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# Intervening on the Social Determinants of Cardiovascular Disease and Diabetes

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**Abstract:** Heart disease, cerebrovascular diseases, and type 2 diabetes ranked first, third, and sixth, respectively, among the leading causes of death and disability in the United States in 2000. Racial and ethnic communities (i.e., African Americans, Hispanic-Latino Americans, Native Americans and Alaska Natives, and Asian Americans and Pacific Islanders) disproportionately suffer from these chronic conditions. Traditional behavior change strategies have had some positive, but limited effects and will not likely be sufficient to eliminate these health disparities at the population level. In this commentary, the authors argue for greater intervention research directed at the social determinants of cardiovascular disease and diabetes if we are to reverse current trends in chronic disease prevalence in communities of color. The authors also call for new research questions and study designs that will increase our understanding of the social, policy, and historic context in which disparities are created as a necessary first step in developing interventions aimed at social-contextual and psychosocial risk factors. Promising programs supported by the Centers for Disease Control and Prevention's Racial and Ethnic Approaches to Community Health (REACH 2010) program and the Division of Diabetes Translation are highlighted. (Am J Prev Med 2005;29(5S1):18–24) © 2005 American Journal of Preventive Medicine

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## Introduction

The predominant paradigm used in chronic disease prevention and control rests on the traditional and hard-held belief that individuals are solely responsible for adopting and maintaining appropriate (i.e., health-promoting) lifestyles.<sup>1</sup> Historically, the public health response to preventing and controlling cardiovascular disease (CVD) and type 2 diabetes has focused on “fixing” the patient by addressing behavioral risk factors, such as increasing physical activity and improving dietary intake. Monitoring clinical measures, such as body mass index, cholesterol, fasting glucose, hemoglobin A<sub>1c</sub>, triglycerides, and blood pressure, also have characterized chronic disease management to date.<sup>2</sup> Whereas there has been some success with patient-centered interventions in chronic management, researchers are not optimistic about the potential of such interventions achieving the population-based impact of interest to public health.<sup>3–6</sup>

There is a growing body of empirical literature that indicates that social-contextual and psychosocial factors

may help to explain the disparity in CVD mortality between African Americans and white Americans. For example, race (independent of lifestyle and clinical factors) contributes to different cardiovascular health outcomes because it determines how one's health is managed in the U.S. healthcare system.<sup>7</sup> Race and ethnic background place one at risk by largely determining the nature and quality of the health care obtained<sup>8–13</sup> as well as the nature of one's social experience.<sup>14,15</sup> Therefore, race may have a more substantial and cumulative impact on CVD disparity than many of the traditional behavioral risk factors because the effects are ubiquitous, institutionalized, unpredictable, and largely unavoidable.<sup>14</sup> Hence, there is a need to develop conceptual models and community interventions that include race/ethnicity, social class, and gender in social and historical context if we are to eliminate the disparities in chronic disease incidence and prevalence in communities of color.

In this brief commentary, we reiterate the necessity of intervening on the social determinants of heart disease, stroke, and diabetes as strategies for primary and secondary prevention of these leading causes of death, disability, and loss of quality of life. We call for intervention research focused on eliminating the disparity in healthcare quality, psychosocial factors, social context, and the mediating role that they play in cardiovascular disease and diabetes. We highlight community cardiovascular risk reduction and diabetes prevention

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and control programs, supported by the Centers for Disease Control and Prevention's (CDC) Racial and Ethnic Approaches to Community Health (REACH 2010) program and the Division of Diabetes Translation; we describe how these community programs intervene across the continuum of biomedical, cultural, and social risk factors; and we suggest future directions for the elimination of health disparities.

## The Burden

Diseases of the heart and cerebrovascular diseases (hereafter referred to as cardiovascular diseases or CVD) and type 2 diabetes are among the top 10 leading causes of death and disability in the United States.<sup>16</sup> In 2001, CVD accounted for 38.5% of all deaths in the United States. Racial and ethnic populations (i.e., African Americans, Hispanic-Latino Americans, Native American, and Alaska Natives, and Asian Americans and Pacific Islanders) disproportionately have these chronic conditions. According to the CDC, in 2001, the overall death rate from heart disease was 329.6 per 100,000, and the death rates from heart disease were 30% higher among African Americans than among whites, and 41% higher from stroke. In addition, a greater percentage of African Americans die of heart disease before the age of 65 compared with other ethnic groups.<sup>16</sup> The disparity for stroke deaths is such that, in 2001, the overall deaths occurring as a result of stroke were 57.9 per 100,000. However, for African-American males and females, the death rates from stroke were 85.4 and 73.7, respectively. The rates for white American males and females were 56.5 and 54.5, respectively.<sup>17</sup>

In 1999, the American Heart Association, in collaboration with the National Institutes of Health, the American Diabetes Association, and the Juvenile Diabetes Foundation International, included diabetes as a major risk factor for CVD, thereby escalating the urgency associated with reducing the incidence and prevalence of these serious and potentially devastating co-morbidities. About 65% of the deaths among people with diabetes are due to heart disease and stroke.<sup>17</sup> People with uncontrolled diabetes are at high risk of developing high blood pressure, high cholesterol, and heart disease. According to the Third Report of the National Cholesterol Education Program Expert Panel on Detection, Evaluation, and Treatment of High Blood Cholesterol in Adults, diabetes is also included as a coronary heart disease (CHD) risk equivalent (i.e., persons with diabetes carry a risk for major coronary events equal to that of **established** CHD).<sup>18</sup> In other words, "diabetes counts as a CHD risk equivalent because it confers a high risk of new CHD within 10 years, in part because of its frequent association with multiple risk factors."<sup>18</sup> Persons with diabetes who have a myocardial infarction also tend to have an unusually high

death rate, either immediately or in the long term.<sup>18</sup> Overall, the risk of having a stroke or of dying of heart disease is two to four times higher among adults with diabetes than among adults without diabetes. Native Americans and Alaskan Natives, African Americans, and Hispanics are two to three times more likely than whites to have diabetes. In addition, racial and ethnic minority groups experience higher rates of diabetes-related complications and are more likely to die of these complications.<sup>19</sup>

## The Burden of CVD and Type 2 Diabetes in Social and Psychological Context

There is a substantial and growing literature on the relationship between social conditions, broadly understood, and health status, including population and subgroup susceptibility to selected conditions, severity of the clinical manifestation of certain diseases, and survival rates, among other things.<sup>20-41</sup> This broad literature, commonly referred to in social epidemiology as the **social determinants of health**, has addressed relationships between "health" and socioeconomic status (SES),<sup>23,25,32,36</sup> race and ethnicity,<sup>24,30,37,38</sup> gender,<sup>35,39,40,42,43</sup> chronic psychosocial stress experienced at the population level,<sup>11,15,26,27,29,31</sup> and community characteristics and environmental health hazards,<sup>28,34,36,41</sup> to name a few.

Admittedly, most of the variables included under the rubric of social determinants are poorly (narrowly) defined. For example, although race is not a biological phenomenon, it is routinely used as a control or independent variable in health statistics<sup>20,37,38,40,44</sup> and in the social construction of the viability of a population.<sup>38</sup> Still, understanding the connections between the social determinants of health and reducing the burden of CVDs and diabetes in communities of color is a critical next step in meeting the goals of national health objectives "to help individuals of all ages increase life expectancy and improve their quality of life."

The paucity of intervention research seeking to address the role that social determinants play in shaping lifestyle practices among individuals from similar social and physical environments disparities is an indictment against public health. Interventions addressing social determinants in CVD and diabetes prevention and control have been minimized, avoided, or dismissed as not being important or as important as promoting lifestyle practices that are voluntarily adopted. This oversight ignores the complexities and realities of what governs the lived experiences of those who are at risk of health disparities in the United States. For example, when controlling for SES, the differences in health status between blacks and whites are reduced, but within each level of SES, blacks still tend to have worse health status than whites.<sup>29</sup> It appears then that race as

a lived experience and social construction tends to have an effect on health, independent of SES. Contributing to this phenomenon may be the observation that, within the larger social environment, blacks are subject to a “stigma of inferiority.” It is likely that the internalization of the society’s ideology toward blacks results in expectations (on the part of blacks) of rejection and discrimination, anxieties, and “reactions that affect the functioning of marginalized groups.”<sup>29</sup>

Similarly, if we consider the structural environment as a social determinant of health, Williams<sup>29</sup> finds in his research that state licensing boards grant more permits for the establishment of liquor stores in poor and minority neighborhoods than in affluent neighborhoods. Because neighborhoods are racially segregated, this determines the “quality of schools, police protection, access to jobs, tax assessments, exposure to environmental risks, and a broad range of quality-of-life indicators.”<sup>29</sup> Medical anthropologist William Dressler, in his work on hypertension in an African-American community in Alabama,<sup>24</sup> also found that limited engagement in the political processes of a community and inadequate community organization that ensures a voice in the political structure is another variable that accounts for health inequalities among African Americans. Public health has a rich history of organizing communities for health promotion through community coalitions and institutional partnerships. Attending to the environment(s) in which “health” occurs or is threatened is inherent in the philosophy and principles of good public health practice. How are the activist traditions of public health getting expressed in contemporary approaches to eliminating disparities in heart disease, diabetes, and stroke in racial and ethnic communities in the United States?

## What’s Being Done?

In 1999, the U.S. Department of Health and Human Services launched REACH 2010—a community demonstration program intending to eliminate disparities in six priority health areas: (1) CVD, (2) immunizations, (3) breast and cervical cancer screening and management, (4) diabetes, (5) human immunodeficiency virus-acquired immunodeficiency syndrome, and (6) infant mortality. In collaboration with other federal and private partners, as well as sister divisions within the CDC, 42 communities have been funded since 1999 to conduct community-based and community-inspired health interventions.<sup>45</sup> Nineteen REACH grantees are addressing CVD and diabetes within diverse programmatic frameworks (i.e., clinical interventions, physical activity and nutrition programs, community capacity-building and partnership development, health-related policy interventions, and social determinants) (Table 1).<sup>46–49</sup>

Examples of community demonstration projects are highlighted below. The Fulton County, Georgia, Depart-

ment of Health and Wellness “REACH for Wellness” project addresses the psychosocial health of African-American women through a comprehensive personal empowerment program, titled “Sisters Action Team.” In addition to teaching stress-management techniques, the Sisters Action Team is working to establish safer communities, walking clubs, bike trails, and more green space. They are also educating state legislators about the necessity of living wages and affordable housing as a requisite for better health outcomes. Bronx Health REACH, a coalition of diverse community and organizational partners led by the Institute for Urban Family Health, has forged a “broad-based advocacy movement to eliminate racial disparities in health and health care . . . focused on increasing the number of eligible individuals enrolled in health insurance programs, ensuring nondiscriminatory health care, increasing the representation of people of color in the health professions and ensuring culturally competent health education and treatment.”<sup>49</sup> Through a combination of faith-based partnerships, a legal and regulatory committee, a training curriculum for healthcare providers, and community-based health education, the Bronx Health REACH initiative intends to eliminate the disparity in diabetes prevalence among African Americans and Latinos living in the Bronx, New York. Another example of an intervention addressing the social determinants of CVD and diabetes is the establishment of a Neighborhood Farmer’s Market by the Charlotte, North Carolina REACH project. This intervention increases the availability and affordability of fresh fruits and vegetables in an African-American community.

The impact of these interventions is being evaluated through a complement of quantitative and qualitative participatory evaluation. At the CDC, we have established a web-based system that allows the grantees to document local interventions and to monitor improvements in health among the participants that occur over time in the community. In addition, we are conducting the REACH Risk Factor survey in 27 communities.<sup>50</sup> These data allow us to document population-based changes in risk and protective behaviors associated with CVD and diabetes. There remains a large opportunity for pioneering evaluation research models that will demonstrate the effectiveness of social determinants interventions in reducing and ultimately eliminating health disparities.

## Where To From Here?

Responding to the rising incidence of diabetes,<sup>51</sup> for example, and the difficulty that individuals face in managing this chronic disease will require a deeper understanding of underlying social determinants.<sup>52</sup> According to McKinlay and Marceau,<sup>53</sup> “Diabetes is a challenge because it is subject to the ‘rule of halves’—only half of all cases of diabetes are diagnosed, and only half of these having treatment are managed success-

**Table 1.** Brief description of REACH 2010 cardiovascular disease (CVD) and diabetes interventions

REACH community	State	Target population	Health problem	Intervention
African-American Health Coalition	OR	African American (AA)	<ul style="list-style-type: none"> <li>• Ten year age-adjusted stroke mortality rate for African Americans (AA) is 59.3 compared with 29 among white Oregonians.</li> <li>• Ten year cardiovascular mortality rate among AA is 121.8 compared with 89 among whites.</li> </ul>	<ul style="list-style-type: none"> <li>• “Wellness within REACH Program”: classes focused on changing the social and cultural norms around physical activity in the AA Community.</li> </ul>
Boston Public Health Commission—Elderly	MA	AA	<ul style="list-style-type: none"> <li>• 244,500 residents diagnosed with diabetes. 122,200 estimated to have the disease, but are undiagnosed.</li> </ul>	<ul style="list-style-type: none"> <li>• Project Healthy Plus program: Elders are taught proper methods of exercise and good nutrition.</li> </ul>
California Black Health Network	CA	AA	<ul style="list-style-type: none"> <li>• In San Diego County mortality rates for CVD are 35.6% greater death for African Americans than whites.</li> </ul>	<ul style="list-style-type: none"> <li>• Interventions are conducted in partnership with area churches and other faith based institutions.</li> <li>• Ongoing media campaigns.</li> <li>• Neighborhood Farmer’s Market and Winner’s Circle program: A School Cafeteria Worker training program; and food labeling program for students.</li> <li>• YMCA is co-sponsor of exercise classes.</li> </ul>
Charlotte–Mecklenburg Hospital System	NC	AA	<ul style="list-style-type: none"> <li>• African Americans in Northwest Charlotte experience mortality rates from CVD 40% higher than the rest of the county.</li> <li>• Average mortality rate for stroke among AAs also twice the rate of whites in Mecklenburg County.</li> </ul>	<ul style="list-style-type: none"> <li>• Free exercise, nutrition, and health prevention classes in English and Spanish.</li> <li>• Monthly cooking demonstrations and grocery store tours.</li> </ul>
Chicago Department of Health	IL	AA, Hispanic American (HA)	<ul style="list-style-type: none"> <li>• 4 in every 10 AA adults have CVD.</li> <li>• 41% of AA men and 40% of AA women have CVD. Among HAs, 29% of men and 27% of women suffer with CVD.</li> </ul>	<ul style="list-style-type: none"> <li>• Community CVD coalitions</li> </ul>
Choctaw Nation of Oklahoma	OK	American Indian/Alaska Native (AI/AN)	<ul style="list-style-type: none"> <li>• CVD is the leading cause of death among American Indians in Oklahoma.</li> </ul>	<ul style="list-style-type: none"> <li>• Partnership with the Alyeska Pipeline Services Company (APSC) to promote health and safety in the community</li> </ul>
Chugachmiut, Inc	AK	AI/AN	<ul style="list-style-type: none"> <li>• CVD third leading cause of death for Alaska Native men, and second leading cause of death for Alaska Native women.</li> </ul>	<ul style="list-style-type: none"> <li>• Community Empowerment Activities focused on racism and policies that regulate delivery of health services</li> <li>• Accupressure to decrease the craving of cigarettes</li> <li>• Empowerment classes for men and women</li> <li>• Vegetarian cooking classes</li> </ul>
Community Health Councils of Los Angeles	CA	AA	<ul style="list-style-type: none"> <li>• AAs experience significantly higher rates of CVD than white counterparts</li> </ul>	<ul style="list-style-type: none"> <li>• Intergenerational exercise classes (Lawrence YMCA)</li> <li>• Lawrence Teen Coalition</li> <li>• Media and faith-based partnerships.</li> <li>• Faith-Based Outreach</li> <li>• Community Health Advocacy program</li> </ul>
Fulton County Department of Health & Wellness	GA	AA	<ul style="list-style-type: none"> <li>• AAs in the Atlanta Empowerment Zone (AEZ) experience higher rates of CVD than residents who live in other areas of Fulton County.</li> </ul>	<ul style="list-style-type: none"> <li>• Intergenerational exercise classes (Lawrence YMCA)</li> <li>• Lawrence Teen Coalition</li> <li>• Media and faith-based partnerships.</li> <li>• Faith-Based Outreach</li> <li>• Community Health Advocacy program</li> </ul>
Greater Lawrence Family Health Center	MA	HA	<ul style="list-style-type: none"> <li>• Puerto Rican and Dominican Latinos in Lawrence, MA experience higher rates of diabetes, associated complications, and CVD</li> </ul>	<ul style="list-style-type: none"> <li>• Intergenerational exercise classes (Lawrence YMCA)</li> <li>• Lawrence Teen Coalition</li> <li>• Media and faith-based partnerships.</li> <li>• Faith-Based Outreach</li> <li>• Community Health Advocacy program</li> </ul>
Institute for Urban Family Health	NY	AA, HA	<ul style="list-style-type: none"> <li>• AAs and Latinos in Bronx, NY experience higher rates of CVD and diabetes</li> </ul>	<ul style="list-style-type: none"> <li>• Intergenerational exercise classes (Lawrence YMCA)</li> <li>• Lawrence Teen Coalition</li> <li>• Media and faith-based partnerships.</li> <li>• Faith-Based Outreach</li> <li>• Community Health Advocacy program</li> </ul>

*(continued on next page)*

**Table 1.** (continued)

REACH community	State	Target population	Health problem	Intervention
Latino Education Project—Elderly	TX	HA	<ul style="list-style-type: none"> <li>• Mexican-American elderly experience high rates of CVD that is complicated by lack of access to affordable and timely health care and overall poor health status</li> </ul>	<ul style="list-style-type: none"> <li>• Nutrition intervention program</li> <li>• Support groups</li> </ul>
Lowell Community Health Center	MA	Asian American (AsA)	<ul style="list-style-type: none"> <li>• The majority of Cambodians in Lowell, MA are at a disproportionate risk for diabetes and CVD</li> </ul>	<ul style="list-style-type: none"> <li>• Learning tours</li> <li>• Meditation</li> <li>• Tai Chi classes</li> </ul>
Matthew Walker Comprehensive Health	TN	AA	<ul style="list-style-type: none"> <li>• 41,627 AAs living in the North Nashville community experience higher rates of CVD and type 2 diabetes and are at greater risk for early death and disability from these conditions than white counterparts.</li> </ul>	<ul style="list-style-type: none"> <li>• Mobilized four action teams</li> <li>• Tai Chi demonstrations</li> <li>• Expanded hours of local health clinic</li> <li>• Faith-based interventions</li> <li>• Smoking cessation classes</li> </ul>
Missouri Coalition for Primary Care	MO	AA, HA	<ul style="list-style-type: none"> <li>• AAs and HAs have life expectancy 11 years less than whites.</li> </ul>	<ul style="list-style-type: none"> <li>• Healthy Habits media campaign</li> <li>• Community Action Plans to implement over 80 community changes.</li> <li>• Multi-Sector Program Implementation</li> <li>• Partnering Across Sectors</li> <li>• Faith-Based Outreach</li> <li>• Self-help intervention support groups</li> </ul>
National Black Women’s Health Imperative	LA	AA	<ul style="list-style-type: none"> <li>• CVD and diabetes are leading causes of death for AA women in the state of Louisiana.</li> </ul>	<ul style="list-style-type: none"> <li>• Physical activity programs</li> <li>• Prevention programs related to nutrition, smoking, and obesity.</li> <li>• Language and culturally appropriate educational materials</li> <li>• Seminars</li> <li>• Partnerships with local systems.</li> </ul>
Oklahoma State Department of Health	OK	American Indian (AI)	<ul style="list-style-type: none"> <li>• Oklahoma ranks high nationally in age-adjusted heart disease rates</li> </ul>	<ul style="list-style-type: none"> <li>• Church seminars</li> <li>• Health Disparities symposium</li> <li>• Community Partners for Better Health Coalition</li> </ul>
Special Services for Groups—Elderly	CA	AsA	<ul style="list-style-type: none"> <li>• CVD is second leading cause of death for Asian and Pacific Islanders over 60 years of age</li> </ul>	<ul style="list-style-type: none"> <li>• Physical activity programs</li> <li>• Prevention programs related to nutrition, smoking, and obesity.</li> </ul>
University of Nevada	NV	AA	<ul style="list-style-type: none"> <li>• High rates of heart attacks and stroke (20.9%) among AAs</li> </ul>	<ul style="list-style-type: none"> <li>• Church seminars</li> <li>• Health Disparities symposium</li> <li>• Community Partners for Better Health Coalition</li> </ul>

REACH, Racial and Ethnic Approaches to Community Health.

fully.” Furthermore, the rate of diabetes management is still alarmingly low, despite increasing healthcare costs and human resource expenditures that include healthcare provider investment, family involvement, and increased social support.<sup>54</sup> This suggests that, while important, the management of diabetes goes beyond even the availability of human resources. In other words, even under ideal circumstances, where diabetes management is facilitated by trained and accessible staff, this does not help to explain totally why most individuals have difficulty managing diabetes or completely ameliorate the difficulties experienced in diabetes self-management.

Further, the notion that a standardized intervention delivered under controlled circumstances by highly

trained and available staff to a homogeneous population would “work” in a similar way in less than ideal circumstances continues to contradict the intent behind the efforts to address health disparities. Ideally, what is needed are effectiveness studies that help to identify interventions that are appropriate for real-world settings that can be applied according to the levels of participation by the staff, fiscal resources, and local community realities (e.g., income status) and takes into account life stages, cumulative exposure to sources of stress, living and working conditions, and community norms.<sup>55</sup>

Fortunately, published discourse around the role of the environmental context on diabetes management is beginning to emerge.<sup>1–3, 41, 54–57</sup> This published dis-

course suggests that public health and intervention research should begin to frame new research questions, giving attention to opportunities and challenges in moving beyond the assumption that applying positive results from efficacy trials and the use of the stimulus–response approach in real-world settings will generate encouraging population-based results.

The CDC’s Division of Diabetes Translation, in partnership with the University of Georgia, is currently conducting a longitudinal study to understand how the management of diabetes is mediated by individual factors (e.g., age, years of diagnoses, income, educational level, diabetes knowledge, and physical activity), psychological processes (e.g., depression, anxiety, and optimism), extended family processes (e.g., cohesion, organization, routines, conflict resolution, and chronic disease management), patient–provider interaction (e.g., communication and shared decision making), and community structural supports and barriers (e.g., crimes, availability of safe places to exercise, religious involvement, and the availability of healthy foods).<sup>59</sup> This study targets low-income African-American men and women diagnosed with diabetes and living in rural counties in Georgia. This study moves beyond solely developing a study to collect data around traditional biologic risk factors and a handful of limited patient characteristics.<sup>57</sup> Moving beyond examining biological risk factors and a few patient characteristics will help generate an understanding of under-recognized determinants of health that contribute to the variance in the incidence and the management of diabetes among African Americans.

### Who Will Go First?

According to Glasgow et al.,<sup>55</sup> “We need to embrace and study the complexity of the world, rather than attempting to ignore or reduce it by studying only isolated and often unrepresentative situations.” This is particularly true for disparate populations in the United States for which diabetes and CVD have had a more substantial cost financially and emotionally.<sup>20</sup> We must also move forward, despite the challenges this will pose for our current dependency on interventions that emerge out of efficacy trials.<sup>55</sup> The importance of understanding the context in which the incidence and management of diabetes occur will help public health researchers and practitioners to better understand what creates health disparities, which is the necessary first step to developing traditional and nontraditional transdisciplinary intervention models. Furthermore, the identification of new research questions and study designs will require innovations in both qualitative and quantitative data collection, analysis, and reporting.

Accomplishing this noble charge will require courage and patience because this type of movement may generate fear among public health researchers and

practitioners who have relied on entrenched lifestyle-centric paradigms. Nevertheless, we must bring more attention to the complexity of framing interventions intending to eliminate health disparities without ignoring individual behaviors. Specifically, we must critique and acknowledge the limitations of extant CVD and diabetes public health interventions, supplement academic training to include intervention research on the social determinants of health, break down the silos that perpetuate “design superiority and paradigm elitism,” and have a willingness to learn from academic disciplines that have not previously informed public health practice.<sup>41, 55–58</sup>

Hopefully, if we are persistent and remain open to learning without receding to previous paradigms and ways of intervening, we can find contemporary ways to address the issues that underlie and perpetuate health disparities.

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### References

1. Jack L Jr, Liburd L, Vinicor F, Brody G, Murry VM. The influence of the environmental context of diabetes self-management: a rationale for developing a new research paradigm in diabetes education. *Diabetes Educ* 1999;25:775–80.
2. Jack L Jr. Diabetes self-management education research: an international review of intervention methods, theories, community partnerships and outcomes. *Dis Manage Health Outcomes* 2003;11:415–28.
3. Vinicor F. Challenges to the translation of the DCCT. *Diabetes Rev* 1994;2:371–83.
4. Norris SL, Nichols PJ, Caspersen CJ, et al. Increasing diabetes self-management education in community settings. A systematic review *Am J Prev Med* 2002;22(suppl 4):39–66.
5. The Diabetes Control and Complication Trial Research Group. The effect of intensive treatment of diabetes on the development and progression of long-term complications in insulin-dependent diabetes mellitus. *N Engl J Med* 1993;329:977–86.
6. UK Prospective Diabetes Study (UKPDS). VIII. Study design, progress and performance. *Diabetologia* 1991;34:877–90.
7. Smeldley BD, Stith AY, Nelson AR (eds). *Unequal treatment: confronting racial and ethnic disparities in health care*. Washington, DC: Institute of Medicine, The National Academies Press, 2003.
8. Ayanian JZ, Udvarhelyi IS, Gatsonis CA, Pashos CL, Epstein AM. Racial differences in the use of revascularization procedures after coronary angiography. *JAMA* 1993;269:2642–6.
9. Allison JJ, Kiefe CI, Centor RM, Box JB, Farmer RM. Racial differences in the medical treatment of elderly Medicare patients with acute myocardial infarction. *J Gen Intern Med* 1996;11:736–43.
10. Schulman KA, Berlin JA, Harless W, et al. The effect of race and sex on physicians’ recommendations for cardiac catheterization. *N Engl J Med* 1999;340:618–26 [published erratum in *N Engl J Med* 1999;340:1130].
11. Krieger N, Sidney S, Coakley E. Racial discrimination and skin color in the CARDIA study: implications for public health research. *Coronary artery risk development in young adults*. *Am J Public Health* 1988;1308–13.
12. Wenneker MB, Epstein AM. Racial inequalities in the use of procedures for patients with ischemic heart disease in Massachusetts. *JAMA* 1989;261:253–7.

13. Lillie-Blanton M, Parsons PE, Gayle H, Dievler A. Racial differences in health: not just black and white, but shades of gray. *Annu Rev Public Health* 1996;17:411–48.
14. Staveiteig S, Wigton A. Racial and ethnic disparities: key findings from the national survey of America's families. The Urban Institute, series B. No. B-5.
15. Jones CM. Confronting institutionalized racism. *Phylon* 2004;50:7–22.
16. National Center for Health Statistics. Health, United States, 2003. Hyattsville MD, 2003.
17. American Heart Association. Heart disease and stroke statistics—2004 update. Dallas TX: American Heart Association, 2004.
18. U.S. Department of Health and Human Services, National Institutes of Health. Third Report of the National Cholesterol Education Program Expert Panel on Detection, Evaluation, and Treatment of High Blood Cholesterol in Adults (Adult Treatment Panel III). Executive Summary. NIH Pub No. 01-3670. May 2001.
19. Centers for Disease Control and Prevention. 2002 National Diabetes Fact Sheet. Available at [www.cdc.gov/diabetes/index.htm](http://www.cdc.gov/diabetes/index.htm).
20. Centers for Disease Control and Prevention. Disparities in premature deaths from heart disease—50 states and the District of Columbia. *Morb Mortal Wkly Rep* 2004;53:121-5.
21. Rose G. Sick individuals and sick populations. *Int J Epidemiol* 1985;14:32–8.
22. Nash J, Kirsh M. The disclosure of medical science in the construction of consensus between corporation and community. *Med Anthropol Q* 1988;2:158–71.
23. Sobal J, Stunkard AJ. Socioeconomic status and obesity: a review of the literature. *Psychol Bull* 1989;105:260–75.
24. Dressler WW. Health in the African American community: accounting for health inequalities. *Med Anthropol Q* 1993;7:325–45.
25. Feinstein JS. The relationship between socioeconomic status and health: a review of the literature. *Milbank Q* 1993;71:279–322.
26. Scheper-Hughes N. An essay: AIDS and the social body. *Soc Sci Med* 1994;39:991–1003.
27. Wallace R, Wallace D. Socioeconomic determinants of health: community marginalisation and the diffusion of disease and disorder in the United States. *BMJ* 1997;314:1341–5.
28. Wilkinson RG. Socioeconomic determinants of health. Health inequalities: relative or absolute material standards? *BMJ* 1997;314:591–5.
29. Williams DR. African-American health: the role of the social environment. *J Urban Health* 1998;75:300–21.
30. Tapper M. In the blood: sickle cell anemia and the politics of race. Philadelphia, PA: University of Pennsylvania Press, 1999.
31. Geronimus AT. To mitigate, resist, or undo: addressing structural influences on the health of urban populations. *Am J Public Health* 2000;90:867–72.
32. Lynch J. Income inequality and health: expanding the debate. *Soc Sci Med* 2000;51:1001–5.
33. Smith GD. Learning to live with complexity: ethnicity, socioeconomic position and health in Britain and the United States. *Am J Public Health* 2000;90:1694–8.
34. Wilkinson RG. Mind the gap: hierarchies, health and human evolution. New Haven, CT: Yale University Press, 2000.
35. Geronimus AT. Understanding and eliminating racial inequalities in women's health in the United States: the roles of the weathering conceptual framework. *J Am Med Womens Assoc* 2001;56:133–6.
36. Marmot M, Wilkinson RG. Psychosocial and material pathways in the relation between income and health: a response to Lynch et al. *BMJ* 2001;322:1233–6.
37. Root M. The problem of race in medicine. *Philos Soc Sci* 2001;319:20–39.
38. Braun L. Race, ethnicity and health. *Perspect Biol Med* 2002;45:159–74.
39. Muntaner C, Lynch J. Social capital, class, gender and race conflict, and population health: an essay review of Bowling Alone's implications for social epidemiology. *Int J Epidemiol* 2002;31:261–7.
40. Williams DR. Racial/ethnic variations in women's health: the social embeddedness of health. *Am J Public Health* 2002;92:588–97.
41. Raphael D, Anstice S, Raine K, et al. The social determinants of the incidence and management of type 2 diabetes mellitus: are we prepared to rethink our questions and redirect our research activities? *Int J Health Care Qual Assur Inc Leadersh Health Serv* 2003;16:10–20.
42. Finkler K. Women in pain: gender and morbidity in Mexico. Philadelphia PA: University of Pennsylvania Press, 1994.
43. Mullings L. Gender and the application of anthropological knowledge to public policy in the United States. In: On our own terms: race, class, and gender in the lives of African American women. New York NY: Routledge;1996:159–80.
44. King G. The "race" concept in smoking: a review of the research on African Americans. *Soc Sci Med* 1997;45:1075–87.
45. Giles W, Tucker P, Brown, L, et al. Racial and ethnic approaches to community health (REACH 2010): an overview. *Ethn Dis* 2004;14[suppl 1]:S1-5-S1-8.
46. Jenkins C, McNary S, Carlson B, et al. Reducing disparities for African Americans with diabetes: progress made by the REACH 2010 Charleston and Georgetown Diabetes Coalition. *Public Health Rep* 2004;119:322–30.
47. Bursac Z, Campbell J. From risky behaviors to chronic outcomes: current status and Healthy People 2010 goals for American Indians in Oklahoma. *J Okla State Med Assoc* 2003;96:569–73.
48. Plescia M, Groblewski M. A community-oriented primary care demonstration project: refining interventions for cardiovascular disease and diabetes. *Ann Fam Med* 2004;2:103–9.
49. Bronx Health REACH. Health disparities destroy lives and dreams. Bronx NY Health Reach 2004.
50. Liao Y, Tucker P, Okoro C, et al. REACH 2010 Surveillance for Health Status in Minority Communities – United States, 2001–2002. In: Surveillance Summaries, August 27, 2004. *MMWR* 2004;53(no. SS-6):1-35.
51. Green, A, Christian Hirsh N, Pramming SK. The changing world demography of type 2 diabetes. *Diabetes Metab Res Rev* 2003;19:3–7.
52. Marmot M, Wilkinson R. Social determinants of health. Oxford, UK: Oxford University Press, 2000.
53. McKinlay J, Marceau L. U.S. public health and the 21st century: diabetes mellitus. *Lancet* 2000;356:757–61.
54. Glasgow RE, Osteen VL. Evaluating diabetes education. Are we measuring the most important outcomes? *Diabetes Care* 1992;15:1423–32.
55. Glasgow RE, Lichtenstein E, Marcus AC. Why don't we see more translation to health promotion research to practice? Rethinking the efficacy-to-effectiveness transition. *Am J Public Health* 2003;93:1261–7.
56. Jack L Jr, Liburd L, Spencer T, Airhihenbuwa CO. Understanding the environmental issues in diabetes self-management education research: a reexamination of 8 studies in community-based settings. *Ann Intern Med* 2004;140:964–71.
57. Glasgow RE, McKay HG, Piette JD, Reynolds KD. The RE-AIM framework for evaluating interventions: what can it tell us about approaches to chronic illness management? *Patient Educ Couns* 2001;44:119–27.
58. Brody GH, Jack L Jr, Murry VM, Lander-Potts M, Liburd L. Heuristic model linking contextual processes to self-management in African-American adults with type 2 diabetes. *Diabetes Educ* 2001;27:685–93.