

## Review Article

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# The Syndemics and Structural Violence of the COVID Pandemic: Anthropological Insights on a Crisis

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**Abstract:** This paper examines the COVID-19 pandemic in light of two key concepts in medical anthropology: syndemics and structural violence. Following a discussion of the nature of these two concepts, the paper addresses the direct and associated literatures on the syndemic and structural violence features of the COVID pandemic, with a specific focus on: 1) the importance of local socioenvironmental conditions/demographics and disease configurations in creating varying local syndemic expressions; 2) the ways that the pandemic has exposed the grave weaknesses in global health care investment; and 3) how the syndemic nature of the pandemic reveals the rising rate of noncommunicable diseases and their potential for interaction with current and future infectious disease. The paper concludes with a discussion on the role of anthropology in responding to COVID-19 from a syndemics perspective.

**Keywords:** Covid-19, syndemics, structural violence, pandemic, anthropology

## 1 Introduction

In December of 2019, an outbreak of an infectious novel coronavirus disease (COVID-19) was first reported in Wuhan, China. Subsequently, the outbreak quickly grew into a deadly global pandemic with significant health, economic, and political fallout. The rapid speed of both the international spread and the swift increase in numbers of cases and fatalities stunned health care workers and overwhelmed medical and public health services in heavily impacted areas. While initially of zoonotic origin, the coronavirus (SARS-CoV-2) is now primarily being transmitted person-to-person or through contact with contaminated surfaces or objects. A special risk of COVID-19 is that the disease can be spread by people who are not experiencing any symptoms. The extraordinarily transmissible coronavirus attacks respiratory and heart cells, as well as other organs, including the nervous system, the brain, and skin. It has been shown to be most severe in the elderly and in people with pre-existing conditions such as obesity, diabetes, severe asthma, respiratory, cardiovascular, and other noncommunicable diseases (Stokes et al., 2020; Williamson et al., 2020). Analysis of data from 1590 laboratory-confirmed hospitalized patients in 31 province/autonomous regions/provincial municipalities across China found that patients with any comorbidity had poorer clinical outcomes than those without and, further, that the greater the number of comorbidities suffered by patients the poorer the clinical outcomes (Guan et al., 2020). In addition, structural factors like poverty, population density, unequal access to health care, and homelessness are emerging as important social structural facilitators of both morbidity and mortality in the pandemic (Ahmed, Ahmed, Pissarides, & Stiglitz, 2020; Williamson et al., 2020).

This profile of COVID-19 suggests two analytic concepts that can be useful in understanding the spread and differential impacts of this virus on various communities and populations. The first is *syndemics*, which is the adverse synergistic interaction of two or more diseases or other health conditions (e.g., nutritionally inadequate diet) promoted

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or facilitated by social and environmental conditions. While medical anthropologists introduced this concept, it has had broad diffusion and adoption across multiple health-related disciplines, evidenced by the increasing pace of syndemics-related publications over the last 25 years (Gravelee, 2020; Singer, Bulled, & Ostrach, 2020). The second concept is *structural violence*, which was also initially elaborated within medical anthropology, but has subsequently found wide use in other health social sciences as well (Rylko-Bauer & Farmer, 2016). It refers to the often-hidden ways that structures of inequality, such as poverty, racism, and discrimination, negatively impact the lives and well-being of affected populations. In fact, structural violence drives syndemics and it is central to understanding the syndemic nature of COVID-19 (Singer & Rylko-Bauer, in press).

In this paper, we examine the role of structural factors in the synergistic interactions between COVID-19 and other non-communicable diseases or conditions, and seek to specify which populations are disproportionately targeted in terms of both morbidity and mortality, by reviewing the direct and associated literatures on the syndemic and structural violence features of the COVID pandemic. The paper also focuses on: 1) how the syndemic nature of the pandemic reveals the rising rate of noncommunicable diseases and their potential for interaction with current and future infectious disease; 2) the importance of local socioenvironmental conditions/demographics and disease configurations in creating varying local syndemic expressions; and 3) the ways that the pandemic with its syndemic elements has exposed the grave weaknesses in global health care investment. Finally, this paper concludes with a discussion on the role of anthropology in responding to COVID-19 from a syndemics perspective.

## 2 Syndemics of Infectious Disease and Noncommunicable Diseases

The health social sciences, including medical anthropology, face the unprecedented challenge of identifying specific ways they can meaningfully contribute to understanding and responding to the global COVID pandemic. An important component of this demanding task is developing concepts “that may serve as useful lenses to bring issues in need of investigation into better focus” (Nichter, 2008, p. 157). Syndemics, we argue, is one such concept of immediate utility because of its sensitivity to “environments of risk and agents promoting risk, not just groups at risk and risky behaviors” (Nichter 2008, p. 157; Singer, 2009). Marrying the concept of ‘synergy’ with ‘epidemic’, a syndemics approach recognizes that diseases in a population occur neither independent of social and ecological conditions, nor in isolation from other diseases.

Rooted in the holistic, cross societal orientation of medical anthropology, and more specifically the theoretical framework of critical medical anthropology (Witeska-Młynarczyk, 2015), the syndemics approach emerged in the global health pandemic of HIV/AIDS (Singer, 1994). The first described syndemic, known as SAVA, involved the adverse interaction of substance abuse, violence, and AIDS—factors shaped by local context, including poverty, discrimination, and blocked social advancement (Singer, 1996).

Central to the formulation of the syndemics approach was the critical medical anthropology effort to go beyond micro-level accounts and explanations of health-related beliefs and practices and their interface with local ecologies, cultural configurations, or human psychology. The focus, instead, is on the vertical linkages that connect social groups, particular behaviors, and population health patterns to encompassing political and economic structures, as well as on the social relationships they help produce and reproduce over time within specific environmental contexts (Singer, 1995; Singer & Baer, 1995). Critical medical anthropology seeks to understand the social determinants of health and investigates issues like the biology of poverty and the consequences of discrimination, the role of power, control, oppression, and social inequality in the making of health and disease, and forms of resistance to these forces.

Within this framework, syndemics seeks to enhance understanding of the fundamental biosocial nature of health and the ways that diseases and other health-related conditions interact synergistically, in consequential and often deleterious ways. This interaction can flow through multiple biological and psychosocial channels and mechanisms, including biochemical changes in the immune system, damage to organs, weakening of cellular repair processes, disruption of the interorgan communication network, and psychopathological effects on behavior (Singer, 2009). This is, in fact, what happens in COVID-19, which is now recognized as a multisystem disease, in part because of the virus’s affinity for ACE2 receptors, which are present in the cells lining many of the organs in the human body (Gupta et al., 2020).

Moreover, the syndemics concept emphasizes the ways that social conditions and relationships shape disease processes, including contagion, through political-economic, structural, and environmental factors. As will become clear, such social and environmental factors are playing a major role in facilitating the spread of COVID-19 and impacting the course of the disease among certain populations.

The syndemics approach, in short, examines both the emergence and nature of disease concentrations in populations and disease interactions in the context of large-scale, long-term socioenvironmental and political-economic factors that drive such interactions. Its specific value with regard to COVID-19 is that it *focuses* attention on three essential intersections in the making of health that have come together to shape this pandemic: 1) synergistic interactions among diseases and other health conditions that increase the overall burden of sickness at local, regional, national, and global levels beyond that resulting from mere comorbidity; 2) interspecies interactions that lead to emergent and spreading infectious zoonotic diseases; and 3) health and society interactions that support the clustering of multiple diseases and risks in vulnerable populations while diminishing the capacity of effected populations to fight infection or other health challenges (Singer & Clair, 2003).

## 2.1 Increasing the Overall Burden of Disease

In recent years there has been a growing awareness of the complexities and challenges inherent in the convergence of non-communicable diseases (NCDs) and infectious diseases (IDs), especially in low- and middle-income countries (National Academies of Sciences, Engineering, & Medicine, 2019; Remais, Zeng, Li, Tian, & Engelgau, 2013). Some scholars have questioned whether such a binary disease classification is too simplistic, and have critiqued the biomedical-risk-factor models and life-style frameworks often applied to the analysis of NCDs, which neglect social, environmental, and structural determinants of health (Adjaye-Gbewonyo & Vaughan, 2019). A distinctive feature of the syndemic approach is that it goes beyond the common medical concepts of comorbidity or multimorbidity because of its *simultaneous* concern with adverse synergistic interactions among diseases *and with* social conditions and pathologies (Mustanski et al., 2007), as demonstrated by the growing body of literature on the syndemic clustering of infections and NCDs (Mendenhall et al., 2015; Romanowski et al., 2016). In addition, syndemics makes “predictions about how interactions between epidemics amplify disease burden and about how public health planners can (or cannot) effectively intervene to mitigate this burden” (Tsai et al., 2018). There is a growing body of literature indicating that syndemic interaction may play a particularly significant role in the trajectories and enhancement of infectious diseases (Abu-Raddad, Patnaik, & Kublin, 2006; Singer & Buller, 2016; Singer, 2016), as seen in the following two diabetes/infectious disease examples and the case of HIV/AIDS.

Workneh and co-workers (2016) have shown that diabetes is associated with increased death among people being treated for tuberculosis. These researchers also found that by the second month of treatment for tuberculosis, patients with diabetes were more symptomatic compared to patients without diabetes. These findings are supported by other research indicating significant adverse effects of diabetes on tuberculosis treatment outcomes, such as treatment failure, increased risk of death, and relapse (Baker et al., 2011; Dooley et al., 2009).

In another example, SARS, which like COVID-19 is a coronavirus-borne disease, became a global pandemic in 2003. The disease was found to be spread person-to-person primarily through coughing and sneezing by infected individuals. Within the body, this virus infects the epithelial cells of the lower respiratory system, causing diffuse lung damage, especially to lung structures involved in gas exchange with the blood (Gu & Korteweg, 2007). SARS comorbidity with diabetes was found to be associated with death and with poorer outcomes such as intensive care unit admission and clinical need for mechanical ventilation. Individuals with cardiopulmonary disease also were at heightened risk if infected (Chan et al., 2003). A review by Chen et al. (2005) of 67 SARS patients in Taiwan found that an age greater than sixty-five years and preexisting diabetes mellitus were independent predictors of acute respiratory distress symptoms. Similar interactions concerning diabetes and other chronic diseases have been identified in acute and severe cases of COVID-19, in what appears to be a bi-directional syndemic, whereby diabetes, through various pathways, facilitates viral entry into human cells, while COVID-19 exacerbates existing diabetes by triggering an aggressive damaging immune response (Singer, 2020).

Likewise, HIV/AIDS became a leading cause of mortality worldwide because of its syndemic interaction with an array of other diseases. These include noninfectious diseases and disorders like diabetes, kidney disease, cancer, food insufficiency, and cardiovascular diseases, and infectious diseases such as hepatitis, tuberculosis, malaria, and STIs (Abu-Raddad, Patnaik, & Kublin, 2006; Diedrich & Flynn, 2011). While much is still not known or understood about the novel coronavirus, evidence points toward a similar set of processes at work in COVID-19, with multi-organ-system involvement and syndemic interactions with a variety of pre-existing NCDs (Gupta et al., 2020; Stokes et al., 2020; Williamson et al., 2020).

There are also concerns about the negative impact of the COVID-19 pandemic on global efforts to control tuberculosis, malaria, and HIV/AIDS. Lockdowns, travel restrictions, and a preoccupation with COVID-19 has resulted in diversion of resources, disruptions of services, a sharp drop in diagnoses, and delays in access to drugs and treatment for these other killer-diseases. This is raising fears of a major increase in both cases and additional deaths from these diseases, which in turn puts such already-vulnerable populations at greater risk of contracting COVID-19 (Mandavilli, 2020; Togun, Kampmann, Stoker, & Lipman, 2020).

## 2.2 Zoonoses

These are diseases, including those spread through viruses, bacteria, and parasites, that are transmissible from vertebrate animals to humans. It is increasingly evident that many of the most damaging human infectious disease epidemics across time and location—from the deadly influenza pandemic of 1918–1919 to the global AIDS pandemic, and from Black Death of the mid-1300s in Europe to the European diseases (e.g., smallpox, influenza, measles, chicken pox) that devastated New World Native American populations—are the consequence not of single diseases but of several diseases acting in tandem in social and cultural context. This assessment applies as well to the COVID pandemic.

Coronaviruses were first described by Tyrrell & Bynoe (1966). Because they are spherical virions with a core shell and surface projections resembling a solar corona (or crown) they were termed coronaviruses. Four genetic subfamilies, namely alpha-, beta-, gamma- and delta coronaviruses, have been identified. Alpha coronaviruses like COVID-19 appear to originate in non-human mammals, in particular bats (Velavan & Meyer, 2020). Genomic sequence analysis of COVID-19 found an 88% identity with two bat coronaviruses (Lu et al., 2020), suggesting the zoonotic origin of the disease. Diseases of zoonotic origin can evolve into regional epidemics and even global pandemics through the global movement of people or vectors (Knobler et al., 2004).

## 2.3 Biosocial Interaction

Thinking syndemically brings together the physical environment, the biology of species, the structure of social relationships, and individual embodied experience within a single framework to address the multifaceted problem of disease, including infectious disease, in the development of both social policy and clinical practice (Mendenhall, 2020; Singer & Bulled, 2012). The syndemics concept offers an especially useful mechanism for transcending the shortcomings of existing health interventions and prevention initiatives in low income, stigmatized and other disparity populations (Mendenhall et al., 2017; Paluzzi & Farmer, 2005).

The COVID pandemic has brought the relationship between wealth and health into sharper relief. In populations characterized by economic and social disparities (i.e., measurable differences in various groups' access to social goods, resources, and benefits), the fundamental role of social factors in disease exposure, distribution, and outcome have heightened visibility. In short, social disparities are a primary cause of syndemics, because they create and sustain conditions within which coexisting diseases and health problems flourish and interact. When such disparities are caused by social structures (institutions, laws, policies) that create unjust and unequal social conditions, they are collectively described as *structural violence*.

Social disparities and structural factors have played an important role in the distribution of serious morbidity and mortality due to COVID-19 infection, both globally and in the United States (Centers for Disease Control and Prevention, 2020; Fisher & Bubola, 2020). As noted earlier, this is central to understanding COVID-19 as a syndemic. The biomedical science regarding how the coronavirus does its varied and at times extensive damage to the human body, and the

pathways by which it interacts synergistically with other diseases and health conditions, is still evolving. (Gupta et al., 2020). Much more is known about the role that social factors and structural violence play in the epidemiology of this syndemic among a large cross-section of vulnerable populations, in the U.S. and globally.

### 3 Social Determinants and Structural Violence of the COVID Syndemic

The term, structural violence, derives from the work of Norwegian sociologist, Johan Galtung (1969), and was introduced to anthropology by Paul Farmer (2003) to address the mechanisms by which certain diseases disproportionately affect the poor. “The power of structural violence . . . is to uncover inhumane social pressures and conditions that otherwise go unnoticed” (Rodgers & O’Neill, 2012, p. 404). Farmer (2004) argues that epidemic diseases like HIV-AIDS and tuberculosis, and more recently, Ebola (Farmer, 2020), need to be understood as biosocial phenomena shaped by history, political economy, and social context, which often is characterized by poverty, discrimination, marginalization, and lack of access to basic resources. For example, the global obesity epidemic is disproportionately a problem of the poor, linked to malnutrition, and is implicated syndemically in many diseases, including COVID-19 (Lerman, 2017; Lighter et al., 2020; Singer, 2020; Żukiewicz-Sobczak et al., 2014).

Structural inequities, whether in the labor market, the justice system, or in access to health care, clean air and water, quality housing, and healthy food—often positively correlated with poverty, racism, disenfranchisement—are “embodied and experienced as violence” (Farmer 2010, p. 293). Like physical violence, they inflict damage to body and mind by creating conditions that lead to human suffering through *avoidable* deaths, illness, injury, and disability. A significant body of literature supports this assertion (Braveman & Gottlieb, 2014; Krieger, 2014; Wilkinson, 2005).

#### 3.1 Structural Violence and Health Disparities in the United States

Within the United States, social and health disparities are significantly shaped by both poverty and structural racism, which refers to “the totality of ways in which societies foster racial discrimination through mutually reinforcing systems of housing, education, employment, earnings, benefits, credit, media, health care, and criminal justice” (Bailey et al., 2017, p. 1453). This is reflected in significantly higher rates of poverty for Blacks and Latinxs, as compared to non-Latinx Whites and Asians (20.8, 17.6, 10.1, and 10.1 percent, respectively, for 2018) (Semega, Kollar, Creamer, & Mohanty, 2019), and the rate is even higher for Native Americans (25.4%).

A recent comparative analysis of Black and White neighborhoods clearly demonstrates the inequality gap that exists across numerous social and economic domains, with majority-Black communities having a much higher unemployment rate, lower educational attainment, significantly lower median household income and home ownership, and much higher rates of male incarceration (Sharkey, Taylor, & Serkez, 2020). It is well documented that such disparities are linked to adverse health outcomes (Braithwaite & Warren, 2020). For Black populations, this means lower life expectancy (Levine et al., 2001) and a disproportionately higher burden of disease (Franks, Muennig, Lubetkin, & Jia, 2006; Lane et al., 2004), including greater rates of infant mortality, heart disease, HIV diagnoses, obesity, and adult diabetes—also high among Latinx and Native American populations (Centers for Disease Control and Prevention, 2013).

Equally important, “this broad association between race<sup>1</sup> and health also holds when SES is controlled” (Phelan & Link, 2015, p. 320), and is mediated by infrastructural factors such as poor access to quality medical care, minimal

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<sup>1</sup> The concepts of race and ethnicity are common variables in epidemiological and health services research. Anthropologists take a more critical view of these concepts, recognizing that they are social (not biological) constructs (Goodman, Moses, & Jones, 2020), that they often are not well-defined, vaguely (if at all) operationalized, and may even be conflated. “Despite their limitations, racial or ethnic categories may be important to the extent that they reflect processes of racialization that are a meaningful part of people’s experience (Gravlee & Sweet, 2008, p. 39). Anthropologists have also noted that such distinctions may not be equally relevant in other cultural/national contexts, but they certainly are in the United States, where structural racism is deeply and historically embedded. In this paper we try to avoid using these two terms, referring where possible to specific groups or populations at risk—while recognizing that even terms like Blacks or Latinx or Asian Americans gloss over important differences within such groups. At the same time, such identifiers have social relevance because members of these groups experience racism within U.S. society. Some writers have substituted collective terms, such as minorities or people of color—but these are also problematic. Collectively such groups make up much more than a “minor” part of the U.S. population. These terminological

availability of nutritious food, exposure to environmental toxins, unsafe neighborhoods, and “residential segregation by race/ethnicity [which] is an underappreciated driver of inequality in the U.S.” (Williams & Cooper, 2020, E1). As Rodgers and O’Neill aptly point out, “broader processes of marginalization, abjection and disconnection often become operational and sustainable . . . through infrastructure” (2012, p. 403), which in turn, “constitutes an often-ignored material channel for what is regularly referred to as ‘structural violence’” (2012, p. 404). They propose the notion of *infrastructural violence*, to bring attention to the material ways in which social structures of inequity and discrimination cause recurring harm.

All of these factors also contribute to high levels of social stress. For example, a large body of research affirms that people exposed to and targeted by racism have poorer health outcomes and unequal medical treatment (Krieger, 2012; Phelan & Link, 2015; Williams, 1999.) The experience of racism can adversely impact physical and mental health through various neurobiological or cognitive pathways (Berger & Sarnyai, 2015; Collins, David, Handler, Wall, & Andes, 2004; Goosby, Cheadle, & Mitchell, 2018). Chronic exposure to the stressors of poverty is also associated with negative health outcomes (Braveman & Gottlieb, 2014; Lane et al., 2008; Mendenhall, 2017). These expressions of structural and infrastructural violence are cumulative. Blacks, for example, have been found to experience greater wear and tear—weathering—on their body systems, at all ages, compared to Whites, as measured by allostatic load (Geronimus, Hicken, Keene, & Bound, 2006). “Inequalities at birth . . . reiterate biological inequalities in susceptibility to disease throughout the life course. Subsequent structural deprivations only add to the burden of risk” (Singer, 2009, p. 143).

### 3.2 COVID-19’s Disproportionate Impact on Vulnerable Cultural Groups in the U.S.

COVID-19 has made this burden of risk—resulting from “the larger pandemic of racial/ethnic disparities in health” (Williams & Cooper, 2020, p. E1)—starkly visible across many parts of the U.S., where both the number of cases and the number of deaths from COVID-19 are disproportionately higher among residents of lower-income neighborhoods and among Black, and Latinx populations, many of whom also live in poverty (Azar et al., 2020; Flynn, 2020; Rodriguez-Diaz et al., 2020). A zip code-based analysis of COVID-19 in New York City highlights this dynamic. Neighborhoods with higher rates of COVID-19 also had a larger share of residents who were Black or Latinx, had lower median incomes, and lower education levels (NYU Furman Center, 2020). In addition, an analysis of the city’s five boroughs found that “the Bronx, which has the highest proportion of racial/ethnic minorities, the most persons living in poverty, and the lowest levels of educational attainment had higher rates of hospitalization and death related to COVID-19 than the other 4 boroughs” (Wadhera et al., 2020, p. E2).

Similar findings regarding the disproportionate impact of the coronavirus are appearing “throughout hundreds of counties in urban, suburban, and rural areas [of the U.S.], and across all age groups” (Oppel, Gebeloff, Lai, Wright, & Smith, 2020, para. 5). According to *The Atlantic’s* (n.d.) COVID Tracking Project, in a majority of states the case rate for Blacks and/or Latinx is more than twice their population share. For example, in Michigan (as of April 25), Blacks accounted for 33% of cases and 41% of deaths from COVID-19, while representing 13.6% of the state’s population. The majority of the state’s cases (78% of 37,203) and deaths (87% of 3,274) clustered in the four counties surrounding and including the city of Detroit, which has one of the largest Black communities in the country, with over a third of its population living in poverty (Michigan.gov, 2020; Shah, 2020; U.S. Census Bureau).

A study by the Centers for Disease Control and Prevention (CDC) of eight Georgia hospitals found that Black patients were disproportionately represented (over 80%) among severe COVID-19 hospitalizations (Gold et al., 2020). An assessment, also by the CDC, of U.S. cases as of May 30, 2020, confirms these stark disparities. For those cases (600,000) “with known race or ethnicity, 33% ... were Hispanic, 22% were black, and 1.3% were [American Indian/Alaska Native],” whereas these groups “account for 18%, 13%, and 0.7% of the U.S. population, respectively” (Stokes et al., 2020, p. 763).

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challenges reflect the historical legacy of racism in the U.S. Finally, since “race” and “ethnicity” are so prevalent in the medical, public health, and epidemiological literature and in popular media, we do use these terms when discussing data and analyses presented in publications that we cite.

Not surprisingly, the latest available COVID-19 mortality figures (as of July 22) also reflect these disparities, with Blacks and Native Americans dying at rates much higher (73.7 per 100,000 and 60.5 per 100,000) as compared to Pacific Islanders (48), Latinx (37.2), White Americans (32.4), and Asian Americans (30.7). Adjusting for age widens this mortality gap for *all these groups*, in comparison to Whites (American Public Media Research Lab, 2020).

Native American communities, which have high rates of heart disease, diabetes, and obesity, have been hit particularly hard, especially on reservations, where poverty is visible in the crowded housing conditions, underfunded health systems, lack of running water, and food insecurity. Such structural and infrastructural violence is driving the pandemic in the Navajo Nation, for example, which at one point had more deaths per capita than any U.S. state (Abou-Sabe, McFadden, & Martinez, 2020). In New Mexico, Native Americans (as of August 6) account for 35.5% of COVID-19 cases but make up 9% of the population (Conger, Gebeloff, & Opiel, 2020).

This growing body of evidence concerning vulnerable cultural groups underscores the fact that we are living in “a moment of ethical reckoning. . . . The U.S. has needed a trigger to fully address health care disparities; COVID-19 may be that bellwether event” (Yancy, 2020, p. E2).

The higher case and death numbers for Blacks, Native Americans, and Latinx are explained *only in part* by the fact that pre-existing disease and health conditions associated with severe COVID-19 infection and mortality—hypertension, heart disease, obesity, and diabetes (Garg, S. et al., 2020; Richardson et al., 2020)—are also found in higher rates among members of these populations. Notes Gravlee (2020, p. 5), “Syndemic theory [also] alerts us . . . to the possibility that the pandemic could intensify racial inequities in the social and economic conditions that increase risk [for these diseases] . . . exacerbating the toll those diseases already take on Black people and communities [of color].”

What makes COVID-19 a syndemic goes beyond these comorbid diseases. As the earlier discussion of Native American communities makes clear, equally important is the role of *pre-existing social-structural and infrastructural* conditions. These are often reflections of racism, social class, and poverty, and they add additional stressors and amplify the risks of exposure, serious illness, and death from COVID-19 for Blacks, Latinx, and other groups (Gravlee, 2020; Lund, 2020; Pinsker, 2020; Poteat, Millett, Nelson, & Beyrer, 2020; Ray, 2020; Rios & Rangarajan, 2020; Selden & Berdahl, 2020). These conditions create what anthropologists have termed structural vulnerability, a concept that “refocuses our analysis onto the social structure as the locus of danger, damage, and suffering” (Holmes, 2011, p. 447), and that is critically relevant to understanding the dynamics of COVID-19 (Team & Manderson, 2020). Such vulnerability is “produced by [a person’s] location in a hierarchical social order and its diverse networks of power relationships and effects. . . . Individuals are structurally vulnerable when they are subject to structural violence in its broadest conceptualization” (Quesada, Hart, & Bourgois, 2011, p. 341). Epidemiologist Camara Phyllis Jones puts it more bluntly: “*Racism* puts you at higher risk [of COVID-19] . . . people of color are more infected because we are more exposed and less protected. Then, once infected, we are more likely to die because we carry a greater burden of chronic diseases from living in disinvested communities” (Wallis, 2020, p. 3). These conditions of vulnerability include:

*Poor access to quality health care*—Blacks and Latinxs are significantly more likely than Whites and Asians to be uninsured or underinsured (Tolbert, Orgera, Singer, & Damico, 2019). One factor for Black populations is that many live in the South, where most states did not adopt the Affordable Care Act Medicaid expansion (Artiga, Orgera, & Damico, 2020). Many counties with a disproportionately larger Black population also have higher rates of poverty, unemployment, diabetes, and heart disease (Poteat, Millett, Nelson, & Beyrer, 2020). Access to physicians and clinics is segregated in many communities, and this may also apply to COVID-19 testing sites, which may be more limited in low-income neighborhoods (Williams & Cooper, 2020). Factors such as lack of transportation, childcare, or inability to take time off of work also impact access to care.

In addition, many Black communities have a mistrust of medicine, based on historical experiences of unethical experimentation and on concerns about unequal treatment due to implicit bias toward people of color among health care providers (Maina, Belton, Ginzberg, Singh, & Johnson, 2018; Ray, 2020; Smedley, Stith, & Nelson, 2003). As a result, Blacks may delay seeking critical care for symptoms of COVID-19, resulting in higher rates of hospitalization (Azar et al., 2020). In addition, a national survey by the Pew Research Center (2020) found that a third of respondents reported someone in their household either losing a job or taking a pay cut as a result of COVID-19—with loss of income and, in some cases, loss of employer-based health insurance, both of which impact healthcare decisions. This was more likely for Latinxs (and to some extent Blacks) and those in lower income households.

*Working in front-line, low-wage “essential” jobs*—The types of businesses allowed to remain open during the pandemic ‘lockdowns’ employ many workers in jobs within the healthcare and home health sector, in public safety,

postal services, and in the transportation and food industries. These jobs put workers in close contact with others, are less likely to provide sick leave, and cannot be done remotely from home, which means greater risk of exposure—and Blacks and Latinx are over-represented in many of them. For low-income families, “staying home during a quarantine is a privilege” (Ray, 2020, para. 8). In California, where Latinx make up 39 percent of the population but account for 57 percent of COVID-19 cases, the virus has spread through the agricultural and food processing areas, which employ primarily Latinx workers (Hubler, Fuller, Singhvi, & Love, 2020). In addition, Blacks, Latinx, and immigrants are more likely to live in larger and multigenerational households (Cohn & Passel, 2018), which increases the number of people at risk, if even one member works in a front-line job (Selden & Berdahl, 2020).

*Reliance on public transportation*—Many people living in poverty use buses or subways to get to work and to shop. In Detroit, for example, 34 percent of residents have no access to a car. In addition, many of those working for urban transit authorities are Black or Latinx, putting them at additional risk of exposure.

*Challenges in following preventive measures*—The lack of access to clean water in many poor urban areas makes frequent hand washing nigh impossible, and during a pandemic this constitutes a clear example of infrastructural violence with potentially serious health consequences. In Detroit, for example, a significant number of homes had water service shutoffs due to debt, and lack of water may have been a contributing factor in the early surge of cases there (the city has since restored water service to most residences). Another preventive measure, social distancing, is difficult to practice in high density neighborhoods where many families live in crowded multi-generational households. Lack of highspeed internet access in many poorer households presents challenges for getting critical public health messages to these communities, as well as making distance learning more difficult for children whose schools have closed. Finally, low-income people (even more so for those homeless) may have more difficulty acquiring protective masks; the suggestion of bandanas as an alternative may actually be dangerous for Black males, who are often profiled by police as potentially criminal, simply for being Black—as the killing of George Floyd in Minneapolis (and countless others before him) so tragically and visibly demonstrated.

The mass demonstrations that erupted throughout the U.S. (and in foreign cities) in the aftermath of this killing were a response not only to police brutality, but also to the ubiquitous racism that makes Black and Latinx residents targets of both excessive policing *and* the coronavirus. These two nationwide crises intersected synergistically to propel the Black Lives Matter movement and declarations of racism as a public health crisis (Almendrala, 2020; Devakumar et al., 2020).

### 3.3 Vulnerability Among U.S. Nursing Home Residents, Homeless People, Immigrants, and Inmates

COVID-19 is also impacting a number of other structurally vulnerable groups. Nursing homes throughout the U.S.—which have a mixed history with regard to safety, care, and living conditions—have seen disastrous rates of infection (Mollot, 2020). As of July 30, more than 40% of U.S. coronavirus deaths have been residents or workers of long-term care facilities (*New York Times*, 2020). And the disparities found in the wider society are also evident in this subpopulation, where facilities that have a significant number of Black or Latinx residents are twice as likely to have coronavirus cases (Gebeloff et al., 2020).

The homeless population—estimated at over 550,000 in 2018—is also at great risk, not only because of difficulties of maintaining social distance and personal hygiene, but also because many have other chronic physical and mental health problems with potentially compromised immune systems. As Ellis (2020) rightly notes, “Homelessness is incompatible with health.” While Whites account for about half of homeless people, Native Americans, Latinxs, and Blacks are overrepresented compared to their numbers in the general population (National Alliance to End Homelessness, n.d.). There have been reports of outbreaks in homeless shelters, which also face a unique set of challenges, including loss of staff due to coronavirus infection (Tobolowsky et al., 2020). It is impossible for people to isolate while living in a large group setting like homeless shelters, sharing bathroom facilities and eating spaces with many other people.

Immigrants are another structurally vulnerable group at significantly higher risk during this pandemic. Undocumented workers, who are over-represented in the service industries, have been impacted by the closure of hotels, restaurants, and other service jobs, and because of their immigration status, are not eligible for unemployment or a stimulus payment. Many other immigrants—by some estimates up to 6 million (of various legal status)—work in what are



now termed “essential” jobs, in agriculture, food processing and retail, health care, and cleaning services. Protections in such low-income jobs are often minimal, and many also rely on public transportation to get to work, all of which increases their risk of exposure (Gelatt, 2020). Many immigrants, especially in areas with a strong ICE (Immigration and Customs Enforcement) presence, avoid seeking medical care due to lack of insurance, fear of jeopardizing their legal status, or fear of being subjected to immigration harassment and enforcement. “Driving immigrants into hiding and excluding them from accessing testing and care related to COVID-19,” puts these individuals, their families, and the larger community at risk (Bryce, 2020).

Finally, a significant number of immigrants are being held in jails and detention centers across the U.S., often in inhumane conditions of overcrowding, poor sanitation, high stress, and lack of access to adequate healthcare—conditions that can only be described as structural and infrastructural violence. As of early August, there were 4,250 confirmed cases of COVID-19 among those in ICE custody (and 45 among employees at the centers), but lack of transparency on the part of U.S. immigration agencies makes it hard for advocates to have a clear picture of what is happening in these detention centers (Scheyer, 2020; U.S. Immigration and Customs Enforcement, 2020).

Inmates in the massive U.S. incarceration system have also been hit hard by the coronavirus, in part because such facilities serve as both incubators and amplifiers of infectious disease. The recommended prevention practices for COVID-19, like frequent handwashing, frequent disinfection, and social distancing are either difficult or impossible under usual prison conditions of overcrowding, lack of adequate sanitation and supplies, with a population that is particularly vulnerable because many inmates have underlying disease conditions (Williams, Wieser, & Rashbaum, 2020). Consequently, jails and prisons have become hot spots of infection. For example, Cook County jail in Chicago, one of the nation’s largest carceral sites, was the nation’s largest-known source of coronavirus infections (Williams & Ivory, 2020), but has now been surpassed by other jails and prisons. The U.S. criminal justice system holds almost 2.3 million people in various state and federal prisons, correctional facilities, jails, and other detention centers (Sawyer & Wagner, 2020). Blacks and Latinxs make up the largest share of the prison population and are imprisoned at much higher rates than Whites (Gramlich, 2019)—another consequence of structural racism.

While total numbers for prison infection rates are not available, reports suggest that many prisons that are doing mass testing are finding mass infections. According to the Marshall Project (2020), which is tracking the spread of COVID-19 in U.S. prisons, as of December 1, 2020, there have been at least 225,946 cases and at least 1,568 deaths among prisoners, with thousands of workers and staff also sickened—and these are considered an undercount.

### 3.4 Beyond the U.S.: The Global Impact of COVID-19 on the Poor and Disenfranchised

The U.S. is not alone in having disproportionate rates of COVID-19 cases among people from disenfranchised and impoverished cultural groups. Ethnic minorities comprise about 14 per cent of the UK population but account for 35% of coronavirus patients admitted to hospital critical care units. According to a review by the Institute for Fiscal Studies, after accounting for age and geography, “Bangladeshi hospital fatalities are twice those of the white British group, Pakistani deaths are 2.9 times as high and Black African deaths 3.7 times as high” (Platt & Warwick, 2020). People born in Somalia and living in Norway have infection rates that are more than 10 times above the national average (Masri, 2020). African immigrants living in France have also been disproportionately impacted by the coronavirus (Leicester, 2020). As in the U.S., these patterns reflect lower incomes, crowded living conditions, use of public transport, and concentration of employment in the service sector for ethnic minorities in Europe.

The tragic impact of the coronavirus on nursing home residents was not limited to the United States. In Canada and many parts of Europe, nursing homes were poorly prepared to deal with the pandemic. There are reports that in Belgium, for example, the elderly sick were denied care to save hospital beds. The result was that over 5,700 nursing home residents have died, contributing to Belgium having one of the world’s highest COVID-19 death rates (Stevis-Gridneff, Apuzzo, & Pronczuk, 2020).

One of the COVID-19 hot spots in the U.S.—prisons—are also emerging as high risk sites in developing nations. The global prison population is estimated to be about 11 million. In developing countries, in particular, they often are greatly overcrowded. The Philippines, for example, has over 200,000 people imprisoned in a system designed to hold less than 50,000. Similarly, Haiti’s prisons are operating at 450% occupancy (Burki, 2020). Under these conditions, rapid and widespread transmission of COVID-19 is a grave risk. According to Tamara Broner, Acting Deputy Director of

Human Rights Watch, Americas Division, prisons in South America “are typically very unsanitary and overcrowded and inmates do not always have access to running water” (Burki, 2020, p. 1411). In Venezuela, where the health system had collapsed before the pandemic, even doctors do not have access to water to wash their hands. Adds Frederick Altice, a noted authority on infectious diseases in prisons, “Prisoners share toilets, bathrooms, sinks, and dining halls. They are mostly sleeping in bunk beds; in some countries they sleep crammed together on the floor... These settings are in no way equipped to deal with an outbreak once it gets in” (Burki, 2020, p. 1411). Prisoners in most nations are in worse health than the wider population, with high rates of asthma, diabetes, and smoking. All of these factors combine to form an explosive potential for the prisons of the world to be centers of COVID-19 devastation.

While the spread of infection in China, the United States and Europe has attracted most of the media coverage during the pandemic, confirmed cases from low-income countries like Bangladesh and Costa Rica indicate that COVID-19 is spreading to the world’s most vulnerable populations (Ramachandran, 2020). In Latin America and the Caribbean, where poverty, inequality, and fragmented health systems were major problems even before the pandemic, COVID-19 cases are rising sharply, with Brazil, Chile, Peru, and Mexico leading the way (Horton, 2020). The United Nations is predicting a major recession in the region which could push many more people into poverty (United Nations, 2020). Similarly in Africa, the pandemic and its economic fallout is decimating the middle class (Dahir, 2020). Particular concern has been raised about sub-Saharan Africa, as it is home to more than one billion people, has an average poverty rate of 41 percent, and is the location of the world’s 28 poorest countries (Patel, 2018).

In poorer developing nations, income losses have been projected to exceed \$220 billion—reversing gains that had been made in global poverty rates. Having limited access to social protection, these economic losses are likely to reverberate across all sectors of poorer countries, impacting health care for all ages, governance, education, human rights, and even food security and nutrition (United Nations Development Program, 2020). In fact, the World Food Programme predicts that about 265 million people in low- and middle-income countries could suffer acute hunger by the end of 2020—double the number who faced food insecurity in 2019—as a result of the pandemic (Global Network Against Food Crises, 2020). The COVID-19 crisis has already led to loss of household income and employment, disruptions in agricultural production and supply chains, lessened government capacity to protect vulnerable populations, and there are concerns about secondary effects that could exacerbate food insecurity, including political instability and conflict dynamics (Food and Agriculture Organization & World Food Programme, 2020).

Most at risk are the estimated 2 billion who work in the informal economy, along with low-wage workers. In Salvador, Brazil, for example, more than half of the population are either unemployed or working informally, many of whom live in the urban periphery, with high population density, inadequate health services, and lack of basic sanitation (de Oliveira & de Aguiar Arantes, 2020). This scenario can be found throughout Latin America (Castro, 2020) and other parts of the global South (Sur & Mitra, 2020).

Around the world, the COVID pandemic cannot be separated from the structural violence produced by massive inequalities in wealth, power, and access. These differentials help account for varying epidemiological patterns in the pandemic. For example, the European Union imposed austerity measures on government spending in Spain and Italy following the global economic crisis that began in 2008, which significantly weakened their publicly funded healthcare systems. As a result, the economies of Italy and Spain declined, unemployment (especially among youth) shot up, foreclosures and evictions skyrocketed, access to and quality of healthcare diminished, and there was an increase in chronic health conditions. Observe Carney & Ostrach (2020, para. 5), “It is thus no mystery that neither Spain’s nor Italy’s health systems proved able to keep up with the demands of caring for coronavirus patients ... because austerity ... hamstring health systems intended to be egalitarian.”

Policies focused on efficiencies in France and the UK have also led to shortages of equipment and critical care beds during this time of crisis (Paul, Brown, & Ridde, 2020). Such failed European austerity measures “bear a striking resemblance to the ruinous structural adjustment policies imposed on Latin America, South-East Asia, and sub-Saharan African in the 1980s and 1990s” (Oxfam, 2013). Who were the beneficiaries of austerity? Wealthy banks and other financial institutions, which received an unprecedented government bailout. As Adam Hayes affirms, “The major beneficiaries ... are large corporations” (2020, para. 25).

Our discussion of structural violence in the context of COVID-19 would be incomplete without mention of two other vulnerable populations at significant risk from this pandemic: refugees/migrants and women. There are about 70.8 million forcibly displaced people worldwide, according to the United Nations High Commissioner for Refugees, many of whom are living in camps located in low- or middle-income countries, with limited resources and minimal

access to health care (Hopman, Allegranzi, & Mehtar, 2020). Conditions in migrant camps make disease outbreaks more likely. Basic hygiene is difficult when there are too few latrines and poor access to clean water; extreme overcrowding makes physical distancing impossible. Plus, the closing of national borders is causing disruption in essential supplies of food, medicines, and other aid. Migrants and refugees living within wider communities are also at greater risk. Many are homeless and vulnerable to the economic impacts of COVID-19, with “income loss, healthcare insecurity, and . . . postponement of decisions on their legal status or reduction of . . . services” (Kluge, Jakab, Bartovic, D’Anna, & Severoni, 2020, p. 1238). The situation is especially dire in war-torn regions (e.g., Syria, Iraq, Yemen, and South Sudan), in areas suffering economic and political crises (e.g. Venezuela), or in neighboring countries hosting refugees fleeing violence (e.g., Afghans in Iran, Rohingya in Bangladesh) (Refugees International, 2020).

Finally, while COVID-19 does not specifically target women, they have unique vulnerabilities that put them at significant risk, since pre-existing gender and intersectional inequalities often worsen during crises. CARE and the International Rescue Committee (2020) offer a “rapid gender analysis toolkit,” which identifies a number of concerns. For example, women do the vast majority of caregiving, largely unpaid, and this includes caring for sick family members, which puts them at higher risk of infection. Plus, female health workers, who often earn less than male counterparts, are facing stigmatization due to caring for COVID-19 patients. School closures mean extra work for women caring for children, and they can result in greater adolescent sexual activity, with an increase in pregnancy and school dropouts. At the same time, access to maternal and reproductive health worldwide may diminish as public health funds become redirected to the prevention and treatment of COVID-19.

Equally important is gender-based violence, which appears to be increasing due to COVID-19 restrictions, such as stay-at-home orders, disruption of livelihoods and social networks, and increased anxiety (Roesch, Amin, Gupta, & García-Moreno, 2020). This includes a reported rise in femicides in parts of Latin America and in South Africa (Adebayo, 2020; Prusa, Nice, & Soledad, 2020). In addition, the loss of household income may lead to increased sexual exploitation and abuse, as desperate women try to feed their families—while needed services for such victims may be curtailed (United Nations Population Fund, 2020). Thus, women’s concerns need to be incorporated into the responses to this global pandemic.

## 4 Local Conditions and Demographics in COVID Risk

While basic human biology is generally similar across contexts, local social and political histories produce differing demographic and health profiles by location. These differences are highlighted by the syndemic nature of COVID-19. Given its interface with COVID risk, a fundamental issue is the age of a population. Italy, with Europe’s highest proportion of people older than 65, has been particularly hard hit by the pandemic. As Massimo Galli, the director of infectious diseases at Sacco hospital in Milan, a center of the pandemic, notes, “Italy is a country of old people... The elderly with previous pathologies are notoriously numerous here” (quoted in Tonso & Giuffrida, 2020). The age of a population commonly is measured chronologically (e.g., the percentage of people over the age of 65 years). Sanderson and Scherbov (2019), however, argue that a more telling measure is a population’s prospective old age dependency ratio (POADR). This is calculated in terms of the proportion of people with remaining life expectancies of 15 years or fewer. POADR assessment includes issues like physical health, cognitive functioning, and active labor force participation.

Bulgaria, for example, has one of the highest proportions of older adults in the world with approximately 20% of its population aged 65 or older. This places Bulgaria sixth in the world in terms of having the oldest inhabitants. Based on POADR, however, Bulgaria is ranked number one globally (Scommegna, 2019). As Segata (2020) reminds us, constructed “universal risk groups such as ‘the elderly’ need to take into account what it is to live in different places and the age and retirement policies in different contexts.” A major factor in Bulgaria’s demographic (and health) crisis is that family support of older adults is declining as younger people are forced to move abroad or to urban areas to find employment. Pitheckoff (2017) argues that outmigration from Bulgaria reflects its political, social, and economic history. Also at issue is the notable prevalence of tobacco and alcohol consumption as well as high levels of poverty and social isolation. Bulgaria has the highest rate of smoking in the European Union, a product of heavy promotion as cigarette sales were diminishing in the U.S. (Neuburger, 2016). Both the World Health Organization office in Bulgaria and the Bulgarian office of the United Nations Children’s Fund report that the advertising and promotion of tobacco products “deepen

the Bulgarian society's heavy smoking addiction and dependence from tobacco industries" (XinhuaNet, 2019). Barring effective mitigation efforts these sets of factors put Bulgaria at particular risk in the COVID syndemic. While the country was able, with strict restrictions, to keep the case numbers down during the first months of the outbreak in Europe, Bulgaria has experienced a surge during late spring and summer in both cases and deaths.

Nations and regions with younger populations face different patterns of risk in the syndemic. Elevated levels of air pollution and resulting high rates of lung and cardiovascular diseases is another force shaping national COVID risk. Global air quality significantly deteriorated over the last several decades as a result of the interaction of global warming with other forms of anthropogenic environmental degradation, such as vehicular and factory air pollution. This pattern is reflected in notable increases in the frequency of a range of respiratory symptoms and diseases like asthma, especially among poorer and disparity populations across nations (Rich, 2017; Zhang et al., 2019). Research on exposure to either nitrogen dioxide (NO<sub>2</sub>) (an air pollutant produced by motor vehicles among other sources), or ozone (O<sub>3</sub>) (a product of photochemical reactions between NO<sub>2</sub> and volatile organic compounds) has been found to enhance asthma flare ups (Chauhan et al., 2003; Infante-Rivard, 1993).

Increases in respiratory risks are directly tied to structural factors and the corporate release of industrial toxins. As Davies (2019, p. 1) argues, "Toxic pollution is a form of violence." For example, in Mexicali, Mexico, a city of over half a million people on the U.S.-Mexico border adjacent to Calexico, California, there has been a dramatic increase in air pollution, and a parallel jump in the respiratory diseases since the establishment of over 150 foreign-owned factories (*maquiladoras*) that produce goods for sale in the U.S. Mexicali has among the worst particulate matter pollution—which includes fine particles of lead, chlorine and other toxic substances—measured anywhere in the Americas. Mexican health records indicate that at least 78 people died of asthma and over 90 people died of chronic obstructive pulmonary disease in the Mexicali metropolitan area from 2010 to 2016. Further, it is estimated that pollution causes about 300 premature deaths in Mexicali every year (James, 2019). The health problems caused by air pollution in Mexicali are enhanced by global warming (Wilder et al., 2013). Existing climate models show trends of increasing temperatures for the Mexico/U.S. border region. Mexicali also has a rapidly rising rate of COVID-19 cases and, given the high rate of pulmonary and other pollution-related diseases, is at high risk for a significant pandemic impact (Rivera, 2020).

In the Central American nation of Belize, diabetes is the leading cause of death. A study conducted by the Pan American Health Organization (Barcelo et al., 2012) found that the total prevalence of diabetes among neighboring countries was 8.5%, whereas in Belize 12.9% of the population suffered from the disease. Between 2006 and 2009, deaths attributed to diabetes accounted for 8.5% of all mortalities in Belize, an 18% increase from the previous period, 2001 to 2005 (Pan American Health Organization, 2012). This epidemic, which people in Belize refer to as "traveling with sugar" (Moran-Thomas, 2019), has been linked to expanding urbanization, which is accompanied by the adoption of sedentary lifestyles and high rates of obesity. The corporate-driven system of processed food has now penetrated deeply into the Belizean market and Belizean lifestyles (Reardon, Timmer, Barrett, & Berdegúé, 2003). A high percentage of the calories in Belizean diets now come from readily available packaged foods and beverages—cheap, energy-dense sugary and high-carbohydrate foods. This is a consequence, in no small part, of the transnational structural violence of the global food system, colonial legacies, and neoliberal policies (Moran-Thomas, 2019). These factors have led to a very high rates of obesity in Belize, which, in turn, is directly linked to diabetes (Anderson-Fye, 2004). As noted earlier, diabetes is one of the chronic conditions that increases the risks of greater morbidity and mortality with COVID-19 infection.

The relationship between diabetes and COVID-19 is multi-faceted but several pathways of interaction have been suggested. First is the fact that SARS-CoV-2 triggers an increase in stress levels causing enhanced release of hyperglycemic hormones such as glucocorticoids and catecholamines. This release prompts an increase in blood glucose (Wang et al., 2020). Second, the link between diabetes and atherosclerotic cardiovascular disease is well documented (Haffner et al., 1998) and hypoglycemia is known to both mobilize pro-inflammatory white blood cells and heighten platelet reactivity, factors that contribute to heart-related mortality in patients with diabetes (Iqbal et al., 2019). This suggests that people with diabetes and COVID-19 "are more susceptible to an inflammatory cytokine storm eventually leading to ARDS [Acute respiratory distress syndrome], shock and rapid deterioration of COVID-19" (Pal & Bhadada, 2020). Third, diabetes is associated with reduced expression of angiotensin-converting enzyme 2 (ACE2). This enzyme is a critical component of the biochemical pathway that regulates blood pressure and wound healing. These three pathways suggest the multiple interactions that occur in the COVID-19/diabetes syndemic.

The large percentage of elderly in Bulgaria with comparatively low life expectancies, the heart- and lung-damaging air pollution in Mexicali, and the widespread diabetes epidemic in Belize, set the stage for varying local contours and

components of COVID syndemics. These local differences also shape intervention needs in overcoming the current and future infectious disease pandemics. In other parts of the world, issues like heightened levels of untreated immune damaging HIV/AIDS, drug-resistant tuberculosis, and overcrowding shape local landscapes of COVID pandemic risk (Singer & Rylko-Bauer, in press). Vulnerabilities like these in lower income countries often are products of colonial and neoliberal histories, as well as wars and conflicts, which have disrupted already weak and poorly functioning health care systems.

The examples above underscore the point “that global events are always enacted from and in local contexts” (Segata, 2020, para. 3). Traumatic events like epidemics, are variously interpreted, given meaning, and responded to in relation to broader local contexts of ideologies, values, and political, economic, cultural, relational, and material realities (e.g., Toolin, 2020). In addition, fear and anxiety can generate “blaming the victim” narratives. This has certainly been the case during the AIDS epidemic, when homosexuals and persons with HIV/AIDS were stigmatized, as were Haitians, in the early years, because of the erroneous belief that AIDS in the Western Hemisphere had originated in Haiti (Farmer, 1992). During the 2013–2016 Ebola epidemic, African immigrants in the U.S. were likewise stigmatized (Sanburn, 2014), as was also true with Guinean migrants in Senegal (Onoma, 2020). Similar xenophobic responses have appeared during the COVID pandemic, especially against East Asians in the U.S. and elsewhere (Serhan & McLaughlin, 2020). The extent to which stigma related to COVID-19 will impact vulnerable populations remains to be seen (Kimani, et al., 2020), but it has definitely been a major barrier in addressing other diseases (such as HIV/AIDS) and is an important factor in the generation of various syndemics (Ostrach, Lerman, & Singer, 2017).

As Charles Briggs (2020) notes, racialization of disease has a long history and this is being played out in many parts of the world. In Bulgaria (and other parts of Europe) officials are exploiting the notion of “medical risk” to further discriminate against and control Roma populations, which already face poverty and institutional racism (Kingsley & Dzhambova, 2020). The ‘need to control disease’ has also been repeatedly used as a pretext to further the agendas of those in power. President Trump, for example, has tried to deflect criticisms regarding his administrations failed policies regarding COVID-19, by referring to the ‘Chinese virus,’ by promoting conspiracy theories regarding its origins, and using the pandemic as pretext to implement further immigration restrictions (Shoichet & Alvarez, 2020). Far-right leaders in several European countries have similarly proposed policies against asylum seekers (Serhan & McLaughlin, 2020). In sum, pandemics like COVID are amalgamations of linked but varied local epidemics. There are lessons to be learned by comparing the similarities and differences across sites in a pandemic, as this reveals the importance of local conditions and histories in shaping variations in the puzzle pieces that comprise a pandemic and the differences that exist in needed local public health policy and medical practice.

## 5 Weaknesses in Global Health Care Investment

During the 1990s, recognition of the mounting impact of globalization triggered a paradigm shift toward a global health focus, which entails an awareness of the interrelatedness of health around the world and promotes coordination and multinational responses to pressing health needs. Reflecting this reconceptualization, in 2019, before the start of the COVID pandemic, the World Health Organization (WHO) issued a new 5-year strategic plan, called the 13th General Program of Work, that identified the current top ten global threats to health. Included on this list was the “growing challenges of tackling outbreaks and health emergencies” especially in urban areas (World Health Organization, 2020b). Among the outbreaks of concern were coronaviruses which were designated for priority research and intervention development. As it turns out, the COVID pandemic has starkly revealed, in both rich and poor countries, the critical flaws in healthcare systems and the dire consequences of underfunding basic public health (Shamasunder et al., 2020).

Also on the WHO list were fragile and vulnerable settings where healthcare and other infrastructure is limited and national investments in health are inadequate. In such settings, which are found in all regions of the world, there often are inadequate primary healthcare and public health facilities, resources, and trained personnel. There also are limitations in hospital beds, intensive care services, and clinical staffing (Murthy, Leligdowicz, & Adhikari, 2015; Wood, 2020).

Mexico, for example, is struggling with shortages of doctors, nurses, and equipment due to years of underfunding of the health care system. As a result, Mexico has one of the highest rates of COVID-19 infection among its health

workers, which has further impacted the already poor quality of patient care in hospitals. This is leading people to delay seeking care, which has contributed to the country's high death rate from the virus (Kitroeff & Villegas, 2020). African countries, in particular, are facing shortages of necessary supplies and equipment, including laboratory infrastructure, ventilators, oxygen, and even basic cleaning supplies (Maclean & Marks, 2020). This realization and past experience with epidemics, led many African countries to take strong public health measures which have helped to limit cases and deaths due to COVID-19, in comparison to wealthier countries (World Health Organization, 2020a).

These shortcomings usually are the result of one or more causal factors, including historic and contemporary political-economic relations among countries of the world, a lack of available life resources in low- or middle-income countries, fragile state structures, political violence and conflicts, past structural adjustment policies and skepticism among some finance-policy-makers that health systems support (and may even undermine) key national economic development objectives, the spending of large portions of national budgets on the military, and a focus in the past few decades on single disease programs, while neglecting to strengthen health care systems at the local, regional, and national levels (Shamasunder et al., 2020). Further, at the household level people living in low- and middle-income countries face a lack of financial support when they are sick, discouraging healthcare service use while burdening everyday budgets. On average, almost 50% of healthcare financing in low-income countries comes from out-of-pocket payments by patients and their families. This compares with 30% in middle-income countries and 14% in high-income countries (Mills, 2014).

While global healthcare and health inequalities are concentrated in low-income countries, significant inequalities also characterize a number of subgroups in wealthy nations, most notably ethnic minorities, stigmatized groups, and the poor (Marmot, 2015; Singer & Erickson, 2013). Moreover, in the United States, a very wealthy nation, the number of hospital beds is lower per capita than in most other high-income countries. This reflects a history of reliance on a market-driven healthcare system that rewards efficiency and profitability, rather than efficacy, preparedness, and equity—a healthcare system unprepared to deal with a major health crisis such as the COVID pandemic (Mukherjee, 2020; Rosenthal, 2020). This shortage of beds, as well as intensive care units and critical supplies, has created major crises in cities hardest hit by the pandemic, such as New York City and Detroit. The response to COVID-19 has also been hampered by the woefully inadequate investment that the U.S. makes in public health, which in 2017 represented just 2.5 percent of all health spending. In the midst of this pandemic, county budgets for public health are being cut further, and as public health is increasingly politicized, public health workers are being vilified (Ungar, Smith, Recht, & Berry-Jester, 2020). Similarly, the Hospital Preparedness Program, which provides funding so states can prepare for disaster response and recovery, has been cut almost in half over the past 16 years (McKillop & Ilakkuvan, 2019). As Emily Mendenhall (2020, para. 5) indicates, „COVID-19 is syndemic in the United States in part because of America's longstanding prioritization of profits over people. This is exemplified by President Trump's proposed funding cuts to key federal agencies that deal with public health, medical research, aid programs, and clinical care. In some ways, disinvestment reflects common American values of smaller governments and prioritization of the private sector.“

Additionally, 10% of the population in the United States lacks any form of health insurance and about half of Americans are underinsured, factors with significant health and economic consequences in the best of times (Mulligan & Castañeda, 2018; Sered & Fernandopulle, 2005). This situation is magnified in a pandemic as it has been well established that people who lack financial means are forced to make the decision to go without healthcare (Malâtre-Lansac, 2020). The economic fallout of COVID-19 has resulted in high levels of unemployment, which also means that many people who were insured through work, have suddenly become uninsured.

The long-standing inadequacies within global health are evident from the *millions* of people who die prematurely each year in many parts of the world from respiratory diseases such as pneumonia, tuberculosis, and obstructive pulmonary disease; similar dire statistics can be cited for heart disease, stroke, cancers, pregnancy and childbirth, malaria and other tropical diseases. Thus, it is not surprising that existing global health approaches have ill prepared the world for the COVID pandemic (Paul, Brown, & Ridde, 2020).

The International Rescue Committee (2020), a New York-based global humanitarian aid, relief, and development nongovernmental organization, reports that fragile and conflict-affected countries now face a double emergency: the spread of COVID-19 and a humanitarian and economic crisis caused by the added burdens of a pandemic on already weak healthcare systems. In fragile countries like South Sudan, Syria, Venezuela, and Yemen, for example, almost half (46%) of the people lacked access to basic healthcare services before the pandemic. While comparatively wealthy countries like United States and those in Europe face local shortages of ventilators, intensive care units, and protective medical

supplies, many conflict-affected and fragile countries have virtually none of this equipment to begin with. Exemplary, South Sudan reports having only 24 ICU beds and four ventilators. In war-torn Yemen, only half of the hospitals are still fully functioning and about two-thirds of the population cannot access professional healthcare (International Rescue Committee, 2020). The five-year long conflict in Yemen has killed more than 100,000 people, made millions vulnerable and pushed much of the population to the brink of famine. In the country, widespread “poverty, dire water shortages and a lack of adequate sanitation have already made Yemen a breeding ground for malnutrition and disease” (McKernan, 2020a) as evidenced in the worst cholera outbreaks in modern history. Covid-19 is pushing Yemenis into deeper poverty, accelerating the food crisis, killing its health workers, and overwhelming health facilities (McKernan, 2020b).

An assessment by the Center for Global Development (Gage & Bauhoff, 2020), using data from a recent facility survey reveals the availability of basic infection prevention (BIP) materials and personal protective equipment (PPE) in healthcare facilities in seven low- and low-middle income countries (Bangladesh, the Democratic Republic of Congo, Nepal, Afghanistan, Senegal, Haiti, and Tanzania). The Center found that across the sampled countries, hospitals have an average of 3.1 out of the 4 BIP and PPE items, whereas lower-level facilities average only 2.3 BIP items and 2 PPE items. Tanzanian and Haitian hospitals are the best equipped with BIP and PPE items respectively, while Nepalese hospitals are the least well-equipped. Overall, it appears that inadequate investment in healthcare and public health, as well as the failure in many countries (including the United States) to learn health-preparedness lessons from prior coronavirus epidemics, has contributed to the adverse impacts of COVID-19 (Peeri et al., 2020).

## 6 Conclusion: The Usefulness of Anthropology in the COVID Pandemic

On April 15, 2020, Tedros Adhanom Ghebreyesus (2020), the Director-General of the World Health Organization, commented that “COVID-19 does not discriminate between rich nations and poor, large nations and small. It does not discriminate between nationalities, ethnicities or ideologies.” While the virus may not discriminate, the COVID syndemic does discriminate. As Robert Bullard points out, “This virus doesn’t look at your race, or your color. It looks at your vulnerability” (quoted in Ahmed, 2020). The syndemic is hitting the hardest in poor and marginalized communities that suffer from oppression and discrimination. A key lesson of the COVID pandemic from the syndemics perspective is expressed in graffiti from Hong Kong that reads: “There can be no return to normal because normal was the problem in the first place” (Wintour, 2020). The old, pre-pandemic normal, the one we are told we eventually will return to, has been shown by anthropologists and many others to be one of painful and growing inequalities and injustices both within and across nations.

Historically, much of anthropology has been carried out in zones of social suffering, a condition caused by the adverse things that “political, economic, and industrial power does to people” (Kleinman, Das, & Lock, 1997, p. ix). Explains Kleinman (2010), “social suffering collapses the historical distinction between what is a health problem and what is a social problem, by framing conditions that are both and that require both health and social policies, such as in urban slums and shantytowns where poverty, broken families, and a high risk of violence are also the settings where depression, suicide, post-traumatic stress disorder, and drug misuse cluster.” Critical medical anthropologists, for example, have documented dire health profiles in a pre-pandemic world of considerable, if varied, local expressions of human suffering and injustice adjunct to largely insulated areas of privilege and comparable wealth and well-being (Farmer, 2003; Kim, Millen, Gershman, & Irwin, 2000; Roberts, 2009; Singer & Baer, 1995). In light of such examples, Ruth Behar (1996, p. 177) proclaimed, “Anthropology that does not break your heart just isn’t worth doing anymore.” And then there was COVID-19. Observes Chema Vera (2020, para. 4, 8), the Interim Executive Director of OXFAM International, „This virus affects us all, including princes and film stars. But never has a crisis so profoundly exposed the extreme inequalities that divide our world.... As with inequality within countries, inequality between rich and poor countries will radically shape people’s experiences of this pandemic.“

Certainly, a priority of anthropology in the COVID pandemic crisis should not be a rapid return to the world as we knew it, but rather to one in which diminishing the impact of the next pandemic involves addressing social inequalities within society and within healthcare.

In the world before COVID-19, the United Nations Department of Economic and Social Affairs (2020) reported that inequality had reached unprecedented levels, with absolute income differences between countries continuing to widen. Today more than 70% of the global population live in countries where the wealth gap is growing. While income inequality declined in parts of the world like Latin America from 1990 to 2010, since then it has been increasing in a number of countries including Argentina, Brazil, and Mexico. Income inequality (the wealth gap) refers to the extent to which income is distributed in an uneven manner in a population. Not only is the wealth gap between richer and poorer countries expanding, economic inequality has been on the rise in most high-income countries.

In the U.S., income disparities are so marked that the wealthiest 10 percent of the population average more than nine times as much income as the bottom 90 percent (Saez, 2018). Americans in the top 1% average over 39 times more income than the bottom 90 percent. The extreme superrich, those in the top 0.1% have over 196 times the income of the bottom 90 percent. Wealth strongly shapes people's quality of life. As the U.N. report indicates, "People perceive and experience absolute inequalities in their daily lives, in terms of living conditions and well-being" (United Nations Department of Economic and Social Affairs Social Inclusion, 2020, p. 22). The precise problem with returning to the old normal is aptly captured in an editorial in the *San Antonio Express-News* (2020) which noted that Eric Cooper, president and CEO of the San Antonio Food Bank, has warned that because of the pandemic his nonprofit organization is "on the verge of running out of food and seeking state assistance to avoid catastrophe." In normal times, the editorial stressed, "the food bank served 60,000 people a week — a crisis we all tolerated."

What role then can anthropologists play in addressing the health, social, and economic components of COVID risk and its consequences in a world of growing inequalities? The first priority, of course, is for anthropologists to find ways to assist in mitigating this global health crisis and the suffering and loss that it leaves in its wake. Anthropologists can engage with officials and communities by providing, where appropriate, *pragmatic* suggestions grounded in the theories and knowledge of our discipline.

One model for such engagement is the Ebola Response Anthropology Platform, created in response to the West African Ebola outbreak of 2013–2016 ([www.ebola-anthropology.net](http://www.ebola-anthropology.net)). Another is the Social Science in Humanitarian Action Platform, which is collating resources and briefings on COVID-19 with input from anthropologists and other social scientists ([www.socialscienceinaction.org](http://www.socialscienceinaction.org)). These are just several examples of the myriad ways in which anthropologists became engaged on many levels in response to the Ebola epidemic (Abramowitz, 2017). More recently, Mark Nichter (2020) has created a Primer on COVID-19, a periodically updated compilation of information on the epidemiological, public health, and social aspects of the pandemic (<https://medanthcovid-19.org>), and has initiated several outreach endeavors. The Society for Medical Anthropology's special interest group on Anthropological Responses to Health Emergencies, in turn, has established a "call to action" to identify core issues for anthropological research and responses to COVID-19 (<http://arhe.medanthro.net/call-to-action/>).

Lenore Manderson and Susan Levine (2020) note that anthropologists have conducted extensive work in many areas that are relevant to this pandemic, including analyses of health disasters and epidemics that examine public health messaging, the unique challenges of vulnerable and at-risk groups, the value of community action, reaching and involving marginalized groups, social pathways of disease transmission, barriers to care, responding to predictable inappropriate reactions (stigmatization, xenophobia, politically motivated attacks on public health initiatives), as well as analyses of health care systems under stress (e.g., Abramowitz, 2017; Briggs & Mantini-Briggs, 2003; Briggs & Nichter, 2007; Closser, 2010; Ennis-McMillan & Hedges, 2020; Farmer, 1992, 2001; Hewlett & Hewlett, 2007; Janes, Corbett, Jones, & Trostle, 2012; Whiteford & Vindrola-Padros, 2015).

In facing this newest pandemic, anthropologists are reporting on how COVID-19 is unfolding within specific local socio-cultural contexts and impacting various populations (e.g., Carney & Ostrach, 2020; de Oliveira & de Aguiar Arantes, 2020; Gravelee, 2020; Singer, 2020; Troolin, 2020). As Augustin Fuentes (2020, p. 25) points out, "COVID-19 is not a *biological* event . . . the virus SARS-CoV-2 is a biological entity," and as such, has had significant biomedical impacts in the damage it does to human bodies—but COVID-19 and the pandemic it has spawned are *biosocial* events, in the broadest sense. In her reflective essay, Linda Whiteford (2020, p. 7) extrapolates from her experiences with waterborne diseases, such as cholera, to identify critical factors in controlling epidemics. These include understanding human behavior in crisis, engaging with local communities, and working collaboratively with existing organizations at the local, regional, national, and global level, to "strengthen public health systems, increase paraprofessional and professional medical staff and provide necessary supplies: the Three S's (systems, staff and supplies) of disease control." One current example is the collaboration by physician/anthropologist Paul Farmer and his colleagues from Partners



in Health (PIH) with the Massachusetts Department of Public Health and Department of Health and Human Service to establish an extensive virtual contact tracing system for residents who test positive for COVID-19 (Barry, 2020). PIH-trained staff will reach out to those individuals who have been in touch with COVID-19 patients, counsel them on testing and quarantine, refer them for viral testing, and link them to necessary resources during their quarantine.

How can anthropologists contribute to fighting structural violence? Anthropologists are also adept at comparative analyses, and the COVID pandemic has played out differently in different contexts—offering a real-time laboratory for how different communities and nations respond, how cultural and political factors shape these responses, which types of policies are more effective and more equitable, what are the range of experiences of this pandemic across nations at various stages of economic development, and how the pandemic is expressed and experienced across existing social fault lines of race, gender, ethnicity, age, class, location, and citizenship.

The pandemic is causing major social and economic disruptions which will have long-lasting consequences, especially for those populations and communities that were already more vulnerable before anyone even knew about COVID-19. As we write this conclusion, news agencies are reporting that China's economy shrank 6.8 percent in the first three months of 2020, stopping nearly a half century of growth (Bradsher, 2020). In the United States, 30.3 million people were placed out of work in just six weeks, with further losses expected, leading to dramatic predictions of rising poverty rates, especially for minorities and children (DeParle, 2020). The projections for less-developed countries, especially in Africa, are even more dire, if COVID-19 is able to take hold. Nearly every African country has reported COVID-19 cases, initially among patients becoming infected during international travel, but it is now spreading within communities (Onyiego, 2020; Quaresima, Naldini, & Cirillo, 2020). Again, anthropologists are uniquely placed to document these disruptions at the local and household levels, and to demonstrate how pre-existing conditions—not just medical, but also social, economic, and historical—are shaping not only differential patterns of morbidity and mortality, but also the economic consequences of necessary policies (e.g., lockdowns, closing of many businesses, quarantine and shelter-at-home orders) that have been required to slow the transmission of this virus.

Those of us “lucky enough to get a post-pandemic chapter must revisit [prevailing class, ethnic, and other socioeconomic] fault lines with urgency, holding each other accountable for remembering how intimately our fates are interconnected, even when we don't have a virus to bring the point home” (Choo, 2020, para. 6). This requires a shift in focus from a crisis response with policy and governance oriented toward business as usual—to a globally coordinated orientation toward prevention and preparation, that tackles “upstream causes and determinants” and is “tailored to local specificities and local environments” (Paul, Brown, & Ridde, 2020). And it requires that we “usher in a new paradigm of global health guided by real collaboration, solidarity, and equity” (Shamasunder et al., 2020, p. 1087). Without such commitments and efforts, we face the possibility of a world where pandemics—like environmental disasters—become recurring events and structural violence, syndemics, and social suffering increasingly define the human condition.

## References

- Abou-Sabe, K., McFadden, C., & Martinez, D. (2020, August 3). ‘Hit us at our core’: Vulnerable Navajo Nation fears a second COVID-19 wave. *NBC News*. Retrieved from <https://www.nbcnews.com/specials/navajo-nation-fears-second-covid-19-wave/index.html>
- Abramowitz, S. (2017). Epidemics (especially Ebola). *Annual Review of Anthropology*, 46(1), 421–445. <https://doi.org/10.1146/annurev-anthro-102116-041616>
- Abu-Raddad, L. J., Patnaik, P., & Kublin, J. G. (2006). Dual infection with HIV and malaria fuels the spread of both diseases in Sub-Saharan Africa. *Science*, 314(5805), 1603–1606. <https://doi.org/10.1126/science.1132338> PMID:17158329
- Adebayo, B. (2020, June 19). South Africa has the continent's highest Covid-19 cases. Now it has another pandemic on its hands. *CNN*. Retrieved from <https://www.cnn.com/2020/06/19/africa/south-africa-gender-violence-pandemic-intl/index.html>
- Adjaye-Gbewonyo, K., & Vaughan, M. (2019). Reframing NCDs? An analysis of current debates. *Global Health Action*, 12(1), 1641043. <https://doi.org/10.1080/16549716.2019.1641043> PMID:31362599
- Ahmed, A. (2020, April 17). The “father of environmental justice” on why he isn't surprised by COVID-19 health disparities. *Texas Monthly*. Retrieved from <https://www.texasmonthly.com/news/father-environmental-justice-coronavirus/>
- Ahmed, F., Ahmed, N., Pissarides, C., & Stiglitz, J. (2020). Why inequality could spread COVID-19. *The Lancet. Public Health*, 5(5), e240. [https://doi.org/10.1016/S2468-2667\(20\)30085-2](https://doi.org/10.1016/S2468-2667(20)30085-2) PMID:32247329

- Almendrala, A. (2020, June 25). Officials seek to shift resources away from policing to address Black ‘public health crisis.’ *Kaiser Health News*. Retrieved from <https://khn.org/news/officials-seek-to-shift-resources-away-from-policing-to-address-black-public-health-crisis/>
- American Public Media Research Lab Staff. (2020, July 22). *The Color of coronavirus: COVID-19 deaths by race and ethnicity in the U.S.* American Public Media (APM) Research. Retrieved at <https://www.apmresearchlab.org/covid/deaths-by-race>
- Anderson-Fye, E. P. (2004). A “Coca-Cola” shape: Cultural change, body image, and eating disorders in San Andrés, Belize. *Culture, Medicine and Psychiatry*, 28(4), 561–595. <https://doi.org/10.1007/s11013-004-1068-4> PMID:15847054
- Artiga, S., Orgera, K., & Damico, A. (2020, March 5). Changes in health coverage by race and ethnicity since the ACA, 2010-2018 (Issue Brief). Kaiser Family Foundation. Retrieved from <https://www.kff.org/disparities-policy/issue-brief/changes-in-health-coverage-by-race-and-ethnicity-since-the-aca-2010-2018/>
- Azar, K. M. J., Shen, Z., Romanelli, R. J., Lockhart, S. H., Smits, K., Robinson, S., . . . Pressman, A. R. (2020). Disparities in outcomes among COVID-19 patients in a large health care system in California. *Health Affairs*, 39(7), 1253–1262. <https://doi.org/10.1377/hlthaff.2020.00598> PMID:32437224
- Bailey, Z. D., Krieger, N., Agénor, M., Graves, J., Linos, N., & Bassett, M. T. (2017). Structural racism and health inequities in the USA: Evidence and interventions. *The Lancet*, 389(10077), 1453–1463. [https://doi.org/10.1016/S0140-6736\(17\)30569-X](https://doi.org/10.1016/S0140-6736(17)30569-X) PMID:28402827
- Baker, M. A., Harries, A. D., Jeon, C. Y., Hart, J. E., Kapur, A., Lönnroth, K., . . . Murray, M. B. (2011). The impact of diabetes on tuberculosis treatment outcomes: A systematic review. *BMC Medicine*, 9(1), 81. <https://doi.org/10.1186/1741-7015-9-81> PMID:21722362
- Barcelo, A., Gregg, E. W., Gerzoff, R. B., Wong, R., Perez Flores, E., Ramirez-Zea, M., . . . Villagra, L., & the CAMDI Collaborative Study Group. (2012). Prevalence of diabetes and intermediate hyperglycemia among adults from the first multinational study of noncommunicable diseases in six Central American countries: The Central America Diabetes Initiative (CAMDI). *Diabetes Care*, 35(4), 738–740. <https://doi.org/10.2337/dc11-1614> PMID:22323417
- Barry, E. (2020, April 16). An army of virus tracers takes shape in Massachusetts. *New York Times*. Retrieved from <https://www.nytimes.com/2020/04/16/us/coronavirus-massachusetts-contact-tracing.html>
- Behar, R. (1996). *The vulnerable observer*. Boston: Beacon Press.
- Berger, M., & Sarnyai, Z. (2015). “More than skin deep”: Stress neurobiology and mental health consequences of racial discrimination. *Stress*, 18(1), 1–10. <https://doi.org/10.3109/10253890.2014.989204> PMID:25407297
- Bradsher, K. (2020, April 16). China’s economy shrinks, ending a nearly half-century of growth. *New York Times*. Retrieved from <https://www.nytimes.com/2020/04/16/business/china-coronavirus-economy.html>
- Braithwaite, R., & Warren, R. (2020). The African American petri dish. *Journal of Health Care for the Poor and Underserved*, 31(2), 491–502. <https://doi.org/10.1353/hpu.2020.0037>
- Braveman, P., & Gottlieb, L. (2014). The social determinants of health: It’s time to consider the causes of the causes. *Public Health Reports*, 129(1\_suppl2), 19–31. <https://doi.org/10.1177/003335491412915206> PMID:24385661
- Briggs, C. L. (2020, June 10). From the cholera epidemics to COVID, racialization of disease is an old trend. UC Press Blog. Retrieved from <https://www.ucpress.edu/blog/50734/from-the-cholera-epidemics-to-covid-racialization-of-disease-is-an-old-trend/>
- Briggs, C. L., & Mantini-Briggs, C. (2003). *Stories in the time of cholera: Racial profiling during a medical nightmare*. Berkeley: University of California Press. <https://doi.org/10.1525/9780520938526>
- Briggs, C. L., & Nichter, M. (2009). Biocommunicability and the biopolitics of pandemic threats. *Medical Anthropology*, 28(3), 189–198. <https://doi.org/10.1080/01459740903070410> PMID:20182960
- Bryce, R. (2020, April 10). Immigrants among those disproportionately hurt in coronavirus crisis. *Bridge*. Retrieved from <https://www.bridgemi.com/guest-commentary/opinion-immigrants-among-those-disproportionately-hurt-coronavirus-crisis>
- Burki, T. (2020). Prisons are “in no way equipped” to deal with COVID-19. *The Lancet*, 395(10234), 1411–1412. [https://doi.org/10.1016/S0140-6736\(20\)30984-3](https://doi.org/10.1016/S0140-6736(20)30984-3) PMID:32359457
- CARE and the International Rescue Committee. (2020). *Global Rapid Gender Analysis for COVID-19*. Retrieved from <https://www.rescue.org/sites/default/files/document/4676/globalrgacovidrdm33120final.pdf>
- Carney, M., & Ostrach, B. (2020). Austerity, not COVID-19, strains national healthcare systems. *Somatosphere*. Retrieved from <http://somatosphere.net/2020/austerity.html/>
- Castro, A. (2020, April 16). Response to the COVID-19 pandemic in urban slums and rural populations in Latin America. *UNDP in Latin America and the Caribbean blog*. Retrieved from <https://www.latinamerica.undp.org/content/rblac/en/home/blog/2020/respuesta-a-la-pandemia-de-covid-19-en-poblaciones-urbano-margin.html>
- Centers for Disease Control and Prevention. (2013). CDC health disparities and inequalities report—United States, 2013. *Morbidity and Mortality Weekly Report*, 62(3), 1–186.
- Centers for Disease Control and Prevention. (2020, June 25). *COVID-19 in racial and ethnic minority groups*. Retrieved from <https://stacks.cdc.gov/view/cdc/89820>
- Chan, J. W. M., Ng, C. K., Chan, Y. H., Mok, T. Y. W., WHO, Lee, S., . . . Li, P. C. K. (2003). Short term outcome and risk factors for adverse clinical outcomes in adults with severe acute respiratory syndrome (SARS). *Thorax*, 58(8), 686–689. <https://doi.org/10.1136/thorax.58.8.686> PMID:12885985
- Chauhan, A. J., Inskip, H. M., Linaker, C. H., Smith, S., Schreiber, J., Johnston, S. L., & Holgate, S. T. (2003). Personal exposure to nitrogen dioxide (NO<sub>2</sub>) and the severity of virus-induced asthma in children. *Lancet*, 361(9373), 1939–1944. [https://doi.org/10.1016/S0140-6736\(03\)13582-9](https://doi.org/10.1016/S0140-6736(03)13582-9) PMID:12801737

- Chen, C.-Y., Lee, C.-H., Liu, C.-Y., Wang, J.-H., Wang, L.-M., & Perng, R.-P. (2005). Clinical features and outcomes of severe acute respiratory syndrome and predictive factors for acute respiratory distress syndrome. *Journal of the Chinese Medical Association*, 68(1), 4–10. [https://doi.org/10.1016/S1726-4901\(09\)70124-8](https://doi.org/10.1016/S1726-4901(09)70124-8) PMID:15742856
- Choo, E. (2020). The penumbra: COVID-19 fault lines. *The Lancet*, 395(10233), 1333. [https://doi.org/10.1016/S0140-6736\(20\)30812-6](https://doi.org/10.1016/S0140-6736(20)30812-6)
- Closser, S. (2010). *Chasing Polio in Pakistan*. Nashville: Vanderbilt University. <https://doi.org/10.2307/j.ctv1622mtp>
- Collins, J. W., Jr., David, R. J., Handler, A., Wall, S., & Andes, S. (2004). Very low birthweight in African American infants: The role of maternal exposure to interpersonal racial discrimination. *American Journal of Public Health*, 94(12), 2132–2138. <https://doi.org/10.2105/AJPH.94.12.2132> PMID:15569965
- Cohn, D., & Passel, J. S. (2018, April 5). A record 64 million Americans live in multigenerational households. *Pew Research Center*. Retrieved from <https://www.pewresearch.org/fact-tank/2018/04/05/a-record-64-million-americans-live-in-multigenerational-households/>
- Conger, K., Gebeloff, R., & Oppel, R. A. Jr. (2020, July 30). Native Americans feel devastated by the virus yet overlooked in the data. *New York Times*. Retrieved from <https://www.nytimes.com/2020/07/30/us/native-americans-coronavirus-data.html>
- Dahir, A. L. (2020, June 29). Coronavirus is battering Africa’s growing middle class. *New York Times*. Retrieved from <https://www.nytimes.com/2020/06/29/world/africa/Africa-middle-class-coronavirus.html>
- Davies, T. (2019). Slow violence and toxic geographies: ‘Out of sight’ to whom?. *Environment and Planning C: Politics and Space*. <https://doi.org/10.1177/2399654419841063>
- de Oliveira, L. A., & de Aguiar Arantes, R. (2020). Neighborhood effects and urban inequalities: The impact of Covid-19 on the periphery of Salvador, Brazil. *City & Society (Washington, D.C.)*, 32(1), <https://doi.org/10.1111/ciso.12266> PMID:32508395
- Devakumar, D., Selvarajah, S., Shannon, G., Muraya, K., Lasoye, S., Corona, S., . . . Achiume, E. T. (2020). Racism, the public health crisis we can no longer ignore. *Lancet*, 395(10242), e112–e113. [https://doi.org/10.1016/S0140-6736\(20\)31371-4](https://doi.org/10.1016/S0140-6736(20)31371-4) PMID:32534630
- Diedrich, C. R., & Flynn, J. L. (2011). HIV-1/Mycobacterium tuberculosis coinfection immunology: How does HIV-1 exacerbate tuberculosis? *Infection and Immunity*, 79(4), 1407–1417. <https://doi.org/10.1128/IAI.01126-10> PMID:21245275
- DeParle, J. (2020, April 16). A gloomy prediction on how much poverty could rise. *New York Times*. Retrieved from <https://www.nytimes.com/2020/04/16/upshot/coronavirus-prediction-rise-poverty.html>
- Dooley, K. E., Tang, T., Golub, J. E., Dorman, S. E., & Cronin, W. (2009). Impact of diabetes mellitus on treatment outcomes of patients with active tuberculosis. *The American Journal of Tropical Medicine and Hygiene*, 80(4), 634–639. <https://doi.org/10.4269/ajtmh.2009.80.634> PMID:19346391
- Ellis, E. G. (2020, April 2). For homeless people, Covid-19 is horror on top of horror. *Wired*. <https://www.wired.com/story/coronavirus-covid-19-homeless/>
- Ennis-McMillan, M. C., & Hedges, K. (2020). Pandemic perspectives: Responding to COVID-19. *Open Anthropology*, 8(1), April. [https://www.americananthro.org/StayInformed/OAArticleDetail.aspx?ItemNumber=25631&utm\\_source=informz&utm\\_medium=email&utm\\_campaign=cta](https://www.americananthro.org/StayInformed/OAArticleDetail.aspx?ItemNumber=25631&utm_source=informz&utm_medium=email&utm_campaign=cta)
- Farmer, P. (1992). *AIDS and accusation: Haiti and the geography of blame*. Berkeley: University of California Press.
- Farmer, P. (2001). *Infections and inequalities: The modern plagues*. Berkeley: University of California Press.
- Farmer, P. (2003). *Pathologies of power: Health, human rights, and the new war on the poor*. Berkeley: University of California Press.
- Farmer, P. (2004). An anthropology of structural violence. *Current Anthropology*, 45(3), 305–325. <https://doi.org/10.1086/382250>
- Farmer, P. (2010). Introduction to Part 3. In H. Saussy (Ed.), *Partner to the Poor: A Paul Farmer Reader* (pp. 293–297). Berkeley: University of California Press. <https://doi.org/10.1525/9780520945630-019>
- Farmer, P. (2020). *Fevers, feuds, and diamonds: Ebola and the ravages of history*. New York: Farrar, Straus and Giroux.
- Fisher, M. & Bubola, E. (2020, March 15). As coronavirus deepens inequality, inequality worsens its spread. *New York Times*. Retrieved from <https://www.nytimes.com/2020/03/15/world/europe/coronavirus-inequality.html>
- Flynn, M. (2020, April 7). ‘Those numbers take your breath away’: Covid-19 is hitting Chicago’s black neighborhoods much harder than others, officials say. *Washington Post*. Retrieved from <https://www.washingtonpost.com/nation/2020/04/07/chicago-racial-disparity-coronavirus/>
- Food and Agriculture Organization & World Food Programme. (2020, July). Early warning analysis of acute food insecurity hotspots. Retrieved from <https://doi.org/10.4060/cb0258en>
- Franks, P., Muennig, P., Lubetkin, E., & Jia, H. (2006). The burden of disease associated with being African-American in the United States and the contribution of socio-economic status. *Social Science & Medicine*, 62(10), 2469–2478. <https://doi.org/10.1016/j.socscimed.2005.10.035> PMID:16303221
- Fuentes, A. (2020). A (bio)anthropological view of the COVID-19 era midstream: Beyond the infection. *Anthropology Now*, 12(1), 24–32. <https://doi.org/10.1080/19428200.2020.1760635>
- Gage, A. & Bauhoff, S. (2020, March 31). Health systems in low-income countries will struggle to protect health workers from COVID-19. Center for Global Development. Retrieved from <https://www.cgdev.org/blog/health-systems-low-income-countries-will-struggle-protect-health-workers-covid-19>
- Galtung, J. (1969). Violence, peace, and peace research. *Journal of Peace Research*, 6(3), 167–191. <https://doi.org/10.1177/002234336900600301>
- Garg, S., Kim, L., Whitaker, M., O’Halloran, A., Cummings, C., Holstein, R., . . . Fry, A. (2020). Hospitalization rates and characteristics of patients hospitalized with laboratory-confirmed coronavirus disease 2019—COVID-NET, 14 states, March 1–30, 2020. *Morbidity and Mortality Weekly Report* 69 (early release).

- Gebeloff, R., Ivory, D., Richtel, M., Smith, M., Yourish, K., Dance, S., . . . Parker, M. (2020, May 21). The striking racial divide in how Covid-19 has hit nursing homes. *New York Times*. Retrieved from <https://www.nytimes.com/article/coronavirus-nursing-homes-racial-disparity.html>
- Gelatt, J. (2020). Immigrant workers: Vital to the U.S. COVID-19 response, disproportionately vulnerable. Migration Policy Institute. Retrieved from <https://www.migrationpolicy.org/research/immigrant-workers-us-covid-19-response>
- Geronimus, A. T., Hicken, M., Keene, D., & Bound, J. (2006). “Weathering” and Age Patterns of Allostatic Load Scores Among Blacks and Whites in the United States. *American Journal of Public Health, 96*(5), 826–833. <https://doi.org/10.2105/AJPH.2004.060749> PMID:16380565
- Ghebreyesus, T. A. (2020, April 15). WHO Director-General’s opening remarks at the media briefing on COVID-19. World Health Organization. Retrieved from <https://www.who.int/dg/speeches/detail/who-director-general-s-opening-remarks-at-the-media-briefing-on-covid-19--15-april-2020>
- Global Network Against Food Crises. (2020). *2020 Global Report on Food Crises*. World Food Programme. Retrieved from <https://www.wfp.org/publications/2020-global-report-food-crises>
- Gold, J. A. W., Wong, K. K., Szablewski, C. M., Patel, P. R., Rossow, J., da Silva, J., . . . Jackson, B. R. (2020). Characteristics and clinical outcomes of adult patients hospitalized with COVID-19 – Georgia, March 2020. *CDC Morbidity and Mortality Weekly Report, 69*(18). Retrieved from <https://www.cdc.gov/mmwr/volumes/69/wr/mm6918e1.htm>
- Goodman, A. H., Moses, Y. T., & Jones, J. L. (2020). *Race: Are we so different?* (2nd ed.). Hoboken, NY: Wiley-Blackwell.
- Goosby, B. J., Cheadle, J. E., & Mitchell, C. (2018). Stress-related biosocial mechanisms of discrimination and African American health inequities. *Annual Review of Sociology, 44*(1), 319–340. <https://doi.org/10.1146/annurev-soc-060116-053403>
- Gramlich, J. (2019, April 30). The gap between the number of Blacks and Whites in prison is shrinking. Pew Research Center. Retrieved from <https://www.pewresearch.org/fact-tank/2019/04/30/shrinking-gap-between-number-of-blacks-and-whites-in-prison/>
- Gravlee, C. C. (2020). Systemic racism, chronic health inequities, and COVID-19: A syndemic in the making? *American Journal of Human Biology, 32*(5), e23482. <https://doi.org/10.1002/ajhb.23482> PMID:32754945
- Gravlee, C. C., & Sweet, E. (2008). Race, ethnicity, and racism in medical anthropology, 1977-2002. *Medical Anthropology Quarterly, 22*(1), 27–51. <https://doi.org/10.1111/j.1548-1387.2008.00002.x> PMID:18610812
- Gu, J., & Korteweg, C. (2007). Pathology and pathogenesis of severe acute respiratory syndrome. *American Journal of Pathology, 170*(4), 1136–1147. <https://doi.org/10.2353/ajpath.2007.061088> PMID:17392154
- Guan, W., Liang, W., Zhao, Y., Liang, H., Chen, Z., Li, Y., . . . He, J. (2020). Comorbidity and its impact on 1590 patients with COVID-19 in China: A nationwide analysis. *The European Respiratory Journal, 55*(5), 2000547. <https://doi.org/10.1183/13993003.00547-2020> PMID:32217650
- Gupta, A., Madhavan, M. V., Sehgal, K., Nair, N., Mahajan, S., Sehrawat, T. S., . . . Landry, D. W. (2020). Extrapulmonary manifestations of COVID-19. *Nature Medicine, 26*, 1017–1032. <https://doi.org/10.1038/s41591-020-0968-3> PMID:32651579
- Haffner, S. M., Lehto, S., Rönnemaa, T., Pyörälä, K., & Laakso, M. (1998). Mortality from coronary heart disease in subjects with type 2 diabetes and in nondiabetic subjects with and without prior myocardial infarction. *The New England Journal of Medicine, 339*(4), 229–234. <https://doi.org/10.1056/NEJM199807233390404> PMID:9673301
- Hayes, A. (2020). Austerity. *Investopedia*. Retrieved from <https://www.investopedia.com/terms/a/austerity.asp>
- Hewlett, B. S., & Hewlett, B. L. (2007). *Ebola, culture and politics: The anthropology of an emerging disease*. Boston: Cengage Learning.
- Holmes, S. M. (2011). Structural vulnerability and hierarchies of ethnicity and citizenship on the farm. *Medical Anthropology, 30*(4), 425–449. <https://doi.org/10.1080/01459740.2011.576728> PMID:21777126
- Hopman, J., Allegranzi, B., & Mehtar, S. (2020). Managing COVID-19 in low- and middle-income countries. *Journal of the American Medical Association, 323*(16), 1549–1550. <https://doi.org/10.1001/jama.2020.4169> PMID:32176764
- Horton, J. (2020, July 31). Coronavirus: What are the numbers out of Latin America? *BBC News*. Retrieved from <https://www.bbc.com/news/world-latin-america-52711458>
- Hubler, S., Fuller, T., Singhvi, A., & Love, J. (2020, June 26). Many Latinos couldn’t stay home. Now virus cases are soaring in their communities. *New York Times*. Retrieved from <https://www.nytimes.com/2020/06/26/us/corona-virus-latinos.html>
- Infante-Rivard, C. (1993). Childhood asthma and indoor environmental risk factors. *American Journal of Epidemiology, 137*(8), 834–844. <https://doi.org/10.1093/oxfordjournals.aje.a116745> PMID:8484375
- Iqbal, A., Prince, L. R., Novodvorsky, P., Bernjak, A., Thomas, M. R., Birch, L., . . . Sabroe, I. (2019). Effect of hypoglycemia on inflammatory responses and the response to low-dose endotoxemia in humans. *The Journal of Clinical Endocrinology and Metabolism, 104*(4), 1187–1199. <https://doi.org/10.1210/jc.2018-01168> PMID:30252067
- International Rescue Committee (2020). *COVID-19 in humanitarian crises: A double emergency*. Retrieved from <https://www.rescue.org/sites/default/files/document/4693/covid-19-doubleemergency-april2020.pdf>
- James, I. (2019, January 15). This city’s air is killing people. Who will stop it? *The Desert Sun*. Retrieved from <https://www.desertsun.com/in-depth/news/environment/border-pollution/poisoned-cities/2018/12/05/air-pollution-taking-deadly-toll-u-s-mexico-border/1381585002/>
- Janes, C. R., Corbett, K. K., Jones, J. H., & Trostle, J. (2012). Emerging infectious diseases: The role of social sciences. *The Lancet, 380*(9857), 1884–1886. [https://doi.org/10.1016/S0140-6736\(12\)61725-5](https://doi.org/10.1016/S0140-6736(12)61725-5) PMID:23200487
- Kim, J. Y., Millen, J., Gershman, J., & Irwin, A. (Eds.). (2000). *Dying for growth: Global inequality and the health of the poor*. Monroe, ME: Common Courage Press.

- Kimani, J., Adhiambo, J., Kasiba, R., Mwangi, P., Were, V., Mathenge, J., . . . Lorway, R. (2020). The effects of COVID-19 on the health and socio-economic security of sex workers in Nairobi, Kenya: Emerging intersections with HIV. *Global Public Health*, 15(7), 1073–1082. <https://doi.org/10.1080/17441692.2020.1770831> PMID:32459578
- Kingsley, P., & Dzhambazova, B. (2020, July 6). Europe's Roma already faced discrimination. The pandemic made it worse. *New York Times*. Retrieved from <https://www.nytimes.com/2020/07/06/world/europe/coronavirus-roma-bulgaria.html>
- Kitroeff, N., & Villegas, P. (2020, May 28). 'It's not the virus': Mexico's broken hospitals become killers, too. *New York Times*. Retrieved from <https://www.nytimes.com/2020/05/28/world/americas/virus-mexico-doctors.html>
- Kleinman, A., Das, V., & Lock, M. (1997). *Social suffering*. Berkeley: University of California Press.
- Kleinman, A. (2010). Four social theories for global health. *The Lancet*, 375(9725), 1518–1519. [https://doi.org/10.1016/S0140-6736\(10\)60646-0](https://doi.org/10.1016/S0140-6736(10)60646-0) PMID:20440871
- Kluge, H. H. P., Jakob, Z., Bartovic, J., D'Anna, V., & Severoni, S. (2020). Refugee and migrant health in the COVID-19 response. *The Lancet*, 395(10232), 1237–1239. [https://doi.org/10.1016/S0140-6736\(20\)30791-1](https://doi.org/10.1016/S0140-6736(20)30791-1) PMID:32243777
- Knobler, S., Mahmoud, A., Lemon, S., Mack, A., Sivitz, L., & Oberholtzer, K. (2004). *Learning from SARS: Preparing for the next disease outbreak*. Washington, D.C.: National Academies Press.
- Krieger, N. (2012). Methods for the scientific study of discrimination and health: An ecosocial approach. *American Journal of Public Health*, 102(5), 936–944. <https://doi.org/10.2105/AJPH.2011.300544> PMID:22420803
- Krieger, N. (2014). Discrimination and health inequities. *International Journal of Health Services*, 44(4), 643–710. <https://doi.org/10.2190/HS.44.4.b> PMID:25626224
- Lane, S. D., Keefe, R. H., Rubinstein, R., Levandowski, B. A., Webster, N., Cibula, D. A., . . . Brill, J. (2008). Structural violence, urban retail food markets, and low birth weight. *Health & Place*, 14(3), 415–423. <https://doi.org/10.1016/j.healthplace.2007.08.008> PMID:17928255
- Lane, S. D., Rubinstein, R. A., Keefe, R. H., Webster, N., Cibula, D. A., Rosenthal, A., & Dowdell, J. (2004). Structural violence and racial disparity in HIV transmission. *Journal of Health Care for the Poor and Underserved*, 15(3), 319–335. <https://doi.org/10.1353/hpu.2004.0043> PMID:15453172
- Leicester, J. (2020, July 7). In France, study shows virus hits African immigrants hardest. *AP News*. Retrieved from <https://apnews.com/e926cfab68103a92d2c07152e8842853>
- Lerman, S. (2017). Disordered minds and disordered bodies: Stigma, depression, and obesity syndemic in Puerto Rico. In S. Lerman, B. Ostrach, & M. Singer (Eds.), *Foundations of biosocial health: Stigma and illness interactions*. Lanham, MD: Lexington Books.
- Levine, R. S., Foster, J. E., Fullilove, R. E., Fullilove, M. T., Briggs, N. C., Hull, P. C., . . . Hennekens, C. H. (2001). Black-White Inequalities in Mortality and Life Expectancy, 1933–1999: Implications for Healthy People 2010. *Public Health Reports*, 116(5), 474–483. <https://doi.org/10.1093/phr/116.5.474> PMID:12042611
- Lighter, J., Phillips, M., Hochman, S., Sterling, S., Johnson, D., Francois, F. & Stachel, A. (2020). Obesity in patients younger than 60 years is a risk factor for Covid-19 hospital admission. *Clinical Infectious Diseases*, 71(15), 896–897. <https://doi.org/10.1093/cid/ciaa415>
- Lu, R., Zhao, X., Li, J., Niu, P., Yang, B., Wu, H., . . . Tan, W. (2020). Genomic characterisation and epidemiology of 2019 novel coronavirus: Implications for virus origins and receptor binding. *The Lancet*, 395(10224), 565–574. [https://doi.org/10.1016/S0140-6736\(20\)30251-8](https://doi.org/10.1016/S0140-6736(20)30251-8) PMID:32007145
- Lund, E. M. (2020). Even more to handle: Additional sources of stress and trauma for clients from marginalized racial and ethnic groups in the United States during the COVID-19 pandemic. *Counselling Psychology Quarterly*,. <https://doi.org/10.1080/09515070.2020.1766420>
- Macleay, R., & Marks, S. (2020, April 18). 10 African countries have no ventilators. That's only part of the problem. *New York Times*. Retrieved from <https://www.nytimes.com/2020/04/18/world/africa/africa-coronavirus-ventilators.html>
- Maina, I. W., Belton, T. D., Ginzberg, S., Singh, A., & Johnson, T. J. (2018). A decade of studying implicit racial/ethnic bias in healthcare providers using the implicit association test. *Social Science & Medicine*, 199, 219–229. <https://doi.org/10.1016/j.socscimed.2017.05.009> PMID:28532892
- Malâtre-Lansac, A. (2020). How Covid-19 is unveiling US healthcare weaknesses. Institut Montaigne. Retrieved from <https://www.institutmontaigne.org/en/blog/how-covid-19-unveiling-us-healthcare-weaknesses>
- Mandavilli, A. (2020, August 3). 'The biggest monster' is spreading. And it's not the coronavirus. *New York Times*. Retrieved from <https://www.nytimes.com/2020/08/03/health/coronavirus-tuberculosis-aids-malaria.html>
- Manderson, L., & Levine, S. (2020). COVID-19, risk, fear, and fall-out. *Medical Anthropology*, 39(5), 367–370. <https://doi.org/10.1080/01459740.2020.1746301> PMID:32212930
- Marmot, M. (2015). *The health gap: The challenge of an unequal world*. London: Bloomsbury.
- Masri, L. (2020, April 24). COVID-19 takes unequal toll on immigrants in Nordic region. Reuters. Retrieved from <https://www.reuters.com/article/us-health-coronavirus-norway-immigrants/covid-19-takes-unequal-toll-on-immigrants-in-nordic-region-idUSKCN2260XW>
- McKernan, B. (2020a, April 10). Health workers' worst fears confirmed as Covid-19 reaches war-torn Yemen. *The Guardian*. Retrieved from <https://www.theguardian.com/world/2020/apr/10/yemen-confirms-first-coronavirus-case-war-torn-country>
- McKernan, B. (2020b, July 23). Covid-19 kills scores of health workers in war-torn Yemen. *The Guardian*. Retrieved from <https://www.theguardian.com/world/2020/jul/23/covid-19-has-killed-least-health-workers-yemen-report-says>
- McKillop, M., & Ilakkuvan, V. (2019). The impact of chronic underfunding on America's public health system: Trends, risks, and recommendations: 2019. Trust for America's Health. Retrieved from <http://resource.nlm.nih.gov/101751510>

- Mendenhall, E. (2017). *Syndemic suffering: Social distress, depression, and diabetes among Mexican immigrant women*. New York: Routledge.
- Mendenhall, E. (2020). Why social policies make coronavirus worse. *Think Global Health*. Retrieved from <https://www.thinkglobalhealth.org/article/why-social-policies-make-coronavirus-worse>
- Mendenhall, E., Kohrt, B. A., Norris, S. A., Ndeti, D., & Prabhakaran, D. (2017). Non-communicable disease syndemics: Poverty, depression, and diabetes among low-income populations. *The Lancet*, 389(10072), 951–963. [https://doi.org/10.1016/S0140-6736\(17\)30402-6](https://doi.org/10.1016/S0140-6736(17)30402-6) PMID:28271846
- Mendenhall, E., Omondi, G. B., Bosire, E., Isaiah, G., Musau, A., Ndeti, D., & Mutiso, V. (2015). Stress, diabetes, and infection: Syndemic suffering at an urban Kenyan hospital. *Social Science & Medicine*, 146(Dec), 11–20. <https://doi.org/10.1016/j.socscimed.2015.10.015> PMID:26476849
- Michigan.gov. (2020, April 25). Coronavirus/Michigan Data. Retrieved from [https://www.michigan.gov/coronavirus/0,9753,7-406-98163\\_98173---,00.html](https://www.michigan.gov/coronavirus/0,9753,7-406-98163_98173---,00.html)
- Mills, A. (2014). Health care systems in low- and middle-income countries. *The New England Journal of Medicine*, 370(6), 552–557. <https://doi.org/10.1056/NEJMr1110897> PMID:24499213
- Mollot, R. (2020, April 28). Nursing homes were a disaster waiting to happen. *New York Times*. Retrieved from <https://www.nytimes.com/2020/04/28/opinion/coronavirus-nursing-homes.html>
- Moran-Thomas, A. (2019). *Traveling with sugar: Chronicles of a global epidemic*. Berkeley: University of California Press.
- Mukherjee, S. (2020, May 4). What the coronavirus crisis reveals about American medicine. *New Yorker*. Retrieved from <https://www.newyorker.com/magazine/2020/05/04/what-the-coronavirus-crisis-reveals-about-american-medicine>
- Mulligan, J. M., & Castañeda, H. (Eds.). (2018). *Unequal coverage: The experience of health care reform in the United States*. New York: New York University Press.
- Murthy, S., Leligdowicz, A., & Adhikari, N. K. J. (2015). Intensive care unit capacity in low-income countries: A systematic review. *PLOS ONE*, 10(1), e0116949. <https://doi.org/10.1371/journal.pone.0116949> PMID:25617837
- Mustanski, B., Garofalo, R., Herrick, A., & Donenberg, G. (2007). Psychosocial health problems increase risk for HIV among urban young men who have sex with men: Preliminary evidence of a syndemic in need of attention. *Annals of Behavioral Medicine*, 34(1), 37–45. <https://doi.org/10.1007/BF02879919> PMID:17688395
- National Academies of Sciences, Engineering, and Medicine. 2019. *The convergence of infectious diseases and noncommunicable diseases: Proceedings of a workshop*. Washington, DC: The National Academies Press. <https://doi.org/10.17226/25535>
- National Alliance to End Homelessness (n.d.) *State of homelessness*. Retrieved from <https://endhomelessness.org/homelessness-in-america/homelessness-statistics/state-of-homelessness-report/>
- Neuburger, M. C. (2016). Cigarette advertising in Cold War Bulgaria. *Journal of Historical Research in Marketing*, 8(1), 141–155. <https://doi.org/10.1108/JHRM-02-2015-0009>
- New York Times*. (2020, July 30). More than 40% of U.S. coronavirus deaths are linked to nursing homes. Retrieved from <https://www.nytimes.com/interactive/2020/us/coronavirus-nursing-homes.html>
- Nichter, M. (2008). *Global health: Why cultural perceptions, social representations, and biopolitics matter*. Tucson: The University of Arizona Press.
- Nichter, M. (2020). Engaging the pandemic: How one medical anthropologist is boosting our capacity to understand and contend with COVID-19. *Anthropology News*, 61(3), 3–7.
- NYU Furman Center. (2020, April 10). COVID-19 cases in New York City, a neighborhood-level analysis. *The Stoop*. Retrieved from <https://furmancenter.org/thestoop/entry/covid-19-cases-in-new-york-city-a-neighborhood-level-analysis>
- Onoma, A. K. (2020). Epidemics, xenophobia, and narratives of propitiousness. *Medical Anthropology*, 39(5), 382–397. <https://doi.org/10.1080/01459740.2020.1753047> PMID:32340484
- Onyiego, M. (2020, April 11). How the spread of coronavirus is testing Africa. *BBC News*. Retrieved from <https://www.bbc.com/news/world-africa-52230991>
- Oppel, R. A., Jr., Gebeloff, R., Lai, K. K. R., Wright, W., & Smith, M. (2020, July 5). The fullest look yet at the racial inequity of coronavirus. *New York Times*. Retrieved from <https://www.nytimes.com/interactive/2020/07/05/us/coronavirus-latino-african-americans-cdc-data.html>
- Ostrach, B., Lerman, S., & Singer, M. (Eds.). (2017). *Stigma syndemics: New directions in biosocial health*. Lanham, MD: Lexington Books.
- Oxfam. (2013). A cautionary tale: The true cost of austerity and inequality in Europe. Oxfam Briefing Paper 174. [https://www-cdn.oxfam.org/s3fs-public/file\\_attachments/bp174-cautionary-tale-austerity-inequality-europe-120913-en\\_1\\_1.pdf](https://www-cdn.oxfam.org/s3fs-public/file_attachments/bp174-cautionary-tale-austerity-inequality-europe-120913-en_1_1.pdf)
- Pal, R., & Bhadada, S. K. (2020). COVID-19 and diabetes mellitus: An unholy interaction of two pandemics. *Diabetes & Metabolic Syndrome*, 14(4), 513–517. <https://doi.org/10.1016/j.dsx.2020.04.049> PMID:32388331
- Paluzzi, J. E., & Farmer, P. (2005). The wrong question. *Development*, 48(1), 12–18. <https://doi.org/10.1057/palgrave.development.1100114>
- Pan American Health Organization. (2012). “Belize.” In *Health in the Americas: Country volume*. Retrieved from [https://www.paho.org/salud-en-las-americas-2012/index.php?option=com\\_docman&view=download&category\\_slug=hia-2012-country-chapters-22&alias=115-belize-115&Itemid=231&lang=en](https://www.paho.org/salud-en-las-americas-2012/index.php?option=com_docman&view=download&category_slug=hia-2012-country-chapters-22&alias=115-belize-115&Itemid=231&lang=en)
- Patel, N. (2018). Understanding poverty in Africa. Brookings Institute. Retrieved from <https://www.brookings.edu/blog/africa-in-focus/2018/11/21/figure-of-the-week-understanding-poverty-in-africa/>
- Paul, E., Brown, G. W., & Ridde, V. (2020). COVID-19: Time for paradigm shift in the nexus between local, national and global health. *BMJ Global Health*, 5(4), e002622. <https://doi.org/10.1136/bmjgh-2020-002622> PMID:32399261

- Peeri, N. C., Shrestha, N., Rahman, M. S., Zaki, R., Tan, Z., Bibi, S., . . . Haque, U. (2020). The SARS, MERS and novel coronavirus (COVID-19) epidemics, the newest and biggest global health threats: What lessons have we learned? *International Journal of Epidemiology*, 49(3), 717–726. <https://doi.org/10.1093/ije/dyaa033>
- Pew Research Center. (2020, March). Worries about coronavirus surge, as most Americans expect a recession – or worse. Retrieved from <https://www.people-press.org/2020/03/26/worries-about-coronavirus-surge-as-most-americans-expect-a-recession-or-worse/>
- Phelan, J. C., & Link, B. G. (2015). Is racism a fundamental cause of inequalities in health? *Annual Review of Sociology*, 41(1), 311–330. <https://doi.org/10.1146/annurev-soc-073014-112305>
- Pinsker, J. (2020, April 10). The pandemic will cleave America in two. *The Atlantic*. Retrieved from <https://www.theatlantic.com/family/archive/2020/04/two-pandemics-us-coronavirus-inequality/609622/>
- Pitheckoff, N. (2017). Aging in the Republic of Bulgaria. *The Gerontologist*, 57(5), 809–815. <https://doi.org/10.1093/geront/gnx075> PMID:28931119
- Platt, L., & Warwick, R. (2020). *Are some ethnic groups more vulnerable to COVID-19 than others?* Institute for Fiscal Studies. Retrieved from <https://www.ifs.org.uk/inequality/chapter/are-some-ethnic-groups-more-vulnerable-to-covid-19-than-others/>
- Poteat, T., Millett, G. A., Nelson, L. E., & Beyrer, C. (2020). Understanding COVID-19 risks and vulnerabilities among black communities in America: The lethal force of syndemics. *Annals of Epidemiology*, 47, 1–3. <https://doi.org/10.1016/j.annepidem.2020.05.004> PMID:32419765
- Prusa, A., Nice, B. G., & Soledad, O. (2020, May 15). Pandemic of violence: Protecting women during COVID-19. *Weekly Asado*. Retrieved from <https://www.wilsoncenter.org/blogs/weekly-asado>
- Quaresima, V., Naldini, M. M., & Cirillo, D. M. (In press). The prospects for the SARS-CoV-2 pandemic in Africa. *EMBO Molecular Medicine*, 12, e12488. <https://doi.org/10.15252/emmm.202012488>
- Quesada, J., Hart, L. K., & Bourgois, P. (2011). Structural vulnerability and health: Latino migrant laborers in the United States. *Medical Anthropology*, 30(4), 339–362. <https://doi.org/10.1080/01459740.2011.576725> PMID:21777121
- Ramachandran, S. (2020). The COVID-19 Catastrophe in Bangladesh. *The Diplomat*. Retrieved from <https://thediplomat.com/2020/04/the-covid-19-catastrophe-in-bangladesh/>
- Ray, R. (2020, April 9). Why are Blacks dying at higher rates from COVID-19? *Brookings*. Retrieved from <https://www.brookings.edu/blog/fixgov/2020/04/09/why-are-blacks-dying-at-higher-rates-from-covid-19/>
- Reardon, T., Timmer, C. P., Barrett, C. B., & Berdegue, J. (2003). The rise of supermarkets in Africa, Asia, and Latin America. *American Journal of Agricultural Economics*, 85(5), 1140–1146. <https://doi.org/10.1111/j.0092-5853.2003.00520.x>
- Refugees International. (2020, March 30). COVID-19 and the displaced: Addressing the threat of the novel coronavirus in humanitarian emergencies. Retrieved from <https://www.refugeesinternational.org/reports/2020/3/29/covid-19-and-the-displaced-addressing-the-threat-of-the-novel-coronavirus-in-humanitarian-emergencies>
- Remais, J. V., Zeng, G., Li, G., Tian, L., & Engelgau, M. M. (2013). Convergence of non-communicable and infectious diseases in low- and middle-income countries. *International Journal of Epidemiology*, 42(1), 221–227. <https://doi.org/10.1093/ije/dys135> PMID:23064501
- Rich, D. Q. (2017). Accountability studies of air pollution and health effects: Lessons learned and recommendations for future natural experiment opportunities. *Environment International*, 100, 62–78. <https://doi.org/10.1016/j.envint.2016.12.019> PMID:28089581
- Richardson, S., Hirsch, J. S., Narasimhan, M., Crawford, J. M., McGinn, T., Davidson, K. W., & Northwell COVID-19 Research Consortium. (2020). Presenting characteristics, comorbidities, and outcomes among 5700 patients hospitalized with COVID-19 in the New York City area. *Journal of the American Medical Association* 323(2), 2052–2059. <https://doi.org/10.1001/jama.2020.6775>
- Rios, E. & Rangaraja, S. (2020, April 17). COVID-19 has infected and killed Black people at alarming rates. This data proves it. *Mother Jones*. Retrieved from <https://www.motherjones.com/coronavirus-updates/2020/04/covid-19-has-infected-and-killed-black-people-at-alarming-rates-this-data-proves-it/>
- Rivera, S. (2020, April 9). COVID-19 cases keep climbing south of California border. *Kron 4*. Retrieved from <https://www.kron4.com/news/covid-19-cases-keep-climbing-south-of-california-border/>
- Roberts, J. H. (2009). Structural violence and emotional health: A message from Easington, a former mining community in northern England. *Anthropology & Medicine*, 16(1), 37–48. <https://doi.org/10.1080/13648470802425948> PMID:27269640
- Rodgers, D., & O'Neill, B. (2012). Infrastructural violence: Introduction to the special issue. *Ethnography*, 13(4), 401–412. <https://doi.org/10.1177/1466138111435738>
- Rodriguez-Diaz, C. E., Guilamo-Ramos, V., Mena, L., Hall, E., Honermann, B., Crowley, J. S., . . . Millett, G. A. (2020). Risk for COVID-19 infection and death among Latinos in the United States: Examining heterogeneity in transmission dynamics. *Annals of Epidemiology*. <https://doi.org/10.1016/j.annepidem.2020.07.007> PMID:32711053
- Roesch, E., Amin, A., Gupta, J., & García-Moreno, C. (2020). Violence against women during covid-19 pandemic restrictions. *British Medical Journal*, 369, m1712. <https://doi.org/10.1136/bmj.m1712> PMID:32381644
- Romanowski, K., Clark, E. G., Levin, A., Cook, V. J., & Johnston, J. C. (2016). Tuberculosis and chronic kidney disease: An emerging global syndemic. *Kidney International*, 90(1), 34–40. <https://doi.org/10.1016/j.kint.2016.01.034> PMID:27178832
- Rosenthal, E. (2020, May 6). We knew the coronavirus was coming, yet we failed. *New York Times*. Retrieved from <https://www.nytimes.com/2020/05/06/opinion/coronavirus-health-care-market.html>
- Rylko-Bauer, B., & Farmer, P. (2016). Structural violence, poverty, and social suffering. In D. Brady & L. M. Burton (Eds.), *The Oxford handbook of the social science of poverty* (pp. 47–74). New York: Oxford University Press.
- Saez, E. (2018). Striking it richer: The evolution of top incomes in the United States. Retrieved from <https://eml.berkeley.edu/~saez/saez-UStopincomes-2018.pdf>

- San Antonio Express-News (2020, April 12). Editorial: Don't settle for a return to the old normal. Retrieved from <https://www.expressnews.com/opinion/editorials/article/Editorial-Don-t-settle-for-a-return-to-the-old-15193064.php>
- Sanburn, J. (2014, October 29). Ebola brings another fear: Xenophobia. *Time*. Retrieved from <https://time.com/3544130/ebola-panic-xenophobia/>
- Sanderson, W., & Scherbov, S. (2019). *Prospective longevity: A new vision of population aging*. Cambridge: Harvard University Press. <https://doi.org/10.4159/9780674243316>
- Sawyer, W., & Wagner, P. (2020). Mass incarceration: The whole pie 2020. Prison Policy Initiative. Retrieved from <https://www.prisonpolicy.org/reports/pie2020.html>
- Scheyer, A. M. G. (2020, April 22). We are killing them: The heavy toll COVID-19 takes on undocumented immigrants. *Jurist*. Retrieved from <https://www.jurist.org/commentary/2020/04/allyssa-scheyer-covid19-undocumented-immigrants/>
- Scommegna, P. (2019, September 25). Which country has the oldest population? It depends on how you define 'old.' PRB. Retrieved from <https://www.prb.org/which-country-has-the-oldest-population/>
- Segata, J. (2020, April 2). Covid-19: Scales of pandemics and scales of anthropology. *Somatosphere*. Retrieved from <http://somatosphere.net/2020/covid-19-scales-of-pandemics-and-scales-of-anthropology.html/>
- Selden, T. M., & Berdahl, T. A. (2020). COVID-19 and racial/ethnic disparities in health risk, employment, and household composition. *Health Affairs*, 39(9), 1624–1632. <https://doi.org/10.1377/hlthaff.2020.00897> PMID:32663045
- Semega, J., Kollar, M., Creamer, J., & Mohanty, A. (2019). *Income and poverty in the United States: 2018*. U. S. Census Bureau, Current Population Reports, P60-266. Washington, DC: U. S. Government Printing Office. Retrieved from <https://www.census.gov/content/dam/Census/library/publications/2019/demo/p60-266.pdf>
- Sered, S. S., & Fernandopulle, R. (2005). *Uninsured in America: Life & death in the land of opportunity*. Berkeley: University of California Press.
- Serhan, Y., & McLaughlin, T. (2020, March 13). The other problematic outbreak. *The Atlantic*. Retrieved from <https://www.theatlantic.com/international/archive/2020/03/coronavirus-covid19-xenophobia-racism/607816/>
- Shah, K. (2020, April 10). How racism and poverty made Detroit a new coronavirus hot spot. *Vox*. Retrieved from <https://www.vox.com/identities/2020/4/10/21211920/detroit-coronavirus-racism-poverty-hot-spot>
- Shamasunder, S., Holmes, S. M., Goronga, T., Carrasco, H., Katz, E., Frankfurter, R., & Keshavjee, S. (2020). COVID-19 reveals weak health systems by design: Why we must re-make global health in this historic moment. *Global Public Health*, 15(7), 1083–1089. <https://doi.org/10.1080/17441692.2020.1760915> PMID:32352911
- Sharkey, P., Taylor, K-Y., & Serkez, Y. (2020, June 19). The gaps between White and Black America, in charts. *New York Times* Retrieved from <https://www.nytimes.com/interactive/2020/06/19/opinion/politics/opportunity-gaps-race-inequality.html>
- Shoichet, C. E., & Alvarez, P. (2020, July 14). How Trump is using the pandemic to crack down on immigration. *CNN Politics*. Retrieved from <https://www.cnn.com/2020/07/07/politics/trump-administration-pandemic-immigration-changes/index.html>
- Singer, M. (1994). AIDS and the health crisis of the U.S. urban poor; the perspective of critical medical anthropology. *Social Science & Medicine*, 39(7), 931–948. [https://doi.org/10.1016/0277-9536\(94\)90205-4](https://doi.org/10.1016/0277-9536(94)90205-4) PMID:7992126
- Singer, M. (1995). Beyond the Ivory Tower: Critical Praxis in Medical Anthropology. *Medical Anthropology Quarterly*, 9(1), 80–106. <https://doi.org/10.1525/maq.1995.9.1.02a00060> PMID:7697554
- Singer, M. (1996). A dose of drugs, a touch of violence, a case of AIDS: Conceptualizing the SAVA syndemic. *Free Inquiry in Creative Sociology*, 24(2), 99–110.
- Singer, M. (2009). *Introduction to syndemics: A systems approach to public and community health*. San Francisco: Jossey-Bass.
- Singer, M. (2017). The spread of Zika and the potential for global arbovirus syndemics. *Global Public Health: An International Journal for Research, Policy and Practice*, 12(1), 1–18. <https://doi.org/10.1080/17441692.2016.1225112> PMID:27590737
- Singer, M. (2020). Deadly Companions: COVID-19 and Diabetes in Mexico. *Medical Anthropology*, 39(8), 660–665. <https://doi.org/10.1080/01459740.2020.1805742>
- Singer, M., & Baer, H. (1995). *Critical medical anthropology*. Amityville, New York: Baywood Publishing Co.
- Singer, M., & Bulled, N. (2012). Interlocked infections: The health burdens of syndemics of neglected tropical diseases. *Annals of Anthropological Practice*, 36(2), 328–345. <https://doi.org/10.1111/napa.12007>
- Singer, M., & Bulled, N. (2016). Ectoparasitic syndemics: Polymicrobial tick-borne disease interactions in a changing anthropogenic landscape. *Medical Anthropology Quarterly*, 30(4), 442–461. <https://doi.org/10.1111/maq.12163> PMID:25359458
- Singer, M., & Clair, S. (2003). Syndemics and public health: Reconceptualizing disease in bio-social context. *Medical Anthropology Quarterly*, 17(4), 423–441. <https://doi.org/10.1525/maq.2003.17.4.423> PMID:14716917
- Singer, M. & Erickson, P. (2013). *Global health: An anthropological perspective*. Long Grove, IL: Waveland Press.
- Singer, M., & Rylko-Bauer, B. (in press). Syndemics and structural violence. In S. C. Scrimshaw, S. Lane, R. Rubinstein, & J. Fisher (Eds.), *Handbook of Social Studies in Health and Medicine*. Thousand Oaks, CA: Sage.
- Singer, M., Bulled, N., & Ostrach, B. (2020). Whither syndemics?: Trends in syndemics research, a review 2015-2019. *Global Public Health*, 15(7), 943–955. <https://doi.org/10.1080/17441692.2020.1724317> PMID:32037962
- Smedley, B. D., Stith, A. Y., & Nelson, A. R. (2003). *Unequal treatment: Confronting racial and ethnic disparities in health care*. Washington, D.C.: National Academies Press.
- Stavis-Gridneff, M., Apuzzo, M., & Pronczuk, M. (2020, August 8). When COVID-19 hit, many elderly were left to die. Retrieved from <https://www.nytimes.com/2020/08/08/world/europe/coronavirus-nursing-homes-elderly.html>



- Stokes, E. K., Zambrano, L. D., Anderson, K. N., Marder, E. P., Raz, K. M., Felix, S. E. B., . . . Fullerton, K. E. (2020). Coronavirus disease 2019 case surveillance—United States, January 22–May 30, 2020. *Morbidity and Mortality Weekly Report*, 69(24), 759–65. Retrieved from <https://www.cdc.gov/mmwr/volumes/69/wr/pdfs/mm6924e2-H.pdf>
- Sur, P., & Mitra, E. (2020). Social distancing is a privilege of the middle class. For India’s slum dwellers, it will be impossible. *CNN*. Retrieved from <https://www.cnn.com/2020/03/30/india/india-coronavirus-social-distancing-intl-hnk/index.html>
- Team, V., & Manderson, L. (2020). How COVID-19 reveals structures of vulnerability. *Medical Anthropology*, 39(8), 671–674. <https://doi.org/10.1080/01459740.2020.1830281>
- The Atlantic. (n.d.). Here’s the latest race and ethnicity data from every state and territory that reports it. The Covid Tracking Project Racial Data Dashboard. Retrieved July 27, 2020 from <https://covidtracking.com/race/dashboard>
- The Marshall Project. (2020, August 6). A state-by-state look at coronavirus in prisons. Retrieved from <https://www.themarshallproject.org/2020/05/01/a-state-by-state-look-at-coronavirus-in-prisons>
- Tobolowsky, F. A., Gonzales, E., Self, J. L., Rao, C. Y., Keating, R., Marx, G. E., . . . Kay, M. (2020). COVID-19 outbreak among three affiliated homeless service sites – King County, Washington, 2020. *Morbidity and Mortality Weekly*, 69(17), 523–526. <https://doi.org/10.15585/mmwr.mm6917e2> PMID:32352954
- Togun, T., Kampmann, B., Stoker, N. G., & Lipman, M. (2020). Anticipating the impact of the COVID-19 pandemic on TB patients and TB control programmes. *Annals of Clinical Microbiology and Antimicrobials*, 19, 21. <https://doi.org/10.1186/s12941-020-00363-1> PMID:32446305
- Tolbert, J., Orgera, K., Singer, N., & Damico, A. (2019, December 13). Key facts about the uninsured population (Issue Brief). Kaiser Family Foundation. Retrieved from <https://www.kff.org/uninsured/issue-brief/key-facts-about-the-uninsured-population/>
- Tonso, L., & Giuffrida, A. (2020, March 3). Italy’s large elderly population bearing brunt of coronavirus. *The Guardian*. Retrieved from <https://www.theguardian.com/world/2020/mar/03/italy-elderly-population-coronavirus-risk-covid-19>
- Troolin, D. E. (2020). Distantly united: Papua New Guinean relationality in the face of COVID-19. *Anthropology Now*, 12(1), 84–90. <https://doi.org/10.1080/19428200.2020.1761215>
- Tsai, A. C., Mendenhall, E., Trostle, J. A., & Kawachi, I. (2017). Co-occurring epidemics, syndemics, and population health. *Lancet*, 389(10072), 978–982. [https://doi.org/10.1016/S0140-6736\(17\)30403-8](https://doi.org/10.1016/S0140-6736(17)30403-8) PMID:28271848
- Tyrrell, D. A., & Bynoe, M. L. (1966). Cultivation of viruses from a high proportion of patients with colds. *The Lancet*, 1(7428), 76–77. [https://doi.org/10.1016/S0140-6736\(66\)92364-6](https://doi.org/10.1016/S0140-6736(66)92364-6) PMID:4158999
- Ungar, L., Smith, M. R., Recht, H., & Barry-Jester, A. M. (2020, July 1). Underfunded and under threat: Hollowed-out public health system faces more cuts amid virus. *Kaiser Health News*. <https://khn.org/news/us-public-health-system-underfunded-under-threat-faces-more-cuts-amid-covid-pandemic/>
- United Nations. (2020, July). The impact of COVID-19 on Latin America and the Caribbean. Policy Brief. Retrieved from [https://www.un.org/sites/un2.un.org/files/sg\\_policy\\_brief\\_covid\\_lac.pdf](https://www.un.org/sites/un2.un.org/files/sg_policy_brief_covid_lac.pdf)
- United Nations Department of Economic and Social Affairs. (2020). *World social report 2020: Inequality in a rapidly changing world*. Retrieved from <https://www.un.org/development/desa/dspd/wp-content/uploads/sites/22/2020/02/World-Social-Report2020-FullReport.pdf>
- United Nations Development Program. (2020). COVID-19: Looming crisis in developing countries threatens to devastate economies and ramp up inequality. [https://www.undp.org/content/undp/en/home/news-centre/news/2020/COVID19\\_Crisis\\_in\\_developing\\_countries\\_threatens\\_devastate\\_economies.html](https://www.undp.org/content/undp/en/home/news-centre/news/2020/COVID19_Crisis_in_developing_countries_threatens_devastate_economies.html)
- United Nations Population Fund. (2020, April 27). Impact of the COVID-19 pandemic on family planning and ending gender-based violence, female genital mutilation and child marriage. Retrieved from <https://www.unfpa.org/resources/impact-covid-19-pandemic-family-planning-and-ending-gender-based-violence-female-genital>
- U. S. Census Bureau. QuickFacts: Detroit city, Michigan. Retrieved from <https://www.census.gov/quickfacts/fact/table/detroitcitymichigan,MI/PST045218>
- U.S. Immigration and Customs Enforcement. (2020, April 29). ICE Guidance on COVID-19. Retrieved from <https://www.ice.gov/coronavirus>
- Velavan, T. P., & Meyer, C. G. (2020). The COVID-19 epidemic. *Tropical Medicine & International Health*, 25(3), 278–280. <https://doi.org/10.1111/tmi.13383> PMID:32052514
- Vera, C. (2020, April 13). COVID-19 thrives on inequality. *Project Syndicate*. Retrieved from <https://www.project-syndicate.org/commentary/rich-countries-must-tackle-covid19-inequality-crisis-by-chema-vera-2020-04>
- Wadhera, R. K., Wadhera, P., Gaba, P., Figueroa, J. F., Joynt Maddox, K. E., Yeh, R. W., & Shen, C. (2020). Variation in COVID-19 hospitalizations and deaths across New York City boroughs. *Journal of the American Medical Association*, 323(21), 2192–2195. <https://doi.org/10.1001/jama.2020.7197> PMID:32347898
- Wallis, C. (2020, June 12). Why racism, not race, is a risk factor for dying of COVID-19. *Scientific American*. Retrieved from <https://www.scientificamerican.com/article/why-racism-not-race-is-a-risk-factor-for-dying-of-covid-19/>
- Wang, A., Zhao, W., Xu, Z., & Gu, J. (2020). Timely blood glucose management for the outbreak of 2019 novel coronavirus disease (COVID-19) is urgently needed. *Diabetes Research and Clinical Practice*, 162, 108118. <https://doi.org/10.1016/j.diabres.2020.108118> PMID:32179126
- Whiteford, L. (2020). A room with a view: Observations from two pandemics. *Anthropology Now*, 12(1), 7–10. <https://doi.org/10.1080/19428200.2020.1760630>
- Whiteford, L., & Vindrola-Padros, C. (2015). *Community participatory involvement: A sustainable model for global public health*. New York: Routledge.

- Wilder, M., Garfin, G., Ganster, P., Eakin, H., Romero-Lankao, P., Lara-Valencia, F., . . . Muñoz-Arriola, F. (2013). Climate change and U.S.-Mexico Border communities. In G. Garfin, A. Jardine, R. Merideth, M. Black, & S. LeRoy (Eds.), *Assessment of climate change in the Southwest United States: A report prepared for the National Climate Assessment* (pp. 340–384). Washington, DC: Island Press; Retrieved from <https://www.cakex.org/documents/assessment-climate-change-southwest-united-states> [https://doi.org/10.5822/978-1-61091-484-0\\_16](https://doi.org/10.5822/978-1-61091-484-0_16)
- Wilkinson, R. G. (2005). *The Impact of inequality: How to make sick societies healthier*. New York: The New Press.
- Williams, D. R. (1999). Race, socioeconomic status, and health. The added effects of racism and discrimination. *Annals of the New York Academy of Sciences*, 896(1), 173–188. <https://doi.org/10.1111/j.1749-6632.1999.tb08114.x> PMID:10681897
- Williams, D. R., & Cooper, L. A. (2020). COVID-19 and Health Equity—A New Kind of “Herd Immunity”. *Journal of the American Medical Association*, 323(24), 2478–2480. <https://doi.org/10.1001/jama.2020.8051> PMID:32391852
- Williams, T., & Ivory, D. (2020, April 8). Chicago’s jail is top U.S. hot spot as virus spreads behind bars. *The New York Times*. Retrieved from <https://www.nytimes.com/2020/04/08/us/coronavirus-cook-county-jail-chicago.html>
- Williams, T., Weiser, B., & Rashbaum, W. K. (2020, March 31). ‘Jails are petri dishes’: Inmates freed as the virus spreads behind bars. *New York Times*. Retrieved from <https://www.nytimes.com/2020/03/30/us/coronavirus-prisons-jails.html>
- Williamson, E. J., Walker, A. J., Bhaskaran, K., Bacon, S., & Bates, C. Morton, C. E., . . . Goldacre, B. (2020). OpenSAFELY: Factors associated with COVID-19 death in 17 million patients. *Nature*, 584(7821), 430–436. <https://doi.org/10.1038/s41586-020-2521-4> PMID:32640463
- Wintour, P. (2020, April 11). Coronavirus: Who will be winners and losers in new world order? *The Guardian*. Retrieved from <https://www.theguardian.com/world/2020/apr/11/coronavirus-who-will-be-winners-and-losers-in-new-world-order>
- Witeska-Młynarczyk, A. (2015). Critical Medical Anthropology—A voice for just and equitable healthcare. *Annals of Agricultural and Environmental Medicine*, 22(2), 385–389. <https://doi.org/10.5604/12321966.1152099> PMID:26094543
- Wood, G. (2020). Why Covid might hit African nations hardest. *The Atlantic*. Retrieved from <https://www.theatlantic.com/ideas/archive/2020/04/why-covid-might-hit-african-nations-hardest/609760/>
- Workneh, M. H., Bjune, G. A., & Yimer, S. A. (2016). Diabetes mellitus is associated with increased mortality during tuberculosis treatment: A prospective cohort study among tuberculosis patients in South-Eastern Amhara Region, Ethiopia. *Infectious Diseases of Poverty*, 5(1), 22. <https://doi.org/10.1186/s40249-016-0115-z> PMID:27009088
- World Health Organization. (2020a). Social, environmental factors seen behind Africa’s low COVID-19 cases. Retrieved from <https://www.afro.who.int/news/social-environmental-factors-seen-behind-africas-low-covid-19-cases>
- World Health Organization. (2020b). Ten threats to global health in 2019. Retrieved from <https://www.who.int/news-room/feature-stories/ten-threats-to-global-health-in-2019>
- XinhuaNet. (2019, September 9). Bulgaria seeks to ban tobacco advertising, promotion and sponsorship. Retrieved from [http://www.xinhuanet.com/english/2019-09/09/c\\_138378813.htm](http://www.xinhuanet.com/english/2019-09/09/c_138378813.htm)
- Yancy, C. W. (2020). COVID-19 and African Americans. *Journal of the American Medical Association*, 323(19), 1891–1892. <https://doi.org/10.1001/jama.2020.6548> PMID:32293639
- Zhang, J. J., Adcock, I. M., Bai, Z., Chung, K. F., Duan, X., Fang, Z., . . . Zhu, T. (2019). Health effects of air pollution: What we need to know and to do in the next decade. *Journal of Thoracic Disease*, 11(4), 1727–1730. <https://doi.org/10.21037/jtd.2019.03.65> PMID:31179119
- Żukiewicz-Sobczak, W., Wróblewska, P., Zwoliński, J., Chmielewska-Badora, J., Adamczuk, P., Krasowska, E., . . . Silny, W. (2014). Obesity and poverty paradox in developed countries. *Annals of Agricultural and Environmental Medicine*, 21(3), 590–594. <https://doi.org/10.5604/12321966.1120608> PMID:25292135