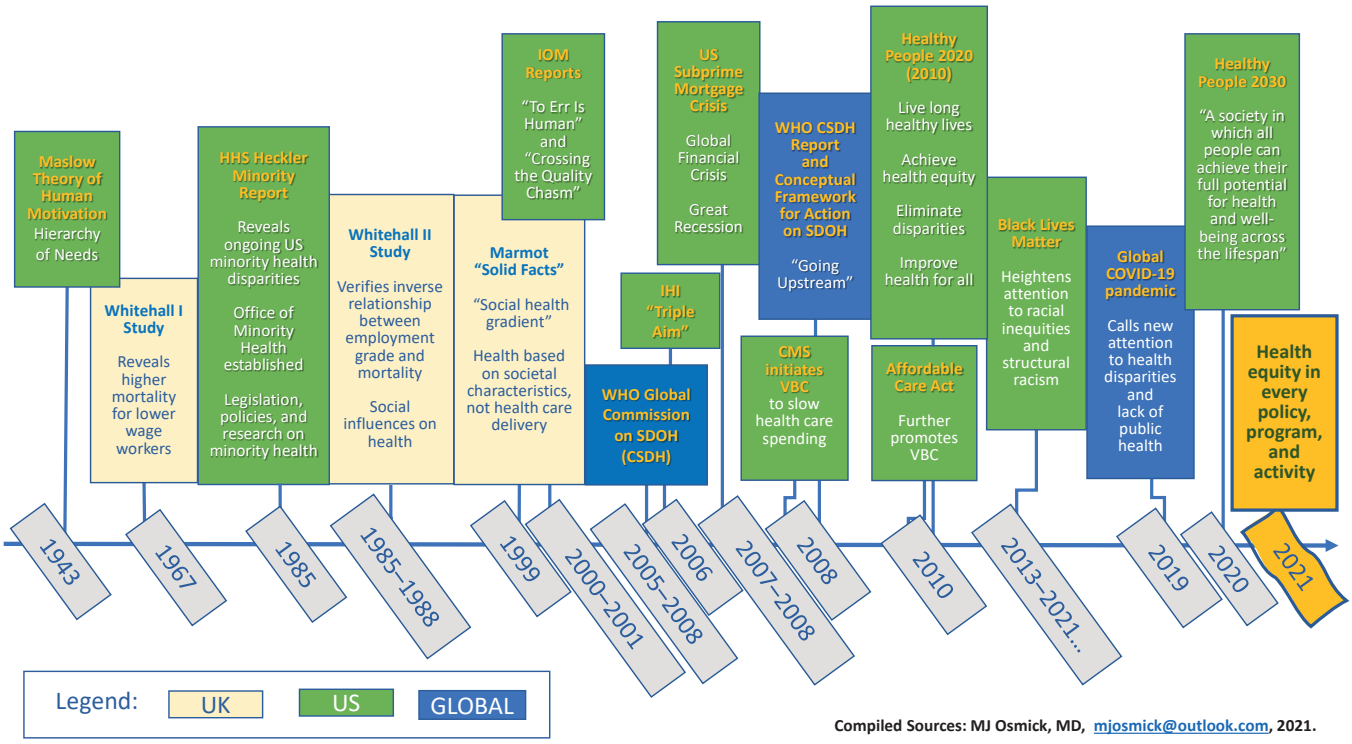
- Social determinants of health, from the World Health Organization:
  - The conditions in which people are born, grow, work, live, and age, and the wider set of forces and systems shaping the conditions of daily life. These forces are shaped by the distribution of money, power, and resources at global, national, and local levels, which are themselves influenced by policy choices. [Differences in exposure to] social determinants of health are mostly responsible for health inequities, which are unfair and avoidable differences in health status seen within and between countries.[1]
- Health equity, from the Robert Wood Johnson Foundation:
  - [A state in which] everyone has a fair and just opportunity to be as healthy as possible. This requires removing obstacles to health such as poverty, discrimination, and their consequences, including powerlessness and lack of access to good jobs with fair pay, quality education and housing, safe environments, and health care. For the purposes of measurement, health equity means reducing and ultimately eliminating disparities in health and its determinants that adversely affect or exclude marginalized groups.[2, 3]

To better understand how we have arrived at our current state, this section takes a 50-plus-year look-back that provides historical context. The historical perspective describes a select group of US and international events, research, and policies related to SDOH and health equity meant to spark thinking and dialog around these complex subjects.

Figure 1 (next page) identifies historical research, institutional reports, legislation, and US and world events that track with the development of knowledge and interventions related to SDOH and health equity. Not all key historical events are included in the look-back, and readers are invited to continue to add to this author's historical perspective to enrich the collective discourse and strengthen our resolve to take action.

Figure 1

Historical Perspective on SDOH and Health Equity



Compiled Sources: MJ Osmick, MD, mjosmick@outlook.com, 2021.

Many people are aware of the American psychologist Abraham Maslow and his 1943 ***Theory of Human Motivation***, which suggests that human beings are motivated by a hierarchy (or pyramid) of needs. In this hierarchy, more basic "deficiency" needs (e.g., air, water, food, shelter, clothing, safety, connection, and self-esteem) must be more or less met before a person can engage in higher-level "growth" needs (realization of individual potential).[4]

In 1967, Michael Marmot led the **10-year Whitehall Study**, which turned beliefs about health and socio-economic status on their head by establishing a relationship between social circumstances and health status. The study examined mortality rates among 17,000 male British civil servants ages 20–64 years and demonstrated a strong inverse relationship between employment grade (or social level) and death from cardiovascular disease and a range of other causes.[5]

In 1985, based on the establishment of a Task Force on Black and Minority Health, Margaret M. Heckler, then Secretary of Health and Human Services (HHS) under President Ronald Reagan, submitted the first-ever consolidated "***Report of the Secretary's Task Force on Black and Minority Health***" (the "Heckler Report"). The report marked "…the first time the US government comprehensively studied the health status of racial and ethnic minorities and elevated minority health onto a national stage." [6]

The report placed the US on notice of a "…continuing disparity in the burden of death and illness experienced by Black people and other minority Americans as compared to the nation's population as a whole." Heckler saw these minority health disparities as "… an affront to our ideals and to the ongoing genius of American medicine." [7] The report concluded that health disparities accounted for 60,000 excess deaths each year, outlined

several recommendations aimed at reducing health disparities, and highlighted a need for improved national health data collection. In 1986, based on this work, the HHS Office of Minority Health was founded, ultimately influencing countless changes in legislation, policies, research, and initiatives focusing on minority health and health equity.[8]

From 1985 to 1988, the ongoing, longitudinal **Whitehall II Study** verified the social gradient in health—the inverse relationship between social position (that is, socioeconomic status) and health, adding that social position affects every individual across the entire social and health spectrum.[9] The social gradient in health predicted better health for higher-social-position individuals, and poorer health for those with lower social position, regardless of gender. [10]

In 1999, Marmot compiled ongoing research into "***The Solid Facts***," a document that presented the following conclusions:

- Social position determines health.
- The social gradient reaches across the entire spectrum, affecting all individuals depending on their position to a lesser or greater extent.
- Differences in health between population groups are due to characteristics in society, not differences in health care.
- When people change social and cultural environments, their disease risks change.
- With interventions, the health gradient can change quickly. [11]

In 1998, the Institute of Medicine (IOM) National Roundtable on Health Care Quality documented three serious and ongoing types of health care quality problems: overuse, underuse, and misuse. The report stated, "The challenge is to bring the full potential benefit of effective health care to all Americans while avoiding unneeded and harmful interventions and eliminating preventable complications of care." The Advisory Commission on Consumer Protection and Quality concurred with the findings and called for a national commitment to improve health care quality. In 2000, a first report from the IOM, "***To Err Is Human: Building a Safer Health System***," was published. The report substantiated findings of serious and widespread errors in health care delivery resulting in frequent and avoidable patient injury, not because of a "…failure of goodwill, knowledge, effort, or resources…but because of fundamental shortcomings in the ways care is organized." The report called for changes in the health care environment, processes, and capabilities "…needed to ensure that services are safe, effective, patient-centered, timely, efficient, and equitable." [12]

In 2001, the revolutionary IOM report "***Crossing the Quality Chasm: A New Health System for the 21st Century***" was published. This report noted the causes of the problems leading to quality failure in health care and set an agenda and roadmap of general principles for redesigning and building a new system of care delivery.[13] In 2006, the Institute of Health Care Improvement (IHI) enhanced the IOM report by offering the **Triple Aim**, which included three components:

- Better care for individuals (as described by IOM as safe, effective, patient-centered, timely, efficient, and equitable)
- Better health for populations (keeping the individual healthy and preventing illness by working on the causes of illnesses outside the care system)
- Lower per capita cost (by improving the processes of care and the processes through which illness is prevented)

Health equity is at the core of the Triple Aim. [14]

Between 2005 and 2008, Michael Marmot led the World Health Organization (WHO) **Global Commission on Social Determinants of Health (CSDH)**. The goal of CSDH was to catalyze change to improve population health, reduce health inequities, and reduce disadvantages that lead to poor health within and between countries.

From 2007 to 2009, the **Great Recession** was precipitated by multiple factors, including subprime bank lending practices, US and global investment in (sold and resold) bundled mortgage-backed securities, and the merging of banks (deemed "too big to fail"). These led to spiraling borrower defaults and the collapse of the US housing market, causing major bank, hedge fund, and mortgage lender losses and bankruptcies. The federal **Troubled Asset Relief Program (TARP)** was signed into law in 2008 and began to reverse some of the effects of the meltdown. Recovery from the crisis was exceedingly slow, and millions of American families lost homes, businesses, and savings. Millions fell into situational poverty,[15] a period where an individual falls below the poverty line because of a sudden event such as a job loss, illness, or natural disaster, [16] and 50.2 million experienced food insecurity.[17] Job losses were worse than any previous recession since 1981, with unemployment rates rising to 10% in 2010, slowly recovering to 5% in late 2015. At the same time, growth in real, inflation-adjusted wages barely kept pace with inflation. [18] Although the 2011 **Occupy Wall Street** movement raised awareness of economic inequality in the US, it failed to result in specific and substantive reforms. [19]

In 2008, the Center for Medicare and Medicaid (CMS) initiated **value-based care** to slow health care spending and begin the transformation from fee-for-service reimbursement to one that sets standards to reward high-quality, efficient, and cost-effective health care.

In 2010, led by Michael Marmot, the global CSDH published **a final report** and offered the **World Health Organization Conceptual Framework for Action on Health Equity**.[20] The Framework (and subsequent 2019 deBeaumont Foundation depiction[21]) guides those engaged in health care delivery, and medical interventions ("downstream") to assess and address individual social needs by working with social agencies, community-based organizations, and business partners ("midstream"), while working through local, state, and federal policy-makers on statutes, policies, and regulations ("upstream" or "structural determinants of health and health equity") to create conditions (through strategies and tactics) that support health for all people.[22] This complex framework deserves the reader's attention to better understand the criticality of looking "upstream" at the structure of a society or community to understand why and how health inequities have been generated, why they continue to exist, and what interventions might be undertaken to overcome them.

The Commission offered overarching recommendations, which include:

1. Improve daily living conditions.
2. Tackle the inequitable distribution of power, money, and resources.
3. Measure and understand the problem and assess the results of action.[23]

Also in 2010, **Healthy People 2020**—the fourth iteration of the Healthy People initiative—focused on preventing disease, living longer, achieving health equity, eliminating health disparities, improving the health of all groups, creating healthy environments, and promoting quality of life, healthy development, and healthy behaviors. The mission of the initiative is "to promote, strengthen, and evaluate the nation's efforts to improve the health and well-being of all people." [24]

That same year, the **Affordable Care Act (ACA)** was passed. The act is a comprehensive health care reform law that promotes health insurance sign-ups for most US citizens and legal residents through exchanges, employers, or public options. It also promotes expansion of Medicaid in states to provide additional health insurance options for poor patients. However, not all states have expanded Medicaid eligibility.

Finally, the act includes tax changes, preventive services coverage, and enhanced value-based care. Value-based care changes the focus from a transactional, fee-for service payment structure to alternative payment models (APMs) that focus on achieving evidence-based, quality health outcomes. As part of the ACA, the CMS created a new division, the Center for Medicare and Medicaid Innovation (CMMI), focusing on development and testing of new payment methodologies or APMs. These APMs were required to be consistent with the tenets of the Triple Aim: improving the patient experience of care, improving the health of populations, and reducing the per capita cost of health care. Since its inception through the ACA, value-based care continues to evolve, offering provider incentives to focus on improving health in the population served. [25]

In 2013, the **Black Lives Matter (BLM)** movement began in the US to fight racism and anti-Black violence, most notably focusing on police brutality, over-policing of minority neighborhoods, and incarceration practices that target Black people and other minorities. Since then, the movement has become international, with decentralized local chapters organizing campaigns, programs, and demonstrations. BLM now speaks to a wider set of issues that draw attention to the ways in which Black people receive unfair treatment in society and how social structures, laws, policies, and institutions maintain this unfairness. Areas of focus include reducing police department budgets and using the funds for community services including mental health, conflict resolution, voter registration, and campaigns to support minority voting. [26]

Since the start of the BLM movement, there has been a rapid growth of awareness of, and pledges to take action on confronting, systemic or structural racism in all its forms. Many US and global institutions, organizations, professional societies, associations, businesses, governmental agencies, health care delivery systems, and others have published statements and pledged action on diversity and inclusion, both outside and within their organizations. Organizations are investing resources, creating new leadership roles, and "actively working to dismantle racist and discriminatory policies and practices" to ensure equal opportunity for all. [27]

Since it began in 2019, the global impact of the ongoing **COVID-19 pandemic** has made it impossible to ignore the racial, ethnic, geographic, and age- and disability-based health disparities, as well as the associated financial and social inequalities. The pandemic has highlighted a lack of coordination and communication between the US public health infrastructure and private health care delivery system, as well as the need for stronger, ongoing collaboration between the two.

In 2020, **Healthy People 2030** built on learning from the four previous decades to address salient public health challenges and priorities. This fifth iteration of the Healthy People initiative linked the vision, mission, and foundational principles to overarching goals and a plan of action to achieve them. The overarching goals include:

- Attain healthy, thriving lives and well-being free of preventable disease, disability, injury, and premature death.
- Eliminate health disparities, achieve health equity, and attain health literacy to improve the health and well-being of all.

- Create social, physical, and economic environments that promote attaining the full potential for health and well-being for all.
- Promote healthy development, healthy behaviors, and well-being across all life stages.
- Engage leadership, key constituents, and the public across multiple sectors to take action and design policies that improve the health and well-being of all. [28]

In 2021, a set of articles entitled "Vital Directions for Health and Health Care: Priorities for 2021" focused on the overriding need for **health equity in all policies, programs, and activities**. The various contributors presented a set of issues describing the "compelling need for attention" on "the crosscutting theme of the disproportionate negative impact of health inequities on vulnerable and under-served populations and the importance of giving the highest priority to eliminating these inequities." Specific areas of focus include:

- The high costs of health care associated with rising numbers of under- and uninsured, as well as worse US health outcomes than any other developed country.
- Optimizing the health and well-being for women and children by adopting a life-course perspective that assesses causes and adopts preventive solutions to improve maternity care and health outcomes for childbearing women.
- Transforming mental, behavioral health, and addiction services to move beyond symptom reduction and emphasize everyday functioning and societal involvement in behavioral health care by prioritizing patients' social needs,
- Better health and health care for older adults by strengthening the geriatric workforce, addressing social isolation, lowering digital technology barriers, and making the public health system age-friendly.
- Building resilience against infectious disease threats, which includes addressing COVID and preparing for the next pandemic, to avoid disproportionate illness, hospitalization, and death for people of color, those with disabilities, those in detention, and the aged. [29]

This select SDOH and health equity historical timeline chronicles the ever-increasing societal awareness of how the circumstances in which we live, work, and play dictate our relative health and well-being, and how our social structures, policies, and practices continue to result in an unequal US society. The timeline also recounts some of the forces that compel an urgent need for societal culture change to create policies that work to overcome the health inequities that have resulted from many decades of social injustice in our population.

III. SDOH and Health Equity Research Related to the COVID-19 Pandemic

This section reviews research around SDOH and health equity as it relates to the COVID-19 pandemic, focusing on specific issues such as food, work, health care resources, education, obesity, and pharmacy and public health services.

Death and Hospitalization Rates

It is hard to comprehend the magnitude of societal health inequities that the COVID-19 pandemic has unearthed. By now, nearly everyone is aware of the significant differences in who becomes ill, and who dies, from the virus. As of October 4, 2021, the US has experienced at least 43,605,623 documented cases and 700,176 deaths from COVID-19,[30] with 64.9% of adults receiving at least one vaccination and 56% being fully vaccinated.[31] Throughout much of 2020, COVID-19 was the third leading cause of death, surpassing cancer and heart disease as number one for a brief period in December 2020 and early 2021, followed by a sharp decline to number eight with the availability of vaccines by July 2021. Now, those who have not been vaccinated are the targets of the virus, and once again, we are seeing a sharp rise in infections, hospitalizations, and deaths.

From 2019 to 2020, life expectancy in the US dropped from 78.8 years to 77.8 years, with Blacks losing nearly three years in life expectancy and Hispanics/Latinos nearly two.[32] Nearly three-fourths (74%) of the decline can be attributed to deaths from COVID-19, with smaller contributing causes including accidents and unintentional injury (including 93,000 overdose deaths), homicide, diabetes, and chronic liver disease and cirrhosis.[33] National COVID data tells us that older adults are more likely to become severely ill, and that more than 80% of COVID deaths occur in people over 65 years old, with 95% of deaths in those over 45 years old.[34] Those with underlying medical conditions (cancer, chronic kidney disease, chronic lung disease, diabetes, dementia, Down Syndrome, heart conditions, HIV, immunocompromised, liver disease, overweight/obesity, current or former smoker, history of stroke, substance use disorders) and those with disabilities are more likely to have severe disease. [35]

As compared to Whites, Black and Hispanic/Latino persons are 2.8 times more likely to be hospitalized and 2.0 and 2.3 times more likely to die from COVID. American Indians and Alaskan natives are 3.5 times more likely to be hospitalized and 2.4 times more likely to die than Whites.[36] Based on the American Community Survey, representing 10.9 million non-elderly adults and comparing data from 2015–2018 to the 2020–21 COVID era, Black people experienced significantly increased mortality across all socioeconomic groups. Black people in the highest income group (> 400% of the federal poverty level) experienced an increase in mortality more than 3.5 times larger than the group consisting of the poorest Whites (up to 100% of the poverty level).

With respect to occupation, workers in jobs related to installation, maintenance, repair, and production experienced the largest increases in mortality. Mortality rates for those working without work-at-home options increased to 19.14 deaths per 100,000, versus 10.90 deaths per 100,000 for those whose jobs allowed at-home work. [37]

Employment and Heath Care Coverage Loss

Employment wage grades have predicted economic outcomes from COVID-19. One tracker showed that by late June 2021, employment rates rebounded from pandemic peak losses. However, employment rates for individuals in the lowest wage quartile (< $27K annually) remained 20.9% below January 2020 rates, as compared to a 9.6% decrease in the top wage quartile (> $60K annually) for the same period—an indicator of ongoing hardship for the most economically vulnerable individuals in the population.[38]

Insurance coverage has shown to be another key indicator of COVID-10 outcomes. In 2020–21, uninsured people experienced an increase in mortality of 27.57 deaths per 100,000, compared to 15.50 deaths per 100,000 in insured individuals.[39] Given that the Black and Hispanic/Latino population tends to have higher rates of uninsured persons—and that they are more likely to have lost jobs due to the pandemic, resulting in disruption of health care coverage—the numbers indicate another area in which COVID-19 has hit Black and Hispanic/Latino adults particularly hard.

Housing Payments

COVID-19 has financially stressed a large group of Americans with regard to their ability to pay rent and remain in their homes. In January 2021, 1 in 5 renters, representing 15 million Americans, were not caught up on rent. This number improved to 1 in 7, or 10.7 million, in the most recent survey data from August 18–30. Renters of color were more likely to report an inability to catch up on rent, with the following percentages of renters reporting this difficulty:

- Black: 22%
- Asian: 19%
- Hispanic/Latino: 18%
- American Indian, Alaska Native, Native Hawaiian, Pacific Islander, multiracial: 18%
- White: 10%[40]

These statistics are not surprising when one considers the amount of income, savings, and home equity arrayed by race/ethnicity across Medicare beneficiaries. Average annual incomes for each group are:

- White: $33,718
- Black: $23,050
- Hispanic/Latino: $15,611

Equally wide gaps exist for savings and home equity among races. Average savings and home equity for each group are:

- White: $117,803 savings, $95,001 home equity
- Black: $14,523 savings, $18,454 home equity
- Hispanic/Latino: $9,634 savings, $16,494 home equity [41]

This wide gap in life savings and home equity between Whites and people of color demonstrates the challenges faced when minority households are presented with significant financial stress, as highlighted during the pandemic.

Food Insecurity

Nutritious and adequate food is crucial to child growth and development and adult health. The pandemic exposed significant problems, with 30 million children living in low-income households losing access to meals during school closures, hybrid learning periods, and closure of out-of-school programs. Three of five of the USDA Nutrition-Assistance Programs serving children—including the National School Lunch Program (NSLP), the School Breakfast Program (SBP) and the Child and Adult Food Program (CACFP)—relied on food delivery through the schools. In response, Congress authorized the USDA to approve waivers that supported novel approaches organized by schools, child care centers, charitable food organizations, government agencies, and other organizations partnering to provide food to students. In Spring 2020 and extending into the 2020–2021 school year, the Pandemic Electronic Benefits Transfer (P-EBT) program provided funds equivalent to the cost of the meals that students would have received at school to families with children eligible for free or reduced-price meals during weekdays.[42] The Hamilton Project found that P-EBT helped alleviate food insecurity for at least 2.7–3.9 million children in low-income families when schools closed at the start of the pandemic.[43] In the Families First Coronavirus Response Act, Congress included emergency Supplemental Nutrition Assistance Program (SNAP) benefits for those currently enrolled in the program, with a maximum of $680 per month for a family of four. As part of the 2021 budget, the stimulus relief included a 15% increase in the maximum monthly benefit. SNAP serves more than 40 million families by providing food assistance directly to households, half of which include children.[44]

Despite significant job loss and school closures during the pandemic, expansion of government aid headed off much of the anticipated food insecurity. The percent of households experiencing food insecurity was similar to pre-pandemic statistics, with 10.5% of American households unable to consistently provide enough food to all household members due to lack of money. In three groups however, including Black and Southern households and households with children, food insecurity did rise. In addition, the food insecurity gap between Black and White households widened, with 21.7% of Black households reporting food insecurity compared to 7.1% of White households.[45]

ICU Availability

During the COVID-19 pandemic, ready access to intensive care unit (ICU) beds has become a critical resource in preventing death. However, ICU bed availability is highly variable across the country, tending to be more abundant in wealthier communities. In one study, researchers examined the relationship between community income and ICU bed availability across 3,160 US Health Service Areas, or HSAs, and four income groups. (An HSA is a set of ZIP codes corresponding to the area in which residents receive most of their hospital care.) Results showed low-income communities had far fewer ICU beds per capita than wealthier communities, with the same disparity for rural versus urban settings. Researchers suggest several policy changes needed to mitigate potential harm, including:

- Coordinating emergency expansion across states and municipalities to assure adequate ICU beds in all communities
- Higher-level coordination at county, state, and federal levels to facilitate hospital sharing of care and publicly finance specialized resources (ICU beds, ventilators, specialized workers, etc.)
- Revisiting "transport to the nearest hospital" based on pandemic conditions
- Direct emergency funds to hospitals lacking sufficient ICU resources to support COVID patients [46]

Digital Disenfranchisement

The COVID-19 pandemic has highlighted the need for high-speed, reliable internet access as a critical resource, especially as it relates to work, school, and health care. The ability to work from home, have access to online school, connect to friends and family for social support, identify sources of food and transportation, and access medical care through telehealth makes broadband access a basic need rather than a privilege, as well as keeping individuals safer than those who lack internet access and must work onsite.

Although the total number of Americans without broadband access is not completely clear, a 2020 study estimates that number to be close to 42 million, with other studies suggesting that up to 25% of the US population lacks internet access. Among minority populations, the numbers are even worse—for example, less than 50% of indigenous and American Indian populations have access to high-speed internet service. The COVID-19 pandemic has only worsened the racial and socioeconomic digital divide: Blacks and Hispanics/Latinos are twice as likely to have canceled or downgraded service due to financial strain as white populations.[47] And, according to the Pew Research Center, while 15% of US households with school-age children overall lack an internet connection, the number rises to 59% for households making less than $20,000 annually. These statistics do not include households with slow or unstable connections—the so-called "under-connected." [48]

Lack of broadband access is also emerging as a barrier to vaccination and may be resulting in lower vaccination rates for Black and Hispanic/Latino Americans. Based on a CDC report, online registration for vaccination is favored over other methods,[49] thus putting those without internet access at a disadvantage for receiving the life-saving vaccine. "The COVID-19 pandemic has underscored the strong link between digital equity and health equity," and this relationship requires more public health attention. [50, 51]

Sick Leave

Millions of service-sector workers lack paid sick leave in the US. Working a front-line job while sick threatens not only the individual worker's health, but also that of the public. During COVID-19, the Families First Coronavirus Response Act did not mandate paid sick leave by large firms. However, one case study followed front-line food service workers

whose employer voluntarily (although forced by a campaign of investigative journalism and social media) offered sick leave during the pandemic. The study demonstrated a 15% decrease in working while sick, with the largest effects in employees with two or more years of tenure. This suggests that policies affecting front-line employee sick leave might improve public health and worker well-being.[52]

Educational Impact

Research clearly demonstrates that health and wealth improvement across one's lifespan is tied to educational attainment. Although all children suffered during the pandemic, "…those who came into the pandemic with the fewest academic opportunities are on track to exit with the greatest learning loss." [53] A study by a developer of curriculum for kindergarten through eighth grade and diagnostic assessments compared math and reading test scores for US students between 2017 and 2021. The study found that children experienced unequal learning loss when comparing schools with greater than 50% students of color to schools with greater than 50% White students. In 2021 in math, all students started school three months behind on average. However, students of color were three to five months behind, while White students were one to three months behind. In reading, all students started 1.5 months behind the historical averages. End-of-year predictions are that all students will lose five to nine months of learning, with students of color losing six to 12 months of learning compared to White students losing four to eight months. [54]

Childhood Obesity

A recent study from Kaiser Permanente Southern California related childhood health outcomes to the pandemic. The study evaluated BMI measures of 200,000 healthy ethnically diverse children from ages 5–17 years during the pandemic in 2020, compared to the same period before the pandemic in 2019. Results showed weight gain in children at all ages, with the most weight gained by the youngest cohort (ages 5–11 years). This cohort showed an increase in overweight or obesity from 36.2% pre-pandemic to 45.7% during the pandemic. In children 12–15 years old, a 5.2% absolute increase in overweight or obesity occurred. Researchers noted that if the findings are generalizable, one can expect an increase in pediatric obesity due to the pandemic. [55] Research also supports that overweight or obese children have a significantly increased risk of being overweight or obese during adulthood, with all the inherent health risks.[56]

Pharmacy Access

Access to pharmacies might be a key to community health and plays an increasingly important role in supporting basic health care needs. Pharmacies not only dispense medications for control of acute and chronic conditions but may also provide essential health care services such as diagnostic, preventive, and, in some cases, emergency services. Across 10,000-plus neighborhoods and 42 million residents in 30 US cities, researchers examined pharmacy accessibility based on racial and ethnic composition from 2007–2015. In all cities over the period of study, there were persistently fewer pharmacies in Black and Hispanic/Latino neighborhoods (defined as total number of pharmacies per census tract each year) than White and diverse neighborhoods.

There were also far fewer newly opened pharmacies in Black or Hispanic/Latino neighborhoods (301, or 11.3% out of 2,663). Across the 30 cities in 2015, one-third of neighborhoods were deemed "pharmacy deserts," defined as neighborhoods whose mean distance to the nearest pharmacy was one mile or more, or 0.5 miles for neighborhoods with 20% or more households below the federal poverty level. Regarding White and diverse neighborhoods, 26.7% and 28.2% were pharmacy deserts, respectively, compared to 38.5% and 39.5% of Black and Hispanic/Latino neighborhoods. The researchers suggest that disparities in geographic pharmacy accessibility might worsen attempts to close gaps in health disparities by limiting essential services. The researchers also suggest policies that incentivize pharmacies to locate and offer services in predominantly minority neighborhoods.[57]

Public Health Readiness

The results of the pandemic raise significant questions about the nation's public health system readiness. The US Constitution requires that state and local health departments have primary responsibility for ensuring the public's health. Although the federal, state, and local governments spend $93 billion annually on its public health system (equivalent to 2.5 cents spent on health per dollar, in 2018 dollars), the nation has witnessed inconsistent public health responses to the COVID-19 pandemic. A recent study that evaluated public health spending both in aggregate and for eight key public health activities from 2008 to 2018 across 49 states found that, after accounting for inflation, no significant growth in states' average per capita public health spend occurred. Flat or downward trends were observed overall in total state spending as well as in seven of the eight categories of public health activities. Only injury prevention showed a spending increase, while the maternal, child, and family category received the largest cuts. [58]

A 2020 report identified two important trends considered crucial to US vulnerability to the pandemic: underinvestment in public health infrastructure and underinvestment in the health of the US population in general.[59]

Another report found the mistakes of the 2020 COVID-19 response to be rooted in years of public health underfunding, including the loss of over 55,000 local public health jobs from 2008 to 2018, the federal government's failure to communicate and follow the best available science, and health inequities that put communities of color and Tribal Nations at particular risk. [60] Significant scrutiny and updating of US public health system funding appears necessary to ensure readiness for the next public health emergency.

IV. Discussion

The 50-plus-year history and current pandemic-related research presented here inarguably exposes our nation's health disparity gaps and prompts us to explore ways to close these gaps by providing equal opportunities for health to all Americans.

In service of closing these gaps, it is important to remember that everyone in American society loses opportunities for greater health, happiness, well-being, and wealth when upstream society-created structures and policies result in inequities based on race, ethnicity, gender, sexual orientation, age, the presence of disability, or geographic location. Michael Marmot and others' work on health equity reminds us, "We are all part of the social gradient in health." [61] While it is true that disability and ill-health happen "…at a progressively faster rate the lower down the social hierarchy you are…," [62] the impact of poor health affects all of us in the loss of talents and capabilities that contribute to economic growth, creativity and innovation, productivity, and an overall higher quality of life in a truly equitable society. If for no other reason than self-interest, we need to develop an awareness of our unconscious biases and understand and take action against historically-accepted, unjust political and social structures that rob all of us of our best collective selves.

In 1985, the Heckler Report alerted America to significant and long-enduring health disparities in racial and ethnic populations. In 1986, based on this report, Health and Human Services established an Office of Minority Health, ultimately influencing countless changes in legislation, policies, research, and initiatives focusing on improving minority health and eliminating health inequities. [63] Since then, research has continued to identify an expanded set of SDOH that are "mostly responsible for health inequities which are unfair and avoidable differences in health status." [64] America has long been put on notice that we are failing to build and maintain a society where there is equal opportunity for nutritious food; a safe space to live with clear air, water, and green space; an education that develops curious, sharp, and creative minds; fair employment that allows each generation to build wealth; and a just public and private health system that allows us to live and age well.

The issues with our collective national response to the health care system problems of overuse, underuse, and misuse are exposed in the 2000 report "To Err Is Human: Building a Safer Health System" and subsequent 2001 report "Crossing the Quality Chasm: A New Health System for the 21st Century." Based on this awareness, the tireless work of the Institute for Health Care Quality (IHI) and many others has changed the core of how our health system works—improving countless complex processes and focusing on providing patient-centered, safe, efficient, and cost-effective care. The health care quality movement has revealed that transformational change in health care delivery is not only possible but sustainable through a clear, constant, and enduring focus. Our expanded knowledge of SDOH, however, teaches that a focus on health care delivery alone is not enough to achieve health equity.

Significant events over the past decades have heightened awareness of the need to take collective action on health equity. These include:

- The 2007-2008 Great Recession and global financial crisis, with marked widening of wealth inequality.[65]
- The 2008 CMS transition from fee-for-service reimbursement, which focuses on payment for service volume, to value-based care, which focuses on payment for health outcomes.
- The 2008 World Health Organization Global CSDH Report and Framework for action on SDOH, which focused on the impact of upstream strategy, tactics, and policy.
- The 2010 Affordable Care Act, which focused on providing health insurance and preventive services coverage for most citizens.
- Decades of stated but unmet Healthy People Goals.

Two recent occurrences have catalyzed the importance of acting on health equity: the Black Lives Matter Movement and the global COVID-19 pandemic. The television and social media coverage of the killing of George Floyd and Black Lives Matter demonstrations has exposed us to the cancer of racial unfairness and lack of social justice in the US. Then, in short order, the COVID-19 pandemic has made visible persistent health inequities in our most vulnerable populations and highlighted a divided populace embracing competing values of individualism versus collectivism.

These recent events compel us to ask ourselves whether any progress has been made on improving health equity. One recent study points to a "clear lack of progress on health equity in the last 25 years in the United States," [66] while another serial cross-sectional survey, focused on US adults from 1999 to 2018, concluded that "…racial and ethnic differences in self-reported health status, access, and affordability improved in some groups, but largely persisted." [67] For the first time in the history of America, even before the pandemic, life expectancy fell below all other developed countries, despite our spending more on health care than any other country. [68]

The solution to the overall health equity problem, however, resides not only within the health care delivery silo, but also among public health, education and academia, business, and community organizations, as well as the policies and resources available from local, state, and federal governments. Part of the reason for our lack of progress to date is that we have lived in silos for generations, each with our own sets of rules and subcultures. Making progress will require developing new skills, a new agreed-upon vocabulary, and a new way of thinking together. It will also require a willingness to collaborate and partner, inviting people with differing expertise, backgrounds, and colors to the table; listening, negotiating, and prioritizing; and taking a long view to ensure sustainable transformation. It is natural to resist societal change and easy to point fingers at why the "other" is the root of the problems. But that is not consistent with either the history or the research.

Finally, we must recognize that we are at an early stage of understanding how to intervene with SDOH to change health equity. We must be scrupulous about standardizing data collection and applying critical analysis from demonstrations and pilots to learn what works, in what circumstances, and for which individuals. Only then will we be able to apply our learning with precision, without wasted resources, to bend the curve on health inequity.

It appears that America finds itself at a critical juncture that requires swift, thoughtful, and comprehensive action from every sector to change our faltering health trajectory. We will be judged by our actions, or lack thereof.

ENDNOTES

1 A Framework for Educating Health Professionals to Address the Social Determinants of Health", National Academies of Sciences, Engineering and Medicine; National Academies Press, ISBN 978-0-309-39262-4, 2016. Available at: https://www.nap.edu/read/21923/chapter/1

2 Braveman, P., et al. "What Is Health Equity?" and "What Difference Does a Definition Make?" Princeton, NJ: Robert Wood Johnson Foundation; 2017.

3 Braveman, P. "A New Definition of Health Equity to Guide Future Efforts and Measure Progress." Health Affairs Blog, June 22, 2017. https://www.healthaffairs.org/do/10.1377/hblog20170622.060710/full/.

4 McLeod, S. "Maslow's Hierarchy of Needs." Simply Psychology, updated December 29, 2020. Accessed September 3, 2021. https://www.simplypsychology.org/maslow.html.

5 Marmot, M., PhD. "The Whitehall Study." Unhealthy Work, The Center for Social Epidemiology. https://unhealthywork.org/classic-studies/the-whitehall-study/.

6 Garcia, J.N. "Remembering Margaret Heckler's Commitment to Advancing Minority Health." Health Affairs Blog, November 16, 2018. DOI: 10.1377/hblog20181115.29662. Accessed September 3, 2021. https://www.healthaffairs.org/do/10.1377/hblog20181115.296624/full/.

7 Heckler, Margaret M., Secretary. "Report of the Secretary's Task Force on Black & Minority Health," Volume 1, Executive Summary. https://minorityhealth.hhs.gov/assets/pdf/checked/1/ANDERSON.pdf.

8 Garcia. IBID.

9 Marmot, IBID.

10 Marmot M., PhD. "The Whitehall Study." Unhealthy Work—The Center for Social Epidemiology. Posted June 22, 2011. Accessed September 2, 2021. https://unhealthywork.org/classic-studies/the-whitehall-study/.

11 Marmot, M., Wilkinson, R. "Social Determinants of Health." Resource Reviews; Health Promotion International, Vol. 15, No. 1, pp. 87-88. Oxford University Press; 2000.

12 Institute of Medicine (US) Committee on Quality of Health Care in America. "Crossing the Quality Chasm: A New Health System for the 21st Century." Washington, DC: National Academies Press (US); 2001. https://www.ncbi.nlm.nih.gov/books/NBK222273/.

13 IBID.

14 Berwick, D., "An Overview of the IHI Triple Aim" (video). IHI Triple Aim Initiative. Available online: http://www.ihi.org/Engage/Initiatives/TripleAim/Pages/default.aspx.

15 Blankfein, L. "Financial Crisis 2007–08", Global Economics, Britannica. Accessed September 12, 2021. https://www.britannica.com/event/financial-crisis-of-2007-2008/Key-events-of-the-crisis.

16 Richmond Vale Academy. "Situational Poverty: Definition and Types." https://richmondvale.org/en/blog/situational-poverty-definition-and-types.

17 DeParle, J., "Vast Expansion in Aid Kept Food Insecurity from Growing Last Year." New York Times, September 8, 2021. Available online: https://www.nytimes.com/2021/09/08/us/politics/vast-expansion-aid-food-insecurity.html.

18 "Chart Book: The Legacy of the Great Recession." Center on Budget and Policy Priorities, June 6, 2019. Accessed September 12, 2021. https://www.cbpp.org/research/economy/the-legacy-of-the-great-recession.

19 Blankfein, L. IBID.

[20] Marmot, M. et al. "Closing the Gap in a generation: health equity through action on the social determinants of health." Report by The Commission on Social Determinants of Health, The Lancet, Public Health, Volume 372, Issue 9650, pp. 1661-1669, November 8, 2008. Accessed September 9, 2021. https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(08)61690-6/fulltext.

[21] deBeaumont Foundation and Trust for America's Health. "Social Determinants and Social Needs: Moving Beyond Midstream" (infographic). Created 2019. https://debeaumont.org/resources/infographic-social-determinants-and-social-needs/.

[22] World Health Organization. "A Conceptual Framework for Action on Social Determinants of Health" (report). July 13, 2010. https://www.who.int/publications/i/item/9789241500852.

[23] Marmot, IBID. https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(08)61690-6/fulltext.

[24] Healthy People 2020, Centers for Disease Control and Prevention, Division for Heart Disease and Stroke Prevention. Accessed September 9, 2021. https://www.cdc.gov/dhdsp/hp2020.htm.

[25] Summary of the Affordable Care Act, Kaiser Family Foundation, Health Reform., Published online April 25, 2013. Accessed September 9, 2021. https://www.kff.org/health-reform/fact-sheet/summary-of-the-affordable-care-act/.

[26] Britannica. "Black Lives Matter international activist movement," https://www.britannica.com/topic/Black-Lives-Matter.

[27] American Medical Association. "AMA Board of Trustees pledges action against racism and police brutality." https://www.ama-assn.org/about/board-trustees/ama-board-trustees-pledges-action-against-racism-and-police-brutality.

[28] "Healthy People 2030 Framework.". Accessed September 12, 2021. https://health.gov/healthypeople/about/healthy-people-2030-framework.

[29] Dzau, Victor J., et al. "Vital Directions for Health and Health Care: Priorities for 2021" (commentary). Health Affairs 40, No. 2 (2021): pp. 197-203. https://www.healthaffairs.org/doi/full/10.1377/hlthaff.2020.02204.

[30] Centers for Disease Control and Prevention. "COVID Data Tracker as of September 30, 2021, 4:59 PM ET." https://covid.cdc.gov/covid-data-tracker/#cases_casesper100klast7days.

[31] Centers for Disease Control and Prevention. IBID. https://covid.cdc.gov/covid-data-tracker/#vaccinations_vacc-total-admin-rate-total.

[32] AP News. February 17, 2021. https://apnews.com/article/us-life-expectancy-huge-decline-f4caaf4555563d09e927f1798136a869.

[33] National Center for Health Statistics, Centers for Disease Control and Prevention. "Life Expectancy in the U.S. declined a Year and Half in 2020." Released July 21, 2021. https://www.cdc.gov/nchs/pressroom/nchs_press_releases/2021/202107.htm.

[34] Centers for Disease Control and Prevention. "COVID 19 Overview" https://www.cdc.gov/coronavirus/2019-ncov/need-extra-precautions/people-with-medical-conditions.html.

[35] Centers for Disease Control and Prevention. "COVID-19: People with Certain Medical Conditions." Accessed September 9, 2021. https://www.cdc.gov/coronavirus/2019-ncov/need-extra-precautions/people-with-medical-conditions.html.

[36] Centers for Disease Control and Prevention. COVID 19 Data and Surveillance. Updated September 9, 2021. Accessed September 9, 2021. https://www.cdc.gov/coronavirus/2019-ncov/covid-data/investigations-discovery/hospitalization-death-by-race-ethnicity.html.

[37] Miller, S. et al. "Estimated Mortality Increases during the COVID-19 Pandemic by Socioeconomic Status, Race, and Ethnicity." Health Affairs, 40, No. 8 (2021): pp. 1252-1260.

[38] Chetty, R. Opportunity Insights Economic Tracker, "Recession has ended for high-wage workers, Job Losses persist for Low-wage workers." Accessed September 9, 2021. https://tracktherecovery.org/.

[39] Miller, S. et al. "Estimated Mortality Increases during the COVID-19 Pandemic by Socioeconomic Status, Race, and Ethnicity." Health Affairs 40 No. 8 (August 2021): pp. 1252-1260.

[40] COVID Hardship Watch, Special Series. "Tracking the COVID-19 Economy's Effects on Food, Housing, and Employment Hardships." Center on Budget and Policy Priorities. Updated September 10, 2021. https://www.cbpp.org/research/poverty-and-inequality/tracking-the-covid-19-economys-effects-on-food-housing-and.

[41] Ochieng, N. et al. "Racial and Ethnic Health Inequities and Medicare." Kaiser Family Foundation, February 16, 2021.

[42] Poole, K. et al. "Addressing Child Hunger when School is Closed – Considerations during the Pandemic and Beyond." NEJM, March 11, 2021; 384:e35. https://www.nejm.org/doi/full/10.1056/NEJMp2033629.

[43] Bauer L., A. Pitts, K. Ruffini, D.W. Schanzenbach. "The effect of Pandemic EBT on measures of food hardship." Washington, DC: The Hamilton Project, July 30, 2020.

[44] Poole, K. IBID.

45 DeParle, J. "Vast Expansion in Aid Kept Food Insecurity from Growing Last Year." New York Times, September 8, 2021. https://www.nytimes.com/2021/09/08/us/politics/vast-expansion-aid-food-insecurity.html.

46 Kanter, G.P. et al. "Income Disparities in Access to Critical Care Services." Health Affairs 39, No. 8 (2020): pp. 1362-1367.

47 Anderson, M. "Mobile technology and home broadband 2019." Pew Research Center. June 13, 2019. https://www.pewresearch.org/internet/2019/06/13/mobile-technology-and-home-broadband-2019/.

48 Vogels, E., Perrin, A., Raine, L., and Anderson, M. "53% of Americans say the internet has been essential during the COVID-19 Outbreak." Pew Research Center. April 30, 2020. https://www.pewresearch.org/internet/wp-content/uploads/sites/9/2020/04/PI_2020.04.30_COVID-internet_REPORT.pdf.

49 O'Brien, S.A. "Covid-19 vaccine rollout puts a spotlight on unequal internet access." Feb. 4, 2021. https://www.cnn.com/2021/02/04/tech/vaccine-internet-digital-divide/index.html.

50 Benda, N. C., Veinot, T. C., Sieck, C. J., and Ancker, J. S. "Broadband internet access is a social determinant of health." American Journal of Public Health, 110(8), pp. 1123–1125. 2020. https://doi.org/10.2105/AJPH.2020.305784.

51 Early, PhD, MS, MCHES, J. et al. "Digital Disenfranchisement and COVID-19: Broadband Internet Access as a Social Determinant of Health." Health Promotion Practice, September 2021, Vol. 22, No. (5) 605-610. https://journals.sagepub.com/doi/full/10.1177/15248399211014490.

52 Schneider, D. et al. "Olive Garden's Expansion of Paid Sick Leave during COVID-19 Reduced the Share of Employees Working While Sick." Health Affairs 40, No. 8 (2021): pp. 1328-1336.

53 McKinsey & Company. "COVID-19 and learning loss – disparities grow and students need help." December 8, 2020.https://www.mckinsey.com/industries/public-and-social-sector/our-insights/covid-19-and-learning-loss-disparities-grow-and-students-need-help.

54 IBID.

55 Woolford, MD, S.J. et al. "Changes in Body Mass Index Among Children and Adolescents during the COVID-19 Pandemic." JAMA. Published online August 27, 2021. https://jamanetwork.com/journals/jama/fullarticle/2783690?appId=scweb; doi:10.1001/jama.2021.15036.

56 Simmonds, M. et al. "Predicting adult obesity from childhood obesity: a systematic review and meta-analysis." Obesity Review, 2016 Feb:17(2):pp. 95-107. https://pubmed.ncbi.nlm.nih.gov/26696565/.

57 Guadamuz, J. S., et al. "Fewer Pharmacies in Black and Hispanic/Latino Neighborhoods compare with White or Diverse Neighborhoods, 2007-15." Health Affairs, 40, No. 5(2021): pp. 802-811.

58 Alfonso, N. et al. "US Public Health Neglected: Flat or Declining Spending Left States Ill-equipped to Respond to COVID-19." Health Affairs 40, No. 4 (2021): pp. 646-671.

59 Maani, N., S. Galea. "COVID-19 and Underinvestment in the Public Health Infrastructure of the United States." Milbank Quarterly, June 2020 (Volume 98). https://www.milbank.org/quarterly/articles/covid-19-and-underinvestment-in-the-public-health-infrastructure-of-the-united-states/.

60 Issue Report. "The Impact of Chronic Underfunding on America's Public Health System: Trends, Risks, and Recommendations, Trust for America's Health, 2021." https://www.tfah.org/wp-content/uploads/2021/05/2021_PHFunding_Fnl.pdf.

61 Marmot, M. "The Health Gap: The Challenge of an Unequal World." Bloomsbury: 2015.: https://www.amazon.com/s?k=Marmot+The+Challenge+of+an+Unequal+World&i=stripbooks&ref=nb_sb_noss.

62 Marmot, IBID.

63 Garcia, IBID.

64 World Health Organization, Western Pacific. "Taking Action on the social determinants of health." https://www.who.int/westernpacific/activities/taking-action-on-the-social-determinants-of-health.

65 Horowitz, J. M. et al. "Trends in income and wealth inequality." Pew Research Center, January 9, 2020. https://www.pewresearch.org/social-trends/2020/01/09/trends-in-income-and-wealth-inequality/.

66 Zimmerman, PhD, F.J.; N. W. Anderson, BA. "Trends in Health Equity in the United States by Race/Ethnicity, Sex and Income, 1993-2017." JAMA Network Open, 2019;2(6):e196386. https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2736934.

67 Mahajan, S. et al. "Trends in Differences in Health Status and Health Care Access and Affordability by Race and Ethnicity in the United States, 1999-2018." JAMA, 2021:326(7):637-648. https://jamanetwork.com/journals/jama/article-abstract/2783069.

68 The FRED blog. "New Reflections for the New Year." FRED Economic Data. January 4, 2018. https://fredblog.stlouisfed.org/2018/01/new-reflections-for-the-new-year/?utm_source=series_page&utm_medium=related_content&utm_term=related_resources&utm_campaign=fredblog.

POPULATION HEALTH ALLIANCE

The premier Association for improving population health

80 M Street SE | Suite 100 | Washington, DC 20003
Tel: 202.737.5476 | staff@populationhealthalliance.org
www.populationhealthalliance.org

BAYER

2021-2022 Corporate Partner