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**Considerations for the National Healthcare Disparities Report**

*A Commissioned Paper Prepared for the Institute of Medicine, National Academy of Sciences,  
Committee on Guidance For Designing a National Health Care Disparities Report*

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March 2002

## **INTRODUCTION**

Over the past century the United States has undergone a tremendous decline in mortality and enjoyed significant gains in life expectancy. Yet, while the U.S. has experienced a sustained pattern of improving health status indicators, disparities in health status among American racial and ethnic minority groups has persisted. Most notably, African Americans consistently have the worst health profile among all major American racial/ethnic groups. As Williams and Rucker (2000) demonstrated, in 1995 the overall African American mortality rate was sixty percent higher than that of whites. This is precisely what it was in 1950.

While the pattern of racial and ethnic disparities in health have been thoroughly documented and reported, consensus explanations for racial/ethnic health disparities have been elusive. This is because much of the published research on race disparities has focused on descriptions rather than explanations (LaVeist 2000). In the main, those that have attempted to explain the etiology of health disparities have provided generalized statements. Some have described the etiology of racial/ethnic disparities as a complex mixture of environmental, social, behavioral and bio-genetic factors. Others have attributed it to socioeconomic. There is evidence to support environmental (Bullard 1983, Robinson 1989), social (Lillie-Blanton et al. 1993, Ren et al 1999) behavioral factors (Lannin et al. 1998), and socioeconomic status (CITE). However, evidence of a role of bio-genetic factors in contributing to health disparities is limited and controversial (Goodman 2000, Wood 2001). An additional area that has received attention as a possible contributor to health status disparities is healthcare.

A large and growing literature has documented racial and ethnic disparities in access, utilization and quality of healthcare (Mayberry 2000). Based, in part, on these persistent findings, the U.S. Congress – in 1999 – mandated that the Agency for Healthcare Research and Quality (AHRQ) produce an annual report on the state of progress to reduce healthcare disparities, the National Healthcare Disparities Report (NHDR). AHRQ commissioned the Institute of Medicine (IOM) of the National Academy of Sciences for guidance in designing the report. This paper comments on various aspects of the NHDR . Specifically, this paper will:

1. identify major areas in healthcare services and quality where racial and ethnic disparities exists,
2. identify major areas in health care services and quality where racial and ethnic disparities are minimal,
3. identify the kinds of disparities on which the National Health Care Disparities Report should focus, and
4. comment on approaches to reporting health disparities.

## **RACE, ETHNICITY AND HEALTHCARE DISPARITIES**

**Areas with the greatest disparities in healthcare services and quality.** Racial and ethnic differences in access and utilization of health services comprises the largest category of studies of disparities in healthcare. After controlling for numerous individual factors, Shi (2000) showed that minority populations were 1.46 times as likely to identify their usual source of care as a facility rather than a person. In addition, minorities especially Hispanics were less likely than whites to indicate that their usual source of care providers listened to them. Cornelious (2000) found substantial differences by race/ethnicity in health insurance status, and having a usual source of care. Blandon et al. (1989) found that racial differences in access to care were found across all

income groups and demonstrated severe under-use of services among African Americans.

If racial/ethnic disparities in health status are to be eliminated, access and availability of healthcare is a major concern. This problem is largely a matter of socioeconomic status differences among race/ethnic groups and the continuation of public policies that link health insurance to employment or citizenship. However, the problem of racial/ethnic disparities in healthcare extends beyond access to healthcare facilities and disparities in the availability of healthcare resources in the facilities where racial and ethnic minority receive care. There is a large literature demonstrating racial/ethnic disparities in access to specific medical procedures after they have entered into care. This literature is a diverse amalgam of studies documenting disparities in primary care (Moore et al. 1994) and specialty care (CITE), in surgical procedures (Gornick et al. 1993; Lee et al. 1998; Esarce et al. 1993) as well as in patient education (e.g. Cowie and Harris 1995).

In 2000 Mayberry and associates (Mayberry et al. 2000) published a comprehensive review of the literature on race disparities in healthcare, focusing on studies published between 1985 and 1999. The article summarized a large number of studies documenting disparities across a wide variety of health conditions. Disparities were documented in health services for heart disease, stroke, cancer, diabetes, HIV/AIDS, prenatal care, immunizations, asthma, and mental health services. The conditions studied by Mayberry et al. (2000) conform to the major health conditions examined in the 1985 *Report of the Secretary's Taskforce on Black and Minority Health* (DHHS 1985). Others have reviewed the literature as it relates to specific conditions and procedures. For

example, Horner, et al. (1995) reviewed the literature on race disparities in healthcare for stroke patients and Sheifer et al. (2000) examined studies of racial disparities in access to coronary angiography. And still others conducted studies of disparities across numerous procedures to test for those that demonstrate major disparities compared to those that have no disparities (Gornick et al. 1993; Lee et al. 1998; Esarce et al. 1993). To identify documented areas in healthcare with the greatest and least health disparities, I have examined each of these types of reviews. The results of my examination of the literature is summarized in Table 1. Table 1 reports selected studies of areas of healthcare with the largest and best documented disparities.

#### Table 1 Here

Perhaps the best documented disparities in healthcare are for procedures related to cardiovascular disease and within this literature studies of racial/ethnic disparities in coronary angiography is the best documented. This procedure is of particular importance because heart disease is the leading cause of death in the United States and coronary angiography is essentially a prerequisite to receiving revascularization (PTCA or coronary bypass surgery). Perhaps most impressive among the findings on this topic is the finding of race disparities in use of coronary angiography within the Department of Veteran's Affairs Health System (Peterson et al. 1994; Sedlis et al. 1997). This is because within the VA system access to care is similar for all and there is no economic incentive for either the patient or the provider.

Cancer is also a condition that has a large number of documented disparities in quality of care. For example, Burns et al. (1996) found that African American women were less likely than

White women to receive mammography even after adjusting for use of primary care. Cooper et al. (1996) found a higher proportion of White colorectal cancer patients (78%) underwent surgical resection than their African American counterparts (68%). And, Harlen et al. (1991) found that Hispanic women were less likely to receive a pap smear compared with White women.

Other procedures related to major causes of death and/or disability include diagnostic and therapeutic procedures for cerebrovascular disease (Horner et al. 1995, Eggers 1995), renal transplantation (Epstein et al. 2000), HIV antiretroviral therapy (Moore et al. 1994), asthma (Ali, et al. 1997), participation in AIDS clinical trials (Stone, et al. 1997). Marsh et al. (1999) found that physicians were twice as likely to recommend hormone replacement therapy for white patients compared with blacks. And, Todd et al. (2000) demonstrated that 43% of African American patients with extremity fractures at one university hospital went untreated for pain, while only 26% of white patients with similar fractures went untreated. A similar study by Todd et al. (1993) found that white patients with broken bones were 64% more likely to receive pain medication than Hispanic patients with similar fractures.

It can be concluded from studies of racial and ethnic differences in access and utilization of health services that racial and ethnic minorities often face the prospect of seeking care in facilities with fewer resources. And, when they obtain access to similar facilities, they often receive less optimal treatment than non-minorities.

**Areas without racial/ethnic disparities.** There is a generally acknowledged bias against the publication of studies that yield “non-findings”. As such, the identification of areas without racial/ethnic disparities is more difficult than finding areas where disparities exist. However, although more difficult to find, I was able to identify several areas. They are summarized in Table 2.

Table 2

Perez-Sable et al. (1995) conducted a telephone survey of Hispanic and White adults aged 35-74 living in the San Francisco area to determine their utilization of cancer screening tests. The survey found no differences in use of fecal occult blood tests, sigmoidoscopy, pap smear clinical breast examines and screening mammograms. Additionally, Bennett et al. (1995) found no significant differences between African Americans and Hispanics and White VA patients with regard to in-hospital mortality rates use and timing of a bronchoscopy or receipt of timely anti-PCP medications among HIV/AIDS patients. An interesting exception to this pattern is found in the healthcare system used by active military personnel, which find no racial/ethnic disparities in care (Taylor et al. 1997; Dominitz et al. 1998). However, it should be noted that discrimination has been documented in the VA system, which is used by retired military personnel (Peterson et al. 1994 Whittle et al. 1993).

An additional source of “non-findings” is studies that examine a broad array of health conditions. One study examined race differences in use of 32 medical or surgical procedures in the Medicare

population (Escarce et al 1993). Of the procedures examined, two had no significant race differences (prostatectomy and barium enema). Lee et al. (1998) also studied Medicare records, but examined only 18 procedures. Eleven of the 18 procedures failed to produce disparities (coronary angioplasty, MRI of the brain, flexible sigmoidoscopy, colonoscopy, barium enema, total hip replacement, hip repair, mammogram, mastectomy, and radiation therapy).

## **CREATING A NATIONAL HEALTHCARE DISPARITIES REPORT**

There are numerous factors to consider in determining the types of disparities that should be the focus of the healthcare disparities report. Since the report will need to rely on existing data sources (at least in the short-term), this presents a set of limitations that may hinder the utility of the report. Many existing data sources can do an adequate job of measuring morbidity, mortality, and health risks (such as smoking, and obesity). However, there are fewer national databases measure healthcare indicators. Data from the Center for Medicare and Medicaid Services presents a good source of data on healthcare disparities among the elderly. Likewise the Medical Expenditure Panel Survey (MEPS), the Healthcare Costs and Utilization Project (HCUP), the Consumer Assessment of Health Plans Benchmarking Database (CAHPS) are all potential sources of data, at least in the short-term. But sources of national data on disparities in under or over use of specific medical procedures for non-Medicare or Medicaid populations are more limited. A review of the literature suggest three type of data which show at least some promise: 1) patient assessments, 2) medical/administrative record data audits, and 3) health outcomes.

### **Patient Assessments**

There are numerous examinations of patient satisfaction and health related quality of life that

can be incorporated into quality assessments (Cleary et al. (1997). Lewis (1994) has provided a comprehensive review of this literature. Such assessments are typically based on patient surveys. A variety of measures of quality, satisfaction and quality of life have been validated. Patient's assessments of quality of care can be aggregated to produce scores that can be assessed within and between racial/ethnic groups. Cleary, et al. (1997) suggests that such measures would go beyond satisfaction and include measures designed to assess treating patients with respect and involving patients in treatment decisions, consistent with the concept of patient centeredness. CAHPS and potentially MEPS are examples of a patient assessment data source.

### **Medical/Administrative Record Data Audit**

There is a large literature demonstrating racial differences in the medical and surgical management of conditions within healthcare settings. After controlling for access to care, studies have found that patient's race is a predictor of treatment decision-making across a variety of conditions. For example, breast cancer (Burns et al. 1996), prostate cancer (Klabunde, et al. 1998), bladder cancer (Mayer and McWhorter 1989), glaucoma (Javitt, et al. 1991), and psychiatric conditions (Chung et al. 1995).

### **Health Status Outcomes**

A growing body of healthcare quality data suggests that iatrogenic injury (injury caused by a practitioner or in the healthcare setting) should be considered an important component of the total quality of care picture. The literature indicates that a significant proportion of adverse events are due to errors in medical judgement that render the delivered care, below that of the

commonly accepted medical standard. Those events that result in significant disability, morbidity and or mortality to the patient, by definition are said to be due to negligence (Brennan et al 1991a; Brennan et al 1991b). HCUP (although geographically limited) is an example of data that can be used to produce estimates of components of healthcare quality from hospital discharge data.

### **Assessment of Measures**

In determining the types of disparities that should be the focus on the health disparities report I would suggest the following five principles:

- 1     *Applicable to multiple racial/ethnic groups* - The indicators must be applicable to all racial and ethnic groups that make up the U.S. population.
- 2     *Produce unique scores for sub-national geographic units* - The report should be producible for regions, states, MSAs, counties and cities, and not merely produce scores for the nation.
- 3     *Data sources must be accessible* - The reporting must be easily understandable to a broad population of healthcare consumers and the indicators must have high “face validity.”
- 4     *No Confounding* - indicators must not be confounded with other variables such as larger societal factors. Or, if there is confounding, there must be a way to adjust for it.
- 5     Longitudinality - The indicators must have the ability to be replicated over time.

I will now access each method of measuring healthcare disparities using the five principles listed above. In Table 3 we display each measurement method along with the evaluation criteria.

Table 3 Here

Patient surveys offer several positive aspects. This method lends itself to application across all racial and ethnic groups. The survey method allows for the production of unique scores for any unit of analysis. And, the results are easily accessible and understandable to policy-makers and consumers. However, patient perceptions can be influenced by factors outside of the healthcare setting and all perceptions are filtered through individual idiosyncracies. While these are important limitations to this approach, there are important benefits to the inclusion of the perspectives of consumers (Cleary et al. 1997). These “subjective” perceptions are, perhaps best used in conjunction with other more “objective” indicators.

The analysis of medical records and administrative data are a highly desirable method. As has been demonstrated by Lee et al. (1998), Escarce et al. (1993) and others (McBean and Gornick 1994; Giacomini 1996; Mort, et al. 1994), it is possible to select health conditions and the appropriate procedures. And, by matching the patient’s health needs with rates of utilization of the appropriate procedure disparities can be demonstrated. For example, if - as Todd et al. (2000, 1993) has demonstrated - African American and Latino patients who present at hospital emergency rooms with extremity fractures are not given analgesia, this can be interpreted as a clear difference in quality of care.

Medical/administrative record audits can be easily applied to all racial and ethnic groups, it would be easy to produce unique scores for sub-national units and the data can be interpreted by a broad audience. The conditions and procedures can be carefully selected to minimize confounding and audits can be conducted over time to monitor trends and patterns.

The assessment of adverse events due to negligence is also an attractive method to assess disparities. It is reproducible. Its accuracy and validity have been demonstrated. However, there is some potential for confounding. It can be used for both minority and non-minority populations and thereby facilitate group comparisons.

### **Approaches to Reporting.**

It is important that the data are reported in a way that is accessible to policy-makers and the general public. The U.S. Department of Labor produces a set of economic indicators that are closely watched and widely regarded as indicators of the economic status of the country (e.g. Consumer Price Index, Employment Cost Index, Employment Situation, Producer Price Index, Productivity and Costs, Real Earnings, U.S. Import and Export Price Indexes). Such “global” measures are valuable tools in informing the public and policymakers. It may be valuable to invest some resources in the creation of similar indicators to monitor progress in improving the nation’s health in general and eliminating healthcare disparities specifically.

The standard formats of reporting disparities used in healthcare research includes risk ratios, odds ratios, and difference scores. Each of these methods have disadvantages. Table 4 presents simulated data on use of cardiac catheterization among 250 African American and White patients who were appropriate candidates for the procedure.

To calculate the risk ratio (also called rate ratio or ratio of rates) one would compute the ratio of the percentage of patients in each group that received catheterization. Thus,

$$\text{Risk Ratio} = 33\% \div 57\% = .58$$

This statistic represents the risk of receiving catheterization for African Americans relative to Whites. Thus, it is a measure of the degree of disparity in catheterization for African Americans relative to Whites. However, it does not account for the possibility of over utilization of the procedure among Whites.

A second standard approach is to compute the odds ratio. This statistic is computed by taking the ratio of the odds of receiving catheterization for one group relative to the other. Thus, the odds of receiving catheterization for African Americans is  $25 \div 50 = .5$  and the odds for Whites is  $100 \div 75 = 1.33$ . The odds ratio is,

$$\text{Odds Ratio} = .5 \div 1.33 = .38$$

This statistic represents the degree of disparity in the relative odds of getting catheterization. Like the risk ratio it expresses disparity relative to Whites.

A third approach is to take the simple difference in percentages for each group. Thus, 57% of Whites receive the procedure and 33% of African Americans received it.  $57 - 33 = 24$ . A limitation to each of these approaches (besides again using one group as the standard) is that the

magnitude of the difference is not changed by qualitative differences in the rates. For example  $25 - 1 = 24$  also,  $100 - 76 = 24$ .

One approach to consider is the ratio of healthcare inequality. This statistic can be computed by first computing predicted and observed percentages of catheterization received by each group. This can be done as follows, determine the number of total patients that African Americans and whites represent ( $75 \div 250 = .3 \times 100 = 30\%$  for African Americans and for Whites  $175 \div 250 = .7 \times 100 = 70\%$ ). Since African Americans comprise 30% of the patients that need the procedure, one would expect they would receive 30% of the catheterization. The degree to which the predicted percentage of catheterization deviates from the observed percentage indicates the degree of disparity in obtaining healthcare resources that were expended. Thus the ratio is produced by computing the ratio of observed to predicted catheterization. For African Americans  $20 \div 30 = .67$  and for Whites  $80 \div 70 = 1.14$ . It can be said, therefore, that African Americans received 67% of the number of catheterization than they should have received and Whites received 14% more than their share of catheterization. This approach can be used to produce a unique score for each group (including Whites). Also the score is easily understood. A score of 1 can be interpreted as equilibrium between observed and expected utilization. A score greater than 1 indicates the procedure is used in the group more than one would expect given a color-blind allocation of resource.

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Table 1. Areas of healthcare with the greatest disparities in healthcare services and quality (selected studies).

Health Condition	Comparison Groups	Reference and Disparity
Heart Disease	African American vs. White	<i>Ayanian, et al. (1993)</i> – Black patients with myocardial Infarction less likely than Whites to receive thrombolysis 9% vs. 17%. No race difference in refusal rate.
	African American vs. White	<i>Peterson et al. (1994)</i> – Black patients with myocardial Infarction in the VA system less likely than White patients to receive cardiac recatheterization, 42% vs. 54%.
	Hispanic vs. White	<i>Ramsey et al. (1997)</i> – After adjustment for confounding factors, Hispanics were less likely to receive PTCA compared with Whites, 13% vs. 23%.
Cancer	Hispanic vs. White	<i>Perez-Stable et al. (1995)</i> – Hispanic males less likely to have a digital-rectal examine within the past 2 years adj(OR) = 0.54
	African American vs. White	<i>Burns, et al. (1996)</i> – After adjusting for income, among women that had at least one primary care visit, white women (15%) were more likely than black women (9%) to receive mammography.
	African American vs. White	<i>Cooper et al. (1996)</i> – After adjusting for age, comorbidity, location of tumor and extent of tumor, white patients (78%) were more likely to undergo surgical resection compared with black patients (68%).
Diabetes and Renal Disease	African American vs. White	<i>Epstein et al. (2000)</i> – Among renal transplant candidates, 90.1% of black and 98% of whites were referred for evaluation (rr=.92). 71% of blacks vs. 86.7% of whites were placed on the waiting list (rr=.82) and 16.9% of blacks vs. 52% of whites underwent transplantation (rr=.32). Among inappropriate candidates, 57.8% of whites and 38.4% of blacks were referred for evaluation, 30.9% of whites and 17.4% of blacks were placed on the waiting list, and 10.3% of whites vs. 2.2% of blacks underwent transplantation.
	African American vs. White	<i>Cowie and Harris (1995)</i> – Compared with Whites, African American diabetics less likely to be treated with daily insulin injections and self-monitoring blood glucose (35% vs. 54%). Also, although higher proportions of African Americans (43%) compared with Whites (32%) received patient education, the mean number of hours of instruction was lower for African Americans.
	African American vs. White	<i>Wang and Javitt (1996)</i> – African Americans with diabetes were 30% less likely to have eye care visits compared with Whites.
Hiv/aids and Infectious Diseases	African Americans, Hispanic and White	<i>Moore et al. (1994)</i> – 63% of whites vs. 48% of black received antiretroviral therapy (adj(OR)=.59) 82% of whites vs. 58% of black received PCP prophylaxis (adj(OR)=.27).

	Hispanic vs. White	<i>Mark and Paramore (1996)</i> – White patients were more likely than Hispanic patients to have received an influenza vaccine (51% vs. 35%). And, Whites were more likely to have been immunized for pneumococcal pneumonia 17% vs. 23%.
Prescription Drugs	African American vs. White	<i>Khandker and Simoni-Wastila (1998)</i> – Black children used 2.7 fewer prescriptions relative to white children, Black adults used 4.9 fewer prescriptions, and Black seniors used 6.3 fewer prescriptions.
	African American vs. White	<i>Segal et al. (1996)</i> – African American psychiatric patients were more likely to receive an antipsychotic agent compared with whites. OR=1.67
Pain Medication	African American, Hispanic, White and Asian	<i>Ng et al. (1996)</i> – mg/h of narcotics whites=11.03, blacks 12.13, Hispanics=9.53, Asians=10.21
	African American vs. White Hispanic vs. White	<i>Todd, et al. (2000)</i> – African American patients presenting to an emergency department with a broken limb was less likely to receive pain medication compared to White patients (57% vs. 74%). <i>Todd et al. (1993)</i> – Hispanic patients presenting to an emergency department with a broken limb was less likely to receive pain medication compared to White patients (adjusted OR=7.36).

Table 2. Areas of healthcare without disparities in healthcare services and quality

Procedure	Comparison Groups
Fecal occult blood test over 2 years	Hispanic vs. White
Sigmoidoscopy over 5 years	Hispanic vs. White
Pap smear with the past 3 years,	Hispanic vs. White
Clinical breast examine in the past 2 years.	Hispanic vs. White
Screening mammogram within the past 2 years	Hispanic vs. White
In-hospital mortality rates among HIV patients	African American, Hispanic and White

Table 3. Assessment of methods for healthcare disparities.

Review Criteria	Patient Assessment	Medical/ administrative Record Audit	Health Status Outcomes
Applicable to multiple race/ethnic groups	Yes	Yes	Yes
Produce scores for sub-national unites	Yes	Yes	Yes
Data sources must be broadly accessible	Yes	Yes	Yes
No Confounding	Patient perceptions can be influenced by external factors	Very little	Health status can be influenced by factors outside of the healthcare setting
Longitudality	Yes	Yes	Yes

Table 4. Simulated Data

	Black	White	Total
# of Patients	75	175	250
# receiving procedure	25	100	125
% receiving procedure	33%	57%	50%
Predicted % of catheters received by group	30%	70%	100%
Observed % of catheters received by group	20%	80%	100%

Table 4. Classification Matrix for measures for the National Health Care Quality Report.

Consumer Perspectives				
Components of Healthcare Quality	Staying healthy	Getting Better	Living with illness or disability	Coping with the end of life
Safety				
Effectiveness				
Patient Centeredness				
Timeliness				