

## America: Equity and Equality in Health 3



# Structural racism and health inequities in the USA: evidence and interventions

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Despite growing interest in understanding how social factors drive poor health outcomes, many academics, policy makers, scientists, elected officials, journalists, and others responsible for defining and responding to the public discourse remain reluctant to identify racism as a root cause of racial health inequities. In this conceptual report, the third in a Series on equity and equality in health in the USA, we use a contemporary and historical perspective to discuss research and interventions that grapple with the implications of what is known as structural racism on population health and health inequities. Structural racism 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. These patterns and practices in turn reinforce discriminatory beliefs, values, and distribution of resources. We argue that a focus on structural racism offers a concrete, feasible, and promising approach towards advancing health equity and improving population health.

### Introduction

Racial and ethnic inequalities, including health inequities, are well documented in the USA (table),<sup>1–5</sup> and have been a part of government statistics since the founding of colonial America.<sup>6–8</sup> However, controversies abound over explanations for these inequities.<sup>6–8</sup> In this report, we offer a perspective not often found in the medical literature or taught to students of health sciences, by focusing on structural racism (panel 1)<sup>9–11</sup> as a key determinant of population health.<sup>9,10,12,13</sup> To explore this determinant of health and health equity, we examine a range of disciplines and sectors, including but not limited to medicine, public health, housing, and human resources. Our focus is the USA.

Although there is growing interest in understanding how social factors drive poor health outcomes,<sup>14</sup> and directed investigation in social science and social epidemiology into the interconnected systems of discrimination,<sup>9,10,12,13</sup> many academics, policy makers, scientists, elected officials, and others responsible for defining and responding to the public discourse remain resistant to identify racism as a root cause of racial health inequities.<sup>9,10,13</sup> For example, in a Web of Science search done on Sept 7, 2016, with the term “race” in conjunction with “health”, “disease”, “medicine”, or “public health”, 47855 articles were retrieved. However, when “race” was replaced by “racial discrimination”, only 2061 articles were located, and only 1996 articles were found when it was replaced by “racism”. Furthermore, when “race” was replaced by “structural or systematic racism”, only 195 articles were identified (ie, 0.4% of those identified with the search term “race”).

To date, the small body of empirical research on racial discrimination and health has focused primarily on the stress of perceived unfair treatment as experienced by individuals (interpersonal racism).<sup>9,10,12,15–18</sup> Such inequitable suffering matters, but a broad, societal

view—one that identifies and seeks to alter how such racism contributes to poor health—is required to understand, prevent, and address the harms related to structural racism. There is a rich social science literature conceptualising structural racism,<sup>8–10,19</sup> but this research has not been adequately integrated into medical and scientific literature geared towards clinicians and other health professionals.<sup>9,10,12,13</sup> In this report, we examine what constitutes structural racism, explore evidence of how it harms health, and provide examples of interventions that can reduce its impact. Our central argument is that a focus on structural racism is essential to advance health equity and improve population health.

### Structural racism: a brief introduction

Any account of structural racism within the USA must start with the experiences of black people and the Indigenous people of North America. It was on these two groups that the initial colonisers of North America (the English, French,

*Lancet* 2017; 389: 1453–63

See [Editorial](#) page 1369

See [Comment](#) pages 1376 and 1378

This is the third in a [Series](#) of five papers about equity and equality in health in the USA

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### Search strategy and selection criteria

An overarching search strategy was not used; instead, we drew on our collective experience and specific searches for different sections to update or amplify the completeness of our review of the published literature. To identify review articles on racism and health, we searched Web of Science, PubMed, and Google Scholar using the search terms “racism AND health” or “racial discrimination AND health” or “structural racism AND health”. Only review articles published in English between Jan 1, 2000, and Feb 23, 2016, were considered. We identified additional sources by performing selected searches in the databases listed above and the Google and DuckDuckGo search engines. These searches were further supplemented from our own knowledge of this subject.

**Key messages**

- Racial/ethnic health inequities in the USA are well documented, but controversies over explanations of these inequities persist.
- To date, in the small body of empirical research on racism and health, most studies have focused on interpersonal racial/ethnic discrimination, with comparatively less emphasis on investigating the health effects of structural racism.
- Structural racism involves interconnected institutions, whose linkages are historically rooted and culturally reinforced. It refers to the totality of ways in which societies foster racial discrimination, through mutually reinforcing inequitable systems (in housing, education, employment, earnings, benefits, credit, media, health care, criminal justice, and so on) that in turn reinforce discriminatory beliefs, values, and distribution of resources, which together affect the risk of adverse health outcomes.
- One example of structural racism pertains to the ongoing residential segregation of black Americans, which is associated with adverse birth outcomes, increased exposure to air pollutants, decreased longevity, increased risk of chronic disease, and increased rates of homicide and other crime. Residential segregation also systematically shapes health-care access, utilisation, and quality at the neighbourhood, health-care system, provider, and individual levels.
- Several avenues exist for potentially efficacious solutions, including the use of a focused external force that acts on multiple sectors at once (eg, place-based multisector initiatives such as Purpose Built Communities, Promise Neighborhoods, and Choice Neighborhoods), disruption of leverage points within a sector that might have ripple effects in the system (eg, reforming drug policy and reducing excessive incarceration), and divorcing institutions from the racial discrimination system (eg, by training the next generation of health professionals about structural racism).
- A focus on structural racism offers a concrete, feasible, and promising approach towards advancing health equity and improving population health. Without a vision of health equity and the commitment to tackle structural racism, health inequities will persist.

Dutch, and Spanish) first promulgated genocide and enslavement, and created both legal and tacit systems of racial oppression.<sup>8,20,21</sup> Our report focuses primarily on the experiences of black Americans, since most research on racism and health has focused on this racialised group. We recognise, however, that Native Americans and other people of colour in the USA—including Latinos, Asian Americans, and Pacific Islanders—have also been the target of health-harming racial discrimination, combined with anti-immigrant and religious (eg, anti-Muslim) discrimination.<sup>8</sup> Although issues of immigration and nativism are beyond the scope of this report, our analysis is applicable to the structural discrimination experienced not only by these groups but also by societally defined and racialised groups in other countries with systems of oppression that have led to health inequities.<sup>9,14,16,22</sup>

**Racial ideology and the categorisation of racialised social groups**

As with many other race-conscious societies, the USA has a long history as a slaveholding republic and as a colonial-settler nation.<sup>8,19–21</sup> The modern concept of “race” emerged at the cusp of the country’s nationhood, as early European settlers sought to preserve an economy largely on the basis of the labour of enslaved African people and their descendants while upholding the universal rights of

“man”.<sup>6,8,19,23,24</sup> To reconcile this contradiction, the colonists established legal categories based on the premise that black and Native American individuals were different, less than human, and innately, intellectually, and morally inferior—and therefore subordinate—to white individuals.<sup>8,19–21,23</sup> Buttressing this concept of racial classification has been a long legacy of now discredited scientific theory and inquiry, constructed around the primary assumption that “race” was an innate and fixed characteristic and an inherently hierarchical category.<sup>6,8,9,19,23</sup> This manufactured concept of race used ostensibly visible phenotypic characteristics and ancestry to justify systems of oppression and privilege.<sup>6,8,19</sup> Similar processes in other racialised societies, such as those of South Africa and Brazil, have produced country-specific racial hierarchies, which ascribe human value on the basis of proximity to whiteness.<sup>22</sup> Furthermore, since the 18th century, scientific racism rooted in Aryan or white supremacy became a blueprint for many other manifestations of society-specific scientific racism around the world.<sup>6,22,25</sup>

**The continuing role of ostensibly colour-blind laws and policies**

In the USA, since the passage of the 1960s civil rights laws,<sup>8,20</sup> government complicity in the promotion of racial discrimination is typically viewed as belonging to the past. Examples of such *de jure* discrimination include the legalisation and enforcement of slavery, the Jim Crow laws enacted in the 1870s (which legalised racial discrimination in reaction to the civil rights and social gains attained by the newly freed black population in the short Reconstruction period after the US Civil War), the forcible removal of Indigenous people from their lands, and the forcible transfer of Indigenous children from their families to punitive so-called boarding schools designed to strip them of their culture.<sup>8,19–21,26,27</sup>

However, this standard view overlooks the long reach of past practices and the impact of contemporary practices of institutional racism in both the public and private sector; such practices have been and continue to be realised by purportedly colour-blind policies that do not explicitly mention “race” but bear racist intent or consequences, or both.<sup>28–30</sup> Institutional racism in one sector reinforces it in other sectors, forming a large, interconnected system of structural racism whereby unfair discriminatory practices and inequities in the health and criminal justice systems and in labour and housing markets bolster unfair discriminatory practices and inequities in the educational system, and vice versa.<sup>10</sup> One key example, with ongoing intergenerational effects, is the historic Social Security Act of 1935, which created an important system of employment-based old-age insurance and unemployment compensation.<sup>8,20</sup> The Act also, however, deliberately excluded agricultural workers and domestic servants—occupations largely held by black men and women. This accommodation was made to secure the votes of Democrats in the South and thus ensure passage of the

	Total	White non-Hispanic	Asian*	Hispanic or Latino	Black non-Hispanic†	Native American or Alaska Native
Wealth: median household assets (2011)	\$68 828	\$110 500	\$89 339	\$7683	\$6314	NR
Poverty: proportion living below poverty level, all ages (2014); children <18 years (2014)	14.8%; 21.0%	10.1%; 12.0%	12.0%; 12.0%	23.6%; 32.0%	26.2%; 38.0%	28.3%; 35.0%
Unemployment rate (2014)	6.2%	5.3%	5.0%	7.4%	11.3%	11.3%
Incarceration: male inmates per 100 000 (2008)	982	610	185	836	3611	1573
Proportion with no health insurance, age <65 years (2014)	13.3%	13.3%	10.8%	25.5%	13.7%	28.3%
Infant mortality per 1000 livebirths (2013)	6.0	5.1	4.1	5.0	10.8	7.6
Self-assessed health status (age-adjusted): proportion with fair or poor health (2014)	8.9%	8.3%	7.3%	12.2%	13.6%	14.1%
Potential life lost: person-years per 100 000 before the age of 75 years (2014)	6621.1	6659.4	2954.4	4676.8	9490.6	6954.0
Proportion reporting serious psychological distress‡ in the past 30 days, age ≥18 years, age-adjusted (2013–14)	3.4%	3.4%	3.5%	1.9%	4.5%	5.4%
Life expectancy at birth (2014), years	78.8	79.0	NR	81.8	75.6	NR
Diabetes-related mortality: age-adjusted mortality per 100 000 (2014)	20.9	19.3	15.0	25.1	37.3	31.3
Mortality related to heart disease: age-adjusted mortality per 100 000 (2014)	167.0	165.9	86.1	116.0	206.3	119.1

NR=not reported. \*Economic data and data on self-reported health and psychological distress are for Asians only; all other health data reported combine Asians and Pacific Islanders. †Wealth, poverty, and potential life lost before the age of 75 years are reported for the black population only; all other data are for the black non-Hispanic population. ‡Serious psychological distress in the past 30 days among adults aged 18 years and older is measured using the Kessler 6 scale (range=0–24; serious psychological distress: ≥13). Sources: wealth data taken from the US Census;<sup>1</sup> poverty data for adults taken from the National Center for Health Statistics,<sup>2</sup> and poverty data for children taken from the National Center for Education Statistics;<sup>3</sup> unemployment data taken from the US Bureau of Labor Statistics;<sup>4</sup> incarceration data taken from the Kaiser Family Foundation;<sup>5</sup> data on uninsured individuals taken from the National Center for Health Statistics;<sup>6</sup> data on infant mortality, self-assessed health status, potential life lost, serious psychological distress, life expectancy, diabetes-related mortality, and mortality related to heart disease taken from the National Center for Health Statistics.<sup>7</sup>

**Table: Social and health inequities in the USA**

Act. This racially motivated exclusion afforded the primarily white recipients additional opportunities to acquire wealth and pass it on to their children, while those excluded were unable to do so and instead often became dependent on their children after retirement, thereby further curtailing the intergenerational accumulation of assets.<sup>8,20</sup> The net result has been an entrenchment of racial economic inequities that persist to this day.<sup>8,10,20,29,30</sup>

Another example is the War on Drugs and tough-on-crime policies enacted in the 1970s and 1980s (labelled “The new Jim Crow”).<sup>28</sup> Without ever referring to “race” by itself, these policies stereotyped black Americans as drug addicts—despite similar prevalence of illicit drug use among white Americans—and disproportionately targeted black people for incarceration.<sup>28,30</sup> The legacy of these policies is that the annual rate of incarceration of black men is 3.8–10.5 times greater than that of white men, across all age groups;<sup>31</sup> moreover, in 2014, almost 3% of all black men in the USA were serving sentences of at least 1 year in prison.<sup>31</sup>

### Structural racism in the private sector

Institutional racism also continues unabated in the private sector, especially in housing and employment, underpinning the structural racism of the ostensibly colour-blind policies in the public sector.<sup>32–34</sup> In their review of the evidence on discrimination in four domains (employment, housing, credit markets, and consumer markets), Pager and Shepherd<sup>33</sup> argue that discrimination

### Panel 1: Definitions of structural racism and institutional racism

Many academics use structural racism and institutional racism interchangeably, but we consider these terms as two separate concepts.

Structural racism refers to “the totality of ways in which societies foster [racial] discrimination, via mutually reinforcing [inequitable] systems...(eg, in housing, education, employment, earnings, benefits, credit, media, health care, criminal justice, etc) that in turn reinforce discriminatory beliefs, values, and distribution of resources”, reflected in history, culture, and interconnected institutions.<sup>9</sup> This definition is similar to the “über discrimination” described by Reskin.<sup>10</sup>

Within this comprehensive definition, institutional racism refers specifically to racially adverse “discriminatory policies and practices carried out...[within and between individual] state or non-state institutions” on the basis of racialised group membership.<sup>9</sup>

Some of these institutional policies and practices explicitly name race (eg, de jure Jim Crow laws, which required schools and medical facilities to be racially segregated, and restricted certain neighbourhoods to be white-only), but many do not (eg, employer practices of screening applications on seemingly neutral codes, such as telephone area codes or ZIP codes, because of presumptions about which racial groups live where).<sup>11</sup>

in the rental and housing markets against black and Latino communities remains pervasive, even though intentional redlining is no longer legal (the term redlining is derived from the legal practice initiated in 1934 by the Federal Housing Administration, which involved marking maps with red lines to delineate neighbourhoods where mortgages were denied to marginalised, racialised groups to steer them away from

**Panel 2: Pathways between racism and health**<sup>9,12,13,16-18</sup>**Economic injustice and social deprivation**<sup>8,9,12,32-35</sup>

Examples include residential, educational, and occupational segregation of marginalised, racialised groups to low-quality neighbourhoods, schools, and jobs (both historical *de jure* discrimination and contemporary *de facto* discrimination), reduced salary for the same work, and reduced rates of promotion despite similar performance evaluations

**Environmental and occupational health inequities**<sup>9,36-38</sup>

Examples include strategic placement of bus garages and toxic waste sites in or close to neighbourhoods where marginalised, racialised groups predominantly reside, selective government failure to prevent lead leaching into drinking water (as in Flint, MI, in 2015–16), and disproportionate exposure of workers of colour to occupational hazards

**Psychosocial trauma**<sup>9,15,16,18</sup>

Examples include interpersonal racial discrimination, micro-aggressions (small, often unintentional racial slights and insults, such as a judge asking a black defence attorney “Can you wait outside until your attorney gets here?”), and exposure to racist media coverage, including social media

**Targeted marketing of health-harming substances**<sup>9,30,39</sup>

Examples include legal substances such as cigarettes and sugar-sweetened beverages, and illegal substances such as heroin and illicit opioids

**Inadequate health care**<sup>9,17,40-45</sup>

Examples include inadequate access to health insurance and health-care facilities, and substandard medical treatment due to implicit or explicit racial bias or discrimination

**State-sanctioned violence and alienation from property and traditional lands**<sup>9,21,30,46-48</sup>

Examples include police violence, forced so-called urban renewal (the use of eminent domain to force the relocation of urban communities of colour), and the genocide and forced removal of Native Americans

**Political exclusion**<sup>49,50</sup>

Examples include voter restrictions (eg, for former felons and through identification requirements)

**Maladaptive coping behaviours**<sup>9,16,18</sup>

Examples include increased tobacco and alcohol consumption on the part of marginalised, racialised groups

**Stereotype threats**<sup>15-18</sup>

Examples include stigma of inferiority, leading to physiological arousal, and an impaired patient-provider relationship

white neighbourhoods). Additionally, strong evidence from experimental audit studies reveals continued racial discrimination in hiring decisions. In one study that used identical résumés, which differed only in the name of the applicant, hiring managers called back those with traditionally white names (eg, Brad or Emily) 50% more often than those with traditionally black names (eg, Jamal or Lakisha).<sup>33</sup> In another study that used mailed résumés, white applicants with criminal records were called back more often than were black applicants without criminal records.<sup>33</sup> Ongoing *de facto* racial segregation in the workforce is partly why black Americans, on average, have lower wages than those of white Americans.<sup>35</sup>

As this brief summary suggests, structural racism is an ongoing—and not just historical—concern across multiple systems. We next consider the implications of such systemic racism on population health.

**Health consequences of structural racism: evidence and evidence gaps**

Contemporary scholarship has established multiple pathways by which racism harms health, involving adverse physical, social, and economic exposures, as well as maladaptive coping behaviours and stereotype threats (panel 2).<sup>9,12,13,15-18,21,30,32-50</sup> Typically concurrent, these exposures can accumulate over the life course and across generations.

To date, research on racial discrimination and health has focused primarily on interpersonal discrimination as a psychosocial stressor.<sup>9,16-18</sup> The strongest evidence in the scientific literature is for adverse effects on psychological wellbeing, mental health, and related health practices (eg, sleep disturbance, eating patterns, and the consumption of psychoactive substances, including cigarettes, alcohol, and drugs), as summarised in panel 3.<sup>9,12,15,16,18,35,51-58</sup> Furthermore, growing research is linking interpersonal racism to various biomarkers of disease and wellbeing, including allostatic load, inflammatory markers, and hormonal dysregulation.<sup>16,18</sup>

Here, we focus instead on adverse health effects of structural racism through two distinct but related pathways emphasised in the literature: residential segregation and health-care quality and access.<sup>9,12,13,18</sup> Both of these pathways include actionable leverage points to reduce exposure and promote health equity. A third relevant pathway, discriminatory incarceration,<sup>28,30,35</sup> is only briefly mentioned since it is discussed elsewhere in this Series by Wildeman and Wang.<sup>59</sup>

**Residential segregation**

As a reflection and reinforcement of structural and institutional racism, most residents in the USA have grown up in, and continue to live in, racialised and economically segregated neighbourhoods.<sup>29,33,34,60</sup> Analysis of 2010 US Census data has found that “the average white person in metropolitan America lives in a neighborhood that is 75% white”, whereas “a typical African American lives in a neighborhood that is only 35% white (not much different from 1940) and as much as 45% black”.<sup>61</sup> The literature on racial residential segregation and poor health<sup>32,34,36,37,62-68</sup> examines several direct and indirect pathways through which structural racism harms health, including the high concentration of dilapidated housing in neighbourhoods that people of colour reside in,<sup>62,63</sup> the substandard quality of the social<sup>64</sup> and built<sup>65</sup> environment, exposure to pollutants and toxins,<sup>36,37,65</sup> limited opportunities for high-quality education and decent employment,<sup>34,66</sup> and restricted access to quality health care.<sup>65</sup> Health outcomes associated with residential segregation documented

### Panel 3: Dominant approaches to studying racial discrimination as a psychosocial stressor and associated adverse health outcomes, with counterexamples of research on measures of structural racism

#### Racism and stress

To date, racism has primarily been conceptualised as a psychosocial stressor in the health science literature, and the strongest and most consistent evidence of its adverse health effects concerns mental health, as detailed in several comprehensive, systematic reviews.<sup>9,12,15,16,18</sup> In one such review,<sup>16</sup> published in 2015, the authors found that self-reported racism was positively associated with increased levels of negative mental health, including all individual mental health outcomes except for positive affect (eg, depression, anxiety, distress, psychological stress, negative affect, and post-traumatic stress), and negatively associated with positive mental health (eg, self-esteem, life satisfaction, control and mastery, and wellbeing). After adjusting for publication bias, the association between reported racism and mental health remained twice as large as that for physical health, which was driven primarily by obesity outcomes. There is growing evidence that experiences of racism are associated with poor sleep outcomes, which could be linked to both mental and physical health.<sup>51</sup>

#### Stress pathways

Much of the research on interpersonal racism and health has posited that racism is a social stressor that operates through diverse stress pathways, including physiological, psychological, and behavioural pathways. Experiences that are perceived as racist act as social stressors, which can initiate a set of neurobiological and behavioural responses (ie, coping behaviours) that can affect mental and physical health. These experiences can be chronic and include everyday hassles of receiving poor service at restaurants, being followed or not helped in stores, and generally being treated with less respect and consideration than others. Acute experiences of violence, harassment, and other threatening behaviour are also included in this category. However, although such exposures are most likely to garner media attention, the common, chronic experiences of discrimination are more consistently associated with poor health outcomes than are acute experiences,<sup>9,15,16,18</sup> probably reflecting how brain chemistry and general

metabolism change in response to chronic stressors.<sup>15</sup> There is burgeoning evidence linking experiences of discrimination to biomarkers of disease and wellbeing, including allostatic load, telomere length, cortisol dysregulation, and inflammatory markers.<sup>9,16,18</sup>

#### Reliance on self-reports of exposure to racial discrimination

Most of the research on racial discrimination and health has relied on self-reported measures, although some studies have used vignettes or experimental situations. Evidence suggests that because of well known cognitive biases, including social desirability, self-reported data are likely to provide an underestimate of actual exposure, leading to underestimates of the magnitude of the association of racial discrimination with, and its impact on, adverse health outcomes.<sup>9,18</sup> Some immigrant groups, moreover, might be less likely than others to recognise racist interactions, or less likely to attribute discriminatory behaviour to racism as opposed to language skills, immigration status, or chance.<sup>9,52</sup>

#### Counterexamples of research on measures of structural racism

Although small in comparison with psychosocial approaches, an emerging body of research has begun to investigate the relationship between health and four domains of state-level structural racism: political participation, employment and job status, educational attainment, and judicial treatment, including incarceration.<sup>9,12,16,35,53-58</sup> Black people living in states with higher levels of structural racism in these domains were more likely than those living in states with lower levels of structural racism to self-report a myocardial infarction in the previous year; meanwhile, the same association for white people was null or protective.<sup>57</sup> Another study that used the same measures found a positive association between structural racism at the state level and the odds of births that were small for gestational age in both black and white women.<sup>58</sup> Such measures could be used to build the evidence base regarding the connections between structural and institutional racism and health, and highlight areas for intervention. Priority should be given to expanding this type of research.

among black Americans include adverse birth outcomes,<sup>32</sup> increased exposure to air pollutants,<sup>36</sup> decreased longevity,<sup>34,66</sup> increased risk of chronic disease,<sup>32,34,64</sup> and increased rates of homicide and other crime.<sup>66,67</sup> These adverse outcomes far outweigh any benefits deriving from social support or political power that accrue from the clustering of black Americans (or other oppressed racialised groups) in adjoining neighbourhoods.<sup>63,68</sup> Residential segregation is thus a foundation of structural racism and contributes to racialised health inequities.

Moreover, analysis of residential segregation requires addressing the intertwined occurrences of residential segregation by both racialised group and class.<sup>60,69,70</sup> In the

USA there has been a shift from macrosegregation to microsegregation, whereby “blacks and whites became more evenly distributed across states and counties during the first two-thirds of the twentieth century, [and] ...less evenly distributed at the city and neighborhood levels”.<sup>60</sup> Highlighting the need to think about smaller geographies, researchers have also noted that, as income inequality has increased, people at the top and bottom of the socioeconomic distribution have increasingly become spatially isolated,<sup>69,70</sup> such that “middle-class blacks are less able than their white counterparts to translate their higher economic status into desirable residential conditions”.<sup>34</sup>

In recognition of the trend towards microsegregation and increased social polarisation, public health

researchers have recently begun to use the Index of Concentration at the Extremes (ICE).<sup>70</sup> This measure was introduced into the sociological literature in 2001<sup>69</sup> and was designed to measure economic polarisation—the extent to which a population is concentrated into the extremes of wealth or impoverishment—by taking the difference between the number of affluent and poor households in an area and dividing it by the total number of households in the area.<sup>70</sup> Moreover, these areas can be measured at multiple levels (eg, census tract, city neighbourhood, and county). New innovations include the development of an ICE for racialised economic segregation, which uses data on the joint distribution of income and race/ethnicity. Research done in New York City, for example, has shown that ICE measures that captured both income and racialised group yielded larger risk ratios, at both the neighbourhood and census tract levels, for infant mortality, premature mortality, and diabetes mortality than an ICE solely for income or the poverty level.<sup>70</sup>

Underscoring the need for explicit analysis of the health burden of residential segregation (regardless of how it is measured) and neighbourhood disinvestment, there is evidence to suggest that these structurally driven, place-based exposures harm economic opportunity and, when coupled with inadequate gun control, contribute to the lethal burden of gun violence and crime in predominantly black and Latino neighbourhoods<sup>71,72</sup> and in impoverished Native American reservations.<sup>21</sup> In turn, the violence and crime in these neighbourhoods reinforces the intergenerational legacy of racialised punitive policing,<sup>8,20,21,28,31</sup> perpetuating vicious cycles of further community depletion and adverse health outcomes.<sup>8,9,28,30,31,35,59</sup>

### Discriminatory incarceration

The penal institutions that constitute the US criminal justice system—police departments, court systems, correctional agencies, parole and probation departments, and sentencing boards—have established policies and practices that are ostensibly colour-blind yet they criminalise communities of colour (eg, through day-to-day practices such as stop and frisk) and disproportionately incarcerate black men, women, and children.<sup>30</sup> As reviewed in this Series by Wildeman and Wang,<sup>59</sup> each component of the criminal justice continuum—from arrest to re-entry—carries various health consequences, and a growing body of literature has documented severe adverse health outcomes associated with incarceration on the individual, their families, and neighbourhoods. What should not be lost in the explication of these outcomes is their roots in structural racism; the present disproportionate representation of black people in the penal system is reminiscent of the Black Codes and convict leasing practices from the colonial period.<sup>8,26</sup> New freedoms afforded to black people following the US Civil War were promptly undone by laws that selectively

criminalised unemployment, vagrancy, and loitering.<sup>26</sup> The resultant prison population effectively re-established free labour for Southern states to rebuild infrastructure.<sup>73</sup> The effects of mass incarceration, as traced by Wildeman and Wang<sup>59</sup> from the 1970s, are best understood as a continuation of racialised imprisonment<sup>8,10,20</sup> rather than as an emergent process.<sup>28</sup> Moreover, as noted previously, strong feedback mechanisms exist between inequities in incarceration, employment, and health on a population level.<sup>30,35,59</sup>

### Health-care quality and access

Interpersonal racism, bias, and discrimination in health-care settings can directly affect health through poor health care. Almost 15 years ago, the Institute of Medicine Report titled *Unequal Treatment: Confronting Racial and Ethnic Disparities in Health Care*<sup>40</sup> documented systematic and pervasive bias in the treatment of people of colour, resulting in substandard care. Evidence continues to support this finding.<sup>41–44</sup>

However, it would be short sighted to view these problems solely as a matter of institutional and interpersonal discrimination within health-care settings.<sup>17,40–44</sup> Instead, it is essential to understand the broad context within which health-care systems operate, including the potentially disparate settings in which health-care professionals and their patients reside. Specifically, residential segregation systematically shapes health-care access, utilisation, and quality at the neighbourhood, health-care system, provider, and individual levels.<sup>45</sup> The socioeconomic disadvantage resulting from systematic disinvestment in public and private sectors renders it difficult to attract primary-care providers and specialists to predominantly black neighbourhoods.<sup>40,45</sup> Likewise, health-promoting resources are inadequately invested into these neighbourhoods. Health-care infrastructure and services are inequitably distributed, resulting in predominantly black neighbourhoods having lower-quality facilities with fewer clinicians than those in other neighbourhoods. Moreover, most of these clinicians have lower clinical and educational qualifications than those in other neighbourhoods. This inequitable system is likely to disproportionately expose black residents to racially biased services.<sup>45</sup>

### Addressing structural racism to advance health equity

Although efforts to counter institutional racism and residential segregation in the housing market and medical care system require initiatives focused on these institutions, such initiatives are not sufficient. Also needed is intersectoral work, especially that which is guided by transdisciplinary frameworks and action. Analytical insights derived from a systems perspective suggest several avenues for efficacious solutions, including the use of a focused external force that acts on multiple subsystems (ie, sectors) at once, disruption of

leverage points (ie, key points of intervention within a sector that could be important for maintenance of the system, both within and outside the particular sector in question), and divorcing institutions from the racial discrimination system.<sup>10</sup> We highlight some promising, concrete, intersectoral examples of each of these types of solutions, which have the potential to reduce, if not remove, the burden of structural racism on population health.

### Place-based, multisector, equity-oriented initiatives

Health and health equity are substantially influenced by the places where people live, work, play, and pray.<sup>14</sup> Yet, the USA has high levels of racialised economic segregation.<sup>69,70</sup> Within this context, multisector, place-based partnerships focusing on equity can be an effective means of placing pressure on the systems of structural racism operating in a specific geographical region. Place-based initiatives create structures for reinvesting in neighbourhoods that have long been sidelined. Several initiatives have combined public and private partners from multiple sectors to achieve community-specific changes.<sup>74</sup> These community-specific, multisector interventions that seek neighbourhood-wide coverage have thus far focused primarily on predominantly black and Latino neighbourhoods, and also on Native American reservations, that have experienced high levels of poverty, health-limiting built environments, and substandard resources for schools and housing as a result of generations of structural racism.

Established in 2009, Purpose Built Communities is exploring the redevelopment of more than 20 high-need neighbourhoods with the use of a model based on their original 1995 development site: the East Lake neighbourhood of Atlanta, GA.<sup>74</sup> About 20 years ago, a private philanthropist partnered with the president of the Atlanta Housing Authority, a resident leader, and several community business leaders to revitalise the area by razing a violent, poorly maintained public housing development and rebuilding a new mixed-income development, which involved temporary displacement of residents during construction. Unlike other attempts at rebuilding public housing, this development's planning and rollout was organised and backed by a dedicated non-profit and focused on high-quality construction and on safe walkways and streets. The effort included a cradle-to-college educational curriculum, and a combination of facilities, programmes, and services prioritised by community residents to promote healthy behaviours, create jobs, and reduce crime in the short term, and break the cycle of intergenerational poverty concentrated in this community in the long term.<sup>74</sup>

With active involvement of community residents, by 2015, crime had declined by 95% (compared with a 50% overall decline in Atlanta), the employment rate among families in public housing increased from 13% to 70%, capital investments increased from no

investment (over the course of 30 years before the project) to US\$123 million, property values in the surrounding area increased, and new grocery stores, banks, and other businesses opened.<sup>74</sup> The evidence of changes in the social determinants related to health inequities is striking; to date, no health impact assessment has been done, although it is clearly warranted. Future place-based interventions should build in health equity impact assessments from the start. Two federal initiatives launched in 2010 have followed similar principles: the US Department of Education's Promise Neighborhood initiative and the US Department of Housing and Urban Development's Choice Neighborhood initiative. Results of health impact assessments are eagerly awaited.

Short of full-scale community redevelopment, data suggest that improvements in housing lead to improvements in health. In New York City, individuals and families on a low income are able to enter lotteries for affordable housing units. Data from the New York City Housing and Neighborhood Study,<sup>75</sup> which assessed the impact of re-housing on those who won the lottery compared with those who did not, showed reductions in depression and asthma exacerbations. Although results among adolescents were mixed, findings from the Moving to Opportunity study,<sup>76,77</sup> in which vouchers for housing were randomly allocated, suggest that housing mobility policies that enable voluntary movement out of deprived neighbourhoods can result in long-term improvements in health and social outcomes.

Building government and public support for large-scale initiatives to counter structural racism is both necessary and possible. In May, 2016, the Government Alliance for Race and Equity (GARE) and the non-profit Living Cities jointly launched Racial Equity Here, a \$3 million initiative to help five cities (Albuquerque, NM, Austin, TX, Grand Rapids, MI, Louisville, KY, and Philadelphia, PA) improve racial equity, building on approaches such as Seattle's Race and Social Justice Initiative, which has explicitly recognised the links between racial equity and health equity.<sup>78</sup> As the Mayor of Austin, Steve Adler, noted, "Government helped create a lot of the inequities, it institutionalized them. It's important for the government, the city government to address racial inequity, not just because of the conditions, but also because we helped create it."<sup>78</sup>

### Advocating for policy reform

With the recognition that mass incarceration is a system used to subordinate black people,<sup>10,28,30</sup> efforts to reduce discriminatory criminal sanctions on drug use (a leverage point) are also beginning to gain traction. From the 1980s to 2010, the federal government sentencing guidelines mandated penalties for crimes related to crack cocaine (a cheaper formulation more common in black communities than in other communities) that were 100 times harsher than sentences for crimes involving

For more on **Promise Neighborhoods** see <https://www2.ed.gov/programs/promiseneighborhoods/index.html>

For more on **Choice Neighborhoods** see [https://portal.hud.gov/hudportal/HUD?src=/program\\_offices/public\\_indian\\_housing/programs/ph/cn](https://portal.hud.gov/hudportal/HUD?src=/program_offices/public_indian_housing/programs/ph/cn)

For more on **Seattle's Race and Social Justice Initiative** see <http://www.seattle.gov/rsji>

the pharmacologically identical substance in powder form, effectively targeting black people for prolonged prison sentences.<sup>30</sup> In the first sentencing breakthrough in decades—the Fair Sentencing Act of 2010—the crack-to-powder penalty ratio was reduced to 18:1, shrinking the disparity but not eliminating it.<sup>30</sup> Meanwhile, prescription opioids, which are fuelling the current opioid epidemic among white people, have been relatively unregulated. It was not until opioid addicts from white communities started being incarcerated and dying in large numbers that the national narrative shifted from penalisation to treatment—a clear demonstration of the racialised nature of the War on Drugs.<sup>79</sup>

The past decade has also witnessed new bipartisan efforts, across the country, to reduce the number of people who are imprisoned. For example, California has sought to address its unconstitutionally overcrowded prisons through several legislative initiatives, including Proposition 47<sup>80</sup> This ballot initiative, passed in November, 2014, commutes drug possession felonies (and a few minor offenses) to misdemeanours. It also allows people serving a sentence for an eligible felony conviction to petition the court for resentencing. With the disproportionate impact of drug arrests, prosecutions, and convictions on black and Latino men and women, Proposition 47 is likely to reduce racial inequities in sentencing. Since 2014, more than 4000 people have been released under this initiative and California has reduced overcrowding in prisons; however, racial inequities and health effects have not yet been assessed.<sup>81</sup>

### Training the next generation of health professionals

Structural racism has developed over centuries and is deeply embedded in the thoughts and behaviours of people in the USA and other countries,<sup>6,8,10,22,25</sup> with its influence extending to how health sciences are taught and the routine practices of health agencies and health-care providers.<sup>6,7,13,82–85</sup> An analysis of structural racism is required to recognise these problems and change them. Fortunately, a new wave of public health and medical students, galvanised by protests over police killings and the Black Lives Matter movement, have been advocating to ensure that medical and public health schools incorporate essential pedagogy about racism and health into standard coursework, as one step towards divorcing medical and public health institutions from their supportive roles in the system of structural racism.<sup>13,82–84,86</sup> Similarly, several public health agencies have begun to reform their institutional structure and organisational culture.

The standard practice for teaching about race and health in medical and public health schools is one in which race is often discussed, but conversations about racism are sidelined, with scant hours (if any) devoted to social epidemiologists, medical anthropologists, social scientists, or historians who focus on racism and health.<sup>82–84</sup> Few scientific and medical textbooks include discussions of how racism affects the conceptualisation

of race or an analysis of racial inequality in relation to health and other outcomes.<sup>85</sup> Although many medical schools now include diversity training and provide instruction on cultural competency, such instruction is often brief (and sometimes delivered online). Moreover, the programmes typically focus on individual responsibility to counteract interpersonal discrimination; the goal is for individuals to increase their sensitivity to, and knowledge about, other racial/ethnic groups.<sup>87,88</sup> The emphasis is therefore on “others”, in a way that could inadvertently contribute to racial stereotyping, as opposed to critical self-reflection about the participants’ positions in their societies’ race relations.

By contrast, approaches based on structural competency,<sup>83</sup> cultural humility,<sup>89</sup> and cultural safety<sup>6,90,91</sup>—which have been implemented in health professionals’ training in several countries such as Canada and New Zealand—encourage a lifelong commitment to self-reflection and mutual exchange in engaging power imbalances along the lines of cultural differences. These approaches emphasise the value of gaining knowledge about structural racism, internalised scripts of racial superiority and inferiority, and the cultural and power contexts of health professionals and their patients or clients. Tying interactions between patients and health-care providers to population-level inequalities requires skilled instruction and considerable time, far beyond that patched together for short training courses in cultural competency.<sup>83</sup> These approaches also require that health professionals be informed by scholarship from diverse disciplines about the origins and perpetuation of—as well as remedies to counter—structural racism. It remains the charge of those committed to exploring and reversing structural racism to connect how these forms of social inequality translate into health and health-care inequities, within and across generations.<sup>9,13,82,86</sup>

Professional education about structural racism after graduate school also matters, especially for clinical and public health practitioners whose decisions affect peoples’ health daily.<sup>13,92</sup> As Hardeman and colleagues<sup>13</sup> advocate, health professionals already practising in the field can still “learn, understand, and accept” the contemporary and historical basis of structural racism in the USA, understand how structural racism shapes our overarching narrative around inequities, define and call out racism when it is present, and contribute to the understanding of equity through clinical care and health research from the perspective of marginalised groups and with a healthy dose of cultural humility. Several local health departments have already incorporated anti-racism training into staff professional development, and introduced internal reforms to drive organisational change.<sup>92,93</sup> For example, in the mid-1990s the Alameda County Public Health Department began to place neighbourhood offices in areas with poor health outcomes. Over time, these offices drove changes in the department, including additional community involvement, staff trainings on anti-racism, a



new unit and a strategic plan to incorporate equity into their work, and an increased presence of the health department in local activism.<sup>92</sup> The Boston Public Health Commission has also engaged in organisational change, launching a Racial Justice and Health Equity Initiative that incorporates an anti-racism advisory committee, the development of a health equity framework, anti-racism training and professional development, and a forthcoming evaluation of its activities.<sup>93</sup> As institutional reform is closely associated with other models of productive practices—including quality improvement, collective impact, community engagement, and community mobilisation—application of an anti-racism lens should not only be judged on its moral merits but also on its contributions to organisational effectiveness. We anticipate that forthcoming evidence will continue to support the view that removing racism from institutions is essential to protect and promote the health of our increasingly diverse communities.

## Conclusion

Since the American colonial period, public and private institutions have reinforced each other, maintaining racial hierarchies that have allowed white Americans, across generations, to earn more and consolidate more wealth than non-white Americans, and maintain political dominance. This structural racism has had a substantial role in shaping the distribution of social determinants of health and the population health profile of the USA, including persistent health inequities. The stark reality is that research investigating the relationship between structural racism and population health outcomes has been scant, and even less work has been done to assess the health impacts of the few interventions and policy changes that could help dismantle structural racism.

We can, however, look to history as a guide. Notably, the handful of studies on the impact of the abolition of Jim Crow laws have consistently shown improvements in mortality in the black community, and converging mortality between black and white communities in the 15 years after the passage of the 1964 Civil Rights Act.<sup>53–56</sup> We recognise that efforts to implement reforms to dismantle structural racism have repeatedly encountered serious obstacles and backlash from institutions, communities, and individuals seeking to preserve their racial privilege.<sup>8,20,26,30</sup> However, as Frederick Douglass famously said in his 1857 address on the struggle against slavery in the USA, the West India emancipation, and the backlash that ensued: “Power concedes nothing without a demand.”<sup>94</sup>

Without a vision of health equity and the commitment to tackle structural racism, health inequities will persist, thwarting efforts to eliminate disparities and improve the health of all groups—the overarching goals for US health policy as enunciated by the official Healthy People 2020 objectives. The challenge is great, but rising to this challenge lies at the heart of our mission and our

commitment, as health professionals, to prevent avoidable suffering, care for those who are unwell, and create conditions in which all can truly thrive.

### Contributors

All authors contributed to the conceptualisation of the manuscript, literature search, and writing of this report. ZDB, NK, and MTB took the lead in ensuring coherence of the text, including the selection of appropriate data, and in data interpretation.

### Declaration of interests

We declare no competing interests.

### Acknowledgments

NK's work is supported in part by an American Cancer Society Clinical Research Professor Award.

### References

- 1 US Census Bureau. Detailed tables on wealth and ownership assets: 2011. <http://www.census.gov/people/wealth/data/dtables.html> (accessed Jan 25, 2017).
- 2 National Center for Health Statistics. Health, United States, 2015: with special feature on racial and ethnic health disparities. May, 2016. <http://www.cdc.gov/nchs/data/abus/abus15.pdf> (accessed Jan 25, 2017).
- 3 National Center for Education Statistics. Family characteristics of school-age children. May, 2016. [http://nces.ed.gov/programs/coe/pdf/coe\\_cce.pdf](http://nces.ed.gov/programs/coe/pdf/coe_cce.pdf) (accessed Jan 25, 2017).
- 4 Bureau of Labor Statistics. Labor Force Characteristics by Race and Ethnicity, 2014. Report 1057. November, 2015. <https://www.bls.gov/opub/reports/race-and-ethnicity/archive/labor-force-characteristics-by-race-and-ethnicity-2014.pdf> (accessed Jan 25, 2017).
- 5 James C, Salganicoff A, Ranji U, Goodwin A, Duckett P. Putting men's health care disparities on the map: examining racial and ethnic disparities at the state level. Menlo Park, CA: Kaiser Family Foundation, 2012. <https://kaiserfamilyfoundation.files.wordpress.com/2013/01/8344.pdf> (accessed Feb 20, 2017).
- 6 Hammonds EM, Herzig RM. The nature of difference: sciences of race in the United States from Jefferson to genomics. Cambridge, MA: MIT Press, 2008.
- 7 Krieger N, Bassett M. The health of black folk: disease, class, and ideology in science. *Mon Rev* 1986; **38**: 74–85.
- 8 Omi M, Winant H. Racial formation in the United States, 3rd edn. New York, NY: Routledge/Taylor & Francis Group, 2015.
- 9 Krieger N. Discrimination and health inequities. *Int J Health Serv* 2014; **44**: 643–710.
- 10 Reskin B. The race discrimination system. *Annu Rev Sociol* 2012; **38**: 17–35.
- 11 US Equal Employment Opportunity Commission. Facts about race/color discrimination. January, 1999. <https://www.eeoc.gov/facts/fs-race.pdf> (accessed Jan 25, 2017).
- 12 Gee GC, Ford, CL. Structural racism and health inequities. *Du Bois Rev* 2011; **8**: 115–32.
- 13 Hardeman RR, Medina EM, Kozhimannil KB. Structural racism and supporting black lives — the role of health professionals. *N Engl J Med* 2016; **375**: 2113–15.
- 14 Marmot M, Friel S, Bell R, Houweling TAJ, Taylor S, on behalf of the Commission on Social Determinants of Health. Closing the gap in a generation: health equity through action on the social determinants of health. *Lancet* 2008; **372**: 1661–69.
- 15 Berger M, Sarnyai Z. “More than skin deep”: stress neurobiology and mental health consequences of racial discrimination. *Stress* 2014; **18**: 1–10.
- 16 Paradies Y, Ben J, Denson N, et al. Racism as a determinant of health: a systematic review and meta-analysis. *PLoS One* 2015; **10**: e0138511.
- 17 Paradies Y, Truong M, Priest N. A systematic review of the extent and measurement of healthcare provider racism. *J Gen Intern Med* 2014; **29**: 364–87.
- 18 Williams DR, Mohammed SA. Racism and health I: pathways and scientific evidence. *Am Behav Sci* 2013; **57**: 1152–73.
- 19 Frederickson GM. Racism: a short history. Princeton, NJ: Princeton University Press, 2003.
- 20 Zinn H. A people's history of the United States: 1492–present. New York, NY: Harper Perennial, 2015.

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- 21 Dunbar-Ortiz R. An indigenous peoples' history of the United States. Boston, MA: Beacon Press, 2015.
- 22 Loveman M. Making "Race" and nation in the United States, South Africa, and Brazil: taking "making" seriously. *Theory Soc* 1999; **28**: 903–27.
- 23 Higginbotham AL Jr. Shades of freedom: racial politics and presumptions of the American legal process, vol 2. New York, NY: Oxford University Press, 1996.
- 24 Waldstreicher D. Slavery's constitution: from revolution to ratification. New York, NY: Hill & Wang, 2010.
- 25 Anderson W. Racial conceptions in the global south. *Isis* 2014; **105**: 782–92.
- 26 Foner E. A short history of Reconstruction, 1863–1877. New York, NY: Harper & Row, 1990.
- 27 Du Bois WEB. Black folk then and now: an essay in the history and sociology of the Negro race. New York, NY: Henry Holt & Co, 1939.
- 28 Alexander M. The new Jim Crow: mass incarceration in the age of colorblindness. New York, NY: The New Press, 2010.
- 29 Massey DS, Denton NA. The dimensions of residential segregation. *Soc Forces* 1988; **67**: 281–315.
- 30 Hinton EK. From the war on poverty to the war on crime: the making of mass incarceration in America. Cambridge, MA: Harvard University Press, 2016.
- 31 Carson EA. Prisoners in 2014. NCJ 248955. Sept 17, 2015. Washington, DC: Bureau of Justice Statistics, Office of Justice Programs, Department of Justice, 2015. <https://www.bjs.gov/index.cfm?ty=pbdetail&iid=5387> (accessed Jan 19, 2017).
- 32 Acevedo-Garcia D, Lochner KA, Osypuk TL, Subramanian SV. Future directions in employment, housing, credit, and health research: a multilevel approach. *Am J Public Health* 2003; **93**: 215–21.
- 33 Pager D, Shepherd H. The sociology of discrimination: racial discrimination in employment, housing, credit, and consumer markets. *Annu Rev Sociol* 2008; **34**: 181–209.
- 34 Williams DR, Collins C. Racial residential segregation: a fundamental cause of racial disparities in health. *Public Health Rep* 2001; **116**: 404.
- 35 Western B, Pettit B. Black-white wage inequality, employment rates, and incarceration. *Am J Sociol* 2005; **111**: 553–78.
- 36 Bravo MA, Anthopoulos R, Bell ML, Miranda ML. Racial isolation and exposure to airborne particulate matter and ozone in understudied US populations: environmental justice applications of downscaled numerical model output. *Environ Int* 2016; **92–93**: 247–55.
- 37 Mohai P, Pellow D, Roberts JT. Environmental justice. *Annu Rev Env Resour* 2009; **34**: 405–30.
- 38 Siqueira CE, Gaydos M, Monforton C, et al. Effects of social, economic, and labor policies on occupational health disparities. *Am J Ind Med* 2014; **57**: 557–72.
- 39 Grier SA, Kumanyika S. Targeted marketing and public health. *Annu Rev Public Health* 2010; **31**: 349–69.
- 40 Institute of Medicine. Unequal treatment: confronting racial and ethnic disparities in health care. Washington, DC: The National Academies Press, 2003.
- 41 Shavers VL, Fagan P, Jones D, et al. The state of research on racial/ethnic discrimination in the receipt of health care. *Am J Public Health* 2012; **102**: 953–66.
- 42 Flores G. Racial and ethnic disparities in the health and health care of children. *Pediatrics* 2010; **125**: e979–1020.
- 43 Blair IV, Havranek EP, Price DW, et al. Assessment of biases against Latinos and African Americans among primary care providers and community members. *Am J Public Health* 2013; **103**: 92–98.
- 44 Puumala SE, Burgess KM, Kharbada AB, et al. The role of bias by emergency department providers in care for American Indian children. *Med Care* 2016; **54**: 562–69.
- 45 White K, Haas JS, Williams DR. Elucidating the role of place in health care disparities: the example of racial/ethnic residential segregation. *Health Serv Res* 2012; **47**: 1278–99.
- 46 Browne AJ, Smye VL, Varcoe C. The relevance of postcolonial theoretical perspectives to research in Aboriginal health. *Can J Nurs Res* 2005; **37**: 16–37.
- 47 Fullilove MT. Root shock: how tearing up city neighborhoods hurts America, and what we can do about it. New York, NY: New Village Press, 2016.
- 48 Chaney C, Robertson RV. Racism and police brutality in America. *J Afr Am Stud* 2013; **17**: 480–505.
- 49 Purtle J. Felon disenfranchisement in the United States: a health equity perspective. *Am J Public Health* 2013; **103**: 632–37.
- 50 Blessett B. Disenfranchisement: historical underpinnings and contemporary manifestations. *Public Administration Quarterly* 2015; **39**: 3.
- 51 Slopen N, Lewis TT, Williams DR. Discrimination and sleep: a systematic review. *Sleep Med* 2016; **18**: 88–95.
- 52 Carlisle SK. Perceived discrimination and chronic health in adults from nine ethnic subgroups in the USA. *Ethn Health* 2015; **20**: 309–26.
- 53 Almond D, Chay KY, Greenstone M. Civil rights, the war on poverty, and black-white convergence in infant mortality in the rural South and Mississippi. Dec 31, 2006. Cambridge, MA: Massachusetts Institute of Technology, 2006. <https://dspace.mit.edu/handle/1721.1/63330> (accessed Jan 25, 2017).
- 54 Krieger N, Chen JT, Coull B, Waterman PD, Beckfield J. The unique impact of abolition of Jim Crow laws on reducing inequities in infant death rates and implications for choice of comparison groups in analyzing societal determinants of health. *Am J Public Health* 2013; **103**: 2234–44.
- 55 Krieger N, Chen JT, Coull BA, Beckfield J, Kiang MV, Waterman PD. Jim Crow and premature mortality among the US black and white population, 1960–2009: an age-period-cohort analysis. *Epidemiology* 2014; **25**: 494–504.
- 56 Chay KY, Greenstone M. The convergence in black-white infant mortality rates during the 1960's. *Am Econ Rev* 2000; **90**: 326–32.
- 57 Lukachko A, Hatzembuehler ML, Keyes KM. Structural racism and myocardial infarction in the United States. *Soc Sci Med* 2014; **103**: 42–50.
- 58 Wallace ME, Mendola P, Liu D, Grantz KL. Joint effects of structural racism and income inequality on small-for-gestational-age birth. *Am J Public Health* 2015; **105**: 1681–88.
- 59 Wildeman C, Wang EA. Mass incarceration, public health, and widening inequality in the USA. *Lancet* 2017; **389**: 1464–74.
- 60 Massey DS, Rothwell J, Domina T. The changing bases of segregation in the United States. *Ann Am Acad Polit Soc Sci* 2009; **626**: 74–90.
- 61 Logan JR, Stults BJ. The persistence of segregation in the metropolis: new findings from the 2010 census. March 24, 2011. <http://www.s4.brown.edu/us2010/Data/Report/report2.pdf> (accessed Jan 19, 2017).
- 62 White K, Borrell LN. Racial/ethnic residential segregation: framing the context of health risk and health disparities. *Health Place* 2011; **17**: 438–48.
- 63 Kramer MR, Hogue CR. Is segregation bad for your health? *Epidemiol Rev* 2009; **31**: 178–94.
- 64 Kershaw KN, Roux AVD, Burgard SA, Lisabeth LD, Mujahid MS, Schulz AJ. Metropolitan-level racial residential segregation and black-white disparities in hypertension. *Am J Epidemiol* 2011; **174**: 537–45.
- 65 Landrine H, Corral I. Separate and unequal: residential segregation and black health disparities. *Ethn Dis* 2009; **19**: 179–84.
- 66 Collins CA, Williams DR. Segregation and mortality: the deadly effects of racism? *Social Forum* 1999; **14**: 495–523.
- 67 Krivo LJ, Byron RA, Calder CA, et al. Patterns of local segregation: do they matter for neighborhood crime? *Soc Sci Res* 2015; **54**: 303–18.
- 68 Mendez DD, Hogan VK, Culhane JF. Institutional racism, neighborhood factors, stress, and preterm birth. *Ethn Health* 2014; **19**: 479–99.
- 69 Massey DS. The prodigal paradigm returns: ecology comes back to sociology. In: Booth A, Crouter AC, eds. Does it take a village? Community effects on children, adolescents, and families. Mahwah, NJ: Lawrence Erlbaum Associates, 2001: 41–48.
- 70 Krieger N, Waterman PD, Spasojevic J, Li W, Maduro G, Van Wye G. Public health monitoring of privilege and deprivation with the Index of Concentration at the Extremes (ICE). *Am J Public Health* 2016; **106**: 256–63.
- 71 Burgason KA, Thomas SA, Berthelot ER. Nature of violence: a multilevel analysis of gun use and victim injury in violent interpersonal encounters. *J Interpers Violence* 2014; **29**: 371–93.
- 72 Ulmer JT, Harris CT, Steffensmeier D. Racial and ethnic disparities in structural disadvantage and crime: white, black, and hispanic comparisons. *Soc Sci Q* 2012; **93**: 799–819.

- 73 Lichtenstein A. *Twice the work of free labor: the political economy of convict labor in the New South*. New York, NY: Verso, 1996.
- 74 Purpose Built Communities. Purpose Built Communities at the Chautauqua Institution. Sept 28, 2015. <http://purposebuiltcommunities.org/news-press/purpose-built-communities-at-the-chautauqua-institution> (accessed Jan 25, 2017).
- 75 Gaumer E, Jacobowitz A, Brooks-Gunn J. The impact of affordable housing on the well-being of low-income households. Public Policy Analysis and Management Conference; Miami, FL; Nov 14, 2015. <https://appam.confex.com/appam/2015/webprogram/Paper14806.html> (accessed Jan 25, 2017).
- 76 Chetty R, Hendren N, Katz LF. The effects of exposure to better neighborhoods on children: new evidence from the Moving to Opportunity experiment. *Am Econ Rev* 2016; **106**: 855–902.
- 77 Ludwig J, Liebman JB, Kling JR, et al. What can we learn about neighborhood effects from the Moving to Opportunity experiment. *Am J Sociol* 2008; **114**: 144–88.
- 78 Abello OP. 5 cities get support for dismantling systemic racism. *Next City* (Philadelphia, PA), May 31, 2016. <https://nextcity.org/daily/entry/living-cities-racial-inequity> (accessed Jan 25, 2017).
- 79 Netherland J, Hansen H. White opioids: pharmaceutical race and the war on drugs that wasn't. *BioSocieties* 2016; published online Jan 11. DOI:10.1057/biosoc.2015.46.
- 80 Legislative Analyst's Office. The 2015–16 budget: implementation of Proposition 47. Sacramento, CA: Legislative Analyst's Office, 2015. <http://www.lao.ca.gov/reports/2015/budget/prop47/implementation-prop47-021715.pdf> (accessed Jan 25, 2017).
- 81 Stanford Justice Advocacy Project. Proposition 47 progress report: year one implementation. Stanford, CA: Stanford Law School, 2015. <https://www-cdn.law.stanford.edu/wp-content/uploads/2015/10/Prop-47-report.pdf> (accessed Jan 25, 2017).
- 82 Hart A. Anti-racism in public health education: a student-driven model for changes in a Master's of Public Health Program. American Public Health Association Annual Meeting; Chicago, IL; Nov 3, 2015. <https://apha.confex.com/apha/143am/webprogram/Paper323616.html> (accessed Jan 25, 2017).
- 83 Metzl J, Roberts D. Structural competency meets structural racism: race, politics, and the structure of medical knowledge. *Virtual Mentor* 2014; **16**: 674.
- 84 Anderson W. Teaching race at medical school: social scientists on the margin. *Soc Stud Sci* 2008; **38**: 785–800.
- 85 Morning AJ. *The nature of race: how scientists think and teach about human difference*. Berkeley, CA: University of California Press, 2011.
- 86 Bassett MT. # BlackLivesMatter—a challenge to the medical and public health communities. *N Engl J Med* 2015; **372**: 1085–87.
- 87 Sturm S. The architecture of inclusion: advancing workplace equity in higher education. *Harv J L & Gender* 2006; **29**: 247–334.
- 88 Cross TL, Bazron BJ, Dennis KW, Isaacs MR. *Towards a culturally competent system of care: a monograph on effective services for minority children who are severely emotionally disturbed*. Washington, DC: CASSP Technical Assistance Center, Georgetown University Child Development Center, 1989.
- 89 Tervalon M, Murray-Garcia J. Cultural humility versus cultural competence: a critical distinction in defining physician training outcomes in multicultural education. *J Health Care Poor Underserved* 1998; **9**: 117–25.
- 90 Darroch F, Giles A, Sanderson P, et al. The United States does CAIR about cultural safety examining cultural safety within Indigenous health contexts in Canada and the United States. *J Transcult Nurs* 2016; published online Feb 25. DOI:10.1177/1043659616634170.
- 91 Papps E, Ramsden I. Cultural safety in nursing: the New Zealand experience. *Int J Qual Health C* 1996; **8**: 491–97.
- 92 National Association of County and City Health Officials. Expanding the boundaries: health equity and public health practice. Washington, DC: National Association of County and City Health Officials, 2014. [http://www.dialogue4health.org/uploads/resources/Expanding\\_the\\_Boundaries\\_Final\\_508\\_091814.pdf](http://www.dialogue4health.org/uploads/resources/Expanding_the_Boundaries_Final_508_091814.pdf) (accessed Jan 25, 2017).
- 93 Boston Public Health Commission. The Racial Justice and Health Equity Initiative: 2015 overview. <http://www.bphc.org/whatwedo/health-equity-social-justice/racial-justice-health-equity-initiative/Documents/RJHEI%202015%20Overview%20FINAL.pdf> (accessed Jan 25, 2017).
- 94 Douglass F. Two Speeches, by Frederick Douglass: one on West India emancipation, delivered at Canandaigua, Aug. 4th, and the other on the Dred Scott Decision, delivered in New York, on the occasion of the anniversary of the American Abolition Society, May, 1857. Rochester, NY: C. P. Dewey, 1857.