Policy Approaches to Health Equity: Fundamental Determinants and Increased Diversity

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ABSTRACT

This paper examines the implications of the fundamental determinants of health disparities for proposed solutions. While racially-linked health disparities cannot be wholly explained by poor health care access or utilization, we examine one potential short-term strategy and one longer-term strategy for reducing disparities. The short-term approach—increasing racial/ethnic diversity in the health professions workforce—may reduce disparities through pathways of increased health care access and utilization, increased patient satisfaction, and increased adherence to physicians' orders related to cultural competence and language proficiency. A more dramatic approach and longer-term strategy to effectively eliminating health disparities involves strategic leadership on the part of U.S. policy makers to evaluate and redirect policy in a number of domains to address fundamental determinants at all levels of the social ecological model. While the time frame for a return on such distal investments is great, policies that use interdisciplinary and community-based approaches to address inequities in health status will yield significant results.

Keywords

health disparities, policy, diversity

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Introduction

For many racial and ethnic minority populations in the United States, struggling with poor health is a constant challenge, and proper health care is lacking. The demographic changes anticipated over the next decade magnify the importance of addressing disparities in health status. By 2050, groups currently labeled as "racial/ethnic minorities" will represent approximately half of the U.S. population (U.S. Census Bureau, 2007). Unfortunately, many major health problems, such as cardiovascular disease, infant mortality, and diabetes, disproportionately affect minority groups. Minority populations also suffer from health care disparities, with less access to quality medical care and lower rates of being insured. These racially- and ethnically-linked disparities in the United States are persistent and well-documented.

Racially linked *health care* disparities, defined as differences in access to and receipt of high-quality health care by race, may be different from racial *health* disparities, which imply different health status by race and ethnicity. Although disparities in both health care and health status are pervasive challenges in the United States, the causes of each are not easily understood. It remains unclear whether improving health care disparities will result in improved health status and reduced health disparities. What is clear, however, is that health disparities and gaps in access to health care are disproportionately experienced by minorities and persons of low socioeconomic position. Thus, with the expected exponential growth of these populations in the United States, the health care needs of racial/ethnic minorities have become the focus of much recent investigation.

Of late, health disparities have generated great financial and political interest. While the release of the Institute of Medicine (IOM) report, *Unequal Treatment: Confronting Racial and Ethnic Disparities in Health Care* (Smedley, Stith, & Nelson, 2003) detailed severe racial disparities, and the subsequent U.S. Department of Health and Human Services' *National Healthcare Disparities Report* (USDHHS-AHRQ, 2003) claimed lessened racial differences, support for the elimination of health disparities has largely fallen on political party lines. The elimination of health disparities is an overarching goal of *Healthy People 2010* (USDHHS, 2000), and thus is a suggested priority focus area for the U.S. health care system and research institutions. While the goals have generated much interest among stakeholders and numerous funding investments have focused on alleviating this challenging public health problem, disparities persist and widespread solutions are lacking.

The purpose of this paper is to explore the principal factors that contribute to the existence of racial and ethnic health disparities in the United States and to discuss possible solutions for ameliorating these factors. In particular, we focus on one short-term approach involving enhancing diversity in the health professions workforce, and on a longer-term strategy centered on widespread policy changes.

Background

Race as a biologic concept is widely debated. As noted by scholars (Sankar et al., 2004; David & Collins, 2007), an overemphasis on race as a biologic concept may lead researchers away from the social and environmental issues that contribute to and maintain racial disparities in the first place. Less than 5% of overall genetic variation in humans can be attributed to race. When health disparities are examined globally, they do not cluster in any racial group, but rather in lower socioeconomic classes (Sankar et al., 2004). While the modern concept of race is based primarily on phenotypic qualities, both self-reported and observer-reported race characterizations are widely collected demographics. The social connotations of race, especially in the United States, may have more relevance to health care because race is an important social, economic, and historical marker that contributes to job placement, neighborhood segregation, health, education, and socioeconomic position (American Sociological Association, 2003). As noted in a report to address health disparities, "Health disparities are associated with cultural and psychosocial factors related to patient perceptions of health, illness, and the health care system, all of which influence health care-seeking behavior and are also influenced by structural characteristics of our health care system" (Kington, Tisnado, & Carlisle, 2001, p. 57). In the United States, these cultural and psychosocial factors are undoubtedly related to race.

Unlike other countries of the world, health disparities in the United States are clustered by racial/ethnic group. In rankings of health care systems by the World Health Organization (2000) and the Commonwealth Fund (Collins et al., 2002), the United States fares poorly compared to other systems around the world. As noted in a *New York Times* ("World's Best Medical Care?" 2007) opinion/editorial piece, a primary contributor to the poor ranking is the issue of fairness; on measures of equity, the United States has consistently demonstrated the greatest disparity in quality of care measures between rich and poor citizens. As minorities disproportionately comprise the lowest levels

of socioeconomic position, these citizens receive suboptimal health care. Despite large health care expenditures in the United States, minorities and the poor remain vulnerable with regard to health care.

Dallas is no exception to this trend. Table 1 illustrates the racial disparities evident in leading health concerns for Dallas County, the state of Texas, and the United States (Dallas-Fort Worth Hospital Council [DFWHC], n.d.; Texas Department of State Health Services [TDSHS], 2007; Centers for Disease Control and Prevention-National Center for Health Statistics [CDC-NCHS], n.d.). For infant mortality and deaths due to HIV, cancer, diabetes mellitus, and heart disease, non-Hispanic African Americans have fared worse that non-Hispanic Whites on every geographic level. Death rates among non-Hispanic African Americans demonstrate the gaps in health and health care for minorities and the poor. Permanent solutions for this substantial health equity issue remain elusive despite continued research and funding, and thus racial disparities remain.

Fundamental determinants of health disparities

Factors may be deemed fundamental causes of health disparities when they are distal in the chain of factors that lead to disease manifestation (Krieger, 2001; Link & Phelan, 1995). Fundamental determinants are social, environmental, or structural factors (such as education or neighborhood conditions) underlying material conditions that lead to more intermediate causes of illness (such as smoking or physical inactivity) (Tarlov, 2000). An example of a fundamental determinant of health disparities is residential segregation (Shulz, Williams, Israel, & Lempert, 2002). Historical racism and economic structures in the United States have resulted in widespread racial residential segregation and inequitable opportunities for education and employment in minority populations. These factors, in turn, have resulted in adverse housing quality; lack of access to quality, affordable food, health care, and recreational facilities; and increased exposure to environmental hazards. Greater exposure to these harmful factors may result in poor neighborhood conditions, crime, ineffective police response, and poor health behavior.

Another example comes from a recent National Minority AIDS Council (NMAC) report on confronting the HIV/AIDS epidemic (Fullilove, 2006). The primary recommendation to reduce the burden of HIV and AIDS in African Americans was to secure affordable housing. The reasoning was that

Table 1.
Underlying Cause of Mortality Rates^ by Race/Ethnicity for Dallas County, Texas, and the United States, 2003

	Dallas County	Texas	United States
Race/Ethnicity	Infant Mortality Rates Per 1,000 Live Births		
White, Non-Hispanic	6.6	5.8	5.8
African American, Non-Hispanic	13.8	13.8	14.1
Hispanic	6.8	5.7	5.9
Other	5.3	4.5	*
	HIV Death Rates Per 100,000		
White, Non-Hispanic	7.3	3.0	2.0
African American, Non-Hispanic	19.8	17.1	21.7
Hispanic	3.8	3.8	5.9
Other	*	*	*
All	8.4	4.7	4.7
	Cancer Death Rates Per 100,000		
White, Non-Hispanic	187.9	192.4	192.4
African American, Non-Hispanic	279.1	254.6	237.3
Hispanic	126.7	139.2	126.6
Other	94.7	93.0	*
All	191.5	185.0	190.1
	Diabetes Mellitus Death Rates Per 100,000		
White, Non-Hispanic	16.9	23.7	22.1
Black, Non-Hispanic	41.3	55.3	50.0
Hispanic	22.4	52.3	35.0
Other	*	16.3	*
All	21.7	31.4	25.3
	Heart Disease Death Rates Per 100,000		
White, Non-Hispanic	233.9	241.2	230.9
Black, Non-Hispanic	363.2	333.8	304.1
Hispanic	164.9	189.0	173.2
Other	113.4	97.3	*
All	244.3	237.3	232.3

^ Rates are age-adjusted to the 2000 Standard Population
*Data not available.
Sources: DFWHC, n.d.; TDSHS, 2007; CDC-NCHS, n.d.

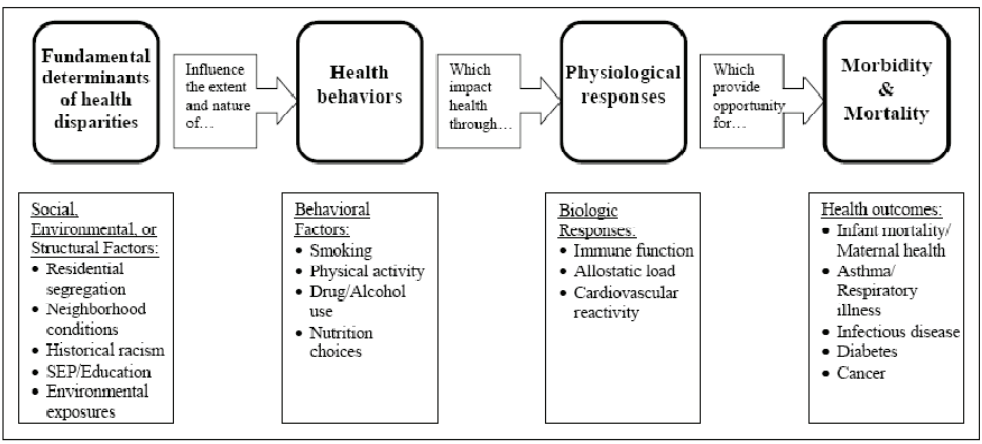
families with restricted incomes may sacrifice health care or other basic essentials in order to spend money on rent and food (Freeman, 2002). Unstable housing, a fundamental determinant of illnesses ranging from cardiovascular disease to HIV, is associated with poor academic performance in children and a lack of access to affordable, quality health care (Anderson, St. Charles, et al., 2003). The NMAC report (Fullilove, 2006) made the following specific recommendations:

> Public policies that address the root causes of the health disparities that devastate the African American community are urgently needed. These policies must effectively deal not only with unstable housing and incarceration, but also with the poverty and social disadvantages of poor African American neighborhoods. (p. 7)

Other examples of fundamental determinants of inequalities in health include socioeconomic position, discrimination, toxic environmental exposures, and neighborhood conditions (Cardarelli, deMoor, Low, & Low, 2005). Perhaps the most pervasive fundamental determinant of health disparities in the United States is socioeconomic position (SEP). Often measured through income, education, and/or occupation, SEP reflects social stratification and confers differential exposure to social forces that may have a more direct impact on health, including material goods and resources (Adler & Newman, 2002). Discrimination is the expression of dominance and oppression among social relationships (Krieger, 2000) and can target individuals based on gender, sexual orientation, race or ethnicity, age, or disability. There is evidence that individuals who experience discrimination are at risk for poor mental health and perhaps physical health (Williams, Neighbors, & Jackson, 2003). Exposure to lead, asbestos, carbon dioxide, and industrial waste occurs disproportionately among racial/ethnic minority populations. Scientists have found strong links between exposure to air pollution and asthma (Sarnat & Holguin, 2007), as well as links between household crowding and respiratory illness in children (Cardoso, Cousens, de Goes Siqueira, Alves, & D'Angelo, 2004). Finally, a number of investigators have documented relationships between adverse conditions in neighborhoods and maternal and child health (Rajaratnam, Burke, & O'Campo, 2006), reproductive health (Culhane & Elo, 2005) and other adverse health outcomes (van Kamp, van Loon, Droomers, & de Hollander, 2004; Marmot, 2005).

The net result of the conflation of these fundamental factors in isolated communities with poor infrastructure and compromised social environments is greater morbidity and mortality. Figure 1 demonstrates the pathways between fundamental determinants of health disparities and health outcomes. The fundamental determinants influence an individual's ability to seek health care or to participate in health promotion behaviors. The fundamental determinants of health work on multiple levels—from individual to community to institutional—to influence health throughout an individual's life course (Smedley & Syme, 2000).

Figure 1. **Pathways leading from fundamental determinants of health disparities to health outcomes**



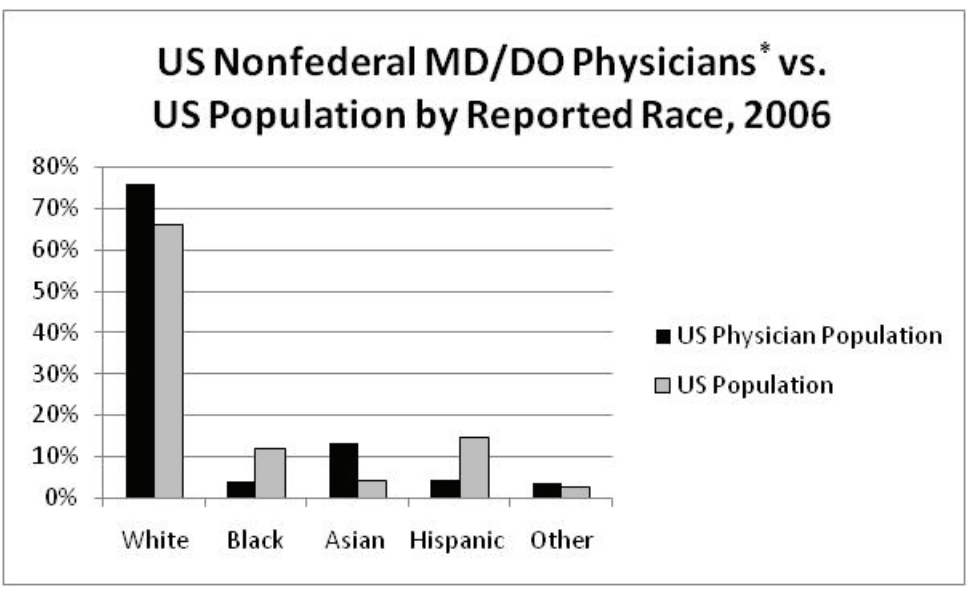
Increasing diversity in the health professions workforce

A growing body of research has documented the contribution of diversity in the health professions workforce to the mitigation of racial disparities (Anderson, Scrimshaw, et al., 2003; Betancourt, Green, Carrillo, & Park, 2005; Hayes-Bautista, 2003; Kairys et al., 2002). This was explored as an important strategy for combating health disparities by IOM's Committee on Institutional and Policy-Level Strategies for Increasing the Diversity of the U.S. Health Care Workforce (Institute of Medicine [IOM], 2004).

The need to increase diversity in the health professions workforce is evidenced by the racial composition of physicians in the United States; the physician population is not racially representative of the population at large.

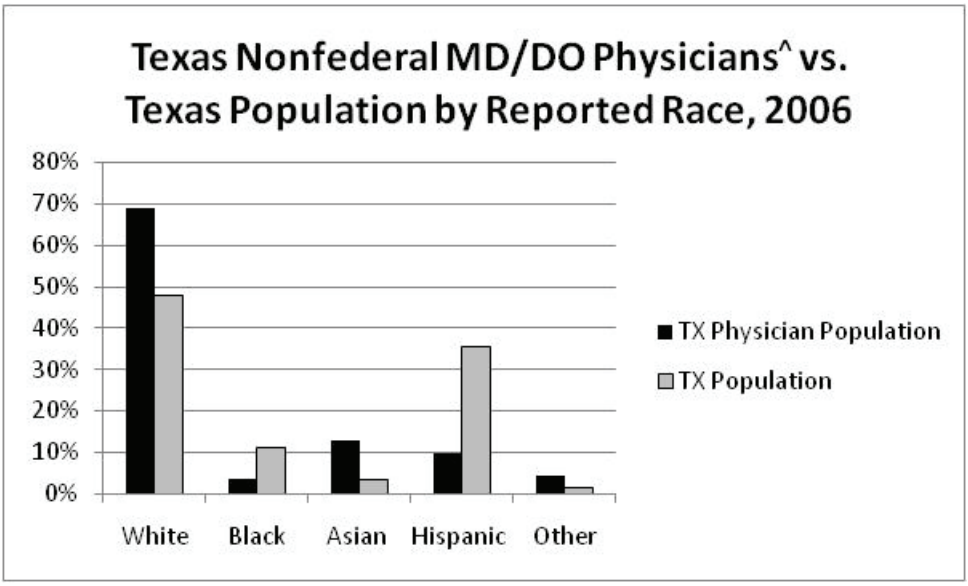
As of 2006, there were more than 940,000 nonfederal allopathic and osteopathic physicians in the United States, of which approximately 60% had known race/ethnicity data. Of those with available racial/ethnic identity information, about three fourths were White, 13% were Asian, and less than 5% each were African American, Hispanic, or Other. Texas had similar rates—of the physicians with known race/ethnic identity information, approximately 70% were White, 13% were Asian, 10% were Hispanic, and less than 5% each were African American and Other. While Whites and Asians are overrepresented in the physician population compared to the general population, African Americans and Hispanics are severely underrepresented. It is not possible to extrapolate the known statistics to the 40% of physicians who have not reported their race/ethnicity; however, it is unlikely this group of individuals is entirely minority. We have presented data for the United States and Texas in Figures 2 and 3, respectively.

Figure 2.



Source for Physician Statistics: Kaiser Family Foundation (2006)
Source for Population Statistics: U.S. Census Bureau (2006)
Note. "Other" category for general population combines American Indian, Native Hawaiian, Pacific Islander, Other, and Combined Races categories that were provided by the U.S. Census Bureau.
*Includes only those physicians for whom reported race data is available, approximately 60% of the total US physician population.

Figure 3.



Source for Physician Statistics: Kaiser Family Foundation (2006);
Source for Population Statistics: U.S. Census Bureau (2006)
Note. "Other" category for general population combines American Indian, Native Hawaiian, Pacific Islander, Other, and Combined Races categories that were provided by the U.S. Census Bureau.
^ Includes only those physicians for whom reported race data are available, approximately 62% of the total Texas physician population.

Increasing diversity in the health professions workforce may be viewed as an accepted strategy that is already being implemented, and may serve to provide short-term returns in reducing disparities. However, there has been no empirical evidence to date that directly links increased diversity in the physician workforce to long-term decreased racial health disparities. Rather, data suggest that increasing the number of minority health providers may *indirectly* ameliorate health disparities through increased health care access and utilization, increased patient satisfaction, and increased adherence to physician orders related to cultural competence and language proficiency. We have elaborated on each of these potential pathways below.

Health Care Access

One reason for improving diversity in the physician workforce is to increase access to health care for underserved individuals. Numerous studies have indicated that minority physicians are more likely to serve minority patients in

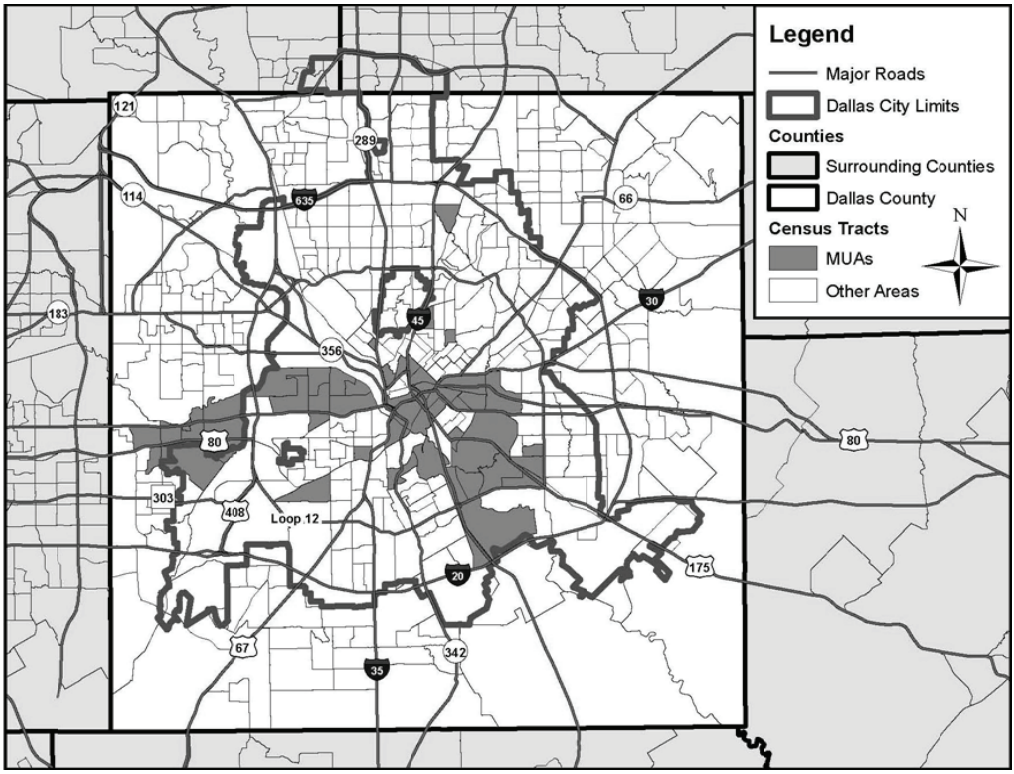
underserved locations. In a National Medical Expenditure Survey analysis, investigators found that minority patients were 4 times more likely than non-Hispanic White patients to receive health care from minority physicians (Moy & Bartman, 1995). Additionally, the study established that non-White physicians were more likely to have minority, medically indigent, and sicker patients than White physicians. Cantor, Miles, Baker, and Barker (1996) found similar results. Minority physicians and female physicians were found to disproportionately serve minority, poor, and Medicaid patients.

Because the service area of a physician is relatively consistent throughout his or her career, less diversity in the physician workforce could be detrimental to underserved populations. A study that examined service patterns of pediatric residents concluded that African American, Asian, and Latino residents served more patients from their own racial/ethnic groups, even after adjusting for language issues (Murray-Garcia, Garcia, Schembri, & Guerra, 2001). Komaromy et al. (1996) studied the role of African American and Hispanic physicians in providing health care for the underserved. After adjusting for racial proportions by geographic area, the investigators determined that African American and Hispanic physicians were significantly more likely to serve African American and Hispanic patients, respectively. They also found that these minority physicians were more likely to locate their practices in areas with higher proportions of medically underserved residents.

African Americans and Hispanics are underrepresented in the physician population, yet these physicians have historically served primarily minority populations in medically underserved areas (MUAs). MUAs are geographic divisions in which residents have a shortage of health services (USDHHS-HRSA, 2007). The designation of an MUA is standardized, using a weighted score of four variables: (a) the ratio of primary care physicians per 1,000 individuals in the area population, (b) the infant mortality rate, (c) the percentage of the population with income below the federal poverty level, and (d) the percentage of the population ages 65 or older (USDHHS-HRSA, 2007).

In Dallas County, the evidence of health services shortage is great. We have presented MUAs by census tract in Dallas County in Figure 4, which reveals large areas without appropriate levels of health care access. Because a healthier community has a balanced, responsive, and efficient health care delivery system (Dallas/Fort Worth Area Health Education Center [DFW AHEC], 2007), increasing the numbers of African American and Hispanic

Figure 4. **Medically underserved areas (MUAs) of Dallas County, 2007**



physicians in the health care workforce on many levels—in Dallas, in Texas, and in the United States—may lead to healthier communities through increased health care delivery system access.

Utilization and Satisfaction

Increasing diversity in the health professions workforce is also essential to enhancing choice of providers by patients. Although not all patients have a preference for the race of their health care provider (Bender, 2007), most patients select a provider of their own racial or ethnic background when given a choice. Among patients who do prefer racial/ethnic concordance, there has been some evidence to support that concordance has a positive effect (Schnittker & Liang, 2006). Minority patients who select racially concordant health care providers have reported greater satisfaction with the care they receive compared with minority patients in racially discordant situations

(Sarto, 2005). LaVeist, Nuru-Jeter, and Jones (2003) examined the association between physician-patient racial concordance and health services utilization. Compared with patients in racially discordant situations, patients who were the same race as their physician were more likely to obtain necessary health services, less likely to delay seeking care, and more likely to report a higher volume of overall health services. Even after adjusting for other variables of health care utilization, this pattern was observed for African American patients. Similarly, Saha, Komaromy, Koepsell, and Bindman (1999) found that African American patients with African American physicians were more likely than those with non-African American physicians to report receiving preventive care and all needed health care in the previous year.

Cultural Competence and Trust

Within the provider-patient relationship, the importance of cultural competence may provide further support for increased diversity in the health professions workforce. Cultural competence is defined as "the knowledge, skills, attitudes, and behavior required of a practitioner to provide optimal health care services to persons from a wide range of cultural and ethnic backgrounds" (Cohen, Gabriel, & Terrell, 2002, p.92). This trait may be one aspect of racial concordance—a provider likely has a stronger understanding of the belief systems, family structures, and social norms of his/her racially concordant patients (Cohen et al., 2002). In fact, because cultural competence is difficult to measure empirically, it is often defined, for research purposes, as racial concordance. It is important to note, however, that racial concordance is not necessary for a health professional to achieve cultural competence. In fact, by definition, cultural competence suggests providers are able to understand and properly treat racially discordant patients. Despite measurement difficulties, studies have shown that cultural competence is likely an important part of the provider-patient relationship. As a more distal solution to increasing cultural competence, diversifying the student body of academic institutions will allow increased exposure to different cultures and is intended to create a climate that embraces diversity (Mitchell & Lassiter, 2006).

Cultural competence is highly valued by patients (Murray-Garcia et al., 2001) and has garnered much attention recently from policymakers, insurers, and educators as a potential tool to reduce health disparities (Betancourt et al., 2005). Organizations such as the American Medical Association, Association

of American Medical Colleges, and American College of Healthcare Executives have launched cultural competence initiatives to inform their constituencies. Cultural competence was also highlighted, together with patient-centered care, in two recent IOM reports—*Crossing the Quality Chasm: A New Health System for the Twenty-First Century* and *Unequal Treatment: Confronting Racial and Ethnic Disparities in Healthcare*—as potential contributing factors to eliminating disparities (IOM, 2001; Smedley et al., 2003). A patient's level of trust with his or her health care provider may be an important factor for patient adherence to provider orders, which may again reflect overall racial concordance or cultural competence. Cooper-Patrick et al. (1999) reported that African American patients in racially concordant health care situations rated their care as more participatory and satisfactory. Additionally, Saha et al. (1999) found that African American patients with African American physicians were more likely to rate their physicians as excellent, compared to those with non-African American physicians. In a sample of HIV positive individuals, Sohler, Fitzpatrick, Lindsay, Anastos, and Cunningham (2007) reported that racially concordant physician-patient relationships lowered patient mistrust in the health care system.

While cultural competence is difficult to measure, these studies imply the importance of cultural competence on the part of the physician. With the predicted exponential growth of minority populations in the United States, it is critical to diversify the health professions workforce to increase levels of cultural competence. A recent examination of the inclusion of cultural competence in U.S. graduate medical programs found that 50.7% offered cultural competence training in some form in 2003–2004, up from 35.7% in 2000–2001 (Brotherton, Rockey, & Etzel, 2004).

Communication and Language

Another convincing rationale for racial concordance is effective communication and language proficiency. The Commonwealth Fund (2001) reported that, on average, 1 in 5 Americans has difficulty communicating with his or her physician, with even higher rates for minority populations. The quality of patient-provider communication predicts patient satisfaction, adherence to provider instructions, and health status (Stewart et al., 1999). Barriers in communication are related to poor utilization, satisfaction, and

adherence to physician orders (Brach & Fraser, 2002). Derose and Baker (2000) examined Latinos with limited English proficiency and found that, compared with native English speakers, they reported 22% fewer physician encounters, even after adjusting for other determinants of health care utilization. Adjusted rates showed limited English proficiency was associated with fewer physician visits, no health insurance, poor health, and no regular health care. Woloshin, Schwartz, Katz, & Welch (1997) examined language as a primary determinant of health screening utilization in Canada. After adjusting for socioeconomic position and cultural differences, investigators found that, compared with English speakers, French-speaking women were significantly less likely to receive clinical breast exams, mammography, or Pap testing. The study concluded that women who spoke a non-English language at home were less likely to receive preventive services, and that improvement in communication may enhance utilization of screening services in a non-English speaking population.

Quality of Care

Provider behaviors, such as prejudice or bias, may also contribute to racial and ethnic health/health care disparities. Van Ryn (2002) proposed that both conscious and unconscious (i.e., stereotyped) beliefs about a patient influence the clinical decision making of the physician, which then determines the treatment of the patient. Validation of the link between provider beliefs/behavior and patient race/ethnicity is needed to further study this hypothesis; however, there is a limited but growing body of research that suggests health care providers contribute to inequities by providing unequal care for different racial groups.

Johnson, Saha, Arbelaez, Beach, and Cooper (2004) reported racial/ethnic differences in patient perceptions of received care. After adjusting for confounding variables, African American, Hispanic, and Asian patients perceived they would have received better medical care if they belonged to a different racial/ethnic group, and that they were treated unfairly because of their race/ethnicity. In a study that evaluated coronary artery bypass graft surgery recommendations, van Ryn, Burgess, Malat, and Griffin (2006) found that race was a significant predictor of surgery recommendations among male patients, independent of clinical characteristics and payer status. King, Wong, Shapiro, Landon, and Cunningham (2004) found that African American

patients with racially concordant physicians received protease inhibitors for HIV care much earlier than African American patients with White health care providers. Green et al. (2007) examined implicit bias among physicians, using an Internet-based tool comprised of a clinical vignette, questionnaire, and Implicit Association Test. Among the sample of emergency medicine residents in two geographic locations, results indicated physicians had no conscious racial preference in response to the questionnaire. However, the Implicit Association Test revealed that Whites were unconsciously favored over African Americans, who were stereotyped as less cooperative with health care procedures.

In sum, conscious and unconscious beliefs and behaviors of providers impact patient perceptions and experiences of care. These examples provide support for racial concordance through increased diversity in the health care workforce.

Policy Approaches to Reduce Health Disparities

Policy approaches that address fundamental determinants of health and diversity in the health care workforce provide the most lasting solutions to health disparities. Evidence points to the contribution of nonmedical determinants as largely driving the existing racial and ethnic disparities in health status in the United States (Lurie, 2002). These are factors over which an individual—whether a patient or a doctor—has little control. No pill can modify housing conditions, availability of healthy, inexpensive food, or levels of civic engagement. Rather, social change enacted at a policy level must occur to reduce disparities (Earle, Heymann, & Lavis, 2006). Despite previous legislative attempts in the United States to address racial/ethnic health disparities—including the Minority Health and Health Disparities Research and Education Act of 2000, the Healthcare Equality and Accountability Act (2003), and both Closing the Health Care Gap Acts of 2004—prior focus has been on improving individuals' access to health care (Kennedy, 2005) or on attempting to better understand the reasons for health disparities. The primary focus has not been on the fundamental social and economic determinants of disparities (Cardarelli et al, 2005).

How can we effectively engage policy makers to modify and implement policies at a societal level to impact these seemingly intractable inequities? While the links between occupational safety and health status may be clear to

policy makers, a less direct link such as that between residential segregation and disparities in health may be more challenging to articulate to this population. As Thomas LaVeist described in a *Newsweek* article, "It was only about 40 years ago that African Americans were able to participate fully in our society. The accumulated consequence of that history plays itself out in a lot of statistics we see today: educational and wealth attainment, involvement in the criminal justice system and health. . . . Access to care is largely a function of health insurance status, which is largely a function of employment status, which is largely a function of educational attainment. So if that population has less education, it will have less access to health care. . . . All these factors work together to produce poor health outcomes (as cited in Ozols, 2005)."

The Centers for Disease Control and Prevention (CDC) is in a strong position to provide leadership to education efforts about the fundamental determinants of health disparities targeted at policy makers (Lurie, 2002). Because it is recognized as the lead public health agency for the U.S. government, we recommend that CDC develop a concise review of the health disparities literature for policy makers and describe explicit legislative action that would likely reduce such disparities. In addition, the Surgeon General should develop a report on health disparities and policy solutions. Previous Surgeon General's reports, such as those on mental health (USDHHS, 1999) and obesity (USDHHS, 2001), have generated wide publicity and catalyzed action around these issues.

Although the entirety of racially-linked health disparities cannot be explained by a lack of diversity in the health care workforce alone, data have suggested that increasing diversity would improve the health care experience for the most vulnerable populations by increasing patient access, utilization, satisfaction, and quality of care. Consistent support for diversity in the form of recruiting underrepresented minority students and faculty members—especially Hispanic and African American—to academic institutions is needed (Mitchell & Lassiter, 2006). Individuals belonging to racial and ethnic minority groups are more likely to encounter financial challenges that restrict educational opportunity, and often are raised in poor school districts, which places them at a disadvantage when applying to health professional schools (Kennedy, 2005). The Bureau of Health Professions in the Health Resources and Services Administration of the U.S. Department of Health and Human Services (USDHHS-HRSA, 2007) operates a number of programs aimed at increasing the diversity of the U.S. health professional workforce. These

include the Health Careers Opportunity Program, Faculty Loan Repayment Program, Minority Faculty Fellowship Program, Scholarships for Disadvantaged Students, and the Centers of Excellence. Congress must continue to fund these programs in order to increase educational opportunities for racial/ethnic minority students in health professions.

Additionally, cultural competence should be at the heart of medical school curricula. The HRSA-funded Area Health Education Centers (AHECs) are uniquely positioned to support this strategy. AHECs bring together academic institutions and community-based organizations to train health care providers in state- and local-specific issues and to attract students into health professions. Dallas County is currently served by the Dallas/Fort Worth (DFW) AHEC, which is one of nine AHECs affiliated with the East Texas AHEC, and is located at University of Texas Southwestern Medical Center. The DFW AHEC currently focuses on five major program areas: health careers promotions, community-based education, practice entry and support, health literacy, and community health systems support. In 2006, the DFW AHEC provided health professions career information to 5,771 individuals—91% from minority populations—and conducted continuing education on cultural competence for more than 400 health providers (DFW AHEC, 2007).

Unfortunately, the action most likely to impact disparities in health status is the least likely to occur in the near future. Due to the nature of the most influential factors contributing to disparities, long-term strategies to reduce health disparities must involve several policy sectors simultaneously (Stoddart, Eyles, Lavis, & Chaulk, 2006), and generally lie outside the traditional realm of public health. As described in the recent book *Reinventing Public Health; Policies and Practices for a Healthy Nation* (Aday, 2005, p. 287), policies explicitly addressing the following areas would likely have a dramatic impact on health disparities:

1. National and international monetary, fiscal, income, and trade policies, which play a central role in the distribution of income and related health inequalities in developed and developing countries.

2. Public and community investments in early childhood development and education, which contribute to developing and sustaining health and human capital throughout the life course.

3. Socially responsible and environmentally responsive corporate decision making, both in conventional business and, increasingly, in international business, to minimize the consequences of practices which produce environmental stressors and related population health impacts.

4. Community development policies supported through either government-, community-, or market-centered strategies that focus on contrasting, but potentially complementary, community development goals—building community infrastructure, empowering community residents, and promoting economic growth—to facilitate and sustain healthy communities.

The challenges to implementing such policies in the United States are multifold. First, current federal infrastructure allocates funding in silos. As Lurie (2002) noted, budgets for different departments (e.g., education, transportation, health) have been approved quite separately from one another in congressional committees, with agencies and committees often competing with each other for maximal funding. Currently, government infrastructure provides neither the incentive nor the mechanisms to promote cross-sectoral funding and collaboration (Stoddart et al., 2006). Furthermore, while countries such as Australia, the United Kingdom, Canada, and Sweden have all taken steps to implement population health agendas (Cardarelli et al., 2005), no industrialized nations have engaged in explicit cross-sectoral collaboration at the national level to reduce health disparities (Stoddart et al., 2006). In order to allow for collaboration among different federal departments and agencies, the traditional mechanisms for funding programs through block, program, formula, and categorical grants must be modified to allow for the mixing of funds (Aday, Quill, Loe, & Begley, 2005). This dramatic shift in policy must emanate from strategic leadership at the top of the government strata to forge effective collaboration between these diverse sectors.

Another important challenge is that of the time frame for a return on such an investment. Investments in the fundamental determinants of health disparities (such as educational policy, housing conditions, and food security) will likely take a generation or more to yield significant returns (Lurie, 2002). It is unlikely politicians would be willing to commit to a strategy for which the outcome would not materialize until long after their public service ends.

This discussion of the long-term approach to addressing inequities in health status has largely focused on the role of government. Ultimately, the quest for the elimination of health disparities will involve not only the government sector, but other key stakeholders, including the media, community-based organizations, private industry, and academia.

Conclusions

Health and health care disparities remain persistent, insidious challenges of major public health importance in the United States. While continued biologic and genetic research is needed, solutions to racially and ethnically linked disparities will only be understood from a multidisciplinary approach that includes behavioral sciences, social sciences, and environmental influences (Sarto, 2005). Collaborations with external agencies and the community are vital to ameliorating health and health care disparities in the United States. In particular, minority communities must be partners in the disparity reduction strategy (Sarto, 2005). Community-based participatory research (CBPR), which involves the empowerment of the community and key stakeholders, is essential for future policy-relevant health disparities research.

It has been estimated that at least half of racially-linked health disparities cannot be explained by differences in health care access and utilization alone (Smedley et al., 2003). Therefore, increasing health care access and utilization through minority physicians who serve minority populations may reduce, but will likely not eliminate, health disparities. Insufficient observation time has elapsed for results of increased diversity to prove long term viability as a solution to disparities. Furthermore, even after a longer time period, it may be difficult to accurately capture the true effect of diversity.

With the debate of universal health care coverage unresolved, the United States remains far removed from recognizing and addressing the social and economic determinants of health and health disparities. As Stoddart et al. (2006) noted:

> The public reaction to the possibility of reallocating resources away from health care suggests that a deeply rooted belief in health care's importance still trumps "intellectual" ideas regarding social and economic determinants' impact. Health care is personal, concrete, and immediate. Other determinants are anonymous, abstract, and distant by comparison, at least for the individual.

> And the effects of those other determinants will often play out over years, if not decades, whereas the effects of the health care crisis can be evaluated in real time. Aside from moments of disaster or crisis, therefore, it is difficult to envision a public becoming as concerned about the social and economic fabric of its communities as it is fearful of not having physician or hospital care when needed. (pp. 341–342)

A long-term strategy to eliminate health disparities will require innovative approaches (based on research that should address factors at all levels of the social ecological model), dissemination to appropriate partners, and translation to policy makers, health care providers, and the community. While these challenges may appear insurmountable, with appropriate leadership and commitment some of the recommendations outlined in this paper may be incrementally implemented now. Ultimately, diverse perspectives and a long-term vision for change may improve the health experience in the United States by changing policies that continue to sustain racial inequities in health.

REFERENCES

Aday, L. A. (Ed.). (2005). *Reinventing public health. Policies and practices for a healthy nation*. San Francisco, CA: Jossey-Bass.

Aday, L. A., Quill, B. E., Loe, H. D., Jr., & Begley, C. E. (2005). Toward a healthy (re)public. In Aday, L. A. (Ed.), *Reinventing public health: Policies and practices for a healthy nation* (pp. 285–332). San Francisco, CA: Jossey-Bass.

Adler, N. E., & Newman, K. (2002). Socioeconomic disparities in health: Pathways and policies. *Health Affairs*, *21*(2), 60–76.

American Sociological Association. (2003). *The importance of collecting data and doing social scientific research on race*. Retrieved August 14, 2007, from http://www2.asanet.org/media/asa_race_statement.pdf

Anderson, L. M., Scrimshaw, S. C., Fullilove, M. T., Fielding, J. E., Normand, J., & Task Force on Community Preventive Services. (2003). Culturally competent healthcare systems: A systematic review. *American Journal of Preventive Medicine*, *24*(Suppl. 3), 68–79.

Anderson, L. M., St. Charles, J., Fullilove, M. T., Scrimshaw, S. C., Fielding, J. E., & Normand, J. (2003). Providing affordable family housing and reducing residential segregation by income: A systematic review. *American Journal of Preventive Medicine*, *24*(3, Suppl. S), 47–67.

Bender, D. J. (2007). Patient preference for a racially or gender-concordant student dentist. *Journal of Dental Education*, *71*, 726–745.

Betancourt, J. R., Green, A. R., Carrillo, J. E., & Park, E. R. (2005). Cultural competence and health care disparities: Key perspectives and trends. *Health Affairs*, *24*, 499–505.

Brach, C., & Fraser, I. (2002). Reducing disparities through culturally competent health care: An analysis of the business case. *Quality Management in Health Care*. *10*(4), 15–28.

Brotherton, S. E., Rockey, P. H., & Etzel, S. I. (2004). U.S. graduate medical education: 2003–2004. *Journal of the American Medical Association*, *292*, 1032–1037.

Cantor, J. C., Miles, E. L., Baker, L, C., & Barker, D. C. (1996). Physician service to the underserved: Implications for affirmative action. *Inquiry*, *33*, 167–81.

Cardarelli, K. M., deMoor, J. S., Low, B. J., & Low, M. D. (2005). Fundamental determinants of population health. In L.A. Aday (Ed.), *Reinventing public health: Policies and practices for a healthy nation* (pp. 35–64). San Francisco, CA: Jossey-Bass.

Cardoso, M. R., Cousens, S. N., de Goes Siqueira, L. F., Alves, F. M., & D'Angelo, L. A. (2004). Crowding: Risk factor or protective factor for lower respiratory disease in young children? *BMC Public Health*, *4*, 19.

Centers for Disease Control and Prevention-National Center for Health Statistics (CDC-NCHS). (n.d.). Untitled. Retrieved October 11, 2007, from http://www.cdc.gov/nchs/data/dvs/mortfinal2003_workorig293.pdf

Closing the Health Care Gap Act of 2004. S. 2091, 108th Cong.

Closing the Health Care Gap Act of 2004. S. 2217, 108th Cong.

Cohen, J. J., Gabriel, B. A., & Terrell, C. (2002). The case for diversity in the health care workforce. *Health Affairs*, *21*(5), 90–102.

Collins, K. S., Hughes, D. L., Doty, M. M., Ives, B. L., Edwards, J. N., & Tenney, K. (2002). *Diverse communities, common concerns: Assessing health care quality for minority Americans*. New York: The Commonwealth Fund.

Commonwealth Fund. (2001). *Health care quality survey*. Retrieved August 31, 2007, from http://www.commonwealthfund.org/surveys/surveys_show.htm?doc_id=228171

Cooper-Patrick, L., Gallo, J. J., Gonzales, J. J., Vu, H. T., Powe, N. R., Nelson, C., & Ford, D. E. (1999). Race, gender, and partnership in the patient-physician relationship. *Journal of the American Medical Association*, *282*, 583–589.

Culhane, J. F., & Elo, I. T. (2005). Neighborhood context and reproductive health. *American Journal of Obstetrics and Gynecology*, *192*(5, Suppl. 1), S22–S29.

Dallas/Fort Worth Area Health Education Center (DFW AHEC). (2007). DFW AHEC website. Retrieved September 23, 2007, from http://www.dfwahec.org/

Dallas-Fort Worth Hospital Council (DFWHC). (n.d.). *Our community health checkup 2005 for Dallas County*. Retrieved October 11, 2007, from http://www.dfwhc.org/about+dfwhc/documents/DCNA2005.pdf

David, R., & Collins, J. (2007). Disparities in infant mortality: What's genetics got to do with it? *American Journal of Public Health*, *97*, 1191–7.

Derose, K. P., & Baker, D. W. (2000). Limited English proficiency and Latinos' use of physician services. *Medical Care Research & Review*, *57*, 76–91.

Earle, A., Heymann, J., & Lavis, J. N. (2006). Where do we go from here? Translating research into policy. In J. Heymann, C. Hertzman, M. L. Barer, & R. G. Evans (Eds.), *Healthier societies: From analysis to action* (pp. 381–404). New York: Oxford University Press.

Freeman, L. (2002). America's affordable housing crisis: A contract unfulfilled. *American Journal of Public Health*, *92*, 709–712.

Fullilove, R. E. (2006). *African Americans, health disparities and HIV/AIDS: Recommendations for confronting the epidemic in African American America*. Retrieved September 25, 2007 from http://www.nmac.org/nmac2/PDF/NMAC%20Advocacy%20Report_December%202006.pdf

Green, A. R., Carney, D. R., Pallin, D. J., Ngo, L. H., Raymond, K. L., & Iezzoni, L. I., et al. (2007). Implicit bias among physicians and its prediction of thrombolysis decisions for Black and White patients. *Journal of General Internal Medicine*, *22*, 1231–1238.

Hayes-Bautista, D. E. (2003). Research on culturally competent healthcare systems: Less sensitivity, more statistics. *American Journal of Preventive Medicine*, *24*(Suppl. 3), 8–9.

Healthcare Equality and Accountability Act. S. 1833, 108th Cong. (2003).

Institute of Medicine (IOM). (2001). *Crossing the quality chasm: A new health system for the twenty-first century*. Washington, DC: National Academies Press.

Institute of Medicine (IOM). (2004). Committee on institutional and policy-level strategies for increasing the diversity of the US health care workforce, Board on Health Sciences Policy. In B. Smedley, A. Butler, & L. Bristow (Eds.) *In the nation's compelling interest: Ensuring diversity in the health-care workforce*. Washington, DC: National Academies Press.

Johnson, R. L., Saha, S., Arbelaez, J. J., Beach, M. C., & Cooper, L. A. (2004). Racial and ethnic differences in patient perceptions of bias and cultural competence in health care. *Journal of General Internal Medicine*, *19*, 101–110.

Kairys, J. A., Orzano, J., Gregory, P., Stroebel, C., DiCicco-Bloom, B., Roemheld-Hamm, B., et al. (2002). Assessing diversity and quality in primary care through the multimethod assessment process (MAP). *Quality Management in Health Care*, *10*(4), 1–14.

Kaiser Family Foundation. (2006). *Distribution of nonfederal physicians by race*. Retrieved August 14, 2007, from http://www.statehealthfacts.org/comparetable.jsp?ind=431&cat=8&yr=17&typ=2&o=a

Kennedy, E. M. (2005). The role of the federal government in eliminating health disparities. *Health Affairs*, *24*, 452–458.

King, W. D., Wong, M. D., Shapiro, M. F., Landon, B. E., & Cunningham, W. E. (2004). Does racial concordance between HIV-positive patients and their physicians affect the time to receipt of protease inhibitors? *Journal of General Internal Medicine, 19*, 1146–1153.

Kington, R., Tisnado, D., & Carlisle, D. (2001). Increasing racial and ethnic diversity among physicians: An intervention to address health disparities? In B. Smedley, L. Colburn, & C. H. Evans (Eds.), *The right thing to do, the smart thing to do: Enhancing diversity in the health professions* (pp. 57–90). Washington, DC: National Academies Press.

Krieger, N. (2000). Discrimination and health. In L. F. Berkman & I. Kawachi (Eds.), *Social epidemiology* (pp. 36–75). New York: Oxford University Press.

Krieger, N. (2001). A glossary for social epidemiology. *Journal of Epidemiology and Community Health*, *55*, 693–700.

Komaromy, M., Grumbach, K., Drake, M., Vranizan, K., Lurie, N., Keane, D. et al. (1996). The role of black and Hispanic physicians in providing health care for underserved populations. *New England Journal of Medicine*, *334*, 1305-1310.

LaVeist, T. A, Nuru-Jeter, A., & Jones, K. E. (2003). The association of doctor-patient race concordance with health services utilization. *Journal of Public Health Policy*, *24*, 312–323.

Link, B. G., & Phelan, J. (1995). Social conditions as fundamental causes of disease. *Journal of Health and Social Behavior*, *35*(Extra issue: Forty years of medical sociology: The state of the art and directions for the future.), 80–94.

Lurie, N. (2002). What the federal government can do about the nonmedical determinants of health. *Health Affairs*, *21*(5), 94–106.

Marmot, M. (2005). The social environment and health. *Clinical Medicine*, *5*, 244–248.

Minority Health and Health Disparities Research and Education Act of 2000. Pub. L. No. 106-525, 114 Stat. 125.

Mitchell, D. A., & Lassiter, S. L. (2006). Addressing health care disparities and increasing workforce diversity: The next step for the dental, medical, and public health professions. *American Journal of Public Health*, *96*, 2093–2097.

Moy, E., & Bartman, B. A. (1995). Physician race and care of minority and medically indigent patients. *Journal of the American Medical Association*, *273*, 1515–1520.

Murray-Garcia, J. L., Garcia, J. A., Schembri, M. E., & Guerra, L. M. (2001). The service patterns of a racially, ethnically, and linguistically diverse housestaff. *Academic Medicine*, *76*, 1232–1240.

Ozols, J. B. (2005, February 3). Fixing racial health disparities. *Newsweek*. Retrieved September 24, 2007, from http://www.msnbc.msn.com/id/6907174/site/newsweek/

Rajaratnam, J. K., Burke, J. G., & O'Campo, P. (2006). Maternal and child health and neighborhood context: The selection and construction of area-level variables. *Health & Place*, *12*, 547–556.

Saha, S., Komaromy, M., Koepsell, T. D., & Bindman, A. B. (1999). Patient-physician racial concordance and the perceived quality and use of health care. *Archives of Internal Medicine*, *159*, 997–1004.

Sankar, P., Cho, M. K., Condit, C. M., Hunt, L. M., Koenig, B., Marshall, P., et al. (2004). Genetic research and health disparities. *Journal of the American Medical Association*, *291*, 2985–2989.

Sarnat, J. A, & Holguin, F. (2007). Asthma and air quality. *Current Opinion in Pulmonary Medicine*, *13*, 63–66.

Sarto, G. (2005). Of disparities and diversity: Where are we? *American Journal of Obstetrics and Gynecology*, *192*, 1188–1195.

Schnittker, J., & Liang, K. (2006). The promise and limits of racial/ethnic concordance in physician-patient interaction. *Journal of Health Politics, Policy and Law*, *31*, 811–838.

Shulz, A. J., Williams, D. R., Israel, B. A., & Lempert, L. B. (2002). Racial and spatial relations as fundamental determinants of health in Detroit. *Milbank Quarterly*, *80*, 677–707.

Smedley, B. D., & Syme, S. L. (Eds). (2000). *Promoting health: Intervention strategies from social and behavioral research*. Washington, DC: National Academies Press

Smedley, B. D., Stith, A. Y., & Nelson, A. R. (Eds.). (2003). *Unequal treatment: confronting racial and ethnic disparities in healthcare*. Washington (DC): National Academies Press.

Sohler, N. L., Fitzpatrick, L. K., Lindsay, R. G., Anastos, K., & Cunningham, C. O. (2007, electronic publication, in press). Does patient-provider racial/ethnic concordance influence ratings of trust in people with HIV infection? *AIDS and Behavior*.

Stewart, M., Brown, J. B., Boon, H., Galajda, F., Meredith, L., & Sangster, M. (1999). Evidence on patient-doctor communication. *Cancer Prevention and Control*, *3*(1), 25–30.

Stoddart, G. L., Eyles, J. D., Lavis, J. N., & Chaulk, P. C. (2006). Reallocating resources across public sectors to improve population health. In J. Heymann, C. Hertzman, M. L. Barer, & R. G. Evans (Eds.), *Healthier societies: From analysis into action* (pp. 327–347). New York: Oxford University Press.

Tarlov, A. R. (2000). Public policy frameworks for improving population health. In A. R. Tarlov, E. F. St. Peter (Eds.), *The society and population health reader: A state and community perspective* (Vol. 2), (pp. 310–322). New York: New Press.

Texas Department of State Health Services (TDSHS). (2007). *Texas health data*. Retrieved October 11, 2007, from http://soupfin.tdh.state.tx.us/

U.S. Census Bureau. (2006). 2005 American community survey. *United States general demographic characteristics: 2005*. Retrieved August 14, 2007, from http://factfinder.census.gov/servlet/ADPTable?_bm=y&-geo_id=01000US&-ds_name=ACS_2005_EST_G00_&-_lang=en&-_caller=geoselect&-format=

U.S. Census Bureau. (2007). U.S. interim projections by age, sex, race, and Hispanic origin. Summary table 1a: Projected population of the United States, by race and Hispanic origin: 2000 to 2050. Retrieved August 14, 2007, from http://www.census.gov/ipc/www/usinterimproj/

U.S. Department of Health and Human Services (USDHHS). (1999). *Mental health: A report of the Surgeon General*. Rockville, MD: U.S. Department of Health and Human Services, Substance Abuse and Mental Health Services Administration, Center for Mental Health Services, National Institutes of Health, National Institute of Mental Health.

U.S. Department of Health and Human Services (USDHHS). (2000, November). *Healthy People 2010: Understanding and improving health* (2nd ed.). Washington, DC: U.S. Government Printing Office.

U.S. Department of Health and Human Services (USDHHS). (2001). *The Surgeon General's call to action to prevent and decrease overweight and obesity*. Rockville, MD: U.S. Public Health Service.

U.S. Department of Health and Human Services/Agency for Healthcare Research and Quality (USDHHS-HRAQ). (2003). National healthcare disparities report. Retrieved August 13, 2007, from http://www.ahrq.gov/qual/Nhdr03/fullreport/

U.S. Department of Health and Human Services/Health Resources and Services Administration (USDHHS-HRSA). (2007). *Guidelines for medically underserved area and population designation*. Retrieved September 24, 2007, from http://bhpr.hrsa.gov/shortage/muaguide.htm

Van Kamp, I., van Loon, J., Droomers, M., & de Hollander, A. (2004). Residential environment and health: A review of methodological and conceptual issues. *Reviews on Environmental Health*, *19*(Special issue: Housing, health and well-being), 381–401.

Van Ryn, M. (2002). Research on the provider contribution to race/ethnicity disparities in medical care. *Medical Care*, *40*(Suppl. 1), I140–I151.

Van Ryn, M., Burgess, D., Malat, J., & Griffin, J. (2006). Physicians' perceptions of patients' social and behavioral characteristics and race disparities in treatment recommendations for men with coronary artery disease. *American Journal of Public Health*, *96*, 351–357.

Williams, D. R., Neighbors, H. W., & Jackson, J, S. (2003). Racial/ethnic discrimination and health: Findings from community studies. *American Journal of Public Health*, *93*, 200–208.

Woloshin, S., Schwartz, L. M., Katz, S. J., & Welch, H. G. (1997). Is language a barrier to the use of preventive services? *Journal of General Internal Medicine*, *12*, 472–477.

World Health Organization (WHO). (2000). *The world health report 2000, Health systems: Improving performance*. Geneva, Switzerland: World Health Organization. Retrieved October 11, 2007, from http://www.who.int/whr/2000/en/whr00_en.pdf

World's best medical care? (2007, August 12). *New York Times*. Retrieved September 1, 2007, from http://www.nytimes.com/2007/08/12/opinion/12sun1.html?pagewanted=1&ei=5070&en=23d17a064950af48&ex=1188792000