Disparities in Medicare Services: Potential Causes, Plausible Explanations, and Recommendations

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Race/ethnicity and socioeconomic status (SES) are associated with the use of Medicare services. In this article, the author juxtaposes disparities in health outcome measures (including death rates for heart disease, cancer, and stroke) with disparities in the use of elective services expected to improve health, and with disparities in the use of non-elective services associated with poor management of chronic disease. This approach is intended to provide information for judging (a) the reasonableness of the explanations offered for disparities in Medicare utilization and (b) the recommendations made to effect change.

INTRODUCTION

The purpose of this article is to provide information for health policy experts to use in considering a research agenda to study and experiment with approaches that have the potential for ameliorating disparities in health care. First, I provide information on disparities in various measures of health for vulnerable subgroups of the elderly, focusing on the three leading causes of death: heart disease, cancer, and stroke. Then, disparities in health are considered along with disparities found in the use of Medicare services. Finally, I examine potential explanations for disparities in Medicare utilization and offer a set of recommendations for change.

The fundamental issue addressed is whether differences in the use of Medicare services signify unequal access to health care. On one dimension of access—potential access—all of the elderly included in the study were insured by Medicare (although some differences may exist in supplemental coverage.) The arguments made in this article revolve around realized access—use of Medicare services—and focus on persistent disparities in Medicare utilization rates that appear inconsistent with the health care needs of vulnerable subgroups of the elderly (Aday, Fleming, and Anderson, 1984).

There are two major limitations to this article. First, health data systems in the United States often contain information broken out by race and ethnicity but rarely by income, education, or occupation, which makes it difficult to analyze the separate influences of race, ethnicity, and SES on health and health care. The lack of information on SES frequently leads analysts to use race and ethnicity as proxies for SES, under the assumptions that race and ethnicity are highly correlated with SES and that social and economic factors are the primary influences on health (alternatively referred to as “health status” or “health outcomes”) and health care (use of health care services) (Montgomery and Carter-Pokras, 1993). However, studies that have been able to control for SES often find

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that disparities by race persist, at least in part, indicating that SES, race, and ethnicity are likely to have separate influences on health and health care. Despite the limitations in the data, striking disparities can often be shown in health and health care, by race, ethnicity, and SES. A second limitation is the lack of published studies testing possible causes and explanations for disparities in Medicare utilization (Mayberry et al., 1999). Thus, I can only explore potential explanations, looking for those that do not fit the data and those that do.

DEMOGRAPHIC FACTORS

Race and Ethnicity

Race and ethnicity in the United States are associated with health status. Every major health measure (mortality, morbidity, and disability) indicates that black persons have poorer health than white persons (National Center for Health Statistics, 1998). Less consistency is found for other subgroups. For example, among those age 65 or over, morbidity rates are generally higher for Hispanic persons than for white persons; however, mortality rates are lower for Hispanic persons than for white persons, which is notable because of the relatively low incomes among Hispanic persons. Similarly notable are mortality rates for the elderly of Asian/Pacific Island origin, which are lower than the rates for elderly Hispanic, white, and black persons, as well as American Indians/Native Alaskans (National Center for Health Statistics, 1998). The favorable death rates for older Hispanic persons and Asian/Pacific Islanders may reflect certain cultural attributes, such as dietary habits and family support, that persist after immigrating to the United States and that are associated with positive health outcomes.

Although these associations are generally consistent over time (Dutton and Levine, 1989), certain relationships have been seen to change, suggesting that acculturation can erode the protective factors associated with an individual's country of origin. Examples frequently cited are the increase in the rate of heart disease among those of Japanese origin who migrated to Hawaii and the rise in hypertension among those of Mexican origin who have settled here (Markides, 1994).

Socioeconomic Status

Although the pathways between SES and health are complex and not fully understood, some of the causal links between SES (typically measured by income, education, and occupation) and health are self-evident: Families higher up in the income, education, and occupation scales have more resources to take advantage of those aspects of society associated with good health, such as health care, nutritious diets, healthy behaviors, safe neighborhoods, and non-hazardous occupations. Clearly, Medicare could not have been expected to affect all of the aspects of society associated with health, but it was expected to weaken the links between SES and health care, which, in turn, was expected to lessen the gaps in health across subgroups of the elderly.

Disparities in Income and Education

Minority status and various measures of SES are highly correlated, as shown in the data collected in the Medicare Current Beneficiary Survey (MCBS) for 1996 (Table 1). Among white beneficiaries, 33 percent had incomes greater than $25,000, compared with only 10 percent of black beneficiaries and 11 percent of Hispanic beneficiaries.

Table 1

Number and Percent Distribution of Medicare Beneficiaries Age 65 or Over, and Percent Completed High School, by Income and Race/Ethnicity: 1996

	Income Level					
	All Incomes		$25,000 or Less		$25,001 or More	
Characteristic	Number in Millions	Percent	Number in Millions	Percent	Number in Millions	Percent
All Beneficiaries	35.45	100	25.11	71	10.35	29
White	29.38	100	19.74	67	9.645	33
Black	3.093	100	2.78	90	0.313	10
Hispanic	2.196	100	1.964	89	0.232	11
Percent Completed High School	—	—	—	—	—	—
White	—	65	—	55	—	86
Black	—	37	—	33	—	79
Hispanic	—	30	—	25	—	75

SOURCE:Medicare Current Beneficiary Survey, 1996.Unpublished tabulations from the Health Care Financing Administration.

Table 2

Life Expectancy at Age 65, by Sex and Race: United States, Selected Years 1950-1997

Sex and Race	1950	1960	1970	1980	1990	1997
Male	Remaining Years					
White	12.8	12.9	13.1	14.2	15.2	16.0
Black	12.9	12.7	12.5	13.0	13.2	14.2
Difference	-0.1	0.2	0.6	1.2	2.0	1.8
Female						
White	15.1	15.9	17.1	18.4	19.1	19.3
Black	14.9	15.1	15.7	16.8	17.2	17.6
Difference	0.2	0.8	1.4	1.6	1.9	1.7

SOURCES: For 1950-1990:(National Center for Health Statistics, 1998.) For 1997:Hoyert, D.L., Kochanek, K.D., and Murphy, S.L.:Deaths:Final Data for 1997. *National Vital Statistics Reports* 47(19).Hyattsville, MD. 1999.

Sixty-five percent of white persons had at least a high school education, compared with less than 40 percent of black and Hispanic persons. As expected, income and education are highly correlated. Among those with incomes of more than $25,000, at least 75 percent of white, black, and Hispanic persons had completed high school, while among those with incomes of $25,000 or less, only 55 percent of white persons, 33 percent of black persons, and 25 percent of Hispanic persons had completed high school.

DISPARITIES IN MEASURES OF HEALTH

Life Expectancy at Age 65

Disparities in life expectancy at age 65 (remaining years of life) are higher now than in 1950, before Medicare began (Table 2). In 1950, at age 65, black males and white males had life expectancies that were very nearly equal. The same was true for black females and white females. However, in 1997, white males at age 65 could have expected to live 1.8 years more than black males, and white females could have expected to live 1.7 years more than black females. These disparities reflect the fact that, over the period 1950-1997, life expectancy at age 65 increased for both races and both sexes, but for white males, the increase was 3.2 years, compared with only 1.3 years for black males; for white females, the increase was 4.2 years, compared with 2.7 years for black females.

Annual Mortality Rates

Income is associated with mortality rates for both white and black persons. (The effects of income on health and on

Table 3

Number of Deaths per 100 Persons per Year for Medicare Beneficiaries Age 65 or Over, by Race, Sex, and Income: 1993

Sex and Race	Mean	Income Level $13,100 or Less	$13,101-$16,300	$16,301-$20,500	$20,501 or Over
Male					
Black	8.0	8.1	8.0	7.8	7.7
White	6.7	7.3	7.1	6.8	6.2
Female					
Black	5.2	5.2	5.3	5.0	5.3
White	4.5	4.6	4.5	4.5	4.4

SOURCE:(Health Care Financing Administration, 1995.)

the use of health care services are often more pronounced for white persons than for black persons.) As shown in Table 3, based on Medicare files linked to information from the 1990 U.S. census, in 1993, the number of deaths per 100 beneficiaries age 65 or over was higher for black males (8.0 deaths) than for white males (6.7); similarly, the mortality rate was higher for black females (5.2) than for white females (4.5). Among males of both races, the death rate declined as income increased. This was most notable for white males, with the number of deaths falling from 7.3 deaths per 100 white males with incomes less than or equal to $13,100 to 6.2 deaths per 100 white males with incomes equal to or greater than $20,501. For females of both races, the death rate was fairly flat across income groups.

Morbidity and Disability

The 1996 MCBS shows that race, ethnicity, and income are associated with morbidity and functional limitations (Table 4). Forty-four percent of Hispanic persons, 42 percent of black persons, and 25 percent of white persons reported their health as only fair or poor, but the percentage dropped substantially for those with incomes greater than $25,000. Diabetes was reported by about twice as many elderly black and Hispanic persons as white persons; and hypertension was more frequently reported by elderly black and Hispanic persons, compared with white persons. Limitations in activities of daily living (ADLs) and instrumental activities of daily living (IADLs) are also related to race and ethnicity, with 53 percent of black persons reporting some functional limitations, compared with 43 percent of white persons and 49 percent of Hispanic persons; for black, Hispanic, and white persons, the association between functional limitations and SES (as measured by income) is striking.

Table 4

Percent of Medicare Beneficiaries Age 65 or Over Reporting Selected Health-Status Measures, by Race, Hispanic Origin, and Income: 1996

Characteristic	White	Black	Hispanic
Rates Health as Fair or Poor			
All Incomes	25	42	44
$25,000 or Less	30	43	46
$25,001 or More	16	29	21
Has Diabetes			
All Incomes	13	25	25
$25,000 or Less	15	24	25
$25,001 or More	12	27	18
Has Hypertension			
All Incomes	49	66	55
$25,000 or Less	51	66	56
$25,001 or More	45	70	46
Limited in IADLs or ADLs			
All Incomes	43	53	49
$25,000 or Less	50	55	51
$25,001 or More	29	33	29

NOTES:IADLs are instrumental activities of daily living. ADLs are activities of daily living.

SOURCE:Medicare Current Beneficiary Survey for 1996.Unpublished data from the Health Care Financing Administration.

Deaths from Heart Disease, Cancer, and Stroke

For all causes combined, the death rate per 100,000 persons age 65 or over in 1997 was 5,656 for non-Hispanic black persons, 5,172 for non-Hispanic white persons, and 3,092 for Hispanic persons (Table 5). The three leading causes of death among the

Table 5

Deaths per 100,000 Persons Age 65 or Over, by Race/Ethnicity and Cause of Death: United States, 1997

Cause of Death	Non-Hispanic Black	Non-Hispanic White	Hispanic
All Causes	5,656	5,172	3,092
Diseases of the Heart	1,935	1,823	1,079
Malignant Neoplasms	1,354	1,138	652
Cerebrovascular Diseases	466	419	230

SOURCE: Hoyert, D.L., Kochanek, K.D., and Murphy, S.L.: Deaths: Final Data for 1997. *National Vital Statistics Reports* 47(19). Hyattsville, MD. 1999.

aged--heart disease, cancer, and stroke--account for two-thirds of all deaths. As shown in Table 5, the rate for each of the three leading causes of death was higher for black persons than for white persons and Hispanic persons. Among the 10 leading causes of death in 1997 for persons age 65 or over, non-Hispanic black persons had death rates that were approximately twice as high as non-Hispanic white persons for diabetes mellitus and nephritis, nephrotic syndrome, and nephrosis. These conditions are associated with end stage renal disease, which is about four times as prevalent among black persons as white persons. Death rates for septicemia, also among the 10 leading causes of death, were more than twice as high for non-Hispanic black persons as for non-Hispanic white persons.

Deaths from Cancer by Site

As previously noted, the death rate from cancer is substantially higher for elderly black persons than white persons. SEER (Surveillance, Epidemiology, and End Results) data from cancer registries maintained by the National Cancer Institute, National Institutes of Health, indicate that average annual mortality rates during the period 1990-1994 were higher for elderly black persons than elderly white persons for every major cancer site except bladder (Table 6). For prostate cancer, the death rate per 100,000 black males (496 deaths) was more than twice that for white males (224).

Table 6

Average Annual Mortality Rates from Cancer for Persons Age 65 or Over, by Race and Site of Cancer: 1990-1994

Site of Cancer	White	Black
	Deaths per 100,000 Persons	
All Sites	1,071	1,329
Colon and Rectum	127	156
Lung and Bronchus	306	337
Breast	77	81
Corpus and Uterus	22	40
Prostate	224	496
Urinary Bladder	27	25

NOTE: Death rates (all sites) in Table 6 differ somewhat from the cancer death rates in Table 5 because of differences in data sources and timeframe.

SOURCE: Ries, L.A.G., Kosary, C.L, Hankey, B.F., et al.(eds).: *SEER Cancer Statistics Review*, 1973-1994. NIH Publication Number 97-2789. National Cancer Institute, Bethesda, MD. 1997.

Cancer Stage and 5-Year Survival

SEER also provides two other important health indicators--stage of cancer at time of diagnosis and 5-year survival rates (Table 7). Among patients of all ages, for every major cancer site, black patients are less likely to have localized cancer at time of diagnosis, and fewer black patients diagnosed with cancer at ages 65 to 74 survive 5 years after diagnosis, compared with white patients.

DISPARITIES IN MEDICARE UTILIZATION

Background

In the early years of the Medicare program, inpatient hospital discharge rates (all diagnoses combined) were lower for elderly black persons than for elderly white persons. By the 1980s, however, these rates for black beneficiaries reached and then exceeded those for white beneficiaries. Weighed against the substantially lower rate for minorities and the poor

Table 7

Percent of Patients of All Ages with Localized Cancer at Time of Diagnosis, and Percent Surviving 5 Years Among Persons Diagnosed at Ages 65-74, by Race and Site of Cancer: 1986-1993

	Localized Cancer[1]		Surviving 5 Years[2]	
Site of Cancer	White	Black	White	Black
All Sites	—	—	58.8	44.7
Colon and Rectum	38	32	64.4	51.9
Lung and Bronchus	15	13	13.7	10.0
Breast	60	49	87.6	73.2
Corpus and Uterus	75	51	85.3	47.3
Prostate	59	54	93.6	80.0
Urinary Bladder	74	57	82.6	60.9

[1] Patients with localized cancer at time of diagnosis.

[2] Patients surviving 5 years among those diagnosed at ages 65-74.

SOURCE:Ries, L.A.G., Kosary, C.L, Hankey, B.F., et al.(eds).: *SEER Cancer Statistics Review*, 1973-1994.NIH Publication Number 97-2789. National Cancer Institute, Bethesda, MD. 1997.

before Medicare, access to inpatient hospital services under Medicare appeared to be very much improved. A quarter of a century elapsed from the time Medicare became operational (1966) until it was recognized that using inpatient hospital discharge rates to evaluate access to Medicare services obscured the fact that black inpatients received proportionally fewer of the surgical procedures commonly performed in the hospital to treat the elderly. Disparities became evident from the more detailed data available as a byproduct of changes enacted in Medicare payment methods. The new payment formulas, implemented in the 1980s first for hospitals and then for physicians, used information on patient diagnoses and medical and surgical procedures in determining payment. When data on the use of specific procedures were incorporated into the administrative data (and linked to median income at the ZIP Code level from the 1990 U.S. census), the new data set disclosed that a Medicare beneficiary's race and SES were associated with the use of Medicare services.

Tables 8-15 reflect the experience of Medicare enrollees in the fee-for-service (FFS) sector (about 85 percent of all enrollees at the end of 1997). Utilization rates are calculated using information from claims submitted for payment for the numerator of the rate and the number of enrollees receiving services in the FFS sector for the denominator. The services reflect the use of only a few of the many services Medicare covers. These services were selected to highlight services associated with the three leading causes of death and with ongoing health promotion and the use of preventive care. (Because health maintenance organizations [HMOs] are paid on a capitated basis, comparable utilization data are not yet available for capitated plans, although efforts are underway to develop data systems to monitor and evaluate the managed care sector.)

Cardiovascular and Cerebrovascular Disease

Rates of use for two common procedures used for coronary artery disease for black and white persons along with the ratios of these rates are shown in Table 8. In 1997, the black:white ratio of the rates for coronary artery bypass graft (CABG) was 0.32, or 68 percent lower for black persons; for percutaneous transluminal coronary angioplasty, the ratio of the rates was 0.48. The lower rate of revascularization among black

Table 8

Rates per 1,000 Medicare Enrollees Age 65 or Over for Selected Cardiovascular and Cerebrovascular Procedures, by Race, and Ratios of Rates

Procedure	Rate per 1,000 in 1997 White	Rate per 1,000 in 1997 Black	Black:White Ratio 1997	Black:White Ratio 1990
Coronary Artery Bypass Graft	7.28	2.35	0.32	0.23
Percutaneous Transluminal Coronary Angioplasty	9.71	4.68	0.48	0.33
Sonography of the Carotid Artery	68.0	51.0	0.75	0.80
Thromboendarterectomy	3.93	1.24	0.32	0.28

NOTE:Rates are age-adjusted to 1994 Medicare fee-for-service enrollment.

SOURCE:Health Care Financing Administration, Office of Strategic Planning: Part B Monitoring System, bills through December 31, 1998.

persons may be due, in part, to differences by race in the prevalence of coronary artery disease. However, studies that have examined revascularization rates for hospitalized patients after controlling for patient characteristics, including principal diagnosis and comorbidities, show substantial racial differences in revascularization rates (Ayanian et al., 1993). (Comparing the black:white ratio of the rates in 1990 to 1997 shows that disparities, as measured by the black:white ratios, lessened somewhat for these procedures over time.)

Sonography is used to diagnose occlusion of the carotid artery. In 1997, the black:white ratio for this procedure was 0.75; thromboendarterectomy is performed to treat occlusion of the carotid artery, and the black:white ratio was 0.32. These disparities by race raise concerns because of the relatively high rate of stroke among black persons. (Comparing the ratios of the rates for 1990 and 1997 shows that disparities increased slightly for sonography and decreased slightly for thromboendarterectomy.)

Selected Procedures to Diagnose Cancer

Breast Cancer Screening

Screening mammography became a covered benefit under Medicare on January 1, 1991. It was heralded as an important new service because mammography rates among older females, who face a greater risk of developing breast cancer than younger females, were consistently lower than mammography rates for younger women. During the period 1992-1993, in the FFS sector, only 28.1 percent of elderly black females received mammograms, compared with 38.2 percent of white females. The black:white ratio of 0.74 indicates that black females received 26 percent fewer mammograms than white females (Table 9). Over time, the rates increased for females of both races, but in 1996-1997, the rate for black females was still 21 percent lower than that for white females. As I show later, mammography rates are lower for the least affluent females of both races. The relatively low rate of mammography among black females raises serious concerns about access to care in light of the finding that black females have a higher rate of later stage breast cancer when first diagnosed and a lower 5-year survival rate after diagnosis than do white females (McCarthy et al., 1998).

Table 9

Mammography Rates for Medicare Enrollees Age 65 or Over, by Race, and Ratios of Rates: 1992-1997

Period	Rate per 100 Females White	Rate per 100 Females Black	Black:White Ratio of Rates
1992-1993	38.2	28.1	0.74
1994-1995	40.4	30.9	0.77
1996-1997	42.5	33.7	0.79

SOURCE:Health Care Financing Administration, Office of Information Services:National Claims History and Denominator File. Data developed by Office of Strategic Planning and Office of Clinical Standards and Quality.

Table 10

Rates per 1,000 Medicare Enrollees Age 65 or Over for Sigmoidoscopy and Colonoscopy, by Race, and Ratios of Rates

Procedure	Rate per 1,000 in 1997 White	Rate per 1,000 in 1997 Black	Black:White Ratio of Rates 1997	Black:White Ratio of Rates 1990
Sigmoidoscopy	33	20	0.63	0.57
Colonoscopy	59	50	0.84	0.84

NOTE:Rates are age-adjusted to 1994 Medicare fee-for-service enrollment.

SOURCE:Health Care Financing Administration, Office of Strategic Planning: Part B Monitoring System, bills through December 31, 1998.

Colon Cancer

Sigmoidoscopy and colonoscopy are commonly performed for screening and diagnosing colon abnormalities. In 1997, the black:white ratio of the rates for sigmoidoscopy was 0.63, or 37 percent lower for black persons than white persons; the black:white ratio of the rates for colonoscopy was 0.84, or 16 percent lower for black persons (Table 10). These differences by race raise concerns because of the higher rate of late-stage colon cancer among black persons and their higher mortality rate due to colon cancer.

Comparing the black:white ratios of the rates for these two procedures in 1997 with 1990 shows a slight lessening of the disparity by race in the use of sigmoidoscopy but no change in the black:white ratio for colonoscopy among the elderly.

Health-Promotion and Disease Prevention Services

Physician Visits

The black:white ratio of physician office visits in 1997 was 0.80, indicating that black beneficiaries received 20-percent fewer office visits than did white beneficiaries (Table 11). But black persons received far more visits than white persons while in the hospital and in the emergency room. This pattern of physician visits suggest that black persons have less access to ambulatory care than do elderly white persons.

Black beneficiaries also received 25-percent fewer visits from specialists than white beneficiaries, indicating less access to referral services. In particular, black persons had 14-percent fewer visits from ophthalmologists, even though eye disease (especially glaucoma), is more prevalent among black than white persons (Javitt et al., 1991). Except for home and nursing home visits, the black:white ratios in 1997 were generally similar to the ratios in 1990.

Influenza Immunizations

In 1993, Medicare began to cover influenza immunization, a service recommended for all of the elderly. Because influenza is often a forerunner to pneumonia and is responsible for excess Medicare hospitalizations among the elderly with heart and pulmonary disease (McBean, Babish, and Warren, 1993), flu immunization is considered one of Medicare’s most important preventive services.

In 1993, in the FFS sector, only 17.3 percent of elderly black persons were immunized, compared with 36.5 percent of white persons (Table 12). Although there has been an increase over time in the rate of flu immunizations for both races, only about one in four elderly black persons in 1997 received flu immunizations, compared with nearly one in two white persons. (Any flu shots provided free of charge to the Medicare program are not included in the rate data.) SES is also related to the use of flu immunization. In 1993, the immuniza-

Table 11

Physician Visit Rates per 100 Medicare Enrollees Age 65 or Over, by Race, and Ratios of Rates

	Rate per 100 in 1997		Black:White Ratio of Rates	
Type of Visit	White	Black	1997	1990
Office	626	500	0.80	0.88
Hospital Inpatient	300	410	1.36	1.22
Emergency Room	41	54	1.32	1.38
Home/Nursing Home	73	91	1.25	0.98
Specialists, All Types	206	154	0.75	0.73
Ophthalmology[1]	81	69	0.86	0.88
Consultations	78	84	1.08	1.05

[1] Ophthalmology visits included in specialist visits.

NOTE:Rates are age-adjusted to 1994 Medicare fee-for-service enrollment.

SOURCE:Health Care Financing Administration, Office of Strategic Planning: Part B Monitoring System, bills through December 31, 1998.

tion rate among the least affluent white beneficiaries was 26 percent lower than among the most affluent whites beneficiaries, and among the least affluent black beneficiaries, the rate was 39 percent lower than among the most affluent (Gornick et al., 1996). These differences by race and SES cannot be attributed to financial barriers because flu shots require no costsharing. Rather, the persistent disparities in flu immunization rates indicate that there are barriers to the use of health care services over and beyond financial ones.

Eye Procedures

Elderly black persons have a lower rate than white persons for cataract surgery, a common elective procedure to improve vision, but black persons' rate of treatment for retinal lesions, a non-elective procedure to prevent sequelae that can lead to blindness, is much higher than the rate for white persons (Table 13). These findings are consistent with the information in Table 11, which shows fewer visits among black persons to ophthalmologists, and suggest that elderly black persons have less access to referral-sensitive eye procedures than white persons.

A comparison of the ratios of the rates in 1990 with 1997 indicates that there was a slight increase in disparities in the use of these procedures over time.

Table 12

Influenza Immunization Rates for Medicare Enrollees Age 65 or Over, by Race, and Ratio of Rates: 1993-1997

	Rate per 100		Black:White
Period	White	Black	Ratio of Rates
1993	36.5	17.3	0.47
1994	41.9	20.6	0.49
1995	43.2	21.6	0.50
1996	45.5	23.4	0.51
1997	46.1	24.3	0.53

SOURCE:Health Care Financing Administration, Office of Information Services:National Claims History and Denominator File. Data developed by Office of Strategic Planning and Office of Clinical Standards and Quality.

Procedures Associated with Chronic Illness

Rates for the three procedures shown in Table 14 (lower limb amputation, arteriovenostomy, and excisional debridement) were derived from inpatient hospital discharge data. These procedures are generally considered non-elective and are associated with less-than-optimal outcomes of chronic disease. Each of these procedures was performed far more frequently for black than for white persons. In 1994, lower limb amputations were 3.47 times as frequent for black beneficiaries as for white beneficiaries. The striking difference by race in lower limb amputation rates reflects, in part, the fact that diabetes (an underlying factor in lower limb amputations) is 1.7 times as prevalent in elderly black persons as in white persons. However, the magnitude of the difference

Table 13

Rates of Selected Eye Procedures for Medicare Enrollees Age 65 or Over, by Race, and Ratios of Rates

Procedure	Rate per 1,000 in 1997		Black:White Ratio of Rates	
	White	Black	1997	1990
Cataract Removal/Lens Insertion	59	43	0.74	0.80
Treatment of Retinal Lesions	10	18	1.69	1.61

NOTE:Rates are age-adjusted to 1994 Medicare fee-for-service enrollment.

SOURCE:Health Care Financing Administration, Office of Strategic Planning: Part B Monitoring System, bills through December 31, 1998.

Table 14

Age-Adjusted Rates for Three Non-Elective Procedures for Medicare Enrollees Age 65 or Over, by Race, and Ratios of Rates

Procedure	Rate per 1,000 in 1994		Black:White Ratio of Rates	
	White	Black	1994	1986
Amputation of Lower Limb	1.74	6.03	3.47	3.24
Arteriovenostomy	0.47	2.13	4.53	4.02
Excisional Debridement	2.71	6.81	2.51	2.36

SOURCE:Health Care Financing Administration, Office of Research and Demonstrations: *1996 Report to Congress on Monitoring the Impact of Medicare Physician Payment Reform on Utilization and Access*, 1996.

in surgery rates suggests that factors other than diabetes influence the disparity in amputation rates (Gornick et al., 1996; McBean and Gornick, 1994).

Arteriovenostomy procedures (shunts or cannulae implanted for chronic renal dialysis) were performed 4.53 times as frequently among elderly black persons as white persons in 1994. Racial differences in the rate of this procedure reflect the greater prevalence among black persons of end stage renal disease, a condition that is also associated with diabetes. The rate for the third procedure, excisional debridement, was twice as high for elderly black persons as white persons in 1994 and 1986. This procedure is performed for infection and skin breakdown and is believed to be sensitive to quality of care.

These disparities are indications that elderly black persons are more likely to be at risk of undergoing non-elective procedures associated with failures in the management of chronic diseases.

Disparities in Utilization by SES

The effects of income on the use of elective services is often striking (Table 15). In 1993, the rate of ambulatory physician visits among the least affluent elderly white persons (7.3 visits) was 18 percent lower than the rate for the most affluent white persons (9.0 visits). But the least-well-off white persons received 35 percent more emergency room visits than those best off.

Among the least affluent elderly white persons, the use of magnetic resonance imaging (MRI) was 38 percent lower than the most affluent white persons. The corresponding difference for mammography was 33 percent. Among the least affluent black persons, the use of MRI was 28 percent lower and the use of mammography was 21 percent lower than for the most affluent black persons.

Among white and black beneficiaries, the rate of amputation of the lower limb rises as income declines. Among the least affluent white persons, this rate was 47 percent

Table 15

Rates for Selected Services for Medicare Beneficiaries, by Race and Income: 1993

Race and Income	Ambulatory Physician Visits[1]	ER Physician Visit[2]	MRI[2]	Mammography[2]	Amputation of Lower Limb[3]	Bilateral Orchiectomy[3]
White Beneficiaries						
All Income Levels	8.1	35.0	4.3	26.0	1.9	0.83
$20,501 or More	9.0	29.6	5.5	31.0	1.5	0.70
$16,301-$20,500	8.3	34.6	4.4	27.2	1.8	0.80
$13,101-$16,300	7.6	36.8	3.8	24.1	2.1	0.90
$13,001 or Less	7.3	39.9	3.4	20.8	2.2	1.00
Black Beneficiaries						
All Income Levels	7.2	50.6	3.5	17.1	6.7	2.03
$20,501 or More	8.0	44.2	4.5	20.4	5.8	2.15
$16,301-$20,500	7.4	45.8	4.3	19.9	5.9	1.87
$13,101-$16,300	7.7	52.2	4.3	21.1	6.1	1.78
$13,001 or Less	7.1	51.6	3.3	16.0	7.0	2.08
Black:White Ratio						
Total	0.89	1.45	0.81	0.66	3.64	2.45
Income-Adjusted	0.93	1.37	0.95	0.75	3.30	2.32

[1] Rate per person.

[2] Rate per 100 persons.

[3] Rate per 1,000 persons.

NOTES: Total rate is adjusted for age and sex, except for bilateral orchiectomy. ER is emergency room. MRI is magnetic resonance imaging.

SOURCES:(Health Care Financing Administration, 1995.) For amputations:(Gornick et al., 1996.)

greater than among the most affluent white persons; among the least affluent black persons, the rate of amputation was 21 percent greater than the most affluent group. Similarly, among white males, bilateral orchiectomy was highly associated with income; this procedure was performed 43 percent more frequently among the poorest white males, compared with the most affluent white males. Racial and income disparities in lower limb amputations, bilateral orchiectomy, and other procedures can be overlooked because they do not make the list of common procedures the elderly receive, even though they may be relatively common among black persons and the least affluent elderly of both races.

As previously noted, income distributions are substantially different between elderly black persons and white persons. When income distributions are standardized, differences between black and white persons in Medicare utilization rates for the services shown in Table 15 are often diminished but do not disappear entirely.

PLAUSIBLE EXPLANATIONS FOR DISPARITIES

By removing the major financial barriers to physician and hospital services, Medicare has vastly improved access to health care for all of the elderly. Patterns of Medicare utilization, however, raise questions about barriers that influence disparities in the use of specific types of services. Specifically, what might explain the fact that elderly black persons and the least affluent beneficiaries:

- Have lower rates of preventive services (e.g., influenza immunizations) and health-promotion services (e.g., physician office visits)?
- Have lower rates of use of certain tests (e.g., colonoscopies) and other elective services (e.g., ophthalmology visits and common surgeries)?
- Have higher rates of certain non-elective procedures associated with poor outcomes in the management of chronic conditions (e.g., lower limb amputation)?

In considering a number of potential explanations for disparities in utilization, certain of these do not fit the data. First, FFS health care is not likely to be the explanation for disparities in health care, although very little information is available about patterns of care in HMOs. There are indications that HMOs and other managed care plans are better than the FFS sector in promoting the overall use of preventive services, but there are no indications that disparities in utilization found in the FFS sector do not occur in HMOs. One available study analyzed utilization in various types of health care plans (Carlisle, Leake, and Shapiro, 1997) and reported significant disparities in HMOs in the rate of cardiovascular procedures for black persons and Hispanic persons, evidence that disparities occur in managed care organizations.

Second, the specific features, organization, or administration of the Medicare program cannot explain disparities in utilization. Numerous studies of the use of services in Department of Veterans Affairs (VA) programs show disparities that are similar to those found in the Medicare program. For example, procedures used to treat cardiovascular and cerebrovascular disease in VA hospitals were found to be more frequently performed for white veterans than black veterans (Whittle et al., 1993; Peterson et al., 1994). Reports from other programs and other countries have also shown inequalities in health care (Roos and Mustard, 1997).

Third, the costsharing required by the Medicare program is not likely to be a root cause of disparities in utilization patterns. Differences in mammogram use—which requires a 20-percent coinsurance payment—may reflect to some extent differences by race and income in supplemental insurance (Blustein, 1995). However, even among elderly females with supplemental insurance, mammography rates rise as income and education rise. Moreover, among all of the elderly, substantial disparities can be seen in influenza immunization rates, a service that requires no coinsurance.

Fourth, studies show that biological/genetic differences between black persons and white persons do not explain most of the disparities found in health and in health care. With regard to health, six major risk factors—smoking, systolic blood pressure, cholesterol level, body-mass index, alcohol intake, and diabetes—could account for only 31 percent of the excess mortality between black and white adults; income differences explained another 38 percent. The remaining 31 percent of the excess mortality is unexplained (Otten et al., 1990). With regard to Medicare utilization, even after adjusting for differences in the rate of diabetes, black persons were still found to have a markedly higher rate of lower limb amputations than white persons, suggesting disparities in the effectiveness of ambulatory care (Guadagnoli et al., 1995).

Fifth, racial/ethnic discrimination is not the sole factor in explaining disparities in the use of certain services covered by Medicare. Beginning in the mid-1980s, Medicare program data indicate that overall hospital admission rates have been higher each year for black beneficiaries than for white beneficiaries. Moreover, disparities by race in the use of some services, such as physician visits and MRI, decline when utilization rates are standardized by income, indicating that socioeconomic differences play a role in explaining some of the racial disparities in Medicare use.

Although studies are available that can help to eliminate, in whole or in part, certain potential explanations for disparities in Medicare utilization, none are presently available that can help to identify explanations for disparities in Medicare utilization.

What follows, therefore, are conjectures that best fit the data and that use concepts from the field of sociology.

Beneficiary Characteristics

According to the framework of sociology, the traits and cultural propensities of individuals—such as attitudes, beliefs, behaviors, and preferences—range widely across population subgroups. Differing traits and propensities among the elderly may explain some of the disparities in the use of Medicare services. Beneficiaries have grown up in families that have had social and cultural experiences (stemming from family characteristics including race/ethnicity, education, and economic circumstances) that influence how a person perceives his or her situation (Cockerham, 1978) and that may influence the use of health care. At one end of the social and cultural experience are individuals with characteristics associated with a culture of poverty and at the other end are individuals with characteristics that reflect a culture of advantage.

Poverty is associated with certain obstacles (such as transportation or language barriers, and poor health and physical limitations) that may discourage Medicare beneficiaries from initiating appointments to discuss a health problem or to obtain a preventive service. These obstacles are likely to take on greater weight if health care services are delivered in an environment that is unsafe or lacking basic amenities.

Lack of knowledge about symptoms of disease and about the effectiveness of monitoring chronic conditions very likely contributes to disparities in the use of certain services. The poorest and least educated individuals generally acquire the least amount of knowledge about the value of preventive services and about specific symptoms of disease—such as indications of coronary artery disease or cancer—that warrant making an appointment to see a physician (President's Commission for the Study of Ethical Problems in Medicine and Biomedical and Behavioral Research, 1983). Attitudes, beliefs, and preferences are also likely to influence health-seeking behaviors. There is anecdotal evidence that poor and minority groups are more suspicious about the value and safety of vaccines than are more advantaged persons—and the ethical issues surrounding the way the Tuskegee experiment was conducted may contribute to a lack of confidence among some black persons in the medical establishment. Those living in a culture of poverty may also be more likely to see pain as part of the human condition, to be fatalistic and assume that not much can be done to alter the course of disease, and to see medical care not as a necessity but as one of the luxuries of life. Thus, explanations about the lower use of health-promotion services that are self-initiated, such as physician office visits, influenza immunizations, and mammograms, may involve, at least in part, the culture of poverty (President's Commission for the Study of Ethical Problems in Medicine and Biomedical and Behavioral Research, 1983; Dutton and Levine, 1989). Moreover, the culture of poverty may contribute to poorer health outcomes in the management of chronic conditions if the patient does not understand the nature of his or her illness and why diet and medication regimens must be followed.

The culture of poverty may help to explain the lower use of self-initiated services and poorer outcomes of chronic conditions, but it cannot explain the persistent disparities found in the use of many diagnostic and surgical procedures—such as colonoscopy to detect cancer, coronary artery procedures to detect and treat heart disease, or sonography of the carotid arteries and carotid endarterectomy to diagnose and treat occlusion of the carotid artery—that can only be recommended or referred and authorized by physicians. These disparities in health care for the most vulnerable of Medicare beneficiaries may be explained, in part, by the complementary theory of the culture of advantage. Socially advantaged individuals expect the best opportunities society offers, including high-quality educational institutions for their children, good jobs, and safe neighborhoods, and they expect high-quality medical services. The culture of advantage influences individuals to seek information about the latest available services, to expect courtesy, consideration, fair treatment, and partnership with various institutions in society, including the health care system. Reports of the experience of advantaged individuals as they work their way through the maze of the health care system are instructive in portraying how frustrating and disheartening the health care system can be in times of illness (Lear, 1980), yet how effective networks of socially advantaged friends are in obtaining information about practitioners, institutions, and the latest diagnostic tests and procedures. These accounts also illustrate the beneficial effects of taking a proactive, ombudsman role in health care, including making demands when services fall short of reasonable expectations. Moreover, the advantages that affluent and educated individuals have in obtaining high-quality health care are likely to be reinforced by certain characteristics of the health care delivery system, as discussed in the following section.

Characteristics of the Health System

No substantial body of knowledge is available about which factors in our health care system might influence disparities in the use of Medicare services. The framework of sociology may help, especially medical sociology, which is concerned with the social behavior of health personnel and the consumers of health care (Cockerham, 1978). Physicians are the most influential of the health personnel. In the past, medical students were drawn primarily from the upper and upper middle classes, and the majority were white and male, although the demographic composition is changing (Cockerham, 1978), especially the increasing number of females. It is not known whether the culture of physicians is also changing. The medical student's academic training is concentrated in the biological sciences, with a relatively small focus on the social sciences. Their clinical training is concentrated on patients and the diagnosis and treatment of disease. Once in practice, physicians and allied health care providers develop formal and informal networks of colleagues, friends, and patients that contribute to a comfortable and profitable practice (Cockerham, 1978). Prestige and a stream of congenial referrals are more likely to come from advantaged patients than from poor, minority patients, and physicians themselves are likely to be more comfortable interacting with patients who are advantaged like themselves than with disadvantaged patients. How this might affect patterns of patient care has not been studied in any systematic way.

Our major institutions, including those involved in education, housing, and health care delivery, are often less successful in serving lower class populations than in serving more advantaged populations. In seeking medical care, the poor more often encounter problems of distance and inconvenience (Dutton and Levine, 1989). Moreover, the various institutional practices our complex health care system may engage in, including having patients wait for long periods of time to see a physician and giving patients too little information about their health problem and the rationale for their course of treatment, is more likely to thwart disadvantaged populations than advantaged ones.

It is unknown whether the course of treatment physicians and other practitioners recommend to their patients (such as CABG or joint replacement) is influenced at times by stereotypical beliefs about the behavior of disadvantaged patients. Physicians and other providers may believe that poor and minority patients are more likely to break appointments or to misunderstand information and are less likely to be willing and able to adhere to a complex course of treatment. These perceptions may affect, perhaps subconsciously, the decisionmaking process and lead physicians to hesitate before recommending certain elective procedures they might otherwise recommend.

There is limited knowledge about whether the race or SES of patients influences physicians in their recommendations and the course of treatment they prescribe (Schulman, 1999). When physicians are evaluated, it is generally from the perspective of the outcomes of the care they provided individual patients. Hospitals, HMOs, and third-party payers may use different criteria in evaluating a physician's performance, but the focus is generally on the appropriateness and quality of the care provided to individual patients, not on the population at risk. This approach leaves physicians and institutions largely unaware of the dramatic differences across population subgroups in the use of elective procedures or the use of non-elective procedures that are associated with poor outcomes of chronic conditions.

To keep abreast, physicians look to their medical journals. The major medical journals concentrate on publishing the latest scientific studies in the treatment of disease. Two widely circulated journals, *The New England Journal of Medicine* and *The Journal of the American Medical Association*, cover a broad spectrum of medical issues and include articles that have a population-based focus, but the most frequently published articles are clinical studies on the outcomes of treatment. The various specialty society journals concentrate even more exclusively on clinical studies about the effectiveness of treatments. Journals reporting on issues relating to health care delivery and health policy are not generally read by practicing physicians but by health services researchers and others interested in public health. Thus, the average practicing physician tends to assume the primary barrier to health care is the lack of health insurance. Even health policy experts tend to discuss access to care in the United States in terms of the numbers of uninsured, to the neglect of the issue of disparities in health care among many of the insured (Gornick, 1999).

RECOMMENDATIONS

The many factors that can influence Medicare utilization patterns suggest that there are a multitude of pathways—through the beneficiaries themselves and through the health care system—in which disparities might develop. Although information about disparities in Medicare utilization has been disseminated though journal articles and government reports, there is little public recognition of the problem, nor has the magnitude of the disparities changed in any substantial way. Only a few initiatives, such as campaigns in the media to increase the use of influenza immunizations and mammography, have been undertaken to effect a change. There is a pressing need to ameliorate disparities in the use of many other services, including services associated with heart disease, cancer, and stroke, to reach our Nation's goals.

The fact that there is very little concrete evidence about the causes of disparities in Medicare utilization—or little knowledge about how to effect a change—indicates a need for a broad-based research and experimentation agenda. The probability that resources directed toward ameliorating disparities in Medicare utilization will have a multiplicative effect is high, because approaches that prove to be successful for the elderly will very likely be effective for younger age groups as well. Toward that end, three components of a strategy are recommended:

1. Establish an ongoing data committee from various HCFA components and other government and non-governmental groups to focus on data development for monitoring Medicare utilization. Ameliorating disparities in Medicare utilization requires data systems to monitor patterns of utilization by vulnerable subgroups of the elderly. The Part B monitoring system based on the Berenson-Eggers classification system (Health Care Financing Administration, 1994) and the Medicare administrative data are a starting point. The Medicare administrative data and the MCBS should be re-examined to determine ways in which these major HCFA data systems can further support the monitoring effort.

A major challenge of the data committee is to determine the progress made by managed care data systems, such as the Health Plan Employer Data and Information Set (HEDIS) of the National Committee for Quality Assurance, and to determine how data from HMOs can be used to monitor utilization by vulnerable subgroups of the elderly. Considerable technical expertise is needed to find solutions for overcoming HMO data issues, including ensuring the reliability and validity of data originating from many different sources as well as the problem of small cell sizes. It has been shown that monitoring services that are relatively common among the elderly, such as CABG, by race, ethnicity, and SES, can be accomplished with large data sets such as the Medicare administrative data, but monitoring the use of such procedures in HMOs will present a problem because of sample size. Solutions may lie in pooling the data across several years of service and/or across HMOs.

Although the principal focus in HCFA should be on monitoring and evaluating the use of Medicare services by vulnerable subgroups of the elderly, the "bottom line" is health outcomes. Morbidity, mortality, and disability measures for the elderly should be monitored routinely, using the extant data sources available from other Federal agencies. Moreover, this monitoring effort in HCFA should dovetail with the U.S. Department of Health and Human Services Healthy People 2010 goals and contribute to the data needed to evaluate these goals.

2. Sponsor a series of meetings with the major professional societies and other leaders in medical care to gain their insight and recommendations about the causes of disparities in Medicare utilization and ways to ameliorate these disparities. These meetings should be attended by HCFA senior staff, medical personnel, researchers, peer review organization (PRO) staff, and by the leaders of the various medical organizations (including the American Heart Association, American Cancer Society, and American Association of Internal Medicine). The purpose of these meetings would be to have clinicians and leaders of these professional societies review Medicare data on disparities and provide insight and recommendations for ways to

lessen disparities in the use of services by Medicare beneficiaries. The Surgeon General's leadership and participation at these meetings is recommended. Other physicians and leaders in health services utilization with national reputations could be included, such as the heads of the Agency for Healthcare Research and Quality, the Centers for Disease Control and Prevention, the National Institutes of Health, the National Cancer Institute, the National Heart, Lung, and Blood Institute, and the Institute of Medicine.

3. Develop a short- and longer range research/experimentation strategyDespite numerous published studies (Health Care Financing Administration, 1990, 1994, 1995) highlighting disparities in Medicare and other populations, a recent literature review of these studies indicates that there are very few that have studied causes and explanations for the disparities in health care, especially in Medicare (Mayberry, 1999).

The fact that disparities occur in the use of health-promotion and disease prevention services that Medicare beneficiaries themselves can initiate as well as in the use of elective services that physicians generally recommend suggests that the pathways through which disparities occur include both the beneficiaries and the health care system. Moreover, the fact that there are disparities in the use of services associated with poor outcomes of chronic disease reinforces the conclusion that initiatives to lessen disparities need to be aimed at both the beneficiaries and providers of health care.

A research agenda could be developed (outlined in the following section) using two matrices—a beneficiary matrix and a health care delivery matrix—and classifying issues for research/experimentation by type of issue (e.g., demographic, behavioral). Some specific research questions are identified using this approach. Questions that could be part of a short-range plan are shown with an (S). These matrices should include ideas growing out of the meetings with the professional societies.

In developing a research/experimentation strategy, it is important to be especially mindful to identify the kinds of expertise needed to design and implement a promising research/experimentation agenda relating to disparities in Medicare utilization. Until now, HCFA's research agenda and institutional priorities have been advanced through the expertise of economists and health services researchers. To carry out a new research agenda focusing on disparities in health and health care will require that new disciplines be incorporated into the mix that HCFA usually draws upon. The new disciplines to consider are sociology, medicine, political science, psychology, behavioral science, and organizational theory.

BENEFICIARY MATRIX

Demographic Issues

1. Develop national and smaller area profiles of Medicare beneficiaries (PRO areas could be a useful division) by age, sex, race/ethnicity, and SES, to understand the current population at risk in each HMO area. Estimate what these profiles will look like in the year 2010. (S)

2. Develop corresponding profiles of use of preventive services and physician visits in each PRO area, by age, sex, and race/ethnicity. Analyze utilization and identify which age groups and racial/ethnic groups are most at risk of not using Medicare services effectively. Profiles can be developed now for the FFS sector, using the Part B monitoring system. (S) Determine how to develop profiles for HMO enrollees.

Behavioral Issues

1. Study whether markers can be found to identify persons at risk of underutilizing preventive services. For example, do females who get flu shots also get mammograms and/or Pap smears? Year after year? The MCBS can be used for this study. (S)

2. Study utilization patterns over time. For example, does the use of preventive services in time t_1 persist in t_2, t_3 . . . ? The MCBS can be used for this study. (S)

Social and Cultural Issues

1. Survey beneficiaries to solicit information about their perceptions relating to the use of preventive services.

2. Study the role of beneficiary education in understanding the value of preventive services.

3. Study social characteristics of the elderly (e.g., living alone or having adult children nearby) that are associated with use of preventive and elective services. Use the MCBS for some of this inquiry. (S)

4. Study and experiment with ways that families, friends, and neighbors can affect the use of health maintenance and health-promotion services, especially for minority and/or low-income elderly.

5. Determine the role of advocacy groups, religious affiliations, and senior centers in the use of Medicare services.

Other

1. Study which factors in the health care system deter the aged from using covered services. For example: Why do mammography rates fall off after age 65, even as breast cancer rates rise? (*Health United States 1998* [National Center for Health Statistics, 1998] shows that, in 1994, mammography rates for females 50-64 years of age were 20 percent higher than the rates for persons 65 or over.)

2. Study whether there is a relationship between certain chronic conditions (such as diabetes, hypertension, or obesity) and the use of preventive services.

3. Synthesize the literature on cost/benefit analyses of the use of certain health care services. There appears to be a fairly widespread belief that many health care services (including certain preventive services and procedures for coronary artery revascularization) have relatively little effect on health outcomes and that costs outweigh benefits. A number of scholars have studied different aspects of this issue, using different methods, including cost/benefit and cost/effectiveness analysis as well as meta-analysis. This study should focus on selected services (such as mammography or lower limb amputations) and develop cost/benefit analyses of disparities in utilization of services.

4. There are certain stereotypical beliefs and hypotheses about the influence of SES on seeking and using health care. With regard to disparities in the use of services such as influenza immunizations and coronary artery revascularization procedures, there are conjectures that the poor are more likely to refuse these services or that poor patients are less likely to comply with treatment regimens. Study the extent to which various hypotheses about lower class persons are valid or if they are attitudes based on stereotypical beliefs that are not justified by the evidence.

Data for Research

1. Identify various extant data systems and sources that can be used in the ongoing monitoring of disparities in health and health care of the elderly and for research

relating to such disparities. These data sources should include but not be limited to: the National Center for Health Statistics' National Vital Statistics System, National Longitudinal Mortality Survey (NLMS), National Health and Nutrition Examination Survey (NHANES), NHANES I Epidemiologic Followup Study, National Health Interview Survey (NHIS), the Agency for Healthcare Research and Quality's Medical Expenditure Panel Survey (MEPS), and U.S. Census Bureau data.

2. Identify which data elements or measures are potentially useful for this monitoring and research effort.

3. Study the Healthy People 2010 U.S. Department of Health and Human Services goals. Explore the goals identified as priority areas and determine which goals can be monitored for vulnerable subgroups of the elderly with extant data sources. As shown in this article, considerable Medicare information is available relating to cancer screening, cardiovascular disease, diabetes, and immunization levels.

HEALTH DELIVERY SYSTEM MATRIX

Demographic Issues

1. Develop national and smaller area (e.g., PRO areas) demographic profiles of physicians by age, sex, and race/ethnicity. This is needed to understand the makeup of current providers and can help suggest ways to improve effectiveness in the use of services. (S) Determine if separate profiles can be developed for providers who serve the elderly and for providers serving in the HMO and FFS arenas.

Behavioral Issues

1. Identify potential ways to study whether providers suggest different treatments according to the beneficiary's race, ethnicity, or SES.

2. Study whether markers can be found to identify providers at risk of choosing treatment options based on the patient's race, ethnicity, or SES.

Social and Cultural Issues

1. Study medical education of physicians, nurses, and other health care providers to determine if sociology and "social medicine" are taught. (Social medicine is medical science in relation to groups of human beings.)

Health Care System Issues

1. Study rates of hospitalization for nonelective "last resort" procedures such as lower limb amputations by type of delivery system (FFS and HMO). This could be accomplished with present Part A data. (S)

2. Study rates of use of services in HMOs to treat heart disease, cancer, and stroke by race and SES. (The ongoing data committee recommended in this article could have this study as a prototypical goal.)

Data for Research

1. Identify various extant data sources that can be used in research relating to the health delivery system. These sources should include but not be limited to: the American Medical Association's Physician Masterfile and Annual Census of Hospitals, the American Hospital Association's

Annual Survey of Hospitals, and the Association of American Medical Colleges' Statistical Information Relating to Medical Education.

2. Identify which data elements are potentially useful for research relating to the health care delivery system.

SUMMARY

For more than 35 years, Medicare has proved to be a valued program in removing the major financial barriers to the use of needed hospital and physician services. Yet Medicare utilization patterns show persistent disparities in the use of specific services by race and SES. These findings underscore the fact that health insurance alone cannot ensure equal access to Medicare services. It seems likely that a multitude of factors relating to the characteristics of beneficiaries as well as the health care system influence these patterns of utilization. Medicare utilization patterns for vulnerable subgroups of the elderly are unlikely to change unless this information is disseminated widely and convincingly to policy experts, the health care community, and the public. Moreover, very little knowledge is available about the causes and explanations for disparities in Medicare utilization. A program of research and experimentation that concentrates on developing knowledge about the pathways through which disparities occur—in a public program such as Medicare—and how to effect a change will very likely benefit not just the elderly but persons of all ages.

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