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Disparities in Cardiac Care: Rising to the Challenge of Healthy People 2010

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Eliminating health disparities is one of two overarching goals of Healthy People 2010. Although the causes of health disparities are complex, they appear to be related, in part, to disparities in the quality of medical care. Two recent reviews of peer-reviewed research investigated the evidence on racial/ethnic differences in medical care. An Institute of Medicine summary of the literature concluded that in most studies, racial and ethnic disparities in health care remained even after adjustment for potentially confounding factors. A review focused specifically on cardiac care, conducted jointly by the Kaiser Family Foundation and the American College of Cardiology Foundation, reached a similar conclusion after examining the most rigorous studies investigating racial/ethnic differences in angiography, angioplasty, coronary artery bypass graft (CABG) surgery, and thrombolytic therapy. For example, African Americans were statistically less likely than whites to undergo CABG surgery in 21 of the 23 most rigorous studies that calculated odds ratios to compare CABG use. Although there is a convincing body of evidence that race continues to matter in the health system, a nationally representative survey of physicians revealed that the majority of physicians do not view a patient's race/ethnicity as a factor in obtaining care, but do believe insurance coverage matters. Increasing physicians' awareness of the evidence for the role that race/ethnicity plays in health care is important because they are in a good position to directly and indirectly affect changes in clinical practice or patient behavior that could reduce disparities in care. (J Am Coll Cardiol 2004;44:503–8) © 2004 by the American College of Cardiology Foundation

One of the greatest clinical and public health achievements of the 20th century was the decline in age-adjusted mortality from coronary heart disease and total cardiovascular disease (1). These remarkable declines accounted for substantial reductions in all-cause mortality over that same period.

Despite these impressive advances, heart disease remains the leading cause of death in the U.S., where it is a major cause of disability as well. In addition, recent evidence suggests that the gains in cardiovascular health have not been evenly shared across racial/ethnic groups. Between 1985 and 1996, age-adjusted heart disease mortality declined 29% among white men (2), but smaller declines were experienced by all other gender and race/ethnicity groups (Table 1). Using a summary measure of disparities, Pearcy and Keppel (3) compared differences in age-adjusted mortality from cardiovascular disease between 1989 and 1998 and found that disparities by gender declined but racial/ethnic disparities increased or remained largely unchanged. In addition, a study by Wong et al. (4) revealed that cardiovascular mortality composed nearly one-third of the overall mortality difference between black and white patients.

Eliminating health disparities is one of the two overarching goals of the Healthy People 2010 national public health agenda. Although the causes of these disparities are complex and poorly understood, disparities in health outcomes appear to be related, in part, to differences in the delivery of medical care.

EVIDENCE OF RACIAL/ETHNIC DISPARITIES IN HEALTH CARE

Numerous studies over the past two decades have documented racial/ethnic differences in the medical care patients receive and the consequences of these differences on health. Even so, significant controversy persists as to whether disparities in health care exist by race/ethnicity. Because racial/ethnic minority groups are disproportionately represented among medically underserved populations, many physicians assume that being low income or uninsured makes the difference rather than race/ethnicity per se (5–7). They contend that if these variables were well controlled, race/ethnicity would be eliminated as a meaningful factor in disparities in medical care.

Two recent reviews of the peer-reviewed research literature provide evidence that refutes the contention that racial/ethnic disparities in medical care do not exist. One review, by the Institute of Medicine (IOM), examined evidence across a range of health conditions and services. The other review, by the Kaiser Family Foundation (KFF) and the American College of Cardiology Foundation (ACCF), examined evidence specifically on cardiac care.

Drawing on a large body of published research from the

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Abbreviations and Acronyms

ACCF = American College of Cardiology Foundation
CABG = coronary artery bypass graft
IOM = Institute of Medicine
KFF = Kaiser Family Foundation
OR = odds ratio

past decade, the IOM released "Unequal Treatment: Confronting Racial and Ethnic Disparities in Health Care" in 2002 (8). The IOM panel concluded that "The preponderance of studies . . . find that even after adjustment for many potentially confounding factors—including racial differences in access to care, disease severity, site of care (e.g., geographic variation or type of hospital or clinic), disease prevalence, co-morbidity or clinical characteristics, refusal rates, and overuse of services by whites—racial and ethnic disparities remain." The IOM report also noted that these health care disparities are associated with worse health outcomes in many cases. While acknowledging the role of broad, long-standing social and economic inequalities, the study authors suggest that the causes of these disparities may be related to more immediate factors associated with the health system, health care providers, and patients. The report concluded with a call to action that included increasing awareness, furthering research into causes, designing and implementing effective interventions, and monitoring progress.

The review of the evidence undertaken by KFF and ACCF examined the literature on racial/ethnic disparities in cardiac care, much of which focused on black-white differences in care. Because some physicians questioned whether studies on racial differences in care had adequately adjusted for clinical and socioeconomic factors, the objectives of the review were to assess the quality of the evidence and summarize the information for a physician audience.

The resulting report, "Racial/Ethnic Differences in Cardiac Care: The Weight of the Evidence" (9), identified 81 studies published from 1984 to 2001 that met criteria for inclusion in the body of evidence. Over one-half of the studies included recent data (i.e., collected between 1991 and 2001) and/or analyzed clinical data rather than an administrative data source. Of the 81 studies, 68 found racial/ethnic differences in cardiac care for at least one of the racial/ethnic minority groups under study. Of these 68 studies, 46 found differences in cardiac care for all the procedures and treatments investigated. Of the 13 remaining studies, 11 found no differences and two found that the minority patient group under study was more likely than white patients to receive the procedure or treatment.

Most of the studies investigated more than one cardiac procedure or treatment. Of the 81 studies in the KFF/ACCF report, 41 included data on diagnostic cardiac catheterizations, 63 include data on revascularization (38 on percutaneous transluminal coronary angioplasty, 44 on coronary artery bypass graft [CABG] surgery, and 29 on

Table 1. Age-Adjusted Death Rates for Heart Disease,* by Gender and Race/Ethnicity, 1985 and 1996

	1985	1996	% Decline
Male			
White	246.2	174.5	29.1
White, non-Hispanic	240.3	176.2	26.7
Black	310.8	242.6	21.9
American Indian/Alaska Native	162.2	131.6	18.9
Asian/Pacific Islander	123.4	98.1	20.5
Hispanic	152.3	117.6	22.8
Female			
White	121.7	92.9	23.7
White, non-Hispanic	120.2	93.6	22.1
Black	188.3	153.4	18.5
American Indian/Alaska Native	83.7	74.9	10.5
Asian/Pacific Islander	59.6	50.9	14.6
Hispanic	86.5	64.7	25.2

*Deaths per 100,000 resident population. Source: National Center for Health Statistics, Health, United States, 1998 (2).

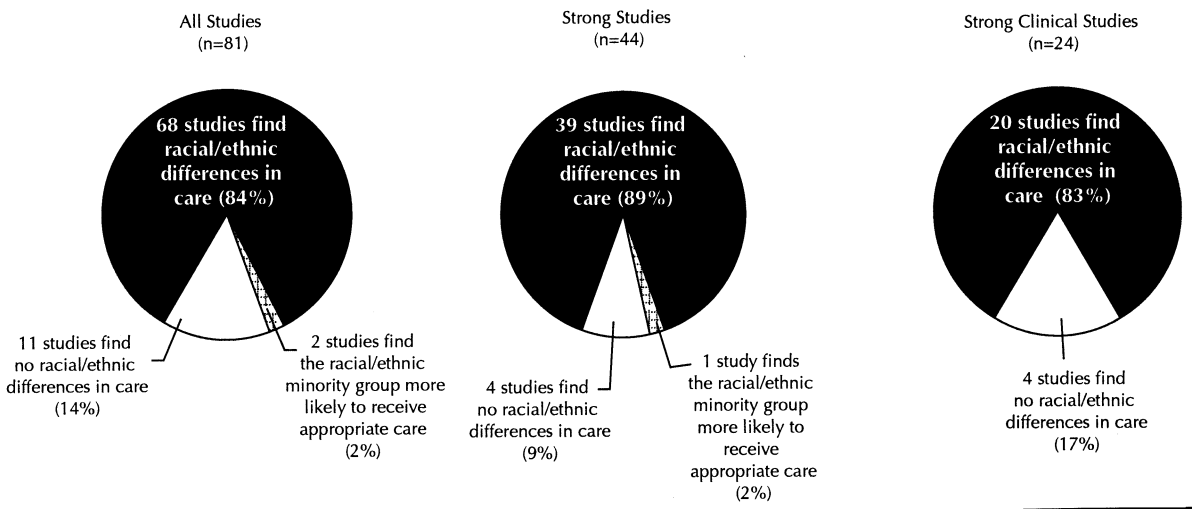

Figure 1. Evidence of racial/ethnic differences in cardiac care, 1984 to 2001. Source: Kaiser Family Foundation/American College of Cardiology Foundation. Racial/Ethnic Differences in Cardiac Care: The Weight of the Evidence (9).

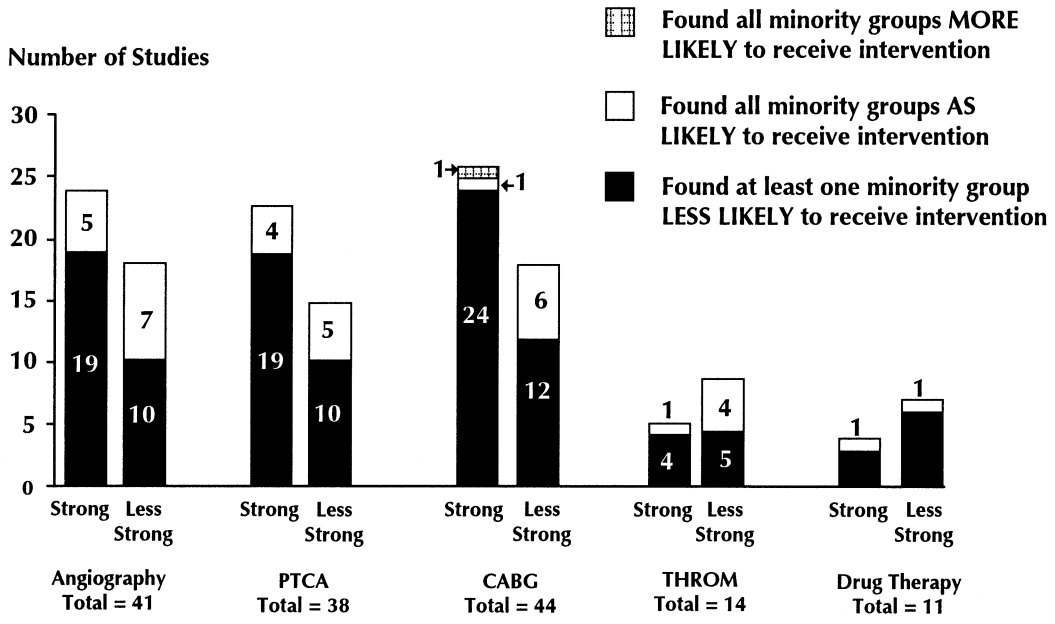

Figure 2. Evidence of racial/ethnic differences in cardiac care: methodologically strong and less strong studies, 1984 to 2001. Source: Kaiser Family Foundation/American College of Cardiology Foundation. Racial/Ethnic Differences in Cardiac Care: The Weight of the Evidence (9). CABG = coronary artery bypass graft; PTCA = percutaneous transluminal coronary angioplasty; THROM = thrombolytic therapy.

combined procedures), 14 included data on thrombolytic therapy, 11 included data on drug therapy, and 9 on other cardiac procedures and treatments (e.g., heart transplantations, chest pain evaluation, and hospitalization for congestive heart failure).

The KFF/ACCF review presented and analyzed data separately for each cardiac procedure or treatment, classifying as "methodologically strong" those studies identified by two independent teams of researchers that had well-defined parameters, internal validity, and adequate control for critical variables. (For example, a strong study based on clinical data would have controlled for age, insurance status, comorbidities, and severity of heart disease—using a recognized measure such as the RAND appropriateness criteria (10)—and would have used multivariate analysis to adjust for these variables simultaneously. Less strong studies had design flaws that potentially weakened the validity of the evidence.)

More than one-half of the studies (44 of 81) were classified as methodologically strong, and the review focused on those studies. However, the finding of racial/ethnic differences in care persisted whether examining all studies, the methodologically stronger studies, or the stronger clinical studies (Fig. 1). For each cardiac procedure or treatment, the authors identified which of the studies found at least one racial/ethnic minority group less likely to undergo the intervention, after adjustments for age, insurance, comorbidities, or disease severity (Fig. 2).

Many of the methodologically strong studies used odds ratios (ORs) for analyzing statistical differences between African Americans and whites (Table 2), and the results are compelling. (Most of the research on racial/ethnic differences in cardiac care has compared African Americans with whites. Of the 81 studies in the KFF/ACCF review, 21 included data on Latinos, 11 on Asians, and 4 on Native Americans.) For example, African Americans were statistically less likely than whites to undergo CABG surgery in 21 of the 23 "strong studies" that calculate ORs to compare use of this surgery. The ORs

Table 2. Evidence from Methodologically Strong Studies That Calculated Odds Ratios to Compare Procedure Use for African Americans and Whites

Procedure	Number of Strong Studies With Odds Ratios	Studies That Found AA < W to Receive Procedure or Treatment	Range of Statistically Significant Odds Ratios	
			Lower Estimate (95% CI)	Upper Estimate (95% CI)
Diagnostic				
Angiography	20	15	0.23 (0.12–0.46)	0.85 (0.77–0.95)
Revascularization				
PTCA	20	13	0.20 (0.06–0.72)	0.87 (0.78–0.96)
CABG	23	21	0.26 (0.19–0.35)	0.68 (0.56–0.82)
Thrombolysis	3	2	0.51 (0.38–0.73)	0.76 (0.70–0.82)

Source: Derived from Kaiser Family Foundation/American College of Cardiology Foundation. Racial/Ethnic Differences in Cardiac Care: The Weight of the Evidence, 2002 (9).

AA = African American; CABG = coronary artery bypass grafting; CI = confidence interval; PTCA = percutaneous transluminal coronary angioplasty; W = White.

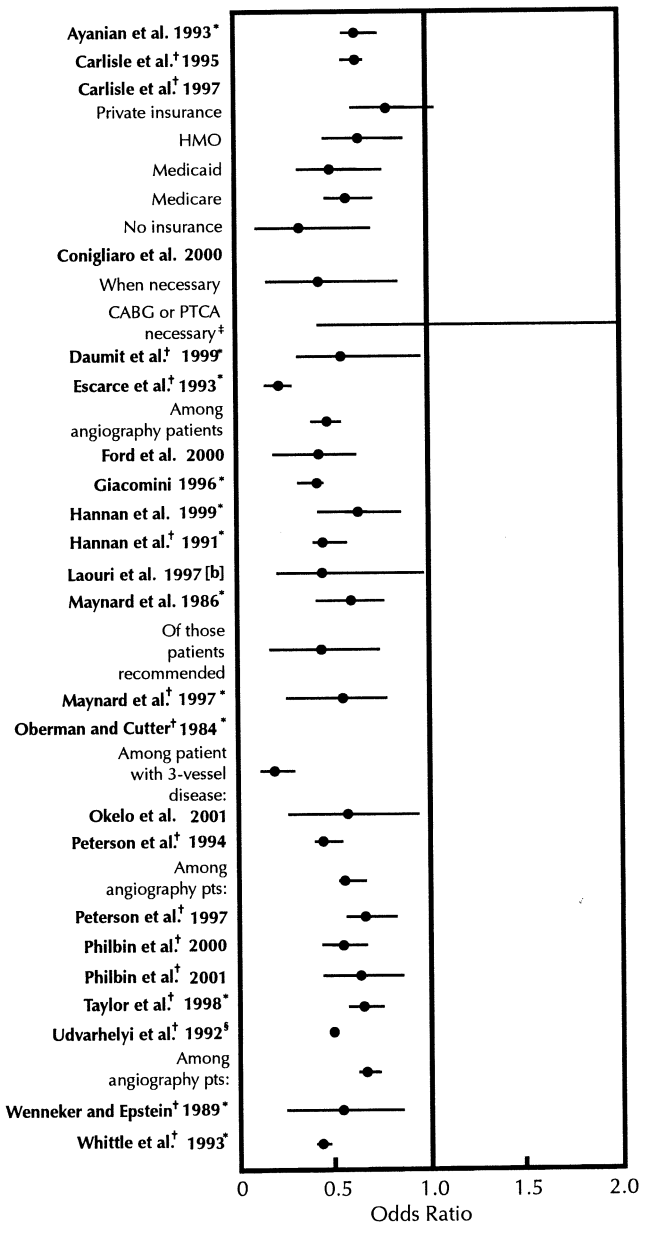

Figure 3. Odds ratios for selected methodologically strong studies: coronary artery bypass graft surgery (African Americans/whites). *Odds ratio findings taken from Kressin N, Petersen L. Racial differences in the use of invasive cardiovascular procedures: review of the literature and prescription for future research. Ann Intern Med 2001;135:352–6. †Study analyzes more than one procedure or treatment. ‡Odds ratio: African Americans/whites 2.26 (0.42 to 12.11). §The authors computed relative risks, which are comparable to odds ratios when the events are rare. Both measure the strength of an association between a factor and an outcome. Note: Studies selected for this figure were all methodologically strong studies that used odds ratios for analyzing statistical differences between African Americans and whites. An odds ratio of 1.0 means there is an equal likelihood of receiving the procedure or treatment. An odds ratio of <1.0 means African Americans are less likely to receive the procedure or treatment. Source: Kaiser Family Foundation/American College of Cardiology Foundation. Racial/Ethnic Differences in Cardiac Care: The Weight of the Evidence (9).

range from 0.26 to 0.68, indicating that African Americans are about one-fourth to two-thirds as likely as whites of similar characteristics to have CABG surgery (Fig. 3).

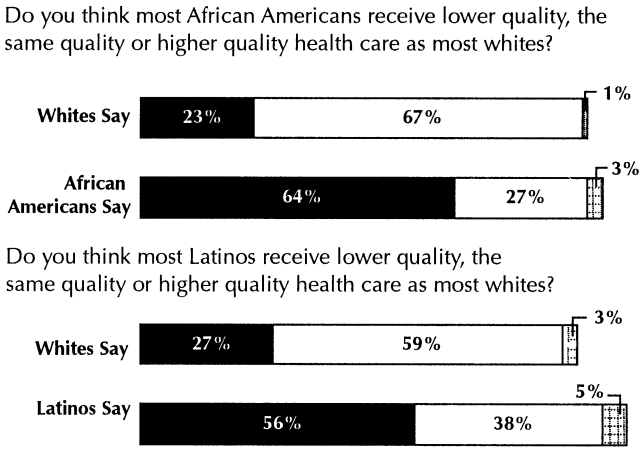

Figure 4. The public's perceptions of quality of care others receive compared with whites. **Black bars** = lower quality; **white bars** = same quality; **gray bars** = higher quality. Source: Kaiser Family Foundation. Race, Ethnicity and Medical Care: A Survey of Public Perceptions and Experiences, October 1999 (conducted July to September 1999) (11).

PERCEPTIONS ABOUT THE ROLE OF RACE/ETHNICITY IN MEDICAL CARE

Although there is now a convincing body of evidence that race continues to matter in the health system, surveys show that much of the public and many physicians are unaware that health disparities by race/ethnicity exist. For example, a 1999 nationally representative survey of adults found that the majority of Americans—including the majority of people of color—did not know that blacks generally fare worse

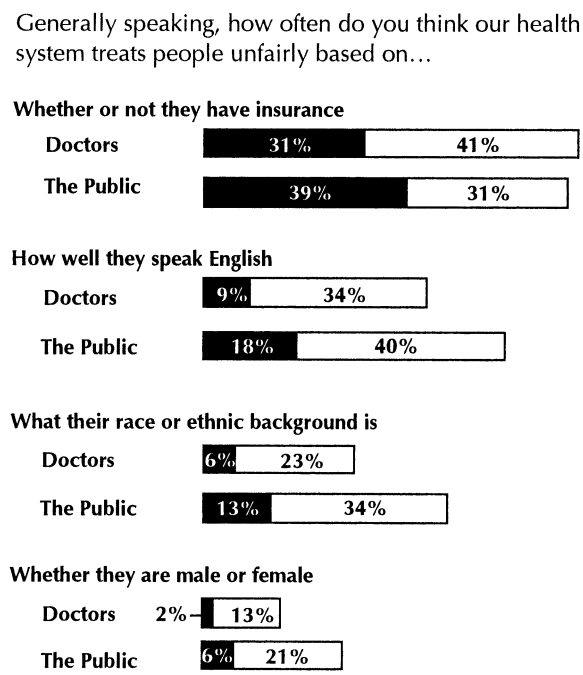

Figure 5. Perceptions of disparities in health care. **Black bars** = very often; **white bars** = somewhat often. Source: Kaiser Family Foundation. National Survey of Physicians, March 2002 (conducted March to October 2001) (11); Kaiser Family Foundation. Race, Ethnicity and Medical Care: A Survey of Public Perceptions and Experiences, October 1999 (conducted July to September 1999) (11).

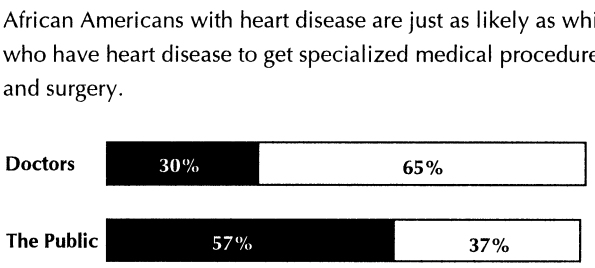

Figure 6. Physicians' perceptions on disparities in heart disease treatment. **Black bars** = those who agree; **white bars** = those who disagree. Source: Kaiser Family Foundation. National Survey of Physicians, March 2002 (conducted March to October 2001) (11); Kaiser Family Foundation. Race, Ethnicity and Medical Care: A Survey of Public Perceptions and Experiences, October 1999 (conducted July to September 1999) (11).

than whites in terms of infant mortality or that Latinos are less likely than whites to have health insurance—two indicators that have received considerable attention in the media (11). The survey also showed sharply contrasting racial views about the role of racial/ethnic background in the health system. Although the majority of whites perceived that African Americans and Latinos receive the same quality of care as they do, the majority of African Americans and Latinos believed otherwise (Fig. 4).

Not surprisingly, a 2001 national survey of a representative sample of physicians in practice revealed that many physicians also have misperceptions about the role of race/ethnicity in medical care (12). The survey found that the vast majority of physicians believe that disparities exist between insured and uninsured patients; but a relatively small share believe that race/ethnicity plays an independent role in how people are treated (Fig. 5). Indeed, physicians are less inclined than the general public to believe that racial/ethnic disparities occur in the health system. Twenty-nine percent of physicians versus 47% of the general public say that the health system either "very" or "somewhat" often treats people unfairly based on race/ethnicity.

Interestingly, when it comes to access to specialized medical treatment such as for heart disease, physicians are more likely than the public to believe that racial disparities exist (Fig. 6). Almost two-thirds (65%) of physicians correctly disagreed with the statement "African Americans with heart disease are just as likely as whites to get specialized medical procedures and surgery." In contrast, only about one-third (37%) of the general public disagreed. Significant progress in eliminating racial/ethnic health and health care disparities, including disparities in cardiac care, cannot be made unless there is broad recognition that disparities exist and that they are unacceptable.

Table 3. Action Steps

1. Engage professional colleagues and patients in discussions on disparities in health care in general.
2. Disseminate the evidence on disparities in cardiac care in an effort to inform health care providers, patients and their families, and the general public.
3. Participate in research efforts to identify the key determinants of the disparities in cardiac care and the best strategies for their elimination.
4. Support community demonstration projects that target identification of best practices for eliminating psychosocial and environmental determinants of health disparities.
5. Assure a culturally competent and diverse health care workforce.
6. Make all efforts to provide language translation services available to patients who are not fluent in English.
7. Form strategic partnerships with federal, state, and local health agencies and private foundations dedicated to the elimination of disparities in care.
8. Recognize and address, whenever possible, discrimination of all forms when present in the health care setting.
9. When necessary, refer patients to resources that address the effects of poverty and social exclusion.
10. Support the Healthy People 2010 partnerships and the overarching goal of eliminating health disparities.

CONCLUSIONS

Recent studies provide compelling evidence of disparities between white and African American patients in the receipt of cardiac interventions. Although many might argue that these disparities are actually products of confounding by insurance coverage and severity of disease, they were not explained by those factors.

The message that racial/ethnic disparities in care exist—even among patients with similar insurance, clinical characteristics, and socioeconomic circumstances—needs to be embraced by the broad community of practicing physicians. It is critically important that physicians become more aware of disparities in medical care, whether in cardiac care or elsewhere. Given that the physician-patient encounter generally results in a diagnosis or a referral to specialized care, physicians are in a good position to effect changes in clinical practice or patient behavior that may reduce disparities in care. However, for many physicians, motivation to help find ways to reduce disparities in patient care may not occur until they are convinced by the evidence that a problem exists.

As part of what ultimately must be a multifaceted effort, the ACCF, along with the Association of Black Cardiologists, the American Heart Association, and 10 other physician, public health, or business organizations, joined an initiative undertaken by KFF and The Robert Wood Johnson Foundation to increase physician awareness of disparities in medical care, beginning with cardiac care. The initiative included the review of the evidence previously discussed, an "ad" featured in 10 major medical publications and a website (13) that physicians could use to access the review of evidence, and outreach efforts of professional organizations to engage physicians in dialogue about the issue. Ten other actions that can help in this endeavor are shown in Table 3.

In addition to these and other efforts to raise public, patient, and provider awareness about disparities in care, carefully designed studies are necessary to identify the underlying determinants of disparities and the best strat-

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egies for eliminating them. Race/ethnicity is intertwined with many dimensions of the U.S. health care system, and the association between race/ethnicity and medical care, as concluded by the IOM, may reflect any number of factors, including patient, physician, and health system characteristics. Differences in patients' awareness of symptoms and their preferences about care may contribute to these disparities, for example. The biases of physicians in the clinical assessment or referral process, combined with uneven application of practice guidelines, may be another factor. In addition, characteristics of the health system (such as lack of health insurance or inadequate supply of cardiologists in medically underserved areas) may impede the provision of cardiac care. Even for those with access to health care, lack of effective case coordination, exacerbated by antiquated information technology systems and perverse reimbursement policies, may undermine the provision of quality cardiac care. In actuality, the disparity most likely results from a combination of these factors.

As investigation of contributing factors gets under way, the design of interventions will also produce insights into the nature of health care disparities and approaches to reducing them. Initiatives, for example, to increase patient literacy and awareness of cardiac treatment options, currently warrant support because they have the potential to improve access even if their impact on reducing disparities is unknown. Programs that address quality of care with a focus on accountability also should be pursued. Evaluation of these interventions, which requires the collection and analysis of racial/ethnic data, is a crucial component of any plan to reduce disparities. This information can help to guide the development of future interventions.

The two overarching goals of Healthy People 2010—to increase length of healthy years and eliminate health disparities—are daunting, but important for a nation striving to live up to its ideals. Progress can be achieved if efforts to improve the quality of health care include specific initiatives to address disparities in care.

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