

with the hope that these perspectives find you well and reach you in a burgeoning light of lifting fog and dissipating shadow.

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COVID-19 and the Social Determinants of Health

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The World Health Organization declared COVID-19 a pandemic on March 11, 2020; it has since had devastating consequences in the United States.¹ To date, there are more than 800 000 confirmed cases in the United States and 2.6 million worldwide.² Assuming full physical distancing through May 2020, the current best estimates project about 60 000 deaths from COVID-19 in the United States.³ It is evident that the United States, as a country, has been unprepared for COVID-19. Although there are many reasons for this flawed response to the pandemic, fundamentally, we argue that at the heart of the US challenges with COVID-19 is poor underlying health driven by inattention to the foundational social determinants of health.

The United States has far worse health than it should, given its spending on health care. Of all high-income countries, the United States spends the most on health care, yet it has the worst health outcomes. In 2018, the United States spent 17.7% of the nation's gross domestic product (GDP) on health care, compared to the Organization for Economic Cooperation and Development (OECD) average of 8.8% GDP.^{4,5} Despite the significantly higher health care spending, chronic disease burden in the United States, including hypertension, heart disease, diabetes, chronic lung disease, and arthritis, is 28%, compared to the OECD average of 17.5%.⁵ Further, life expectancy in the United States is 78.6 years, compared to the OECD average of 80.7 years.⁵ Examples of the greater burden of poor health abound. For example, US infant mortality rate is 5.8 deaths per 1000 live births, compared to the OECD average of 3.4 deaths per 1000 live births.⁶

The mismatch between spending on health care and poor health outcomes can be explained principally by a disinvestment in the underlying forces that shape health. While the United States spends more health care dollars on curative, medical care, it spends less on the social drivers of health, such as supportive housing, education, early childhood care, public safety, the environment, and public health practice itself.⁸⁻¹⁴ This disinvestment both created a country that was at higher risk of the consequences of COVID-19 and created the conditions that made it easy for COVID-19 to spread quickly, if unevenly, across the US population.

The importance of these conditions, contrasted with the contribution of medicine and health care, is perhaps best illustrated by example. Boston has the highest density of physicians per population

compared to any other city in the United States.⁷ Notably though, Boston also has high concentrations of poverty correlated with concentrations of poor health, including diabetes and premature death.¹⁵ Neighborhoods with a chronic disease burden 3 times higher than other neighborhoods just miles away all about world-class medical facilities.⁷ This points to the fundamental role that social and economic circumstance plays in shaping health, consistent with research that has shown higher levels of spending on social services, relative to spending on medical care, are central to improved health outcomes.¹⁶

Socioeconomic status is perhaps the central concept that brings together the set of social determinants that shape health.¹⁷ For example, socioeconomic status influences the neighborhoods people live in, which thereby affect housing conditions and the safety of outdoor spaces.¹⁸ Poor housing conditions may result in overcrowding and decreased sanitation, both of which put people at higher risk of transmission of COVID-19. Further, the safety of neighborhood outdoor spaces affects one's ability to be physically active, and exercise contributes to improved health, thereby decreasing risk of comorbidity.¹⁹ It follows, then, that if people do not have safe outdoor spaces to be physically active, this may put them at increased risk of comorbidity, thereby putting them at increased risk of complications from COVID-19.

Likewise, socioeconomic status influences accessible foods and nutrition.²⁰ Healthy foods are often more expensive, thereby making them less financially accessible to those who are economically disadvantaged. Economically disadvantaged neighborhoods often have fewer grocery stores and farm markets, resulting in decreased access to healthy foods.²¹ As with exercise, healthy foods contribute to improved health, thereby decreasing comorbidity and one's susceptibility to complications from COVID-19.²²

Additionally, socioeconomic status influences the quality of primary and secondary education, either by neighborhood districting or ability to pay for private school.²³ Quality of primary and secondary education affects the likelihood of someone applying for and pursuing

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college, which affects future employment and one's future socioeconomic status. Socioeconomic status, in turn, significantly influences factors that affect risk of complications from COVID-19.

Socioeconomic status also influences the types of jobs people work and their professional trajectory. Occupational type ultimately reinforces or changes one's socioeconomic status through income earned. Further, occupational type affects one's ability to work from home, which is often more feasible for salaried professionals compared to hourly wage workers. Ability to work from home affects one's ability to physically distance, which ultimately affects transmission of COVID-19. Moreover, many hourly wage workers who cannot work from home often rely on public transportation for job attendance, again increasing risk for COVID-19 transmission by way of increased human contact on public transport.²⁴

Race and ethnicity are inextricably linked to socioeconomic position. Persons of color are disproportionately represented among persons with lower income or less education, representing a shameful legacy of racial and ethnic segregation throughout American history.²⁵ This has resulted in poorer housing conditions, less access to healthy foods, lower paying jobs, and poorer access to health care, among other things—all of which affect the transmission of COVID-19 and risk of serious complications, as detailed previously.²⁶⁻²⁹

In this political moment, it is also worth noting that immigration status, which often influences the types of jobs people work and neighborhoods they live in, is a central driver of health.³⁰ Immigrants largely work skilled labor, hourly wage jobs in the United States—jobs that typically cannot be performed from home, thereby affecting ability to physically distance and ultimately increasing one's risk of contraction of COVID-19.³¹ Additionally, as noted earlier, income depends on occupational type, which in turn influences socioeconomic status. This then affects housing conditions, nutritional status, and access to high-quality health care, among other things. These social conditions affect the transmission of COVID-19 and risk of serious complications.

Ultimately, socioeconomic status influences access to high-quality health care. Health insurance in the United States is closely linked with employment, with nearly half the US population obtaining health coverage through their employer.^{32,33} Thus, private insurance through an employer is dependent on having a job, particularly a higher paying job that offers high-quality insurance coverage. Others have public insurance (ie, Medicaid, Medicare, or military), while still others in this country are uninsured.³³ Quality of health insurance in the United States is often based on the premium paid per month, resulting in economically disadvantaged persons with lower quality coverage and often lower quality health care. Importantly, quality of health insurance influences if and when people present for medical attention.³⁴ That is, if health insurance plans have high copays or deductibles, people are more apt to present for medical care later, which can be particularly harmful for patients with COVID-19.

The social determinants described here are examples, not a comprehensive list, of conditions that contribute to health. COVID-19 has devastated the United States in large part because the United States has not invested in the social conditions that make people healthy. This argues strongly that determinants of health must be at the heart of policy initiatives to address COVID-19. Such an investment in social spending would equip the United States to address the challenges accrued in the context of COVID-19 and could mitigate the effects of future epidemics.^{35,36}

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Making the Case for “COVID-19 Prophylaxis” With Lifestyle Medicine

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Lifestyle (as) medicine has been increasingly recognized as a powerful therapy for prevention, control, and even reversal/remission of now well-established risk factors for COVID-19-associated

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