Principles for Eliminating Racial and Ethnic Disparities in Healthcare

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INTRODUCTION

The elimination of racial and ethnic disparities in *health* has become a national priority in the United States (1). These disparities have many causes and potential solutions. In the landmark *Unequal Treatment* report, the Institute of Medicine reviewed and highlighted racial and ethnic disparities in healthcare as an important factor contributing to disparities in health outcomes (2). This report concluded with a strong call for action to eliminate racial and ethnic disparities in the US healthcare system. Since 2003, the federal government has issued an annual National Healthcare Disparities Report to monitor racial, ethnic, and socioeconomic disparities in access to care and quality of care. Whereas the initial report released by the federal Department of Health and Human Services generated considerable controversy and debate about the content and interpretation of key findings (3), subsequent reports have become a useful tool for tracking national trends in disparities across a wide array of quality measures. In 2004, this report found that lower quality of care was experienced by African Americans for two-thirds of measures, by Hispanics for one-half of measures, and by American Indians/Alaskan Natives for one-third of measures (4).

In this chapter, five principles are presented (Table 1) to guide policymakers, healthcare leaders, and healthcare professionals seeking to reduce and ultimately eliminate racial and ethnic disparities in healthcare. These principles are based on clinical and policy experience, review of the research literature on healthcare disparities, and findings and recommendations of key reports from the Institute of Medicine (2) and the American College of Physicians (5). The principles have been refined with input from an advisory

Table 1 Principles for Eliminating Racial and Ethnic Disparities in Healthcare

- 1. Provide insurance coverage and access to high-quality care for all Americans
- 2. Promote a diverse health-care workforce
- 3. Deliver patient-centered care
- 4. Maintain accurate and complete race/ethnicity data to monitor disparities in care
- 5. Set measurable goals for improving quality and ensure that goals are achieved equitably for all racial and ethnic groups

committee of clinical and academic leaders in minority healthcare convened by the Minority Health Institute. The principles address aspects of access to care and quality of care that are especially important for minority populations in the United States, including African Americans, Latinos, Asian Americans, Native Hawaiians and other Pacific Islanders, and American Indians and Alaska Natives.

PRINCIPLE 1: PROVIDE INSURANCE COVERAGE AND ACCESS TO HIGH-QUALITY CARE FOR ALL AMERICANS

Rates of health insurance coverage differ substantially by race and ethnicity for children and adults under 65 years of age in the United States (Fig. 1). Compared with white Americans, African Americans, Asian Americans, and Pacific Islanders are about twice as likely to be uninsured, and Latinos, Native Americans, and Alaska Natives are approx 3 times as likely to lack insurance. Nearly all elderly Americans are covered by the Medicare program, but elderly individuals in minority groups are less likely to have private supplemental insurance coverage that enhances access to physicians and hospitals (6).

The adverse consequences of lacking health insurance for individuals, families, and communities have been well documented in a series of reports from the Institute of Medicine (7-10). Uninsured adults and children are less likely to have a regular source of primary care and less likely to receive effective health services. Studies of several national cohorts have demonstrated that uninsured adults experience higher overall mortality rates (11-13) and are more likely to die of conditions, such as hypertension, diabetes, breast cancer, and HIV infection, for which early detection and effective treatment can clearly improve outcomes (13-15). Approximately 80% of uninsured Americans are members of working families (7). However, the proportion of people with no insurance are particularly high among low-income minority families because private insurance is either unavailable to low-wage workers or premiums are prohibitively expensive (e.g., >10% of

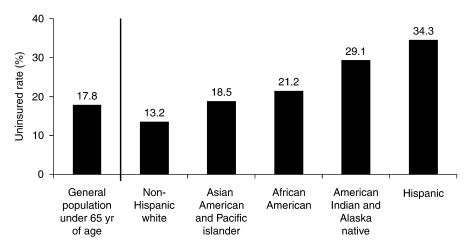


Fig. 1. Probability of being uninsured by race and ethnicity, US nonelderly population, 2004 (59).

annual household income). Therefore, public insurance programs, such as Medicaid and the State Children's Health Insurance Program, play a crucial role in providing coverage for minority individuals. Expanding eligibility for these programs to cover a larger proportion of people with low incomes would be particularly beneficial for minority Americans, especially if such expansions were coupled with more effective efforts to enroll those who are eligible for these programs.

In addition to providing insurance coverage for all Americans, clinicians and hospitals that provide care to minority Americans must be well supported to deliver high-quality care. Because of geographic residential patterns and historical sources of care, approx 20% of primary care physicians in the United States treat approx 80% of African American patients (16). Many of these physicians and their healthcare organizations face barriers to providing optimal care, including larger burdens of uncompensated care, fewer technical resources such as electronic medical records, and less access to high-quality specialists for their patients. Whereas universal insurance coverage would provide financial access to a broader range of healthcare providers for minority Americans who are currently uninsured, many of these individuals will continue to seek care from local physicians, health centers, and hospitals that are most convenient and familiar to them. Ensuring that these clinicians and organizations have well-trained personnel and high-quality technical resources, including effective health-information systems, will be important components of systemic approaches to eliminate racial and ethnic disparities in healthcare.

Safety-net organizations such as community health centers and public hospitals play a substantial role in caring for minority patients, particularly those with low incomes and immigrants. Many of these organizations rely on federal, state, or local government funding to support healthcare for poor patients who are disproportionately from minority groups. Therefore, providing resources and training to promote quality improvement in these organizations will have particular benefits for minority patients who are at risk of experiencing health disparities. The Health Disparities Collaboratives sponsored by the federal Health Resources and Services Administration are a tangible example of ongoing efforts to improve quality of care for minority patients served by federally qualified health centers (17).

PRINCIPLE 2: PROMOTE A DIVERSE HEALTHCARE WORKFORCE

Promoting greater diversity in the healthcare workforce can provide a stronger foundation for efforts to eliminate healthcare disparities. African Americans, Latinos, and Native Americans remain substantially underrepresented among physicians and nurses relative to the corresponding proportions of these racial and ethnic groups in the United States. In the 2000 Census, African Americans (12.3%) and Latinos (12.5%) together compromised onequarter of the US population, but they represented less than one-tenth of all physicians (4.4 and 5.1%, respectively) and only one-eighth of all registered nurses (8.8 and 3.3%, respectively [18]). In 1980, 5.1% of all US medical school graduates were African Americans, and 3.1% of graduates were Latino. By 2004, these proportions have risen modestly to 6.5 and 6.4%, respectively (18), but they still represented only about half of the corresponding proportions of African Americans and Latinos in the US population. To address gaps in the diversity of the healthcare workforce, primary, secondary, and university educational systems serving minority students must ensure that their students are well prepared and inspired to pursue healthcare careers.

A more diverse healthcare workforce could help to reduce disparities in several ways. First, minority physicians and nurses are more likely to have had personal experiences of healthcare disparities in their own lives or through the experiences of family members and friends. Such experiences can have a galvanizing effect on their professional careers, motivating them to lead efforts to address disparities in their healthcare organizations and communities. Second, by sharing their insights about how racial and ethnic disparities in care arise with colleagues who are white or international medical graduates (and thus less familiar with the experiences of minority Americans), minority health professionals can help to promote shared efforts to provide more equitable care. Third, a more diverse workforce can offer minority

patients greater opportunities to be treated by a clinician of the same racial or ethnic group if they prefer this option for cultural or linguistic reasons. Some evidence suggests, for example, that minority patients rate the quality of their communication with racially concordant physicians more highly (19,20). One study has found that African Americans and Latino patients who perceive discrimination in the healthcare system are more likely to prefer a physician of their racial or ethnic group, and patients who prefer racially or ethnically concordant physicians are more satisfied if they have one (21).

However, evidence is limited about whether minority patients experience more appropriate technical quality of care or better health outcomes when treated by racially or ethnically concordant physicians. In a study of white and African American patients hospitalized for acute myocardial infarction, comparably lower rates of cardiac catheterization were experienced by African American patients whether their attending physicians were white or African American (22,23). Further research will be needed to determine whether improved communication is consistently found when minority patients are treated by physicians of their own racial or ethnic group, and whether this improved communication is associated with more appropriate treatment and better health outcomes.

Promoting greater opportunities for minority Americans to pursue professional careers in healthcare is an essential goal. It is also important to recognize, however, that most minority patients will continue to be treated by health professionals of a different racial or ethnic group, even if minority enrollment in health professional schools and training programs were immediately and substantially increased. Therefore, health professionals of all racial and ethnic groups must develop the skills to provide care effectively for the increasingly diverse US population.

PRINCIPLE 3: DELIVER PATIENT-CENTERED CARE

Patient-centered care is a core aim of high-quality healthcare as defined by the Institute of Medicine in its *Crossing the Quality Chasm* report (24). Moreover, a focus on patient-centered care may be one of the most important tools for achieving equitable care. Components of patient-centered care include treating all patients with respect, understanding their expectations and preferences, ensuring they are fully informed and offered appropriate treatment options, responding promptly to symptoms, and providing well-coordinated care (25,26). Recent research on these patient-centered domains indicates that nonwhite patients and non-English-speaking patients face an increased risk of suboptimal care. Among patients with colorectal cancer in California, African American, Latino, and Asian/Pacific Islander patients

have reported significantly higher rates of problems with coordination of care, the strongest correlate of lower ratings of quality of care for all racial and ethnic groups (26,27). Patients in this study who did not speak English at home reported even more problems with their cancer care.

Implementing standards for culturally appropriate care in healthcare organizations and training healthcare professionals to interact effectively with patients of varied racial and ethnic backgrounds are key elements of patient-centered care. In 2001, the federal Office of Minority Health released national standards for cultural and linguistically appropriate services (CLAS) in healthcare (28). These 14 standards were developed to guide healthcare professionals and organizations in caring for patients of varying cultural backgrounds, particularly those with limited English proficiency. The CLAS standards emphasize culturally competent care, language access services, and organizational supports for culturally competent care. The importance of professional translation services (as required by federal law) is underscored in the CLAS standards, recognizing that language barriers are an especially significant contributor to disparities in quality of care.

Cross-cultural education and cultural competency training have become more prominent over the past decade in medical school, residency programs, and continuing education for health professionals (2), but evidence for the effectiveness of such programs to improve care for minority patients and reduce disparities is not well developed (29–31). Three states (New Jersey, California, and Washington) have passed legislation mandating cultural competency training for healthcare professionals as a requirement for licensure renewal, and other states are contemplating similar legislation. Programs that provide a sustained focus and support for cultural competency are more likely to have lasting effects than brief programs that merely introduce the concepts of cultural competency without ongoing support for healthcare students and professionals.

PRINCIPLE 4: MAINTAIN ACCURATE AND COMPLETE RACE/ETHNICITY DATA TO MONITOR DISPARITIES IN CARE

Effective measurement is a cornerstone of efforts to monitor and improve the quality of care. Healthcare organizations must have data on their patients' race and ethnicity to determine whether the quality of care is equivalent across racial and ethnic groups (32,33). Furthermore, data on patients' race and ethnicity are essential to assess whether programs and incentives that are implemented to improve the quality of care are also effective in reducing disparities. A number of data systems have been developed in recent years to monitor the quality of care in hospitals and health plans (34–36), but many of these systems do not require the collection of race, ethnicity, and language

data that could be used to monitor disparities in care. Healthcare organizations that are responsible for improving care often do not have the capacity to assess disparities in their own patient populations (32). Many healthcare organizations have not consistently recorded patients' race and ethnicity because of concerns that collecting these data may be legally unacceptable or that it could be offensive to some patients (37). Among organizations that have collected patients' race and ethnicity, these data have often been recorded by clerical or administrative staff based on patients' physical appearance, rather than from patients' own reports of their race and ethnicity. Similar inconsistencies have occurred in racial and ethnic data obtained for federal and state healthcare programs (38). In the enrollment database of the Medicare program, for example, racial designations of white and African American beneficiaries are very accurate, with sensitivities of 97% and 95%, respectively, when compared with self-reported data in the Medicare Current Beneficiary Survey. However, the designations for Hispanic, Asian, and Native American beneficiaries are much less accurate (39).

Healthcare providers, hospitals, and health plans have a crucial role to play in consistently collecting self-reported race and ethnicity directly from patients (17,32). Recent evidence indicates that most patients are willing to report their race and ethnicity to healthcare organizations if they understand that this information will be used to monitor and improve the quality of care (40). Public and private agencies that accredit healthcare organizations, such as state health departments and the Joint Commission on Accreditation of Healthcare Organizations, have the potential to accelerate the collection of race and ethnicity data from patients by making it a standard data element during accreditation reviews. For organizations that are not yet able to collect their patients' race and ethnicity routinely, geocoding of residential addresses can be used to identify the predominant racial or ethnic groups in patients' census tract or block group (41). Such geocoding is most useful to identify African Americans who live in predominantly African American neighborhoods (42). For Asian American and Latino patients, analyses of surnames are another method for determining race and ethnicity with reasonable accuracy (42,43).

PRINCIPLE 5: SET MEASURABLE GOALS FOR IMPROVING QUALITY AND ENSURE THAT GOALS ARE ACHIEVED EQUITABLY FOR ALL RACIAL AND ETHNIC GROUPS

In its *Crossing the Quality Chasm* report, the Institute of Medicine identified equitable care as one of six core aims for high-quality healthcare systems (24). Equitable care was defined as "care that does not vary in quality due to personal characteristics, such as gender, ethnicity, geographic location, or

socioeconomic status." In this report, equity was emphasized as a crosscutting aim that should be applied to each of the other five core aims, including effectiveness, efficiency, patient-centeredness, timeliness, and safety. However, despite a steadily growing national emphasis on measuring, monitoring, and improving the quality of healthcare over the past decade, most quality monitoring and improvement programs have not included an explicit focus on disparities or equity. Addressing inequalities in quality as a central theme of quality improvement has the potential to move the elimination of healthcare disparities from a peripheral position on the health policy agenda to a much more central position (32,44).

Several recent studies have demonstrated that broad efforts to improve quality—without tailoring for specific racial and ethnic groups—have been successful in enhancing quality for specific indicators related to processes of care. With improvements in overall quality, disparities in some of these process indicators have been substantially narrowed or eliminated for patients with reasonable access to care. Examples of these concomitant effects on quality and disparities in process measures have included hemodialysis dosing (45), diabetes testing (46,47), use of β -blockers after acute myocardial infarction (46), assessments of ventricular function, and use of angiotensin-converting enzyme inhibitors or angiotensin receptor blockers for congestive heart failure (48), and adjuvant chemotherapy for colon cancer (49).

However, some studies have also demonstrated that measures of clinical outcomes have not improved as steadily, particularly for African American patients. Less effective control of glucose, blood pressure, and cholesterol has been observed for African American patients compared with white patients with diabetes mellitus, hypertension, or heart disease (46,47,50). Similarly, among patients with end-stage renal disease, hematocrit, and serum albumin levels have remained significantly lower for African Americans than for whites (45). These and other differences in clinical outcome measures likely contribute to the substantial racial disparities in life expectancy for African Americans relative to white Americans (51,52). Racial disparities in mortality related to hypertension, diabetes, ischemic heart disease, and HIV infection—conditions that have highly effective therapies—together account for 40% of the disparity between African Americans and whites in life-years lost before age 75 (53).

Distinguishing differences in quality and outcomes by race and ethnicity between and within healthcare organizations is an important priority for disparities research (54). If racial disparities arise primarily because minority patients are treated in lower quality hospitals or ambulatory practices, then efforts to eliminate disparities must focus on improving care at these sites or making other sites that provide better quality of care more accessible to

minority patients. Alternately, if racial disparities exist within a wide range of healthcare organizations, then more systemic solutions will be required to help most healthcare organizations care for minority patients more effectively.

Recent studies have begun to distinguish the varied impact of racial disparities in care that occur between and within healthcare organizations for different types of services or outcomes. Differences between hospitals that serve larger and smaller proportions of African American patients are a major factor contributing to disparities in treatment and outcomes for hospitalbased services, such as acute myocardial infarction care or major cardiovascular or cancer procedures (55–58). In contrast, racial differences in clinical outcomes of major chronic conditions in primary care, including control of glucose and cholesterol for patients with diabetes and control of blood pressure for patients with hypertension, are more pervasive across both higher and lower quality health plans and medical groups (46,47). An important focus for future research is to identify the strengths and limitations of quality improvement programs and their impact on racial and ethnic disparities in quality of care and clinical outcomes across a wide range of organizations, geographic areas, and medical conditions. Particular emphasis should be placed on developing, evaluating, and disseminating programs that are successful in improving the health outcomes of minority patients, thereby reducing or eliminating racial and ethnic disparities in these outcomes.

Numerous publicly and privately funded organizations in the United States have interrelated mandates to develop evidence-based quality measures, monitor the quality of healthcare organizations and providers, and promote quality improvement in healthcare. Examples of these organizations include the National Quality Forum (www.qualityforum.org), National Committee for Quality Assurance (www.ncqa.org), and state and regional Quality Improvement Organizations (www.medqic.org) funded by the Centers for Medicare and Medicaid Services to evaluate and promote the quality of healthcare for Medicare beneficiaries. With their well-established focus on quality of care, these organizations could play a substantial role in reducing healthcare disparities by embracing and explicitly linking these two issues in their efforts to improve care.

CONCLUSION

The five principles presented to eliminate racial and ethnic disparities in healthcare can be implemented at multiple levels of the US healthcare system by federal and state governments, health plans, hospitals, medical groups, and healthcare professionals. Disparities in health have deep social and economic origins related to discrimination, segregation, and socioeconomic deprivation across generations of American society. Healthcare professionals

can begin to redress these disparities in health by ensuring that high-quality healthcare is provided equitably regardless of patients' race or ethnicity.

REFERENCES

- 1. US Department of Health and Human Services. *Healthy People 2010: Understanding and Improving Health, 2nd ed.*, US Government Printing Office, 2000. Washington, DC.
- 2. Institute of Medicine. (2002) Unequal Treatment: Confronting Racial and Ethnic Disparities in Health Care. National Academy Press, Washington, DC.
- 3. Bloche, M. G. (2004) Health care disparities—science, politics, and race. *N. Engl. J. Med.* **350**, 1568–1570.
- 4. Moy, E., Dayton, E., and Clancy, C. M. (2005) Compiling the evidence: the National Healthcare Disparities Reports. *Health Aff. (Millwood)* **24,** 376–387.
- 5. Groman, R. and Ginsburg, J. (2004) Racial and ethnic disparities in health care: a position paper of the American College of Physicians. *Ann. Intern. Med.* **141**, 226–232.
- 6. Carrasquillo, O., Lantigua, R. A., and Shea, S. (2001) Preventive services among Medicare beneficiaries with supplemental coverage versus HMO enrollees, medicaid recipients, and elders with no additional coverage. *Med. Care* **39**, 616–626.
- 7. Institute of Medicine, Committee on the Consequences of Uninsurance. (2001) Coverage Matters: Insurance and Health Care. National Academy Press, Washington, DC.
- 8. Institute of Medicine, Committee on the Consequences of Uninsurance. (2002) Care without Coverage. Too Little, Too Late. National Academy Press, Washington, DC.
- 9. Institute of Medicine, Committee on the Consequences of Uninsurance. (2002) Health Insurance is a Family Matter. National Academy Press, Washington, DC.
- 10. Institute of Medicine, Committee on the Consequences of Uninsurance. (2003) A Shared Destiny. Community Effects of Uninsurance. National Academy Press, Washington, DC.
- 11. Franks, P., Clancy, C. M., and Gold, M. R. (1993) Health insurance and mortality. Evidence from a national cohort. *JAMA* **270**, 737–741.
- 12. Sorlie, P. D., Johnson, N. J., Backlund, E., and Bradham, D. D. (1994) Mortality in the uninsured compared with that in persons with public and private health insurance. *Arch. Intern. Med.* **154**, 2409–2416.
- 13. McWilliams, J. M., Zaslavsky, A. M., Meara, E., and Ayanian, J. Z. (2004) Health insurance coverage and mortality among the near-elderly. *Health Aff.* (*Millwood*) **23(4)**, 223–233.
- Ayanian, J. Z., Udvarhelyi, I. S., Gatsonis, C. A., Pashos, C. L., and Epstein, A. M. (1993) Racial differences in the use of revascularization procedures after coronary angiography. *JAMA* 269, 2642–2646.
- 15. Goldman, D. P., Bhattcharya, J., McCaffrey, D. F., et al. (2001) Effect of Insurance on mortality in an HIV-positive population in care. *J. Am. Stat. Assoc.* **96**, 883–894.

- 16. Bach, P. B., Pham, H. H., Schrag, D., Tate, R. C., and Hargraves, J. L. (2004) Primary care physicians who treat blacks and whites. *N. Engl. J. Med.* **351**, 575–584.
- 17. Nerenz, D. R. (2005) Health care organizations' use of race/ethnicity data to address quality disparities. *Health Aff. (Millwood)* **24,** 409–416.
- 18. (2005) AAMC Staff for Minorities in Medical Education. Minorities in Medical Education: Facts & Figures 2005. Association of American Medical Colleges, Washington, DC.
- 19. Cooper-Patrick, L., Gallo, J. J., Gonzales, J. J., et al. (1999) Race, gender, and partnership in the patient-physician relationship. *JAMA* **282**, 583–589.
- 20. Cooper, L. A., Roter, D. L., Johnson, R. L., Ford, D. E., Steinwachs, D. M., and Powe, N. R. (2003) Patient-centered communication, ratings of care, and concordance of patient and physician race. *Ann. Intern. Med.* **139**, 907–915.
- 21. Chen, F. M., Fryer, G. E., Jr., Phillips, R. L., Jr., Wilson, E., and Pathman, D. E. (2005) Patients' beliefs about racism, preferences for physician race, and satisfaction with care. *Ann. Fam. Med.* **3**, 138–143.
- 22. Chen, J., Rathore, S. S., Radford, M. J., Wang, Y., and Krumholz, H. M. (2001) Racial differences in the use of cardiac catheterization after acute myocardial infarction. *N. Engl. J. Med.* **344**, 1443–1449.
- 23. Epstein, A. M. and Ayanian, J. Z. (2001) Racial disparities in medical care. *N. Engl. J. Med.* **344**, 1471–1473.
- 24. Institute of Medicine. (2001) Crossing the Quality Chasm: A New Health System for the 21st Century. National Academy Press, Washington, DC.
- 25. Cleary, P. D., Edgman-Levitan, S., Roberts, M., et al. (1991) Patients evaluate their hospital care: a national survey. *Health Aff. (Millwood)* **10(4)**, 254–267.
- 26. Ayanian, J. Z., Zaslavsky, A. M., Guadagnoli, E., et al. (2005) Patients' perceptions of quality of care for colorectal cancer by race, ethnicity, and language. *J. Clin. Oncol.* **23**, 6576–6586.
- 27. Schrag, D. (2005) Communication and coordination: the keys to quality. *J. Clin. Oncol.* **23,** 6452–6455.
- 28. Office of Minority Health. (2001) National Standards for Cultural and Linguistically Appropriate Services in Health Care. Final Report. US Department of Health and Human Services, Washington, DC.
- 29. Beach, M. C., Price, E. G., Gary, T. L., et al. (2005) Cultural competence: a systematic review of health care provider educational interventions. *Med. Care* **43.** 356–373.
- 30. Betancourt, J. R., Green, A. R., Carrillo, J. E., and Ananeh-Firempong, O., 2nd. (2003) Defining cultural competence: a practical framework for addressing racial/ethnic disparities in health and health care. *Public Health Rep.* **118**, 293–302.
- 31. Betancourt, J. R., Green, A. R., Carrillo, J. E., and Park, E. R. (2005) Cultural competence and health care disparities: key perspectives and trends. *Health Aff. (Millwood)* **24(2)**, 499–505.
- 32. Fiscella, K., Franks, P., Gold, M. R., and Clancy, C. M. (2000) Inequality in quality: addressing socioeconomic, racial, and ethnic disparities in health care. *JAMA* **283**, 2579–2584.

- 33. Bierman, A. S., Lurie, N., Collins, K. S., and Eisenberg, J. M. (2002) Addressing racial and ethnic barriers to effective health care: the need for better data. *Health Aff. (Millwood)* **21(3)**, 91–102.
- 34. Schneider, E. C., Riehl, V., Courte-Wienecke, S., Eddy, D. M., and Sennett, C. (1999) Enhancing performance measurement: NCQA's road map for a health information framework. National Committee for Quality Assurance. *JAMA* **282**, 1184–1190.
- 35. Schneider, E. C., Zaslavsky, A. M., Landon, B. E., Lied, T. R., Sheingold, S., and Cleary, P. D. (2001) National quality monitoring of Medicare health plans: the relationship between enrollees' reports and the quality of clinical care. *Med. Care* **39**, 1313–1325.
- 36. Jha, A. K., Li, Z., Orav, E. J., and Epstein, A. M. (2005) Care in US hospitals—the Hospital Quality Alliance program. *N. Engl. J. Med.* **353**, 265–274.
- 37. Hasnain-Wynia, R. and Baker, D. W. (2006) Obtaining data on patient race, ethnicity, and primary language in health care organizations: current challenges and proposed solutions. *Health Serv. Res.* **41**, 1501–1518.
- 38. Sequist, T. D. and Schneider, E. C. (2006) Addressing racial and ethnic disparities in health care: using federal data to support local programs to eliminate disparities. *Health Serv. Res.* **41**, 1451–1468.
- 39. Arday, S. L., Arday, D. R., Monroe, S., and Zhang, J. (2000) HCFA's racial and ethnic data: current accuracy and recent improvements. *Health Care Financ. Rev.* **21**, 107–116.
- 40. Baker, D. W., Cameron, K. A., Feinglass, J., et al. (2005) Patients' attitudes toward health care providers collecting information about their race and ethnicity. *J. Gen. Intern. Med.* **20**, 895–900.
- 41. Fremont, A. M., Bierman, A., Wickstrom, S. L., et al. (2005) Use of geocoding in managed care settings to identify quality disparities. *Health Aff.* (*Millwood*) **24**, 516–526.
- 42. Fiscella, K. and Fremont, A. M. (2006) Use of geocoding and surname analysis to estimate race and ethnicity. *Health Serv. Res.* **41**, 1482–1500.
- 43. Wei, I. I., Virnig, B. A., John, D. A., and Morgan, R. O. (2006) Using a Spanish surname match to improve identification of Hispanic women in Medicare administrative data. *Health Serv. Res.* **41**, 1469–1481.
- 44. Aaron, K. F. and Clancy, C. M. (2003) Improving quality and reducing disparities: toward a common pathway. *JAMA* **289**, 1033–1034.
- 45. Sehgal, A. R. (2003) Impact of quality improvement efforts on race and sex disparities in hemodialysis. *JAMA* **289**, 996–1000.
- 46. Trivedi, A. N., Zaslavsky, A. M., Schneider, E. C., and Ayanian, J. Z. (2005) Trends in the quality of care and racial disparities in Medicare managed care. *N. Engl. J. Med.* **353**, 692–700.
- 47. Sequist, T. D., Adams, A., Zhang, F., Ross-Degnan, D., and Ayanian, J. Z. (2006) Effect of quality improvement on racial disparities in diabetes care. *Arch. Intern. Med.* **166**, 675–681.
- 48. Rathore, S. S., Foody, J. M., Wang, Y., et al. (2003) Race, quality of care, and outcomes of elderly patients hospitalized with heart failure. *JAMA* **289**, 2517–2524.

- 49. Jessup, J. M., Stewart, A., Greene, F. L., and Minsky, B. D. (2005) Adjuvant chemotherapy for stage III colon cancer: implications of race/ethnicity, age, and differentiation. *JAMA* **294**, 2703–2711.
- 50. Trivedi, A. N., Zaslavsky, A. M., Schneider, E. C., and Ayanian, J. Z. (2006) Relationship between quality of care and racial disparities within Medicare health plans. *JAMA* **296**, 1998–2004.
- 51. Satcher, D., Fryer, G. E., Jr., McCann, J., Troutman, A., Woolf, S. H., and Rust, G. (2005) What if we were equal? A comparison of the black-white mortality gap in 1960 and 2000. *Health Aff. (Millwood)* **24,** 459–464.
- 52. Murray, C. J., Kulkarni, S. C., Michaud, C., et al. (2006) Eight Americas: investigating mortality disparities across races, counties, and race-counties in the United States. *PLoS Med.* **3**, PLoS Med. 3, e357.
- 53. Wong, M. D., Shapiro, M. F., Boscardin, W. J., and Ettner, S. L. (2002) Contribution of major diseases to disparities in mortality. *N. Engl. J. Med.* **347**, 1585–1592.
- 54. Zaslavsky, A. M. and Ayanian, J. Z. (2005) Integrating research on racial and ethnic disparities in health care over place and time. *Med. Care* **43**, 303–307.
- 55. Bradley, E. H., Herrin, J., Wang, Y., et al. (2004) Racial and ethnic differences in time to acute reperfusion therapy for patients hospitalized with myocardial infarction. *JAMA* **292**, 1563–1572.
- 56. Skinner, J., Chandra, A., Staiger, D., Lee, J., and McClellan, M. (2005) Mortality after acute myocardial infarction in hospitals that disproportionately treat black patients. *Circulation* **112**, 2634–2641.
- 57. Barnato, A. E., Lucas, F. L., Staiger, D., Wennberg, D. E., and Chandra, A. (2005) Hospital-level racial disparities in acute myocardial infarction treatment and outcomes. *Med. Care* **43**, 308–319.
- 58. Lucas, F. L., Stukel, T. A., Morris, A. M., Siewers, A. E., and Birkmeyer, J. D. (2006) Race and surgical mortality in the United States. *Ann. Surg.* **243**, 281–286.
- 59. US Census Bureau, Current Population Survey, March, 2005.