
Eliminating Disparities in Cardiovascular Care and Outcomes: Roadmap to 2010

**Final Report of the Special Emphasis Panel
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Sponsored by
Association of Black Cardiologists, Inc.
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National Center on Minority Health and Health Disparities
National Institute of Biomedical Imaging and Bioengineering
National Heart, Lung, and Blood Institute
National Institute of Diabetes and Digestive Kidney Diseases

Message from the President of the Association of Black Cardiologists, Inc.

The Association of Black Cardiologists, Inc. (ABC) has the *prevention and elimination of cardiovascular diseases* as its primary mission. For nearly three decades, the ABC has been at the forefront for reducing premature death in populations at-risk. Despite years of documented inequities in healthcare and improvements in health for the nation overall, the elimination of racial and ethnic disparities in healthcare remains a challenge.

This report summarizes the proceedings from a special panel formed to advise the National Institutes of Health on its research agenda to reduce disparity. Twenty-two of our nation's leading cardiovascular specialists convened in Atlanta, Georgia, August 26-27, 2003, to address the following charge: "In the context of eliminating disparities in cardiovascular care and outcomes by 2010, 1) analyze the barriers and challenges to eliminating cardiovascular disparities, and 2) recommend strategies that will specifically reduce disparity in the death rates between minority and majority populations."

We would like to thank the four Institutes/Centers of the National Institutes of Health for support of this joint initiative and for the exceptional commitment to improve the quality of healthcare for all citizens. The success of this effort is also largely due to the contributions of the special emphasis panel and working group. We wish to extend special thanks to Co-Chairs, Luther T. Clark, M.D. and Keith C. Ferdinand, M.D. for their continued demonstration of leadership. Together we can make a difference!

Paul L. Underwood, Jr., M.D.
President
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"Children Should Know Their Grandparents So They Will Become GREAT Grandparents"

Message from the NIH Center/Institute Directors

Cardiovascular disease (CVD) is the leading cause of death in the United States and its impact on minority populations, especially African Americans, is severe. While significant progress has been made in preventing and treating CVD over the past few decades, some minority groups have not shared fully in this process and continue to have lower life expectancy and higher CVD mortality. This inequality was well documented in the Institute of Medicine's 2002 report, *Unequal Treatment: Confronting Racial and Ethnic Disparities in Health Care*. Responding to this report were four Institutes/Centers of the National Institutes of Health, the National Institute of Biomedical Imaging and Bioengineering, (NIBIB), the National Center on Minority Health and Health Disparities, (NCMHD), the National Institute of Diabetes & Digestive & Kidney Diseases, (NIDDK), and the National Heart, Lung, and Blood Institute, (NHLBI) who together with the Association of Black Cardiologists, Inc. invited a group of America's leading cardiologists to examine the barriers to eliminating disparities in cardiovascular care and strategies for removing these barriers. The group gathered to devise a strategic action plan on August 26-27, 2003 in Atlanta, GA.

The report from this meeting, *Eliminating Disparities in Cardiovascular Care and Outcomes: Roadmap to 2010*, describes the outcome of these discussions. From the broad range of recommendations, it is clear that the causes of health disparities are complex and incompletely understood and thus, merit a comprehensive strategy engaging resources from the public and private sectors to assure quality cardiovascular health care for all. We thank the participants, especially the Co-Chairs, Drs. Luther Clark and Keith Ferdinand, who generously donated their time and expertise to this important collaborative effort.

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Acknowledgments

The Co-Chairs of the Special Emphasis Panel on *Eliminating Disparities in Cardiovascular Care and Outcomes: Roadmap to 2010* foremost acknowledges the tremendous contribution by the members of the working group. Thank you for taking the time to work through issues ranging from topics related to barriers to eliminating disparities in cardiovascular care and outcomes to the details of making recommendations to eliminate healthcare disparities. While individual members raised different perspectives on a variety of issues, there was no disagreement on the need for a comprehensive strategy aligned with the objectives of *Healthy People 2010* for ensuring zero disparity in cardiovascular health. We also take this opportunity to thank the Directors of the Institutes and Centers of the National Institutes of Health for initiating this important forum with the Association of Black Cardiologists, Inc. Finally, thanks to the staff at both the ABC and NIH for helping coordinate the activities of this group.

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Table of Contents

EXECUTIVE SUMMARY	1
OVERVIEW: THE BURDEN OF CARDIOVASCULAR DISEASE	4
Risk Factors, 4	
Hypertension, 4	
Risk Factor Clustering: The Metabolic Syndrome, 5	
Acute Coronary Syndromes, 5	
Heart Failure, 6	
BARRIERS AND RECOMMENDATIONS TO ELIMINATING DISPARITIES IN CARDIOVASCULAR CARE AND OUTCOMES	6
Access and Utilization of Low and High-Tech Diagnostics, 6	
Access and Utilization of Cardiac Procedures and Therapies, 7	
Patient Education, 8	
Adherence to Guidelines for Cardiovascular Care, 9	
Inequities in the Health Care System/Infrastructure, 10	
Ineffective Physician-Patient Communication, 12	
Health Disparities Research, 13	
Awareness and Monitoring of Healthcare Disparities, 15	
CONCLUSIONS	15
SELECTED REFERENCES	16

Executive Summary

Although the mortality rates from cardiovascular diseases (CVD) in the United States have continued to decline during the past several decades, CVD remains the leading cause of death in the U.S. for Americans of African descent as well as those of European and other ancestries. According to the American Heart Association (AHA) 2004 statistics update, CVD accounts for approximately 40% of all deaths. Among African Americans, 33.5% of deaths in men and 40% of deaths in women each year are due to CVD. Thus, more women die of CVD annually than men, a fact that is often not appreciated. African Americans have the highest overall coronary heart disease (CHD) mortality rate and the highest out-of-hospital coronary death rate of any ethnic group in the United States, particularly at younger ages. The earlier age at onset of CHD in African Americans creates particularly striking black versus white differences in years of potential life lost. Although the reasons for the earlier onset and excess CVD deaths among African Americans have not been fully elucidated, it is clear that there is a high prevalence of coronary risk factors, delay in recognition and treatment of high-risk individuals, and limited access to cardiovascular care (preventive, maintenance, and procedures such as cardiac catheterization, coronary interventions, and bypass surgery). Other important contributors may be the lack of appreciation of the heterogeneity of expression of certain cardiac conditions (i.e. acute coronary syndromes and congestive heart failure) as well as the preeminence of hypertension and its consequences.

The accurate diagnosis and risk assessment for CVD in African Americans may also present special challenges. For example, the high prevalence of hypertension and type 2 diabetes may contribute to discordance between symptomatology and the severity of coronary artery disease. Furthermore, many commonly used diagnostic modalities for risk assessment have not been validated in African Americans and some noninvasive tests appear to have a lower predictive value for disease.

The Institute of Medicine's (IOM) 2002 report, *Unequal Treatment: Confronting Racial and Ethnic Disparities in Healthcare* added to a growing body of literature documenting the continuing existence of health disparities in America. Seventeen years previously, a groundbreaking report from the Task Force on Black and Minority Health convened by the Secretary, Department of Health and Human Services (*Secretary of Health and Human Services Report on Black and Minority Health*) found that there was an annual excess (preventable) of approximately 60,000 deaths among Blacks, most of which was due to cardiovascular diseases. Even prior to the 1985 release of the report of the Task Force on Black and Minority Health, several studies had underscored the need to address the disparity in the burden of death and illness experienced by African Americans and other minorities relative to the population as a whole. Focusing on the issue of treatment, the IOM report concluded that racial and ethnic minorities receive lower quality healthcare than whites, even when they are insured to the same degree and when other healthcare access-related factors, such as the ability to pay for care, are the same. The IOM Committee reviewed evidence of disparities in care for a range of illnesses, and discovered the most glaring to be in treatment for cardiovascular disease, particularly for African American patients.

Confirming these findings, The Henry J. Kaiser Family Foundation's 2002 study, *Racial/Ethnic Differences in Cardiac Care: The Weight of the Evidence* determined through a review of 81 studies on racial/ethnic differences in cardiac care that African Americans are less likely than whites to receive appropriate and necessary treatments for cardiac disease, including thrombolytics, catheterization, angioplasty, and bypass surgery, and that these racial/ethnic differences in care remain after adjustment for clinical and socioeconomic factors.

For these reasons, twenty-two of the nation's most distinguished cardiovascular physicians were convened to develop a progressive and achievable set of recommendations to address the issue of disparities. The meeting, entitled "Eliminating Disparities in Cardiovascular Care and Outcomes: The Roadmap to 2010," was held August 26-27, 2003, in Atlanta, Georgia. Luther T. Clark, M.D. and Keith C. Ferdinand, M.D. served as co-chairs for this special emphasis panel. A full listing of participants appears at the beginning of this report.

The Keynote Speaker of the opening ceremonies, David Satcher, M.D., Ph.D., former Surgeon General and current Director of the National Center for Primary Care at Morehouse School of Medicine, presented a "blueprint" for the panel to consider, *The Five Points to Eliminating Disparities in Health*: 1) access to care; 2) improving the quality of care; 3) lifestyle enhancements; 4) improving environmental quality; and 5) a balanced research agenda.

This report highlights eight essential themes identified during the meeting for increasing capacity, evaluating impact, advancing and implementing policy, and enlisting regional and national efforts to decrease the high level of morbidity and mortality from cardiovascular diseases in minority populations. The following recommendations are presented for consideration and implementation:

1. Conduct additional research on access and utilization of low and high-tech diagnostic procedures. Prognostic prospective data are limited on the usefulness of various cardiac procedures for identifying CVD in the early stages and monitoring its progression, patterns and outcomes across racial groups. For low technology testing (i.e. electrocardiography), there are no studies delineating differential trends in test ordering among ethnic groups although some important differences in results of diagnostic tests have been reported.
2. Increase access and appropriate utilization of cardiac procedures and therapies. Greater parity can be achieved through public and private agencies' sponsorship of more research on cardiac surgical procedures to further document disparities and, more importantly, determine why inequities exist. Furthermore, the federal government, professional societies and other entities should explore and develop better strategies to enhance minority patients' understanding of what constitutes quality care in managing CVD.
3. Enhance patient education efforts. Specific provider-oriented targeted interventions to overcome barriers to patient participation and empowerment are needed. These include education concerning interview style and interactive communication to ensure comprehension, as well as self-awareness of cultural bias and techniques to increase empathetic communication. Community health workers, church-based education

programs and other health advocates should be targeted to raise awareness of existing educational programs. Other patient-oriented interventions must also be designed and tested.

4. Develop strategies for increasing adherence to evidence-based guidelines. While excellent evidence-based treatment guidelines already exist for cardiovascular care, further research is needed to identify and validate best practice strategies that would encourage more widespread and equitable use of them.
5. Implement policy changes that result in fewer inequities in the health care system/infrastructure.
6. Develop and evaluate strategies for optimizing physician-patient communications. Physician-patient miscommunications often result from personal biases and cultural differences. A health disparities training program that includes cultural competency education could improve provider-patient communications and clinical outcomes.
7. Expand research that focuses on causes or identified practices in the delivery of care that contribute to health disparities.
8. Increase awareness and monitoring of health disparities. There is a need for greater professional and public awareness of the existence of health disparities and the goals outlined in Healthy People 2010. Also, simple, widely applicable metrics are needed to track the presence of disparities and progress toward their elimination.

Overview: The Burden of Cardiovascular Disease

Cardiovascular diseases (CVD) is the leading cause of death in the U.S. for Americans of African descent as well as those of European and other ancestries. Furthermore, while the mortality rate for heart disease has been declining during the past several decades, the rate of decline has been less in the African American community. Mortality rates from coronary artery disease in African Americans are 10-40% higher than in whites, hypertension and hypertensive target organ injury is more severe, and peripheral arterial disease is more common. According to the American Heart Association (AHA) 2004 statistics update, CVD accounts for approximately 40% of all deaths. Among African Americans, 33.5% of deaths in men and 40% of deaths in women each year are due to CVD. Thus, more women die of CVD annually than men, a fact that is often not appreciated. African Americans have the highest overall coronary heart disease (CHD) mortality rate and the highest out-of-hospital coronary death rate of any ethnic group in the United States, particularly at younger ages. The earlier age at onset of CHD in African Americans creates particularly striking black versus white differences in years of potential life lost. The reasons for the earlier onset and excess CVD deaths among African Americans have not been fully elucidated. However, it is clear that there is a high prevalence of coronary risk factors, delay in recognition and treatment of high-risk individuals, and limited access to cardiovascular care (preventive, maintenance, and procedures such as cardiac catheterization, coronary interventions, and bypass surgery).

Risk Factors

The prevalence of certain CVD risk factors and clustering of risk factors is greater in African Americans than in the general population. Hypertension, left ventricular hypertrophy (LVH), type 2 diabetes mellitus, obesity, cigarette smoking, and physical inactivity occur more frequently in African Americans. Also, African Americans are 1.5 times more likely to have multiple risk factors than whites. Racial and ethnic minorities and persons of lower socioeconomic status (SES) are less likely to receive screening and treatment of cardiac risk factors than their white counterparts. The combination of lower screening and effective treatment of risk factors contribute to observed health disparities. Since most of the major risk factors are modifiable, there is great opportunity for quality improvement initiatives that can reduce disparities in populations at risk

Hypertension

Hypertension is a special challenge for African Americans. Both systolic hypertension and diastolic hypertension are established risk factors for CVD. Systolic blood pressure is a better predictor than diastolic blood pressure of risk for CHD, heart failure, stroke, end-stage renal disease, and overall mortality. In African Americans, hypertension is more prevalent, develops at younger ages, and is associated with a three to five times higher cardiovascular mortality rates than in whites. African Americans appear to experience greater cardiovascular and renal damage at any level of blood pressure than whites, though some investigators have suggested that the higher mortality rates in hypertensive African Americans reflect greater disease severity and more left ventricular hypertrophy. The higher prevalence and severity of LVH in African Americans may contribute to the higher risk of cardiovascular events and mortality. In addition to recommendations in the *Seventh Report of the Joint National Committee on Prevention*,

Detection, Evaluation and Treatment of High Blood Pressure (JNC 7), a consensus statement on the management of hypertension of African Americans was recently published by the International Society on Hypertension in Blacks, which provided a practical, evidence-based clinical tool for achieving blood pressure goals in African Americans.

Risk Factor Clustering: The Metabolic Syndrome

The metabolic syndrome, also known as the insulin resistance syndrome, metabolic syndrome X, and dysmetabolic syndrome, refers to a specific clustering of cardiovascular risk factors in the same individual (abdominal obesity, atherogenic dyslipidemia, elevated blood pressure, insulin resistance, a prothrombotic state, and a proinflammatory state). Patients with the metabolic syndrome are at increased risk for the development of diabetes and cardiovascular disease. According to a recent analysis of data from NHANES III, approximately 47 million Americans (23.7% of the population) have the metabolic syndrome. African American women and Hispanic men and women have the highest prevalence's of the metabolic syndrome. This may be attributable to the disproportionate occurrence of elevated blood pressure, obesity, and diabetes in African Americans, and the high prevalence of obesity in Hispanics. Management of the metabolic syndrome consists primarily of modification or reversal of the root causes and direct therapy of the risk factors. The first strategy involves weight reduction and increased physical activity, both of which can improve all components of the syndrome. The second strategy involves treatment of the individual risk factors to further improve blood pressure, lipids, and glucose thereby decreasing the risk of cardiovascular disease. In a recent analysis of the benefits of treating elevated blood pressure and dyslipidemia in individuals with the metabolic syndrome, Wong et al found that aggressive management of risk factors and control to optimal levels could result in the prevention of more than 80% of cardiovascular events.

Acute Coronary Syndromes

Coronary heart disease and its thrombotic complications are major causes of morbidity and mortality in the United States. The acute coronary syndromes (ACS) encompass a spectrum of manifestations of unstable coronary artery disease, including unstable angina, non-ST-segment elevation myocardial infarction (NSTEMI), ST-segment elevation myocardial infarction (STEMI), and sudden cardiac death. In clinical trials investigating ACS, patients with unstable angina and those with non-ST-segment elevation MI are often grouped together since these two entities have similar manifestations and a distinction between them can usually be made only after several hours or days – when the results of cardiac enzymes become available. The goals of initial treatment in patients with ACS include: relief of angina; control of the acute aspects of the pathophysiologic process; preservation of viable myocardium; and prevention of death. In many patients, an invasive strategy (early angiography and revascularization) is the preferred approach when this is available. However, invasive and conservative (medical) approaches should be considered complementary. Modern aggressive protocol-driven medical therapy may decrease cardiac ischemia, cardiac events, and the urgency for revascularization.

A guiding therapeutic principle that has emerged for ACS is that those patients at highest risk should receive the most immediate and aggressive therapy. In African Americans the spectrum of ACS is the same as in white Americans. However, African Americans are at greater risk and have poorer outcomes than their white counterparts. Yet, paradoxically, African Americans with ACS are treated less urgently and less aggressively than whites. Compared to whites, African

Americans who present to emergency departments with chest pain are less likely to be suspected of having ACS, and when ACS is confirmed, African Americans receive less aggressive medical therapy, and are less often referred for interventions such as cardiac catheterization, percutaneous coronary interventions (PCI) and bypass surgery.

Heart Failure

Heart failure is both a major and an escalating health problem in the United States, associated with high rates of death, functional decline, and hospitalization. Approximately 4.7 million patients have symptomatic heart failure, a prevalence that is expected to increase to 10 million over the next three decades. The annual incidence of new cases is approximately 550,000 per year. Heart failure is more common in African Americans than in the general population (3% vs 2%), is associated with a higher incidence of hypertension as a potential causal factor, a younger age of onset of first symptoms, more advanced left ventricular dysfunction on presentation, more frequent hospitalizations, and a higher associated mortality rates. Increased awareness of the high prevalence of heart failure in African Americans, the deleterious consequences of hypertension, and the development of improved strategies for more effective implementation of treatment guidelines as well as the appropriate use of device therapies (resynchronization, ICD, surgical remodeling, etc.) are needed.

Barriers and Recommendations to Eliminating Disparities in Cardiovascular Care and Outcomes

1. Access and Utilization of Low and High-Tech Diagnostics

There is limited data on access, utilization, and the value of low tech diagnostic procedures such as electrocardiography (ECG) for risk assessment in African Americans. A few studies on access to ECG were completed as early as the 1960's. Since then, however, there has been little investigation of the use of ECG, echocardiography, nuclear imaging or computerized tomography for African American patients. A better understanding is needed of differences in rates of utilization of these tests and the potential impact on risk assessment and the application of definitive therapies.

Although some data are available on differences in the meaning of diagnostic test results between African American and Caucasian patients, more research is needed. African Americans with the same level of CVD risk factors as whites, for example, may exhibit greater target organ damage, altering the threshold for further testing and intervention. For example, while a normal stress SPECT myocardial perfusion scan has generally been associated with cardiac event rates of less than one percent per year, in African Americans this rate has been reported to be about two percent. A better understanding of these differences may lead to better treatment strategies and may better guide physicians' care plans for African Americans.

Recommendation(s):

- 1.1 Although some studies are underway, such as the NHLBI funded Multi-Ethnic Study of Atherosclerosis, (MESA) trial, there is a need for better prognostic prospective data on the usefulness of a variety of cardiac testing procedures in identifying cardiovascular disease in the early stages and improved understanding of predictive values of normal and abnormal test results in different racial/ethnic groups. This research should examine both low and high technologies used for risk stratification such as ECG, echo imaging, perfusion imaging, magnetic resonance imaging (MRI), and computerized tomography (CT). Research should also be conducted to determine whether differences in access exist among racial groups and the potential implication for further therapies.
- 1.2 Physicians should apply evidence-based cardiovascular guidelines consistently. Improved strategies should be developed for more effective implementation of evidence-based treatment guidelines and the appropriate use of diagnostic studies for evaluation and risk assessment. They should also factor into care plans, the recognition that African Americans often have more aggressive diseases and may be at higher risk than suggested by commonly used risk assessment scoring algorithms.

2. Access and Utilization of Cardiac Procedures and Therapies

Several recent studies have provided evidence of unequal access to cardiac procedures and therapies. In all hospitals, excluding military hospitals, African Americans are less likely than whites to undergo percutaneous transluminal coronary angioplasty (PTCA) or coronary artery bypass grafting, (CABG). An examination of national databases of CABG recipients where minorities are proportionally represented also suggests that African Americans' access to this procedure is limited. Even in patients presenting with acute coronary syndromes (myocardial infarction and unstable angina), African Americans are less likely than whites to receive thrombolytics, cardiac catheterization, percutaneous coronary interventions, and bypass surgery. The reasons for these differences have not been fully elucidated and require further investigation.

Since primary care physicians must often refer patients to specialists for diagnostic and therapeutic procedures, provider bias may contribute to limiting access. African American physicians, who may better understand the subtleties of clinical presentations in African American patients, are under-represented in the cardiovascular specialties and particularly in cardiac group practices – especially in surgery and in large groups that often contract to provide interventional and surgical services to major urban hospitals. . Even when African American patients are referred to a specialist, physician bias and perceptions of disease risks may inappropriately affect patients' referral for certain procedures. Furthermore, since African Americans are less likely than whites to receive preliminary diagnostic procedures, such as cardiac catheterization, the numbers of patients referred for interventions and surgery would also be fewer. In addition to increasing access and availability of providers and services, educational efforts that increase health literacy and empower African Americans patients regarding their therapeutic options are greatly needed.

Structural factors in health care delivery may also influence access to surgery. African Americans are more likely to have publicly funded insurance, such as Medicaid or be enrolled in health maintenance organizations among privately funded plans, two insurance options that may restrict access to and reimbursement levels for surgery. A large number of African American patients report usual care settings as a clinic, a hospital emergency room, or hospital outpatient facility, rather than a doctor's office and many of these hospitals are not equipped for endovascular procedures. These factors limit access to specialists who could provide better care and access to others resources that would support this higher level of care. The recent regionalization of cardiac surgery may have a greater impact on minority populations than whites.

Recommendation(s):

- 2.1 Public and private agencies should support more research on access to cardiac surgical procedures to further document disparities and more importantly, to determine why these inequities exist and practices that will lead to greater parity. The specific focus should include investigation of whether the organization of surgical units by region negatively affects access by minorities.
- 2.2 The Federal government, professional societies and others should investigate ways to educate minority populations on therapeutic options and what constitutes quality care to better equip them in managing CVD and gaining better access to surgical procedures.

3. Patient Education

Preventing and managing cardiovascular disease is a joint responsibility of physicians and patients. Among African Americans, insufficient knowledge on disease management as well as a generally lower level of educational attainment hampers effective patient participation in this process. Without a clear understanding of how cardiovascular disease develops and progresses, African Americans may not seek treatment in the earlier stages or effectively contribute to the management of the disease, when it occurs.

Acknowledging existing patient education efforts, it was offered that these initiatives are not well coordinated across agencies and have not been adequately targeted or designed to reach the African American community or the various class groupings within this community. Environmental factors also contribute. For example, efforts to raise awareness about the dangers of obesity struggle in communities where high-fat fast foods are readily available, and more healthy alternatives are less accessible.

It is generally acknowledged that health is affected by socio-economic conditions and many of the disparities in health outcomes have roots in historical discrimination and inequities that began centuries ago and continue to have lingering effects today. Educational attainment, for example, is associated, independently of race, with major differences in mortality and may affect the quality of care because of the impact on comprehension of written health materials and numerical instructions, health beliefs, patient preferences and compliance. African Americans are clustered at the lower end of

the socio-economic stratum, with lower levels of educational attainment. Managing diseases such as cardiovascular disease that require long-term intervention and sustained behavioral changes require significant patient knowledge about lifestyle issues, as well as competence in tracking measures of improvement.

Patients with low self-esteem and/or a low sense of empowerment often fail to assume responsibility for effective health-seeking behaviors. These patients often lack the knowledge to make informed choices or to challenge physicians to offer all available options for treatment. African American patients that can be characterized in this manner tend to receive lesser care.

On the provider side of the partnership, physicians are not adequately educating African Americans on preventive measures. In the current health care delivery environment, physician compensation is not available for extended time with patients to discuss lifestyle preferences that affect cardiovascular health or to provide other preventive services.

Recommendation(s):

There is a need to raise awareness of existing educational programs and assist community groups leading these efforts in developing the grantsmanship skills required to sustain funding for effective programs. Financial support for these information dissemination efforts and widespread media campaigns should be increased, especially in the area of disease prevention. Culturally sensitive messages delivered through popular media in community settings, such as churches, worksites, beauty and barbershop may further the reach and impact of these programs. To overcome varying levels of literacy and ensure wide accessibility, an emphasis should be placed on radio and video, rather than written materials. Encouraging and supporting physicians in setting up waiting room televisions for viewing health messages, for example, may contribute to better patient education. Engaging established community organizations in educational programs creates immediate trust through recognized partners. The design of these programs should incorporate the findings of the numerous studies that have been completed on effective intervention for various racial groups and characteristics of successful programs. For example, duplicating for African Americans and other groups, the NHLBI-supported *Salud para su Corazón*, a health education program targeting Hispanics/Latinos and employing trained, lay health educators or *promoters* might be a good beginning. There should be recognition that issues of literacy and self-concept must be addressed through long-term social change.

4. Adherence to Guidelines for Cardiovascular Care

Cardiovascular care and outcomes for African Americans would improve, if doctors consistently followed established guidelines in caring for all patients. In many instances, African American patients do not receive essential preventive services and necessary therapies. Linking compensation to compliance with accepted guidelines would encourage physicians to consistently follow these recommendations for all patients and

likely lead to improvements in patient outcomes. Performance numbers on patient outcomes should also determine compensation for hospitals and other care settings.

Recommendation(s):

- 4.1 It is generally acknowledged that sufficient guidelines exist for cardiovascular care and more guidelines are not needed. Compensation for physicians and hospitals should reflect adherence to established guidelines. More research is needed to validate this proposition, as well as to suggest other best practices that would encourage more widespread, equitable use of evidence-based guidelines. Hospitals should monitor use of guidelines and the impact of improved compliance on disparity measures.
- 4.2 Research is needed to better define the barriers to effective and consistent implementation of evidence-based treatment guidelines.
- 4.3 Current approaches to educating physicians and other providers regarding evidence-based guidelines need to be re-evaluated and new strategies tested, especially for minorities and other difficult-to-treat patient groups.

5. **Inequities in the Health Care System/Infrastructure**

Structural factors and inequities in health care resources may hamper African Americans in gaining access to quality care. Large numbers of African American patients receive care in urban medical centers or community clinics. In both types of settings, resources may be lacking to deliver the high level of care required for good outcomes. Many urban hospitals are publicly funded and therefore subjected to the vagaries of politics and the government budgeting process. Inadequate or inconsistent funding often results. These institutions must absorb the cost of serving a large number of uninsured patients or patients insured by public health plans such as Medicaid that provide low levels of compensation. Without financial resources, these hospitals cannot offer the comprehensive care, including social and educational services required to address cardiovascular disease.

Similar obstacles are present in community health care delivery settings where limited resources inhibit provision of preventive services and non-emergent care. These clinics, in many instances, encounter patients who have already experienced a cardiac event, but lack the resources to provide longitudinal services. Community clinics suffer from deficiencies on the most basic level, sometimes operating without data management systems to track and maintain patient data.

Some studies have suggested that the low number of cardiologists being trained, especially African American, and uneven distribution of practicing cardiologists contribute to poor cardiovascular care for African Americans. The limited numbers of practicing cardiologists seem to be concentrated in urban areas. However, both rural and urban African American communities lack the specialists required to meet their needs. Given that CVD is the number one cause of mortality for all Americans, there are not enough appropriately trained physicians to handle this demand.

Recommendation(s):

- 5.1** The goal of reducing disparities will not be realized unless support is generated for the types of policy changes that will result in fewer inequities in the health care system and access to quality care. Compared to many other industrialized societies, the United States has a fragmented health care delivery system that fails to provide equal care for all. Policy changes should be explored that would lead to the gradual enhancement of care for different segments of the population until universal uniform care is achieved. Recognizing that major policy changes may require a decade or more of discussion to be achieved, professional societies and others should encourage greater dialogue on this issue.
- 5.2** Measures must also be developed to address inconsistency in funding for large urban medical centers that serve large minority populations. Given the fluctuations in public revenues and spending, financial support from private sources should be identified to supplement and protect budgets during economic downturns.
- 5.3** Greater overall financial support is also needed in community care settings, but targeting patient data systems may have an immediate impact on patient care. Studies have demonstrated that the use of electronic medical records leads to better outcomes through better identification of patients at risk. Funding for computerized patient data management systems would help doctors manage patients, develop care plans, adhere to established guidelines, and potentially support more research on African American patient populations. An example would be a pilot program under development by the Association of Black Cardiologists to use members' electronic patient records to build a database that could potentially be used for research.
- 5.4** More health care professionals trained to deliver cardiac care are needed. Because the training of cardiologists requires a significant number of years, consideration should be given to a two-tier system of training to most rapidly deploy cardiac professionals in a short time frame – one traditional to produce a fully trained cardiologists, and a shortened program, perhaps targeted to internists, to prepare physicians to deliver basic preventive cardiac care. Other specialists, such as gynecologists and pediatricians who serve well women and children, should also provide basic preventive care against CVD.
- 5.5** Given the severity of CVD in the African American community, particular emphasis should be given to training African American cardiologists who have historically provided most services for African American patients. It has been noted that if existing cardiology training programs accepted one African American each year, the number of African American cardiologists could double in twenty-five years. Recruitment is important, but adequate mentoring is critical to the retention of African American cardiology fellows. The diversity efforts of medical schools should aim to increase the number of African American faculty

to contribute to mentoring of students and lessen the racial isolation that hampers the success of these students.

- 5.6 Incentives should be established to encourage greater diversity in students and faculties of medical schools. Accreditation standards for medical schools should include an assessment of diversity and the impact of diversity status on the quality of care in the local community. Federal funding for medical schools should be linked to the nation's expressed goals on diversity, perhaps becoming a criteria for research funding.
- 5.7 More financial support from public and private sources for individual minority medical students, including loan-forgiveness or payback programs may encourage more of these students to pursue medicine, given the very high cost of medical education. Many of the existing payback programs seem to be under subscribed. Sponsors of existing service payback programs should evaluate enrollment to determine if there are factors that limit the attractiveness of these options. Enhancement could be effected that may result in deployment of greater numbers of physicians in minority communities.
- 5.8 The difficulty of attracting and retaining minorities in science-based training and professions has been well documented. Significant enhancements in K-12 math and science instruction must be achieved. Increased financial support for minority undergraduates coupled with continued efforts to attract these students to science focused careers should support an increase in the pool of minority students prepared for medical training. There are some colleges, such as Xavier University that have an excellent record of medical school acceptance for graduates. Replication of the successful elements of this model is needed. Historically Black Colleges and Universities continue to educate a very large proportion of African American science students. Programs to attract minority medical students should be national in scope, but should target these and other minority serving schools.

6. **Ineffective Physician-Patient Communication**

Critical to quality care, effective communication between doctor and patient may not be optimal in the interface between African American patients and their physicians. Negative historical interactions between the health care establishment and minority communities have led to a lack of trust. Racial bias and stereotyping have historically infused medical literature and continue to influence training today. In general, initial or continuing medical education (CME) does not include training on cultural diversity, producing physicians who are not equipped to overcome patient distrust or to understand the cultural nuances that may dictate different approaches in communicating with minority patients. Without exposure to health disparities in training, physicians are not prepared to incorporate issues raised in health disparities research such as differences in disease presentation and diagnostic and therapeutic evaluation when serving African American patients. Current CME lectures on health disparities and diversity do not offer the depth of training needed to produce behavioral change.

Several studies have concluded that racial concordance between physician and patient results in better care, as patients have expressed a higher level of trust in these circumstances and exhibited a greater level of compliance with treatment. Frequent achievement of this match in cardiovascular care is hampered by the continuing underrepresentation of African Americans in medical training, especially cardiology. Numerous factors feed into these low numbers as noted above, including inadequate K-12 and undergraduate science preparation, inadequate efforts to recruit, retain, and support African American medical students through initial and specialty training, and diminished support for public policies such as affirmative action that, in recent decades led to increased opportunities for African Americans in medical schools.

Language barriers contribute to poor quality care, particularly in communities with large immigrant populations. Language differences often cause patients to delay or avoid care or to misinterpret care instructions. In many health care settings, these problems may not be recognized or addressed.

Recommendation(s):

- 6.1 Initial medical education and CME should include training in health disparities. Using the cross-disciplinary integration of women's health into the medical curriculum as a model, medical schools should add health disparities training that include patient care considerations raised by health disparities research and cultural competency education. This training would allow physicians to potentially improve care and outcomes for minority patients and to understand general and personal biases and cultural ignorance that raise barriers to quality care. Similar training should be made available to practicing physicians through CME. As some states have done for HIV/AIDS and domestic violence training, health disparities training should be added to re-licensure requirements.
- 6.2 As noted above, significant efforts must be put forth to increase the number of minorities completing medical training, especially in cardiology.
- 6.3 Support services that address language differences should be expanded, especially in the Border States and New York, where there are large immigrant populations. Professional interpretation services and culturally competent allied health professionals to assist with disease management plans are two measures that could significantly improve care for these populations.

7. **Health Disparities Research**

Despite much public discussion on health disparities over the last few decades, the Nation's biomedical research enterprise has not expanded or changed significantly to encompass an increased emphasis in these areas. While many studies have been completed that demonstrate the existence of disparities, few have pointed to causes or identified practices in the delivery of care that may lead to a reduction or elimination of these differences. Data collection to support health disparities research is inadequate. The current prevalent structure of biomedical research, including concentrated

investigation in a single discipline in academic institutions, may not be optimal for addressing health disparities that call for examination from multiple perspectives. Representation of minorities in clinical research as investigators, allied health or patients is limited, diminishing the impact and effectiveness of these studies. More research and different approaches are needed.

Recommendation(s):

7.1 Funding should be provided to support more health disparities research, particularly in the following areas:

- Cardiovascular care practices that lead to a reduction in disparities
- Differences in CABG and PTCA/PCI outcomes across ethnic groups
- The construct of race and ethnicity in novel risk factor research
- The level of contribution of traditional and novel risk factors to cardiovascular disease burden
- Gene-environment interactions and risk factor clustering
- The effect of training experiences in urban hospitals on later care practices
- Differences in the effectiveness of current CVD therapies across racial and ethnic groups
- New technologies that will identify individuals at high risk for CVD
- Differences in the interpretation of diagnostic tests across racial and ethnic groups
- More longitudinal studies on CVD in African Americans

7.2 It was suggested that research resources be improved and the traditional approach to biomedical research be altered to accommodate the multi-disciplinary issues involved in health disparities. Better data collection is needed at all levels – national, state, and local to monitor and track disparities. Funding agencies should support and encourage more collaborations and partnerships in research to accommodate the multi-faceted nature of health disparities issues. Academic institutions should be encouraged to join with community centers to pursue multi-disciplinary projects, incorporating all of the socio-economic considerations of health disparities. As an incentive for scientists to work in these areas, NIH should establish an academic award for outstanding work in health disparities and perhaps give special consideration to institutional training grant applicants with a health disparities focus.

7.3 Measures should be taken to increase minority participation in clinical research on all levels. Much more effort should be exerted to attract minority medical students to careers in research to ensure that clinical research questions incorporate diverse perspectives and to support retention of minority patients in clinical projects. The high level of debt that minorities incur in obtaining medical training may discourage work in research when compensation for practicing physicians can be so much higher. While federal funding is available for research costs and some loan repayment, medical schools should seek private sources of discretionary funding as an incentive for minorities to pursue academic careers.

Formal targeted mentoring programs should be encouraged to provide minority students greater exposure to research careers and the support network to be successful.

- 7.4** Allied health professional play a major role in recruiting and retaining minority patients in clinical studies. Similar to the participation of minority researchers, the presence of a diverse group of allied health professionals encourages trust among minority patients. Success in promoting a study and gaining a commitment to participate can be more easily achieved if personnel are culturally similar to the target populations. For these reasons, investigators for projects targeting minority populations should be sensitive to the need for a diverse project team.

8. Awareness and Monitoring of Healthcare Disparities

Elimination of health disparities will not be achieved unless general awareness is increased. Several surveys have indicated that a large number of people in the United States are not convinced that health disparities exists, believing instead that minorities enjoy equal access to care and receive the same quality of care. Even within the medical establishment, practicing physicians often demonstrate little understanding of the severity of these problems. Many of the policy changes that must occur in the society, the processes of health care delivery and in medical training will not move forward without greater discussion of these issues on a broader level.

Recommendation(s):

- 8.1** Federal agencies, professional medical societies, and all concerned about disparities must work to encourage more dialogue on key policy issues on a national level. Medical professional societies can play a major role in these efforts. Greater diversity in the leadership of these groups may support elevation in priority for health disparities issues.
- 8.2** Efforts should be made to raise awareness of the objectives outlined in Healthy People 2010 and to track and monitor health disparity indices defined in this document.

Conclusions

Disparities in cardiovascular health continue to exist. These are due to multiple factors including: excessive risk factor burden, patient delays in seeking medical care, under-recognition and under-treatment of high risk individuals, and lack of access to routine and modern cardiac medical and procedural care. To sustain current initiatives and implement the above recommendations for reducing disparities in cardiovascular health, commitment and immediate action are needed from local, state, and national health agencies, professional medical associations, and others within and beyond the health sector.

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