

# A Decade of Research on Disparities in Medicare Utilization: Lessons for the Health and Health Care of Vulnerable Men

Medicare research has shown that there are substantial disparities by race and socioeconomic status in use of services. In this article, I review past research and discuss how findings apply specifically to vulnerable men aged 65 years or older.

Six lessons from this review are identified and illustrated here. Disparities in certain measures of health are growing; to reverse this trend, substantial efforts are needed, including dissemination of information about disparities as well as testing of hypotheses regarding underlying causes. (*Am J Public Health*. 2003;93:753–759)

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## MEDICARE PROVIDES

a unique case study of the critical role that data play in program evaluation. Studies of patterns of Medicare utilization show clearly that the program's primary goal—to ensure access to and use of needed health care among all persons aged 65 years or older—has not yet been met. Before Medicare was enacted, elderly Blacks and the poor made fewer office visits and were admitted for inpatient hospital care less frequently than Whites and individuals who were more economically advantaged.<sup>1</sup> Public policy experts raised concerns about these disparities in health care. An important issue was that only about half of the population aged 65 years or older had hospital insurance, reflecting, in part, the fact that the majority of persons in this age group were no longer in the labor force. Without access to employment-related coverage, many of these individuals—who were part of an age group that, at the time, included the highest percentage of persons living at or below the poverty level—could not afford private health insurance.

These financial barriers to health care, and people's fear of becoming impoverished and in need of charity care, were major factors in the passage of Medicare. Under the landmark Medicare legislation of 1965, virtually the entire population aged 65 years or older was eligible to participate (about 95% of all such

individuals), and it was expected that Medicare utilization would primarily reflect need for health care services.

However, research from the past decade shows that there are still substantial disparities according to race and socioeconomic status (SES) in use of health care services. White beneficiaries and enrollees who are economically and socially advantaged—and in better health—use more of the types of services that prevent illness and improve health and functioning than do other Medicare beneficiaries who are members of minority groups, less advantaged, and in poorer health. In contrast, Black beneficiaries and elderly persons who are disadvantaged undergo more non-elective surgical procedures that are associated with poor management of chronic disease.<sup>2</sup>

## LESSONS LEARNED FROM ANALYZING DISPARITIES

Knowledge about disparities in Medicare use developed over time. Two catalysts helped to expand the perspective of Medicare research. First, new data became available that could be used to study rates of utilization of specific services; second, concepts from the social sciences were incorporated into Medicare research to study the effects of SES on the use of services. The way in which this knowledge developed and the major lessons learned are summarized in the sections to follow.

## Lesson 1: Health Insurance for the Elderly Has Substantially Increased Their Access to Services

In Medicare's first year of operation, the amount of charity care declined substantially among persons aged 65 years or older. Rates of inpatient hospital admissions and physician visits in the first year after Medicare had been implemented indicated that gaps in utilization between Blacks and Whites and between the rich and poor were beginning to close.<sup>3</sup>

Medicare's administrative data system has been the primary source of information used to track access to and utilization of physicians' services and inpatient hospital care. This system contains information on all claims submitted for payment as well as information for each beneficiary, including age, sex, and race. In addition, the Medicare Current Beneficiary Survey, a household survey sponsored by the Centers for Medicare and Medicaid Services (CMS), has been conducted for several years to collect information from a sample of beneficiaries about all covered and uncovered health care services used by the elderly.

Special strengths of Medicare's administrative database are its vast size and its use of a unique person identifier, permitting linkage of enrollment and claims data for each beneficiary. Nevertheless, Medicare's administrative data involve a number of limitations in terms of analysis of ac-

cess and quality of care. For example, the system does not contain sufficient beneficiary information to assess the need for most services used under the program. Nor does it provide information necessary to assess the outcomes of most services paid for by the program. Moreover, early on, claims data did not include information about patients' diagnoses or the procedures they underwent, and enrollment data did not contain information on income, education, or other measures of SES.

During the first 20 years of program operation, there was a steady rise in total hospital discharge rates among both Black and White beneficiaries, but rates for Blacks accelerated faster than rates for Whites. By 1986, the hospital discharge rate for Black beneficiaries (334 discharges per 1000 enrollees) exceeded the rate for Whites (325 per 1000).<sup>4</sup> This trend suggested that Medicare had improved access to health care and that racial disparities were well on their way to being eliminated.

In the early 1990s information became available for the first time regarding specific procedures undergone by patients. As shown next, the Medicare experience draws attention to the importance of data in gaining insight into barriers to care other than health insurance coverage.

**Lesson 2: Medicare Utilization Patterns Indicate That Health Insurance Alone Does Not Ensure Equal Use of Services**

In the 1980s, Congress introduced new formulas for paying hospitals and physicians that required information about patients' diagnoses and procedures. As a result, Medicare's administrative data system began to ac-

cumulate information about the use of every service covered by Medicare.

Despite the fact that information on need for services is not generally available in Medicare's administrative system, concern has been raised by substantial racial differences that have been found in the use of many services. For example, one study showed that rates for the 17 most commonly performed hospital surgeries were notably lower among Black beneficiaries than White beneficiaries.<sup>4</sup> In 1986, for example, coronary artery bypass graft rates per 1000 population were 2.89 for White beneficiaries and 0.81 for Black beneficiaries, a Black-to-White rate ratio of 0.28, indicating that Blacks underwent 72% fewer of these procedures than Whites. The Black-to-White rate ratio for angioplasty was 0.32; in other words, Black beneficiaries underwent 68% fewer of these procedures.

In the early 1990s, after Medicare began to cover screening mammography (1991) and influenza immunizations (1993), disparities were again found by race. The Black-to-White ratio for mammography during 1992–1993 was 0.74, indicating that elderly Black women received 26% fewer mammograms than White women. Influenza immunization rates were even more disparate, with Black-to-White ratios averaging only 0.50 for the years 1993 through 1997.<sup>2</sup> Racial disparities in use of preventive and cancer screening services were particularly of concern, because these services are recommended for all elderly individuals.

In contrast, 4 surgical procedures were identified that Black beneficiaries received at sub-

stantially higher rates than White beneficiaries. These procedures—all nonelective and associated with poor outcomes—were partial or complete lower limb amputation (usually as a consequence of diabetes), bilateral orchiectomy (removal of both testes, usually in the treatment of cancer), excisional debridement (removal of tissue, usually in the treatment of ulcers), and arteriovenostomy (used with renal dialysis).<sup>5</sup> For example, the Black-to-White rate ratio for limb amputation was 3.64 in 1986, indicating that Blacks underwent this procedure more than 3 times as frequently as Whites.

Analyses of many different types of covered services showed 3 distinct patterns of utilization: in comparison with White beneficiaries, Black beneficiaries used fewer preventive and health promotion services, such as influenza immunization and mammography; underwent fewer diagnostic tests, such as colonoscopy, and fewer common surgical procedures, such as coronary artery bypass graft; and underwent more of the types of procedures associated with poor management of chronic disease, such as partial or complete lower limb amputations.

Studies focusing on younger persons and on individuals involved in Department of Veterans Affairs programs<sup>6</sup> show many similarities with regard to racial disparities, suggesting that disparities in Medicare coverage are not likely due to any particular feature of the program or its administration. The perplexing Black–White differences observed in Medicare use raise the following question, however: If utilization rates were adjusted for

differences in SES, would racial disparities disappear?

**Lesson 3: SES Is Associated With Health Care Utilization and Explains Some but Not All Racial Disparities**

To address the absence of SES information, researchers at CMS linked Medicare administrative data for 1993 with US census data on a zip code basis. The linked data were used to study the effects of race and SES on health care. This approach was derived from studies validating use of aggregate information on income or education available from the US census at the zip code or census-tract level as a proxy for an individual's actual income or education.<sup>7–9</sup> It is important to note that measures of SES derived from census information reflect the characteristics of both the individual and the area where the individual resides.

The data from the US census indicated that median household incomes in areas where elderly Blacks resided differed substantially from median household incomes in areas where elderly Whites resided. More than 25% of elderly Whites lived in zip code areas where the median household income was \$20 500 or more, while only 6% of elderly Blacks lived in such areas. In contrast, 73% of elderly Blacks lived in areas where the median household income was \$13 100 or less, as opposed to only 19% of elderly Whites.

Adjusting rates of Medicare use for differences in income resulted in a small to modest decrease in racial disparities in utilization. For example, a multivariate analysis of Medicare utilization rates for 1993 showed that the Black-to-White rate ratio for coronary artery bypass graft,

adjusted for age and sex, was 0.40; after adjustment for age, sex, and income, the ratio increased to 0.43. After similar adjustment, the Black-to-White ratio for angioplasty increased from 0.46 to 0.51.<sup>5</sup> Although adjustment for SES differences did not eliminate disparities in use of services, the fact that income or education was associated with access and utilization of health care was important in conceptualizing pathways leading to disparities in Medicare use.

Use of a zip code area's median income in analyses focusing on Medicare was validated through similar analyses reported in the Medicare Current Beneficiary Survey. Cell sizes in this survey were sufficiently large to validate utilization rates in regard to influenza immunizations and mammograms; however, cell sizes were too small to allow development of utilization rates for less frequently used services such as coronary artery bypass graft.<sup>5</sup>

Social scientists have shown that a gradient effect is associated with SES and health: as SES increases, health increases. This same effect has been observed in Medicare utilization data for both Black and White beneficiaries: as income (or education) increases, utilization rates for preventive services (e.g., influenza immunizations) and common surgical procedures that improve health (such as coronary artery bypass graft) tend to increase. In contrast, use of nonelective "last resort" procedures, such as limb amputations, tends to decline as income increases.

Recently, the Institute of Medicine published a report designed to provide guidance to the nation in examining health care disparities; the report included papers

that focused on fundamental topics relating to analysis of such disparities.<sup>10</sup> One paper examined the findings of experts who have assessed different SES measures and methods used in studying the effects of social and economic factors on health and health care<sup>11</sup>; the conclusion reached was that no one measure of SES is best. Rather, many individual measures, such as income, poverty, wealth, education, and occupation, as well as composite SES indices, can provide insight into the different pathways that may lead to disparities in health care. The aforementioned paper also discussed unresolved issues such as how to devise measures of SES that would reflect changes from birth to old age.

#### **Lesson 4: Racial and SES Disparities in Use of Services Tend to Persist Over Time**

Studies that have tracked disparities in utilization of Medicare services have shown that Black-to-White ratios have changed relatively little over time. As an example, Black-to-White rate ratios for influenza immunization (0.47 in 1993 and 0.53 in 1997) and mammography (0.74 in 1992–1993 and 0.79 in 1996–1997) showed modest increases over time.<sup>2</sup>

Recent Medicare data available on the Web site maintained by the CMS (<http://www.cms.hhs.gov/preventiveservices>) show that, in 1999, influenza immunization rates among persons aged 65 years or older were 24.5% for Blacks and 46.8% for Whites, a Black-to-White ratio of 0.52. In 2000–2001, rates of mammography use among women aged 65 years or older were 41.6% for Blacks and 52.9% for Whites, a Black-to-White ratio of 0.79. Data on

pneumococcal immunizations, accumulated for the period 1991 through 1998, showed that 17.6% of Blacks and 33% of Whites were immunized over that period, a Black-to-White ratio of 0.53.

There were increases as well in Black-to-White ratios for common surgeries such as coronary artery bypass graft (0.28 in 1986 and 0.39 in 1992), carotid endarterectomy (0.28 in 1986 and 0.31 in 1992), and knee replacement (0.57 in 1986 to 0.64 in 1992). Ratios for nonelective surgeries, such as partial or complete lower limb amputation, did not improve, measuring 3.24 in 1986 and 3.62 in 1992.<sup>4</sup>

#### **Lesson 5: Differences by Race in Need for Health Care Do Not Explain Disparities in Health Care**

Differences in the need for health care have been shown to account for very little of the persistent racial disparity in the use of health care services. For example, one study showed that Black veterans admitted to the hospital with an acute myocardial infarction were 54% less likely than White veterans to receive a coronary artery bypass graft and 42% less likely to receive balloon angioplasty.<sup>6</sup> Additional studies in the literature have revealed race disparities in treatment of patients with heart disease and other conditions.<sup>12–16</sup>

Another example involves partial or complete lower limb amputations. As noted, the rate of amputations among elderly Blacks has been shown to be more than 3 times the rate for elderly Whites. However, diabetes, often the underlying cause of lower limb amputation, has been found to be only 1.7 times as prevalent among Blacks as

among Whites,<sup>5</sup> raising questions about the quality and effectiveness of the health care provided to vulnerable patients with chronic conditions. Findings of disparities in amputation rates are consistent with the results of a study of Medicare beneficiaries undergoing surgery for peripheral vascular disease that showed that Black beneficiaries were less likely to have leg-sparing surgery than White beneficiaries.<sup>17</sup> In essence, racial disparities in health care cannot be explained by differences in need.

Health care disparities according to race and SES raise particular concerns when they are juxtaposed against disparities in health outcomes. Among individuals aged 65 years or older, Blacks have higher mortality rates than Whites for all causes combined and for the 3 leading causes of death among the elderly: heart disease, cancer, and stroke.<sup>18</sup> In comparison with their White counterparts, elderly Blacks also experience higher rates of morbidity due to hypertension and diabetes, as well as higher rates of disability.<sup>2</sup> These disparities in health suggest that elderly Blacks need as much ongoing ambulatory care as elderly Whites, or possibly more. Yet Medicare data show that elderly Blacks make fewer physician office visits, receive fewer preventive and cancer screening services (such as influenza immunizations, mammograms, and prostate examinations), and undergo fewer common procedures that improve health and functioning (such as coronary artery bypass graft or hip and knee replacement), while making more emergency room visits and undergoing more procedures associated with poor management of chronic disease.

**Lesson 6: Disparities in Medicare Use Are Largely Unexplained**

Why disparities persist is largely unexplained. There are probably a multitude of pathways leading to disparities in Medicare use. It is relatively easy to uncover plausible explanations for why race and SES may be associated with the use of preventive and health promotion services. White beneficiaries and beneficiaries at increased income levels are more likely to receive care in physicians' offices (rather than in emergency rooms), and thus their providers may be more effective in providing comprehensive care, especially in regard to recommending and promoting immunizations and cancer screening.

Beneficiaries themselves may have health habits that promote health, such as initiating appointments to obtain recommended preventive services and adhering to healthy lifestyles, including good nutrition and exercise. Good health habits are likely to be associated with education and with economic advantage, and, as noted, income and educational attainment differ substantially between elderly Blacks and Whites. Personal health behaviors have been shown to be associated with disparities in the use of preventive services, in that utilization of such services is often self-initiated.<sup>19,20</sup>

At the same time, it is not easy to determine plausible explanations for why racial disparities occur in the use of procedures that are generally ordered by physicians, such as coronary artery bypass graft, carotid endarterectomy, and hip replacement. Whether race and SES influence the decision-making process of physicians is, in gen-

**TABLE 1—Life Expectancy, in Years, for Men Aged 65 Years, by Race: Selected Years, 1960–1999**

	1960	1970	1980	1985	1990	1995	1999
White	12.9	13.1	14.2	14.5	15.2	15.7	16.1
Black	12.7	12.5	13.0	13.0	13.2	13.6	14.3

Source. Data are from the National Center for Health Statistics.<sup>23</sup>

eral, difficult to explore. The findings of one study suggest that race is associated with physicians' recommendations for cardiac catheterization among patients with heart disease.<sup>21</sup> Another study showed that race, ethnicity, and SES are associated with physician recommendations for mammography.<sup>22</sup>

**DISPARITIES AND THE HEALTH AND HEALTH CARE OF MEN**

Tables 1 through 5 illustrate the lessons described here with

information regarding the health and health care of men aged 65 years old or older. In 1960, before initiation of the Medicare program, White and Black men at age 65 could expect to live an additional 12.9 years and 12.7 years, respectively, a difference of 0.2 years (Table 1). Over the next 40 years, life expectancy at age 65 increased for both White and Black men but increased more steadily for White men. By 1999, life expectancy at age 65 was 16.1 years for White men and 14.3 years for Black men, a difference of 1.8 years. Thus, dis-

parities in life expectancy are greater now than before Medicare went into effect. (A similar trend occurred among women. In 1960, at age 65, White women and Black women had life expectancies of 15.9 and 15.1 years, respectively [0.8 years apart]; in 1999, the corresponding figures were 19.2 years and 17.3 years [1.9 years apart].<sup>23</sup>)

Table 2 illustrates the association between SES and mortality. In 1993, age-adjusted death rates were 6.7 deaths per 100 White men and 8.0 deaths per 100 Black men. Within both racial groups, death rates increased as income levels declined. Among White men, those in the lowest income group had a death rate 19% greater than those in the highest income group; among Black men, the difference was 6%. The Black-to-White age-adjusted death rate ratio was 1.18. After further adjustment for

**TABLE 2—Mortality Rates per 100 Men Aged 65 Years or Older Enrolled in Medicare, by Race and Income: 1993**

Income Level, \$	65–74 y	75–84 y	≥85 y	Crude Total	Age-Adjusted Total <sup>a</sup>	Relative Mortality
<b>White men</b>						
Total	3.5	8.1	19.01	6.1	6.7	
≥20 501	2.9	7.3	18.9	5.4	6.2	1.00
16 301–20 500	3.5	8.1	19.2	6.1	6.8	1.10
13 101–16 300	3.8	8.5	19.3	6.5	7.1	1.14
≤13 100	4.0	8.9	19.1	6.8	7.3	1.19
Income adjusted	...	...	...	...	6.8	...
<b>Black men</b>						
Total	5.1	9.8	16.9	7.5	8.0	
≥20 501	4.4	9.9	17.6	6.6	7.7	1.00
16 301–20 500	4.6	9.5	18.1	6.6	7.8	1.01
13 101–16 300	5.0	9.6	18.2	7.1	8.0	1.04
≤13 100	5.3	9.9	16.7	7.8	8.1	1.06
Income adjusted	...	...	...	...	7.9	...
Ratio: Black to White income	...	...	...	...	1.18	...
Ratio: income adjusted	...	...	...	...	1.16	...

Source. Data are from the Health Care Financing Administration.<sup>27</sup>

<sup>a</sup>Adjusted to the total male and female population.

**TABLE 3—Percentages of Men Aged 65 Years or Older Undergoing Prostate Cancer Screening and Receiving Influenza Immunization, by Race and Income: Medicare Enrollees, 1998**

	White Men, %			Black Men, %		
	All Incomes	High Income	Low Income	All Incomes	High Income	Low Income
Prostate examination	67	74	60	55	70	50
Influenza immunization	72	75	69	49	52	49

Note. High income was defined as \$25 001 or more; low income was defined as \$25 000 or less.  
Source. Data are from Gornick et al.<sup>19</sup>

income, the ratio fell slightly to 1.16. Taken together, Tables 1 and 2 show that health outcomes, as measured by mortality, are associated with race and income.

The disparity in life expectancy at the age of 65 years, a disparity that has increased over the past 40 years, probably reflects many social and economic factors other than health care, including nutrition, housing, and lifestyle. However, it is reasonable to believe that current racial disparities in health reflect, to some extent, disparities in use of the types of health care recommended by health experts, that is, a focus on health promotion and disease prevention services.

Tables 3 through 5 present data derived from a study based on the 1998 Medicare Current Beneficiary Survey.<sup>19</sup> They illustrate that not only race and income, but also behaviors, influence the use of health care. These tables focus on information on prostate cancer screening, either via digital rectal examination or the prostate specific antigen test.

Prostate cancer is the leading cancer diagnosed among men. Black men in the United States have the highest rates of this cancer in the world.<sup>24</sup> Disparities by race in prostate cancer screening are especially troubling not only because of their incidence but also in light of cancer stage at

time of diagnosis as well as mortality rates due to prostate disease. Data from the Surveillance, Epidemiology, and End Results program (among men of all ages) for the period 1986 through 1992 show that, at the time of their diagnosis, 59% of White men had localized prostate cancer, as compared with 54% of Black men; age-adjusted death rates for men aged 65 years or older for the period 1990 through 1994 were 496.0 per 100 000 among Black men and 223.8 per 100 000 among White men.<sup>25</sup>

Table 3 shows the percentages of Medicare beneficiaries who had prostate cancer screening examinations and influenza immunizations. Among men at all combined levels of income in 1998, 67% of White men and 55% of Black men had undergone prostate cancer screening, a Black-to-White ratio of 0.82. Even greater disparities are seen for influenza immunizations: 72% of White men and 49% of Black men received an influenza immunization, a Black-to-White ratio of 0.68. Table 3 also shows that, among members of both races, income was associated with the use of each service. The effect of income is especially notable for prostate cancer screening. Among White men, 74% of those with high incomes were screened, as compared with only

60% of those with low incomes; the income effect was even greater among Black men, with 70% of high-income men screened in comparison with only 50% of low-income men.

Beneficiaries may initiate preventive service use, and providers may encourage their patients to schedule such services. It has been hypothesized that characteristics of beneficiaries (e.g., knowledge and concern about

health promotion) and characteristics of providers (e.g., having a particular interest in health promotion) are likely to be exhibited in certain behavioral patterns.<sup>19</sup> Table 4 shows the results of a test of the hypothesis that such behavioral patterns would be exhibited as a propensity to use (or not use) preventive and cancer screening services covered by Medicare, and Table 5 shows the results of a test of the hypothesis that behavioral patterns relating to quitting smoking (or continuing to smoke) would be associated with a propensity to use (or not use) preventive and cancer screening services.

The first hypothesis was substantiated for men of both races and high- as well as low-income groups. As shown in Table 4, 80% of high-income White men who had undergone a prostate

**TABLE 4—Percentages of Men Aged 65 Years or Older Receiving Influenza Immunization, by Prostate Cancer Screening Status, Income, and Race: Medicare Enrollees, 1998**

	White Men, %		Black Men, %	
	High Income	Low Income	High Income	Low Income
Had prostate examination	80	75	58	62
Did not have prostate examination	63	61	37	36

Note. High income was defined as \$25 001 or more; low income was defined as \$25 000 or less.  
Source. Data are from Gornick et al.<sup>19</sup>

**TABLE 5—Percentages of Men Aged 65 Years or Older Undergoing Prostate Cancer Screening, by Smoking Status and Income: Medicare Enrollees, 1998**

	High-Income Men, %	Low-Income Men, %
Former smokers	76	62
Current smokers	62	45

Note. High income was defined as \$25 001 or more; low income was defined as \$25 000 or less.  
Source. Data are from Gornick et al.<sup>19</sup>

examination also had received an influenza immunization; conversely, among high-income White men who had not undergone a prostate examination, only 63% had received an influenza immunization. Similarly, 58% of high-income Black men who had undergone a prostate examination had received an influenza immunization, while, among high-income Black men who had not undergone a prostate exam, only 37% had received an influenza immunization. These relationships were also evident among low-income men. For example, 62% of low-income Black men who had undergone a prostate examination had received an influenza immunization, and only 36% of low-income Black men who had not undergone a prostate examination had received an influenza immunization.

The second hypothesis, linking use of preventive services with health behaviors such as smoking cessation, is illustrated in Table 5. Among high-income men (both races combined) who quit smoking, 76% had undergone a prostate examination; however, among high-income men who had not quit smoking, only 62% had undergone a prostate examination. Similarly, 62% of low-income men who quit smoking had undergone a prostate examination, but only 45% of such men who still smoked had done so. These results confirm the hypothesis that use of health promotion and disease prevention services represents part of a pattern of health-seeking behaviors.

## DISCUSSION

Under the assumption that the introduction of the National

Health Service in 1948 in Great Britain equalized use of health care services across all subgroups of the population, a 1980 report (known as the Black report) concluded that health care does not play an important role in health. This conclusion was drawn because disparities in health in Great Britain had not diminished over the first 30 years of the National Health Service.<sup>26</sup> In the United States, it is also the case that disparities in health status have not declined in the population aged 65 years or older since the implementation of the Medicare program. However, Medicare data provide abundant evidence that health insurance coverage, in and of itself, does not ensure equal access to and utilization of services.

In the past decade, analyses of health care utilization point to the profound effects of race, ethnicity, and SES on access to and use of health care services, even among individuals with health insurance coverage. This new knowledge indicates that we need to renew our efforts to meet the goals set forth by the Medicare legislation, namely, equal access to and use of needed services among all of the elderly population enrolled in the program.

This renewed focus will require a greater emphasis on disseminating information regarding health care disparities to those who deliver health care as well as to beneficiaries and their families. It is important that health care information be disseminated not only in terms of disparities between Blacks and Whites but also in terms of the influence of SES. Data are often unavailable to develop utilization rates for races other than White and

Black or for ethnic groups other than Hispanic. Thus, it is important to recognize that socially and economically disadvantaged persons of all races and ethnicities are likely to experience disparities in the use of health care services even if they have health insurance coverage.

Currently, little is known about the most probable causes of and explanations for differences in patterns of use of services among those who are most vulnerable to poor health outcomes. As shown here, there is empirical evidence that, among men enrolled in Medicare, Blacks undergo fewer prostate screening examinations and receive fewer influenza immunizations than Whites; in addition, men (either White or Black) who are less economically advantaged have fewer prostate screening examinations and influenza immunizations than men who are more advantaged.

There is also evidence that factors other than race and SES influence use of health care services. It has been shown here that men who have had a prostate screening examination (White or Black, high income or low income) are more likely to receive an influenza immunization than men who have not had such an examination, suggesting that behavioral factors play a significant role in health care. It is important to gain new knowledge about ways of encouraging behaviors recommended by health experts, such as using health promotion and disease prevention services. Thus, there is a pressing need for studies that can help to shed more light on factors that influence disparities in health care as well as studies that identify ways of strengthening health promotion and disease

prevention, especially among subgroups at risk for poor health outcomes. ■

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