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Health Disparities: Measuring Health Care Use and Access for Racial/Ethnic Populations

Final Report

Part 2

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HEALTH DISPARITIES: MEASURING HEALTH CARE USE AND ACCESS FOR RACIAL/ETHNIC POPULATIONS

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EXECUTIVE SUMMARY (PART TWO)

The final report for this project has been prepared in two parts. Part One dealt primarily with methodological issues and data concerns. Part Two addresses several substantive issues related to access and utilization differences by race/ethnicity, and includes analyses using some of the products of Part One.

Purpose

The impetus for this project was the continuing interest the Centers for Medicare& Medicaid Services (CMS, formerly the Health Care Financing Administration or HCFA) has in improving the race/ethnicity coding of the Medicare enrollment database (EDB). This is an important issue because, with the exception of Blacks, little is known about the health care utilization patterns of elderly members of minority groups. In addition, because a disproportionate number of minorities are disadvantaged or vulnerable it is especially critical to monitor their access to health care through the Medicare program.

The goal of this part of the project has been to identify differences in the utilization of health services among racial/ethnic groups enrolled in Medicare nationally. We focused on the use of services that have been associated generally with racial/ethnic health disparities documented in the research literature in the context of the general population or selected segments of minority populations. We had several objectives. First was to document from the literature, existing health disparities and disease rate differences among adult Medicare beneficiaries according to race/ethnicity. Second was to select a large, random, stratified sample of Medicare beneficiaries, weight them to represent the entire Medicare fee-for-service population, and analyze their claims by race/ethnicity for disparities in the use of: (1) assorted global measures of utilization , (2) various cancer screening services, (3) preventive services among persons with diabetes, (4) ambulatory care sensitive conditions, (5) hospital services for the treatment of common chronic and acute conditions, and (6) the different types of services covered by Medicare. Finally, there was a desire to make the results of the analyses available to other researchers and policy makers in an easy-to-understand graphic format that highlights the most obvious examples of racial/ethnic disparities in the use of health services by Medicare beneficiaries.

Background

This report addresses the concept of disparities in the use of health services and discusses why health care disparities and disparities in health are not the same thing, although there is a close association between them. Health care disparities in this report refer to differences in the use of health services between racial/ethnic minority groups and the dominant population group. Such differences may contribute to disparities in health status between the minority and dominant populations. Racial/ethnic disparities in health or in the receipt of health care are more than mere differences, however. They represent differences between racial/ethnic groups (regardless of cause) that are generally considered unwarranted, unfair, and undesirable. The concept of racial/ethnic disparities has a normative connotation that is absent from descriptions of statistical differences between the use patterns of others types of groups.

Differences may be the result of what are considered different choices made by the groups, different distributions of risk factors and disease exposures, and genetic differences in susceptibility. However, a health care disparity exists when there is unequal access to health information or treatment and prevention services, but there is a presumably equal or demonstrably greater clinical need for them. It is the official policy of the U. S. Department of Health and Human Services (DHHS), that health care disparities should be eliminated because they can lead to disparities in health status.

Strategies that more closely tie the timely utilization of appropriate health services to clinical need rather than to racial/ethnic or socioeconomic factors can be expected to improve the health of minority groups and eliminate disparities. The present study intends to identify racial/ethnic health care disparities that exist in the Medicare fee-for-service population despite the equal access to care made possible for the elderly and disabled by enrollment in the program.

A literature review was also performed to identify racial/ethnic health disparities as well as disparities in the use of health care found to be associated with them. The review provided a basis for selecting areas of Medicare beneficiary service utilization to analyze, and a context for specifying when differences in utilization represent disparities.

Methods, Data, and Approach

To investigate racial/ethnic disparities in health care utilization in the Medicare program, a stratified random sample of beneficiaries was selected from the mid-2003 version of the unloaded EDB. To be eligible for inclusion in the sampling frame, beneficiaries had to have been enrolled in fee-for-service Medicare alone for all of 2002. Stratification was according to beneficiary race/ ethnicity based on the new race variable produced by the RTI-created algorithm described in Part One of this report.

The objective of the sampling design was to produce estimates for 2002 of utilization for each of the racial/ethnic groups that were approximately equal in precision, i.e. had similar standard errors, thus the sample was allocated as equally as possible across the race/ethnicity groups. The sample included 1.2 percent of the White, 11 percent of the Black, 26 percent of the Hispanic, 71 percent of the Asian/Pacific Islander, and 100 percent of the American Indian/Alaska Native beneficiaries. The final sample included a total of 1.96 million Medicare beneficiaries (6.2 percent) in the fee-for-service program. It was weighted to represent the total 31.60 million eligible fee-for-service Medicare beneficiaries.

Major Findings on Use of Medicare Services by Race/Ethnicity

Cancer Screening Services

Low levels of cancer screening can result in diagnosis at a later stage of the disease with more limited treatment options, greater resultant disability, and higher mortality. One analysis looked for disparities among the races in the use of screening procedures for breast, cervical, prostate, and colorectal cancers by women and, where applicable, by men 65 to 84 years of age.

The use of mammography to screen for breast cancer was highest for White women 65 to 74 and 75 to 84 years of age – 51 and 45 percent, respectively. The percentages among minorities in the same age groups who had mammograms were 39 and 32 percent for Black, 34 and 27 percent for Hispanic, 33 and 27 percent for Asian/Pacific Islander, and 29 and 25 percent for American Indian/Alaska Native women. In light of the higher rate of breast cancer mortality among Black and American Indian/Alaska Native women, the lower percentage of them receiving mammograms represents a disparity in use that is likely to contribute to this disparity in health outcome.

A very similar situation was found with respect to use of Pap smears to screen 65 to 74 and 75 to 84 year old women for cervical cancer. White women in those age groups had the highest percentages receiving that test – 46 and 39 percent, respectively. Minority women in those age groups had smaller percentages receiving Pap tests. The percentages were 34 and 28 percent among Black, 30 and 23 percent among Hispanic, 32 and 25 percent among Asian/Pacific Islander, and 24 and 21 percent among American Indian/Alaska Native women. Because women who are Black, Hispanic, and American Indian/Alaska Native are much more likely to develop cervical cancer than those who are White, the smaller percentages of minority women obtaining Pap smears also represents a disparity in use that is likely to contribute to this disparity in health outcome.

Colorectal cancer screening among men and women could involve use of a fecal occult blood test (FOBT), sigmoidoscopy, or colonoscopy. Overall, more women (17 percent) had some type of colorectal cancer screening during the year than men (13 percent). White women 65 to 74 and 75 to 84 years of age had the highest percentages with colorectal cancer screening -- 21 and 20 percent, respectively. The percentages were 14 percent in both age groups for Black, 12 percent in both age groups for Hispanic, 16 and 17 percent for Asian/Pacific Islander, and 8 and 9 percent for American Indian/Alaska Native women.

A similar situation was found for men in the same age groups. White men had the highest percentages with some type of colorectal screening – 14 and 17 percent. The percentages of Black (10 and 11 percent), Hispanic (12 percent in both age groups), Asian/Pacific Islander (12 and 15 percent), and American Indian/Alaska Native (8 and 9 percent) men obtaining colorectal cancer screening were lower. While the incidence rate of colorectal cancer is not dissimilar for Whites and Blacks, the mortality for Blacks is higher. This disparity in use is again likely to be associated with the later stage of colorectal cancer detection among Black men and women, and influence the disparity in health outcomes relative to Whites.

Screening for prostate cancer using a test for the prostate specific antigen (PSA) was received most often by White men 65 to 74 and 75 to 84 years of age – 42 and 49 percent, respectively. The percentages receiving a PSA among men in those age groups who were Black (31 and 36 percent), Hispanic (36 and 29 percent), Asian/Pacific Islander (34 and 42 percent) and American Indian/Alaska Native (17 and 22 percent) were all lower. This disparity in use is again likely to be associated with the higher prostate cancer mortality experienced among Black, Hispanic and American Indian/Alaska Native men relative to White men.

Overall, higher percentages of White Medicare beneficiaries consistently received screening services for breast, cervical, colorectal, and prostate cancer than Black, Hispanic, and American Indian/Alaska Native Medicare beneficiaries, despite the fact that these groups experience equal or higher incidence of and higher mortality from these cancers. Smaller percentages of Asian/Pacific Islander than White Medicare beneficiaries also received these screening services, but their incidence and mortality from these cancers are lower than for Whites. Our analysis indicates that there are racial/ethnic disparities in the use of cancer screening services.

Diabetes Prevention Services

Secondary preventive services are intended to limit the development of further complications to persons with an existing chronic medical condition. To assess the use of secondary preventive services, it is necessary to identify a subpopulation that has the condition whose further complication is to be avoided. Diabetes mellitus was examined because it is possible to identify persons with diabetes from their Medicare claims. In addition, diabetes has been identified as a condition for which minorities suffer disparities in health, possibly resulting from limited access to appropriate care.

Eleven percent of White Medicare beneficiaries were identified as having diabetes. The percentage was higher among those who were Black (20 percent), Hispanic (19 percent), Asian/Pacific Islander (15 percent), and American Indian/Alaska Native (26 percent) beneficiaries than it was among White beneficiaries. While the percentage of White men and women with diabetes was about the same, among minority group Medicare beneficiaries, diabetes was from 10 to 40 percent more prevalent among women than men.

Use of four secondary preventive services by persons with diabetes —foot care, eye examination, monitoring/testing, and instruction in self care—all covered in the traditional fee-for-service Medicare plan were examined. Receipt of foot care is based on ambulatory care claims that paid for therapeutic shoes or for a podiatry visit. Foot care had the lowest level of reported use. Only 16 percent of Medicare beneficiaries with diabetes had a claim for this service. The highest percentages of this service being used were for Black and Hispanic beneficiaries, 19 and 18 percent, respectively. The lowest level of use was among Asian/Pacific Islander and American Indian/Alaska Native beneficiaries, nine and 13 percent, respectively. White beneficiaries used this service at just about the 16 percent level.

Receipt of eye examinations, the second preventive service for persons with diabetes that we examined, was much more widely used. Overall, 60 percent of Medicare beneficiaries with diabetes had eye examinations. White and Asian/Pacific Islander beneficiaries had the highest levels of use at 62 and 59 percent, respectively. Differences between the sexes in these two groups were small, ranging from one to three percent. The pattern of eye examination receipt among Black, Hispanic, and American Indian/Alaska Native Medicare beneficiaries was quite different, with 53, 53, and 45 percent having eye examinations, respectively.

The receipt of testing services for hemoglobin A1c, lipid profiling, or microalbumin for monitoring insulin needs was the most used of the diabetes secondary prevention services we examined from Medicare ambulatory care claims. More than 86 percent of Medicare beneficiaries with diabetes received at least one of these tests during the previous year. There was virtually no difference between White and Asian/Pacific Islander beneficiaries receiving testing services, 88 and 87 percent, respectively, the highest level of use. Black and Hispanic beneficiaries had 82 and 81 percent receiving these services, respectively, about six percentage points lower use than Whites and Blacks. American Indian/Alaska Native beneficiaries had the lowest level of testing services by far, only 49 percent, nearly 40 percentage points lower than Whites.

The final type of diabetes preventive service examined was diabetes education and self-monitoring. Receipt of this service differed considerably by race/ethnicity. White and Black beneficiaries had the highest level of self-care training, 54 and 55 percent, respectively, followed by Hispanic and Asian/Pacific Islander beneficiaries with 48 and 44 percent. American Indian/Alaska Native beneficiaries received by far the lowest level of self-care training, 25 percent. This was less than half of what White and Black beneficiaries received.

Across the four diabetes secondary prevention services, White beneficiaries with diabetes most consistently received the highest level of services followed closely by Asians/Pacific Islanders. These two groups had the lowest percentage of diabetic beneficiaries. Blacks and Hispanics, groups with high diabetes prevalence, had lower preventive service use than Whites and Asians/Pacific Islanders, with the exception of the least used service (foot care). American Indians/Alaska Natives, the group with the highest diabetes prevalence had the lowest use levels of all the services except foot care. Clearly, racial/ethnic disparities exist in the use of these secondary preventive services for diabetes.

Ambulatory Care Sensitive Conditions

Timely and effective primary medical care for the management of many chronic conditions can avoid or reduce the need for expensive hospitalization and emergency room observation. Researchers studying differences in access to and quality of medical care have identified a number of conditions that are particularly responsive to ambulatory care. Hospitalizations for these ambulatory care-sensitive conditions (ACSCs) are taken as an indicator of inadequate (neither timely nor effective) or poor-quality primary care. A set of 15 ACSCs were examined to identify whether racial/ethnic groups have more admissions than White beneficiaries and could conceivably benefit from more or better primary care. For our analysis of what are relatively small numbers, the 15 ACSCs have been grouped into three categories: chronic (chronic lung disease [asthma and chronic obstructive pulmonary disease combined], congestive heart failure, seizures, diabetes mellitus, and hypertension); acute (cellulitis, dehydration, bacterial pneumonia, urinary tract infection, gastric or duodenal ulcer, hypoglycemia, hypokalemia, and ear, nose and throat infections); and preventable conditions (influenza and malnutrition).

Overall, nearly 4 percent of Medicare beneficiaries were hospitalized for one of the chronic conditions. Black, American Indian/Alaska Native, and Hispanic beneficiaries had considerably higher than average percentages hospitalized for these chronic conditions – slightly more than 6, 5, and 4 percent, respectively. Asian/Pacific Islander beneficiaries had only 2 percent hospitalized, and almost 4 percent of White beneficiaries were hospitalized for these chronic conditions.

A very similar pattern held for the acute ACSC conditions. The average hospitalized for any of the acute conditions was 4 percent. Black and American Indian/Alaska Native beneficiaries had considerably higher than average percentages hospitalized – 6 and 5 percent, respectively. The percentage of Asian/Pacific Islander beneficiaries hospitalized was least of all – only 2 percent. The percentages of White and Hispanic beneficiaries hospitalized were 4 percent, respectively, about the average for all groups combined.

There were too few hospitalizations for preventive ACSCs to say much of the differences among the racial/ethnic groups. However, to summarize our results we pooled all three types of ACSCs and found an even stronger pattern of differences in hospitalization for ACSCs than that already reported. There was an overall 7 percent of beneficiaries with a hospitalization for at least one ACSC. The percentage of Black and American Indian/Alaska Native beneficiaries with a hospitalization for an ACSC was 11 and slightly more than10 percent, respectively. This compared to almost 5 percent among beneficiaries of Asian/Pacific Islander background. White and Hispanic beneficiaries had intermediate percentages hospitalized for ACSCs – 7 and almost 8 percent, respectively. While Asian/Pacific Islander beneficiaries appear to be an exception, the analysis points to racial/ethnic disparities in the use of hospital care for conditions that should be attenuated by the more timely use of the appropriate primary care.

Hospitalization for Selected Medical Conditions

We analyzed hospital utilization patterns among Medicare fee-for-service beneficiaries for six conditions during 2002. The conditions included heart disease, cerebrovascular disease, malignant neoplasms, diabetes, pneumonia, and fractures. Specifically, we compared the percentage of persons with each of the six diagnoses at discharge, the mean length of hospital stay per discharge in days, and the mean payments made per hospital user.

White beneficiaries had the highest percentage of hospital discharges with heart disease as a discharge diagnosis – 4.8 percent. The lowest was 2.2 percent, among Asian/Pacific Islander beneficiaries. Beneficiaries who were Black or American Indian/Alaska Native had 4.2 and 4.1 percent, respectively. Hispanics had the next lowest percentage of heart disease discharge diagnoses, 3.4 percent.

Whites and American Indians/Alaska Natives had the shortest average lengths of stay in the hospital for beneficiaries with a heart disease discharge – 4.8 days for both. Blacks, Hispanics and Asians/Pacific Islanders had longer average stays with the same discharge diagnosis – 5.3, 5.4, and 5.1 days, respectively.

While they had the lowest percentage of heart disease diagnoses by far, and less than the highest average length of hospital stay, the average payment made for Asian/Pacific Islander beneficiaries was by far the largest for any of the racial/ethnic groups, nearly $12,000. Black beneficiaries had the lowest average payments made for their stays, just over $8,400. The payments for White, Hispanic, and American Indian/Alaska Native beneficiaries ranged over a relatively narrow band from just over $9,800 to just under $9,200.

Black beneficiaries had the highest percentage of cerebrovascular discharge diagnoses – 1.4 percent. The lowest was reported for beneficiaries with Asian/Pacific Islander heritage – 0.8 percent. Hispanic and American Indian/Alaska Native beneficiaries had 1.0 percent, and Whites 1.2 percent.

White beneficiaries had the shortest average length of hospital stay – 4.2 days – while those of Black and Asian/Pacific Islander background had the highest – 5.7 days – a day and a half longer. Hispanic and American Indian/Alaska Native beneficiaries fell in between at 5.2 and 4.7 days, respectively.

The highest average payment made for hospital discharges with a cerebrovascular diagnosis belonged to Asian/Pacific Islander beneficiaries – nearly $8,100. The lowest was reported for White beneficiaries – just slightly more than $5,200. The remaining average payment amounts occurred along a narrow band ranging from $5,600 to almost $6,400, for the remaining racial/ethnic groups.

While the percentage of beneficiaries hospitalized with malignant neoplasms is very small, there is variation according to race/ethnicity and sex. Approximately 0.8 percent of White beneficiaries had a hospital discharge diagnosis of malignant neoplasm. That was the highest percentage. The next highest was for Black beneficiaries, 0.7 percent. The lowest percentage was 0.5 and occurred among beneficiaries with Hispanic and Asian/Pacific Islander background. The next lowest was for American Indians/Alaska Natives, 0.6 percent. With respect to average length of hospital stay, Whites had the shortest stay – 5.9 days – while Black beneficiaries had the longest – 7.3 days. The other three racial/ethnic groups had average stays from 6.5 to 6.7 days.

The average payment per malignant neoplasm discharge diagnosis was highest for Asian/Pacific Islander beneficiaries – more than $14,400. Black beneficiaries had the second highest average payment for this diagnosis – more than $11,600. The remaining racial/ethnic groups had fairly similar average payment amounts for their malignant neoplasm discharge, ranging from nearly $10,300 to just over $10,500.

Diabetes discharge diagnoses were relatively rare, but there was nonetheless considerable variation across the groups. The highest percentage of beneficiaries with a diabetes discharge diagnosis occurred among American Indian/Alaska Native beneficiaries – 1.1 percent – while the lowest was among White and Asian/Pacific Islander beneficiaries – 0.3 percent. The percentages of Black and Hispanic beneficiaries with a hospitalization having a diabetes discharge diagnosis were 0.9 and 0.6, respectively.

There was less than a half day difference between the racial/ethnic group with the longest average length of stay for a diabetes diagnosis – American Indian/Alaska Native beneficiaries with 6.4 days – and the groups with the shortest average length of stay – Black and Asian/Pacific Islander beneficiaries with 6.0 days. Whites and Hispanics fell between these groups with 6.1 and 6.2 days, respectively.

Average payments made for the hospital stay were lowest for White and Black beneficiaries -- $6,700 and $6,800, respectively. Average payments were highest for Asian/Pacific Islander and American Indian/Alaska Natives – $8,100 – but Hispanics were right behind at an average of $8,000.

While hospitalization for fractures was fairly infrequent for Medicare beneficiaries, there was considerable variation by race/ethnicity. While approximately 1.0 percent of White and

American Indian/Alaska Natives beneficiaries were hospitalized for fractures, hospitalization for fractures occurred about half that level – 0.5 percent – for Black, Hispanic, and Asian/Pacific Islander beneficiaries.

White beneficiaries had the shortest average length of stay for fractures – 5.5 days – about one day shorter than American Indian/Alaska Native beneficiaries. Hispanic beneficiaries had a half day longer average length of stay than Whites; Black and Asian/Pacific Islander beneficiaries had more than three-quarters of a day longer average hospital stay than Whites.

The highest average payment for a hospital stay with a diagnosis of fracture was paid for Asian/Pacific Islander beneficiaries – nearly $8,700. Black beneficiaries had the second highest – more than $8,100. White beneficiaries had the lowest average payment made for their fracture diagnosis hospital stay – just $6,700. American Indian/Alaska Native and Hispanic beneficiaries had average payments made of $7,400 and $7,500, respectively, for their fracture hospitalizations.

Overall, only 1.1 percent of Medicare beneficiaries had a hospitalization with a discharge diagnosis of pneumonia, yet there was a very big difference in the percent with a discharge for pneumonia across the race/ethnic groups. The highest proportion was among American Indian/Alaska Native beneficiaries – 1.9 percent. The lowest percentage was less than half that amount – 0.7 percent – among Asian/Pacific Islander beneficiaries. Hispanic, White, and Black beneficiaries had about 1.1 percent hospitalized for this diagnosis.

Hispanic beneficiaries had the longest average length of hospital stay for discharge diagnoses of pneumonia – 6.6 days – while the shortest was experienced by American Indian/Alaska Native beneficiaries, a day and a half less. The remaining racial/ethnic groups had average stays arrayed between 5.7 and 6.4 days. Average payments for pneumonia discharge diagnoses was highest among Asian/Pacific Islander beneficiaries -- $7,500 – and lowest among White and American Indian/Alaska Native beneficiaries – about $5,300. Hispanic and Black beneficiaries were intermediate at $6,000 and $6,700 respectively.

We were not readily able to conclude anything definitive about racial/ethnic health care disparities from our analysis of hospital discharges for the selected diagnoses and their associated lengths of stay, except that there were differences between the racial/ethnic groups. Whether the differences in diagnoses reflect alternative diets or modes of treatment, genetic differences in susceptibility, differences in exposure risks, or a different quality of care being provided, we cannot say. One pattern that emerged, however, was that Asian/Pacific Islanders frequently had the highest annual average payments made for their care. It may be due to the higher prices that their providers charge or to a higher intensity of service being provided.

Types of Services

Medicare provides for treatment in different care settings and utilizing different kinds of care providers. We examined whether there were racial/ethnic group differences in the use of different types of services. The services included inpatient care, physician and other professional services, skilled nursing facility, home health care, durable medical equipment, and emergency department care.

Asian/Pacific Islander had the lowest percentage with hospitalizations – 10 percent – and American Indian/Alaska Native beneficiaries had the highest – 20 percent. Black, White, and Hispanic beneficiaries fell in between them with 18, 17, and 14 percent with hospital stays, respectively. The average payments made for persons with hospitalizations were highest for Asian/Pacific Islander beneficiaries – more than $12,900 – followed by Black, Hispanic, and American Indian/Alaska Native beneficiaries, at $12,200, $11,200, and $11,000, respectively. White beneficiaries had the lowest average payments made per hospitalization, just over $10,100.

Physician visits (regardless of where they occurred) were the most used Medicare covered service, and White beneficiaries had the highest percentage of beneficiaries having at least one visit – almost 79 percent – followed by Asian/Pacific Islander beneficiaries – more than 73 percent. Hispanic beneficiaries had the lowest percentage having a physician visit – less than 65 percent. Black and American Indian/Alaska native beneficiaries fell in between at 68 and 69 percent, respectively.

American Indian/Alaska Native beneficiaries had the lowest average annual payments for physician services, only slightly more than $400, followed by White beneficiaries at $500. Hispanic and Asian/Pacific Islander beneficiaries had the highest average annual payments for physician services, both slightly more than $600, and Black beneficiaries fell in between at an annual average amount paid of $570.

Skilled nursing facilities were most often used by White and Black beneficiaries – by almost 6 percent of them. But less than 3 percent of Hispanic and Asian/Pacific Islander beneficiaries used the skilled nursing facility Medicare benefit. Just over 4 percent of American Indian/Alaska Native beneficiaries did the same. While American Indian/Alaska Native beneficiaries had the lowest average annual amount of payments for skilled nursing facility services – almost $4,800 – for the other racial/ethnic groups the average annual payments for skilled nursing facilities were clustered between $5,300 and $5,600.

Home health services were received by slightly more Medicare beneficiaries than received skilled nursing facility care. The highest percentages – 8 and 7 percent – were used by Black and Hispanic beneficiaries, respectively. Asian/Pacific Islander and American Indian/Alaska Native beneficiaries were the least likely to use home health services – only 5 percent used these services. White beneficiaries using home health services fell in between these groups at 6 percent. The lowest average annual payments for persons using home health care were made for White and Hispanic beneficiaries, $3,300 and $3,500, respectively. The highest payments were made for beneficiaries in the Black, Asian/Pacific Islander, and American Indian/Alaska Native groups, between $4,200 and $4,300.

Durable medical equipment was used by 22 percent of Black and Hispanic beneficiaries. White and American Indian/Alaska Native beneficiaries were almost as likely to use it at 20 and 19 percent, respectively). Beneficiaries of Asian/Pacific Islander background used these aides least, only 17 percent had a claim. There were considerable differences among the average annual payments for persons using durable medical equipment, with Hispanic beneficiaries having the largest average payment, almost $700. White beneficiaries had the lowest annual average, not quite $400, and the remaining racial/ethnic groups had payments of just slightly more than $400.

There was considerable variation in the use of emergency rooms. Black and American Indian/Alaska Native beneficiaries were the most common users of emergency room services, 26 and 27 percent, respectively, had at least one emergency room claim. Asian/Pacific Islander beneficiaries had the lowest level of emergency room use. Only slightly more than 13 percent of them had a claim for emergency room care. White and Hispanic beneficiaries had intermediate levels of emergency room use, 21 and 20 percent, respectively. Asian/Pacific Islander and Black beneficiaries had the highest average annual payments for use of the emergency room, more than $700. American Indian/Alaska Native beneficiaries had the lowest, just slightly more than $400. The average annual payments for White and Hispanic beneficiaries were just about $600.

Our examination of the types of services used by Medicare beneficiaries according to race/ethnicity demonstrates that there are some rather large differences in the way the different racial/ethnic groups use their Medicare benefits. It is not possible to tell from the analyses we have done whether these differences are result of choices made along cultural lines to provide care for elders in alternative ways, an absence of a need for the services, limited availability of the services in their residential areas, or discrimination of some kind. From the analyses of the average annual payments across the types of services we observed that Asian/Pacific Islander beneficiaries, despite being low users of services as a group, fairly regularly had the highest payments made for the services they used. It is not possible to discern from our analysis whether this is the result of receiving services from high priced providers or having received fairly intensive (and therefore expensive) treatments.

CHAPTER 1
OVERVIEW

1.1 Overall Goal

This second part of the final report for this project contains our analysis of health services utilization among Medicare beneficiaries. The overall goal of the project was to identify racial/ethnic disparities in the utilization of Medicare services beyond those that have been identified between White and Black beneficiaries. To designate the race/ethnic group membership of beneficiaries, we used the improved Hispanic and Asian/Pacific Islander (A/PI) race/ethnicity coding algorithm that we developed and described in the first part of the final report for this project. The algorithm we developed uses Hispanic and A/PI surnames, common ethnic first names, residential location, and selected pieces of information from the Medicare enrollment data base (EDB). This report represents the first time that the health service claims of minority Medicare fee-for-service (FFS) beneficiaries have been presented using the codes generated by the algorithm.

1.2 Specific Objectives

We had several specific objectives in the conduct of this study. First, we documented from the literature, the existence of health status and disease rate differences among adult Medicare beneficiaries. These differences formed the basis for our expectations regarding the extent of disparities in the use of services; as all Medicare beneficiaries in the FFS option have similar coverage of their health care needs and expenses in the program, regardless of race/ethnicity. The possession of additional private or public insurance coverage could alter that because we would expect that added insurance would increase access to care and presumably its use by reducing its out of pocket cost, a financial barrier, even further.

Our second objective was to select a large, random, stratified sample of Medicare beneficiaries, weight them to represent the entire FFS option, and analyze their claims from 2002 by race/ethnicity for the use of (1) assorted global measures of utilization reported from the Medicare and Medicaid Supplement, (2) preventive services that involve screening for a chronic disease, (3) secondary preventive services for a chronic condition, (4) primary care to avoid hospitalizations for conditions that can be adequately managed on an ambulatory basis, (5) different types of covered services, and (6) hospital services for the treatment of common chronic and acute conditions.

Finally, we wanted to make the comprehensive tabular results of our complete analyses available to other researchers and policy makers. These tabular results present a variety of service-use measures separately by racial/ethnic group while controlling for beneficiary gender and age group. In addition, we were charged with selecting and presenting summary results in easy-to-understand graphics that highlight the most obvious examples of racial/ethnic disparities in services use that we found among Medicare beneficiaries. Our findings revealed racial/ethnic disparities in the incidence, prevalence and use of services to prevent, diagnosis, and treat a number of conditions. While our analyses do not explain why there are health care disparities in ways that could lead policy makers to recommend immediate interventions for their elimination, we hope that our analyses have identified areas of disparity that will be explored in greater depth in future research.

1.3 Organization of the Report

In Chapter 2, we provide the substantive context of this report. There, we discuss our reasons for examining service use by Medicare beneficiaries as a way of studying differential access to health services. We also explain a distinction we make between identifying differences in service utilization that may or may not have implications for the health of beneficiaries, and establishing the presence of disparities in access to care represented by differences in utilization that have been demonstrated or are generally considered to have an impact on health. We reserve the term “disparities” for these latter, and refer to the former as differences until there is evidence of health impact available. We conclude the chapter with a discussion of the prevalence and incidence of a variety of diseases, and disparities in health by race/ethnicity that are associated with differences in service utilization and that have been well documented in the published literature.

Chapter 3 provides a discussion of the methodology we used to perform the analyses that are the basis for this report. We describe the criteria used to construct the sampling frame from the Medicare EDB, and the process and outcome of selecting the random sample of almost two million Medicare beneficiaries stratified by the improved race/ethnicity variable that we created and added to the EDB. Further, we discuss the general principles underlying the determination of statistical significance among estimates of service utilization for the five racial/ethnic groups studied, and the age groups and sexes within them.

The results of this study are presented in Chapter 4. There are separate subsections devoted to each of the six areas described in Section 1.2. Each of these subsections provides a treetop view of differences in utilization according to race/ethnicity, and sometimes highlights where differences exist between the sexes or age groups, as well.

Finally, Chapter 5 provides an overall summary, discusses limitations and caveats, and ends with our thoughts on implications and recommendations. There are also seven Appendices. The first six contain the full set of tables from which each of the results sections were prepared. The final appendix describes how we created the utilization and other variables drawn from the Medicare claims we analyzed for our sample of beneficiaries.

CHAPTER 2
BACKGROUND

2.1 Assessing Access through Health Services Use: Racial/Ethnic Differences and Disparities

Given that preventive and treatment services can help reduce morbidity and mortality, failure to appropriately utilize such services at the appropriate time can have a potentially harmful impact on personal and population health status. Implicit to the appropriate and timely utilization of health services is having good access to the needed or desired care. The Institute of Medicine's report *Access to Health Care in America* (1993) defines access as "the timely use of personal health services to achieve the best possible health outcomes." Attaining good access to care entails (1) gaining entry into the health care system; (2) obtaining care within the system; and (3) identifying providers that meet individual patient needs. In the *2004 National Healthcare Disparities Report*, health care utilization serves as a measure of access to care in that it denotes the successful or unsuccessful receipt of services (Agency for Healthcare Research and Quality, 2004). Assessment of health care utilization is particularly helpful in identifying areas where differential access may exist in the provision of services to specific segments of the population, especially the disadvantaged and vulnerable, groups that include racial/ethnic minorities.

A number of terms are sometimes used interchangeably to describe differences in health and health care use by race/ethnicity including, but not limited to, "variations," "health disparities," "health care disparities," "biases," "inequality," "inequity," and "discrimination." Essential to the resolution and eradication of health disparities is a correct understanding of the terminology used to describe differences in health and health care use by race/ethnicity.

The National Institutes of Health defines health disparities as "differences in the incidence, prevalence, mortality, and burden of diseases and other adverse health conditions that exist among specific population groups in the United States" (National Institutes of Health, 2005). Carter-Pokras and Baquet (2002) note that a health disparity should be viewed as a "chain of events signified by a difference in (1) environment; (2) access to, utilization of, and quality of care; (3) health status; or (4) a particular health outcome that deserves scrutiny." Since what is unequal is not necessarily inequitable, the authors suggest that differences be evaluated in terms of both inequality and inequity. *Healthy People 2010* defines health disparities as "differences that occur by gender, race or ethnicity, education or income, disability, living in rural localities or sexual orientation" (U.S. Department of Health and Human Services, 2000). These definitions differ from that of health *care* disparities in that the latter is often used to describe differences in health care utilization or treatment. Hence, it may be inferred that health disparities may result from health care disparities.

While many use the concept of equal use as the standard for assessing racial/ethnic variations in health care, the concept assumes that there is equal need, preferences, and benefit across racial/ethnic groups and that patients have access to high-quality, necessary care (Rathore and Krumholz, 2004; Balsa and McGuire, 2001). Chang (2002) denotes equality as an *empirical* concept that can be measured, and equity in health as a *normative* concept that primarily pertains to placing a value judgment on whether health status is equal or unequal among individuals and groups. Chang further elaborates that variations in health status will always exist among individuals given inherent biological differences and physical environments, but that efforts should focus on the goal of providing and enhancing opportunities for all individuals to attain their "optimal" health given their potential. As noted by Braveman and Gruskin (2003), everyone should have an equal opportunity to be healthy. Inequality is associated with the "condition of being unequal" while inequity is defined as "unfairness, injustice" (American Heritage Dictionary of the English Language, 2000) and has a moral and ethical component alluding to differences that are unnecessary and avoidable (Whitehead, 2004). Equality can be assessed by measuring outcomes whereas determining whether or not there is inequity is more open to interpretation (Braveman and Gruskin, 2003).

Rathore and Krumholz (2004) define an equitable distribution of health care as one in which "clinical need is the primary determinant of equal opportunities for patients to use health care resources." The authors posit a 3-tiered framework (difference, disparity, bias) for classifying differences in health care use. The first tier, *differences*, reflects observed racial variations in health care use. *Disparities* can encompass differences if the variations in use are associated with poorer clinical outcomes and indicate shortfalls in appropriate care that are not attributable to patient factors. Financial barriers, being uninsured, and treatment by poorer-quality providers are all factors that may contribute to poorer quality of care. The authors present five criteria for use in determining whether variations in treatment by race can be classified as disparities in treatment: eligibility for testing/procedures; clinical exclusion due to treatment contraindications; patient preferences; confounding (e.g. adjustment for demographic, clinical, and social characteristics); and consequence/patient outcomes. *Racial bias* in health care use is introduced when there is differential provision of appropriate care to patients primarily due to race. This hypothesis is strengthened once it is determined that disparities are not traceable to health system factors (e.g., type of hospital where the patient was treated).

As noted by Gornick, Eggers, and Riley (2004), having health insurance and a regular source of care are necessary but insufficient conditions for eliminating disparities in access to care. Mitigating the disparities in health outcomes will entail a greater understanding of beneficiary and provider behaviors and the driving factors behind the behaviors. Given the current lack of a widely accepted framework for interpreting reports of racial differences in health care utilization, use of several terms interchangeably to describe racial differences in treatment can lead to multiple interpretations of the data and have a profound impact on policy. A consistent operational definition and measurable outcomes are needed so that accountability and equality may be better monitored.

2.2 A Selective Review of Racial and Ethnic Health Disparities

Eliminating health disparities is one of the two overarching goals of Healthy People 2010 (U.S. Department of Health and Human Services, 2000). A major component of this goal includes eliminating differences in health status and risk factors that occur by race or ethnicity. Eradicating such disparities remains a high priority for federal policymakers as racial and ethnic minority groups currently experiencing poorer health status continue to grow as a proportion of total U.S. population (Centers for Disease Control and Prevention, 2004). Demographic projections indicate that minorities are expected to grow at a much more rapid rate than Whites (Day, 1996). In 2000, non-Hispanic Whites comprised 69.1 percent of the U.S. population; non-

Hispanic Blacks, American Indians, Asians, Hispanics, and Other comprised 30.9 percent of the population (U.S. Census Bureau, 2001). Estimates reveal that by 2050, Hispanics and Asians will have doubled their population compared to 2000; racial/ethnic minorities will comprise nearly 50 percent of the total U.S. population (Centers for Disease Control and Prevention, 2004; Kaiser Family Foundation, 2003).

Given the poorer health status of racial and ethnic minority groups in the United States, providing greater access to care to these groups is a critical component to achieving a healthy nation, particularly since access to care may increase utilization of preventive health services (Sambamoorthi and McAlpine, 2003). A study examining associations of race, education, and patterns of preventive service use found that for the majority of services, utilization of preventive services was significantly lower for Blacks than for Whites. Compared to Whites, a higher proportion of Blacks used no preventive services in the 24-month period prior to cancer diagnosis across all cancers examined in the study: male bladder, male stomach, breast, male and female colorectal, prostate, uterine, and ovarian (Gornick, Eggers, and Riley, 2004). Consequently, the harmful effects of racial/ethnic disparities in health care may be magnified in the long run unless improvements are made in the health status of these growing segments of the population.

In 2004, U.S. Secretary of Health and Human Services (HHS), Tommy Thompson created the HHS Council on Health Disparities to ensure that HHS efforts are aligned with the goal of "enhancing and expanding the Department's role in reducing health disparities" (U.S. Department of Health and Human Services, 2004). Other notable efforts aimed at reducing health disparities include programs such as REACH (Racial and Ethnic Approaches to Community and Health) 2010, a program launched in 1999 intended to eliminate health disparities in six priority areas: cardiovascular disease, immunizations, breast and cervical cancer screening and management, diabetes, HIV/AIDS, and infant mortality.

A key step in the process of eliminating racial/ethnic health disparities is determining potential causes and contributing factors to the problem. Several barriers exist that can prevent patients from accessing appropriate care, including, but not limited to financial barriers, lack of transportation, physical distance, lack of information or education, cultural differences and biases, high-risk behaviors, treatment aggressiveness, compliance with treatment, patient-provider relationships, and inadequate insurance coverage (Centers for Disease Control and Prevention, 2002; National Cancer Institute, 2004; Bradley, Given, and Roberts, 2001; Siegal, May, and Burstin, 2004). However, mounting evidence, such as that presented in the Institute of Medicine report *Unequal Treatment: Confronting Racial and Ethnic Disparities in Healthcare*, reveals that even after accounting for differences in characteristics such as income, insurance coverage, age, and other characteristics often associated with disparities, health disparities among the different racial and ethnic groups are substantial (Smedley, Stith and Nelson , 2003; Siegal, May, and Burstin, 2004).

Racial/ethnic disparities have been documented across a range of health conditions in various medical settings, including hospital, ambulatory care, and community settings (Mayberry, Mili, and Ofili, 2000; Virnig et al., 2002). Below, we highlight key findings of health disparities by race/ethnicity.

2.2.1 Blacks

Blacks carry the highest cancer burden among all racial and ethnic groups in the United States with an incidence rate that is approximately 10 percent higher than that of Whites, 50 to 60 percent higher than those of Hispanics and Asian/Pacific Islanders, and more than twice that of American Indians. Blacks have higher mortality rates than Whites for colorectal, male lung, female breast, and prostate cancers. The mortality rate from all cancers combined for Blacks is roughly 30 percent higher than among Whites and more than double the rates in Asian/Pacific Islanders, Hispanics, and American Indians (Jemal et al., 2003). Moreover, most cancers detectable through screening are diagnosed at later stages and have poorer survival probability within each stage of disease among Blacks as compared with Whites (Ghafoor et al., 2002). Jemal et al. (2003) found that Blacks have lower 5-year survival rates than Whites for most types of cancer at each stage of diagnosis. Five-year survival rates after a cancer diagnosis in the United States between 1995 and 2000 were 66 percent for Whites and 55 percent for Blacks.

Black men have earlier onset of prostate cancer, higher prostate-specific antigen (PSA) levels, twice the risk of having a diagnosis of advanced prostate cancer, and higher mortality rates compared to White men (Thompson, et al., 2001; Hoffman, et al., 2001; Godley et al., 2003, Freedland and Isaacs, 2005). In 1999, prostate cancer incidence was 58 percent higher in Black men than in White men. Although the mortality rate from prostate cancer in Black men has been decreasing by 2.5 percent per year, Black males still have the highest mortality rate from the disease (Ghafoor et al., 2002). Multiple reasons have been theorized to explain this disparity, including the larger proportion of cancers diagnosed at advanced stages compared to Whites (Shavers et al., 2004; Hoffman et al., 2001), low early screening rates (Gilligan et al., 2004, Freedland and Isaacs, 2005), and treatment differentials (Klabunde et al., 1998; Shavers et al., 2002; Harlan et al., 2001).

Compounding the problem is the fact that elderly Blacks are substantially less likely to undergo screening than elderly Whites when age, socioeconomic status, and comorbid conditions are controlled for (Gilligan et al., 2004). Even after diagnosis of prostate cancer, Black men are significantly less likely to obtain annual PSA examinations, which can result in later detection of cancer recurrences (Freedland and Isaacs, 2005; Zeliadt et al., 2003). Regarding initial management of treatment, several studies have noted that Black men disproportionately receive conservative management through hormonal therapy alone or watchful waiting compared to Whites (Shavers et al., 2002; Harlan et al., 2001; Klabunde et al., 1998). Black men diagnosed with prostate cancer are 16 to 30 percent less likely than Whites to undergo prostatectomy (Klabunde et al., 1998; Gilligan et al., 2004; Harlan et al., 1995; Imperato, Nenner, and Will, 1996), and are significantly more likely than Whites to receive watchful waiting/conservative symptomatic management, which is considered to be appropriate for men diagnosed with early-stage prostate cancer and those with a life expectancy of less than 10 years (Harlan et al., 2001; Shavers et al., 2004).

In 2000, colorectal cancer mortality rates were highest among Black men and women (35.2 and 24.0 percent, respectively), followed by White (24.6 percent for men, 17.1 percent for women), Hispanic (18.2 percent for men, 11.6 percent for women), American Indian/Alaska Native (17.3 percent for men; 10.7 percent for women), and Asian/Pacific Islander men and women (16.4 and 10 percent, respectively). Colorectal cancer mortality rates among Black men were approximately 1.4 times higher than White men and 2.1 times higher than Asian/Pacific Islander men (35.2 versus 16.4 percent) in 2000. Among women, colorectal cancer mortality rates were approximately 1.4 times higher among Black women compared with White women and 2.4 times higher than the rate among Asian/Pacific Islander women (Stewart et al., 2004).

Lower colorectal cancer screening and surveillance is one potential reason for higher colorectal cancer incidence and mortality observed in Blacks compared with Whites (Ghafoor et al., 2002; Jemal et al., 2003; Cooper and Koroukian, 2004). Differences in the use of colorectal procedures and indications for colorectal testing when comparing Blacks and Whites are consistent with a delay in diagnosis until development of symptoms or signs and may contribute to disparities in cancer mortality (Cooper and Koroukian, 2004). While mortality rates from colorectal cancer declined in Blacks between 1992 and 2001, the average annual percentage reduction in mortality rates was smaller in Blacks than in Whites (0.7 percent and 1.9 percent, respectively) (Ries et al., 2004).

Differences in breast cancer screening and mortality by race are striking. Although breast cancer is the most common cancer among Black women, the newly diagnosed incidence rate is 13 percent lower than in White women. Yet, while Black women experience a lower breast cancer incidence rate compared to White women, their mortality rate from the disease is 28 percent higher than that of White women (Ghafoor et al., 2002). In 2000, breast cancer mortality rates among Black women were approximately 1.3 times higher than those of White women, and 2.8 times higher than those of Asian/Pacific Islander women (Stewart et al., 2004). Several factors may contribute to this racial differential, including differences in treatment (Shavers and Brown, 2002; Griggs et al., 2003; Mandelblatt et al., 2002) and latter stage at diagnosis (Bradley, Given et al., 2001; Joslyn and West, 2000; McCarthy et al., 1998; Fiscella, Franks, and Meldrum, 2004).

A study examining racial differences in diagnosis, treatment, and clinical delays in patients with newly diagnosed breast cancer found that Black women were more likely than White women to have extended diagnosis, treatment, and clinical delays. The odds of Black women ages 20 to 54 experiencing diagnosis delays of one to two months and more than two months as opposed to a delay of less than one month were 1.51 and 1.86 times, respectively, the odds for White women in the same age group (Gwyn et al., 2004). Several studies note that Black women have less early-stage breast disease and more advanced-stage breast disease compared to White women (Chu, Lamar, et al., 2003; McCarthy et al., 1998; Joslyn and West, 2000).

Racial disparities are also apparent in long-term mortality among elderly cardiac arrest survivors. Groeneveld et al. (2003) found that Black survivors of cardiac arrest ages 66 to 74 years had a lower probability of receiving potentially life-saving cardiac procedures and had reduced long-term survival compared to elderly White survivors of cardiac arrest, despite adjustment for socioeconomic differences, comorbidities, admission characteristics, clinical events, and hospital factors. Disparities are also evident in the prevalence and receipt of services for diabetes. Minority populations carry a much greater burden of diabetes compared with Whites. In 1999, 67.3 percent of Medicare managed-care beneficiaries with diabetes received an annual eye exam, 79.9 percent underwent hemoglobin determination, and 73.5 percent underwent LDL cholesterol determination (Virnig et al., 2002). Significantly lower rates were found among Black Medicare beneficiaries (61.6, 74.6, and 64.5 percent, respectively) compared with White beneficiaries (67.4, 80.2, and 73.7 percent, respectively). Asians and Pacific Islanders had the highest rates while Hispanics and Whites had similar rates for the three services (McBean et al., 2003).

2.2.2 American Indians/Alaskan Natives (AI/ANs)

Although American Indians/Alaska Natives (AI/ANs) comprise approximately 0.9 percent of the United States population (Grieco and Cassidy, 2001), they are burdened with greater health risk factors and a higher incidence of several chronic diseases.

Heart disease and cancer are the two leading causes of death among AI/ANs (National Center for Health Statistics, 2004). An analysis of data from nine SEER Program areas indicated that AI/ANs had the lowest survival rates for prostate, lung, breast, and for all cancers combined, with similar survival rates among Blacks for prostate and breast cancers (Clegg, et al., 2002). AI/ANs also carry a disproportionate burden of disease and have a higher mortality rate from diabetes compared to the general population (Denny, Holtzman, and Cobb, 2003). AI/ANs are 2.3 times more likely to have diabetes compared to non-Hispanic Whites of similar age (National Institute of Diabetes and Digestive and Kidney Diseases, 2004). According to data from the REACH 2010 Risk Factor Survey, the median percentage of men reporting ever having been told that they have diabetes ranged from 5.3 percent in Hispanic and Asian/Pacific Islander populations to 16.2 percent in American Indian communities. Excluding gestational diabetes, the median prevalence of diabetes among women ranged from 4.7 percent in Asian/Pacific Islander communities to 19.5 percent in American Indian communities (Liao et al., 2004). Pima Indians residing in Arizona are reported to have the highest diabetes prevalence in the world (Kaiser Family Foundation, 2004).

Regarding screening for chronic disease, AI/AN women are more likely to report never having had a Pap test compared to women of other racial/ethnic groups (10.3 percent vs. 6.1 percent) (Denny, Holtzman, and Cobb, 2003). AI/AN women also have the highest proportion of abnormal Pap tests among women on their first screening test (Benard et al., 2001). However, AI/ANs are less likely to report never having been tested for HIV infection compared to other racial ethnic groups (50.5 percent vs. 55.8 percent). Baseline data from the REACH 2010 Risk Factor Survey indicated that AI/ANs have the highest prevalence of obesity, current smoking, cardiovascular disease, and diabetes among all the racial/ethnic groups (Liao et al., 2003).

2.2.3 Asians/Pacific Islanders (A/PIs)

Over the past 2 decades, Asians/Pacific Islanders (A/PIs) have become the fastest-growing racial/ethnic minority population in the United States (Liao et al., 2004). According to the 2000 Census, A/PIs comprise 3.6 percent of the United States population. Between 1975 and 2001, incidence rates for stomach, liver, and thyroid (women only) cancers were higher in A/PI populations than in other racial/ethnic populations (Jemal, Clegg, et al., 2004). During the years 1997-2001, incidence rates of stomach cancer among A/PIs were more than double those of Whites (American Cancer Society, 2005). Moreover, one study found that a substantially lower percentage of A/PIs reported receiving preventive services (e.g., mammograms, pap tests, vaccination for influenza and pneumonia among adults ≥ 65 years, cholesterol screenings, glycosylated hemoglobin tests, and foot exams for patients with diabetes), compared with the general U.S. population (Liao, et al., 2004). This may relate to findings indicating that Asian Americans are less likely to receive counseling and report positive interactions with their physicians compared to Whites. Asian Americans are also less likely to be very satisfied with their care and to have a great deal of trust in their physician (Ngo-Metzger, Legedza, and Phillips, 2004).

2.2.4 Hispanics

According to the 2000 Census, 35.3 million persons (12.5 percent) in the United States identified themselves as Hispanic. During the years 1998-2002, this rapidly growing segment of the population had an age-adjusted diabetes prevalence that was approximately twice that among non-Hispanic Whites (9.8 percent versus 5.0 percent) (Burrows et al., 2004). Moreover, cervical cancer incidence and mortality rates are higher among Hispanics (incidence, 16.2 percent; mortality, 3.6 percent) than non-Hispanic Whites (incidence, 8.9 percent; mortality, 2.6 percent) (American Cancer Society, 2005). Data from the 2001-2002 Behavioral Risk Factor Surveillance Survey (BRFSS) indicated that Hispanic respondents are significantly less likely to be screened for breast, cervical, and colorectal cancers; to receive a pneumococcal vaccination and influenza vaccination within the previous year; and to be screened for blood cholesterol compared to non-Hispanic respondents. The data also revealed that Hispanics were significantly less likely to have health care coverage (76.2 percent vs. 90.6 percent), have one or more regular personal health care providers (68.5 percent vs. 84.1 percent), or have a regular place of care (93.4 percent vs. 96.2 percent), compared to non-Hispanics (Balluz, Okoro, and Strine, 2004).

Between 1999 and 2002, the age-adjusted prevalence of hypertension was 25.1 percent among Mexican Americans. Among adults with hypertension, Mexican Americans had lower age-adjusted rates of treatment (34.9 percent) and control (17.3 percent), compared to Whites (treatment, 48.6 percent; control, 29.8 percent) and Blacks (treatment, 55.4 percent; control, 29.8 percent). Inadequate attention by providers and a lack of access to healthcare services have been associated with barriers to prevention and control of hypertension. (Glover et al., 2005). In 2002, Hispanics experienced more age-adjusted years of potential life lost before age 75 per 100,000 population than non-Hispanic Whites for the following causes of death: stroke (14 percent more), chronic liver disease and cirrhosis (56 percent), diabetes (33 percent), human immunodeficiency virus (164 percent), and homicide (188 percent) (National Center for Health Statistics, 2004).

2.2.5 Conclusion

Identification of inequalities in screening and treatment for minorities are a source of concern because numerous studies attribute racial disparities in health care, particularly cancer, to underutilization of screening, delays in diagnosis, and resulting advanced stage of disease at diagnosis among minorities (Shavers and Brown, 2002; McMahon et al., 1999; Cooper and Koroukian, 2004; Ghafoor et al., 2002). Such disparities in health are particularly alarming because research findings suggest that when minorities receive treatment equal to Whites, they tend to have similar disease outcomes (Shavers and Brown, 2002; Velanovich et al., 1999; Dignam et al., 1999; Iselin et al., 1998). Freedlund and Isaacs (2004) found that when active prostate cancer screening protocols are initiated in Black communities, detected cancers that are discovered early and the tumor characteristics are comparable to those detected among screened

White men. Hence, significantly more effort and resources are needed to educate, generate awareness, and promote the benefits of early screening. Another key component to eradicating racial disparities in health care will involve enhancing the quality and satisfaction of patient-physician interactions, particularly among Asians/Pacific Islanders and Hispanics, given the findings that these populations express lower levels of satisfaction with care (Johnson et al., 2004). Improving patient satisfaction may yield greater utilization of preventive services among minority groups currently bearing a disproportionate burden of chronic diseases.

CHAPTER 3
METHODS

3.1 Selection of the Study Sample from the EDB

We used the full 10 segments of the unloaded EDB that we received from CMS in mid-2003 to build the sampling frame of persons eligible for this study. To be eligible for inclusion in the sample, beneficiaries must have been enrolled in traditional fee-for-service (FFS) Medicare (Part A, Part B, or both) for the full 12 months of the 2002 calendar year and not have been enrolled in a Group Health Organization at all during the 2002 calendar year. In addition, beneficiaries must have been alive for the full 12 months of calendar year 2002. We set these criteria to allow the maximum opportunity (period of time) for beneficiaries to submit claims documenting their use of preventive services, one of the key foci of this study.

Table 1 presents a distribution of the beneficiaries in the EDB eligible for the sample by their NEWRACE (their race/ethnicity code resulting from the use of the algorithm we developed) and by EDBRACE (their race/ethnicity code on the EDB before using the algorithm, respectively.

Table 1
Distribution of Medicare fee-for-service beneficiaries believed eligible for the study sample by NEWRACE and EDBRACE

NEWRACE	Frequency	EDBRACE	Frequency
White	25,907,883	White	27,091,613
Black	3,025,397	Black	3,087,034
Hispanic	2,081,123	Hispanic	730,147
Asian/Pacific Islander (A/PI)	592,010	Asian	453,950
American Indian/Alaska Native (AI/AN)	121,024	North American Native	122,156
Other	183,242	Other	412,198
Unknown	61,567	Unknown	75,148
Total	31,972,246	Total	31,972,246

Source: EDBRACE is from the Medicare EDB from mid-2003 and NEWRACE is the result of running the algorithm on those same beneficiaries from the Medicare EDB from mid-2003.

We had originally proposed to select a stratified random sample in which 100 percent of the Hispanic, Asian/Pacific Islander (A/PI), and American Indian/Alaska Native (AI/AN), along with 20 percent of the Black and two percent of the White Medicare beneficiaries who were eligible would be selected to produce study estimates of health care utilization derived from claims. However, after applying the surname algorithm we developed to the full 10 segments of the unloaded EDB, it was apparent that there were very large increases in the number of beneficiaries classified as Hispanic and a considerable increase in the number of beneficiaries classified as A/PI. Because of these increases, we could no longer sample 100 percent of the Hispanics and A/PIs and still keep the study sample at two million beneficiaries.

Since our primary sampling goal was always to have sufficient sample size to provide equally accurate and precise estimates of health care utilization estimates for different racial/ethnic groups, we adjusted the sampling rates so that, to the extent possible, the same number of Medicare beneficiaries across the different racial/ethnic groups would be sampled. We adjusted the sampling rates such that, based on the NEWRACE code, 11 percent of the Black, 1.2 percent of the White, 26 percent of the Hispanic, 71 percent of the A/PI, and 100 percent of AI/AN, Other, and Unknown were sampled. These sampling rates produced the sample presented according to NEWRACE and EDBRACE in Table 2 below.

Table 2
Distribution of Medicare fee-for-service beneficiaries selected for the study sample by NEWRACE and EDBRACE

NEWRACE	Frequency	EDBRACE	Frequency
White	333,334	White	658,279
Black	333,334	Black	350,879
Hispanic	545,643	Hispanic	191,402
Asian/Pacific Islander	421,859	Asian	312,785
American Indian/Alaska Native	121,024	North American Native	121,496
Other	183,242	Other	299,015
Unknown	61,567	Unknown	66,147
Total	2,000,003	Total	2,000,003

Source: EDBRACE is from the Medicare EDB from mid-2003 and NEWRACE is the result of running the algorithm on those same beneficiaries from the Medicare EDB from mid-2003.

White and Black beneficiaries have the same size sample, while AI/AN, Other, and Unknown have fewer and Hispanic and A/PI have slightly more. We sampled 100 percent of the AI/AN, Other, and Unknown beneficiaries and therefore could not get any closer to the White and Black totals. In the case of Hispanic and A/PI beneficiaries, however, we increased their allocation in the sample slightly because we wanted the estimates to be as close to equally precise across the race/ethnicity categories when the NEWRACE code was used rather than the EDBRACE. (The number of A/PIs and Hispanics would have dropped whenever the EDBRACE code was used instead of the NEWRACE and so would the precision of the estimates; therefore, we decided to sample more A/PIs and Hispanics).

After the sample we intended to use to examine disparities in utilization from claims was selected, we cross-referenced it with CMS's denominator file as a final check on eligibility and discovered that slightly less than two percent of the selected sample, spread proportionately across the racial/ethnic groups, did not meet all of our desired sample eligibility criteria – alive and enrolled in FFS Medicare for the entire year. To correct this, we identified and discarded the ineligibles from the sample and recalculated the weights of the remaining sample to correctly represent the intended population of eligible Medicare fee-for-service beneficiaries. Table 3 presents the final number of sampled beneficiaries by NEWRACE and EDBRACE.

Table 3
Distribution of final study sample of selected Medicare fee-for-service beneficiaries by NEWRACE and EDBRACE

NEWRACE	Frequency	EDBRACE	Frequency
White	329,954	White	647,653
Black	328,246	Black	345,559
Hispanic	534,196	Hispanic	187,920
Asian/Pacific Islander	415,190	Asian	308,890
American Indian/Alaska Native	120,557	North American Native	121,025
Other	171,032	Other	283,603
Unknown	60,946	Unknown	65,471
Total	1,960,121	Total	1,960,121

Source: EDBRACE is from the Medicare EDB from mid-2003 and NEWRACE is the result of running the algorithm on those same beneficiaries from the Medicare EDB from mid-2003.

Table 4 contains the distribution of the weighted number of Medicare beneficiaries contained in the EDB who are represented by the sample distributed by the NEWRACE and EDBRACE variables.

Table 4
Distribution of weighted study sample of Medicare beneficiaries by NEWRACE and EDBRACE

NEWRACE	Frequency	EDBRACE	Frequency
White	25,645,178	White	26,779,400
Black	2,979,217	Black	3,053,618
Hispanic	2,037,463	Hispanic	720,664
Asian/Pacific Islander	582,651	Asian	449,914
American Indian/Alaska Native	120,557	North American Native	121,818
Other	171,032	Other	397,030
Unknown	60,946	Unknown	74,600
Total	31,597,044	Total	31,597,044

Source: EDBRACE is from the Medicare EDB from mid-2003 and NEWRACE is the result of running the algorithm on those same beneficiaries from the Medicare EDB from mid-2003.

3.2 Assessment of Statistical Significance

This report includes appendices of tables containing counts (e.g., numbers of services and numbers of users); means (e.g., lengths of stay and dollars per person); and percentages (e.g. persons receiving the service). We also discuss, in Chapter 4, the percentage (or proportion) of use and report how these percentages vary across race/ethnicity and within race/ethnicity across gender and age. We have chosen not to routinely perform statistical tests of significance for differences between race/ethnic groups or subgroups. There are several reasons for this decision.

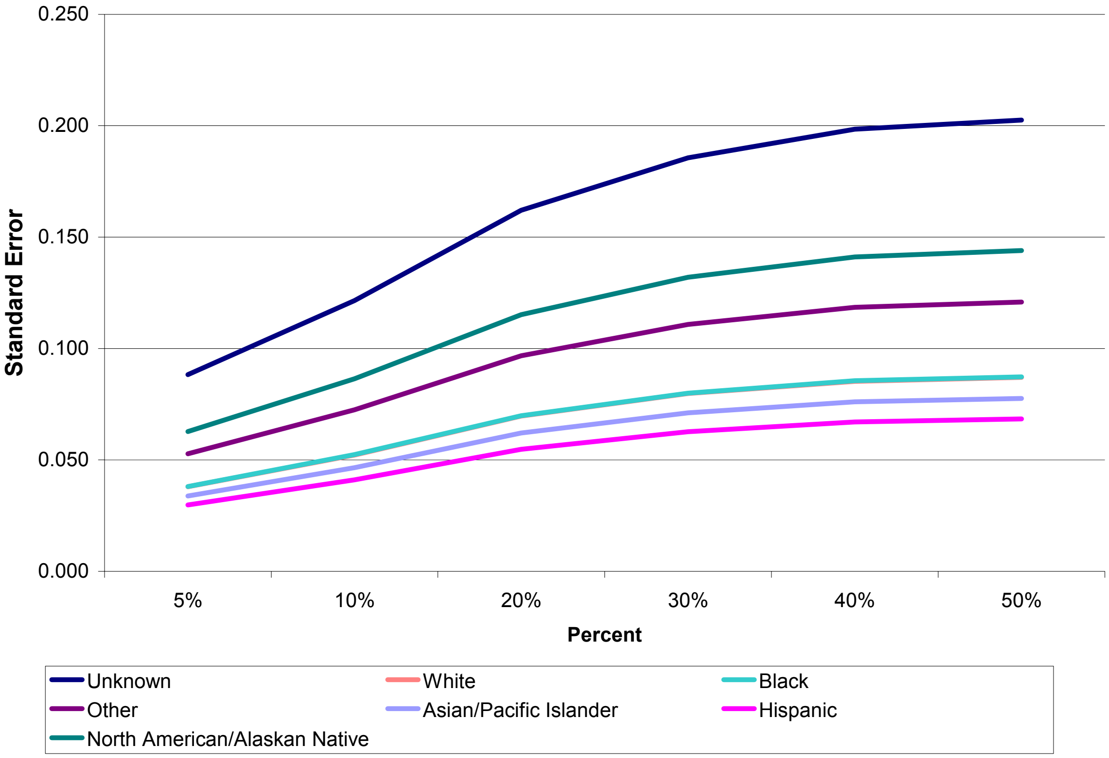
First, the stratified sample design we employed ensured that beneficiaries in small minority groups (e.g., Hispanic and Asian/Pacific Islander in particular) were adequately represented by over-sampling the minority group strata and making them as close as possible to equal in size to the number of White beneficiaries, the largest racial group in Medicare. Second, the total size of the sample from which these tables were created is extremely large (nearly two million members), and the standard errors of estimate are extremely small as a result.
Even considering the increase in variance due to the unequal weighting effects that occur when racial/ethnic groups are combined to create estimates for the total Medicare fee-for-service population, the variation for the estimates from such a large sample is very small. It should be noted that there is no increase in variance due to the unequal weighting for estimates and comparisons within racial/ethnic strata, and that those are the estimates that constitute the majority of our analysis (i.e., all the other estimates aside from the program totals).

Finally, given the very small standard errors, most differences will be statistically significant. Thus, the decision is more of a substantive one about which differences are worthy of receiving attention as potentially reflecting in some reasonable way limited access to care that produces health disparities between racial/ethnic groups. However, to help readers of this report to distinguish between insignificant and significant results, we have created standard error graphs of percentages for the overall race/ethnicity comparisons, as well as of age and gender comparisons within race/ethnicity. We have also included examples of how to use the standard errors to create confidence intervals around estimates and how to use confidence intervals for testing differences between two percentages.

Figure 1 illustrates the standard errors for percentages as they increase from five to 50 percent. The standard errors for percentages are a function of sample size and the estimated percentage. As the estimated percentage approaches 50 percent, the standard error increases, and as the sample size increases, the standard error decreases. For example, Hispanic beneficiaries (when using the NEWRACE coding) comprise the largest number in our sample of roughly two million beneficiaries; therefore, their standard error line in the graph is the lowest, ranging from 0.03 (when estimating percentages close to five) to 0.07 (when estimating percentages close to 50). In comparison, the Unknown group has the smallest sample size and also has the highest standard errors. The standard errors for percentages for this group range from 0.08 to 0.20.

A useful way to use standard errors is to create a confidence interval at the desired level of confidence for the estimate of interest. For example, we estimate from our sample that 20.14 percent of Black beneficiaries have diabetes. Using Figure 1, we can approximate the 95 percent confidence interval for this estimate. First, we determine the standard error at 20 percent for Blacks to be about 0.07. Then, using the formula for a 95 percent confidence interval for a percentage (20.14 +/– 1.96*0.07), we solve the equation to determine our lower bound on the estimate to be 20.00 and upper bound on the estimate to be 20.28. With repeated sampling we would expect the estimated percentage of Black beneficiaries with diabetes to fall within 20.00 and 20.28 nineteen times out of twenty.

Figure 1
Standard error of percentage estimates by race/ethnicity of beneficiaries



Our sample also estimates that 11.49 percent of White beneficiaries have diabetes. Suppose a comparison between the percentage of Whites and Blacks with diabetes was desired. A test of this comparison can be made by placing a 95 percent confidence interval around the percentage difference between the estimates for the two groups and establishing whether the confidence interval includes zero (indicating no difference). First, calculate the percentage difference by subtracting the two estimates to be compared; 20.14-11.49 = 8.65. Next, using Figure 1**,** approximate the standard error for both estimates; 0.07 for Blacks and 0.05 for Whites.[1] Then, using the formula for a 95 percent confidence interval for a difference between percentages ($8.65 +/– 1.96 * \sqrt{0.07^2 + 0.05^2}$), we calculate the upper and lower bounds of the difference to be 8.82 and 8.48, respectively. Again, with repeated sampling, we would expect the difference in the percentage of Black and White beneficiaries with diabetes to fall between these bounds 19 out of 20 times. Clearly, since these bounds do not include zero, the difference is statistically significant at the 95 percent confidence level.

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[1] The standard error line for Whites is difficult to see because it is covered by the Black standard error line. Whites and Blacks have roughly the same sample size allocation; therefore, their standard errors are very similar.

Figures 2 through Figures 8 present similar standard error curves for percentages partitioned by age and sex for each race/ethnicity. These curves are used when comparing age or gender for a specific race or across specific races. For example, these curves are used when comparing percentages of Black females with diabetes to Hispanic females with diabetes. Another example would be comparing diabetes among Black females to Black males.

Figure 2
Standard error of percentage estimates by age and gender for White beneficiaries

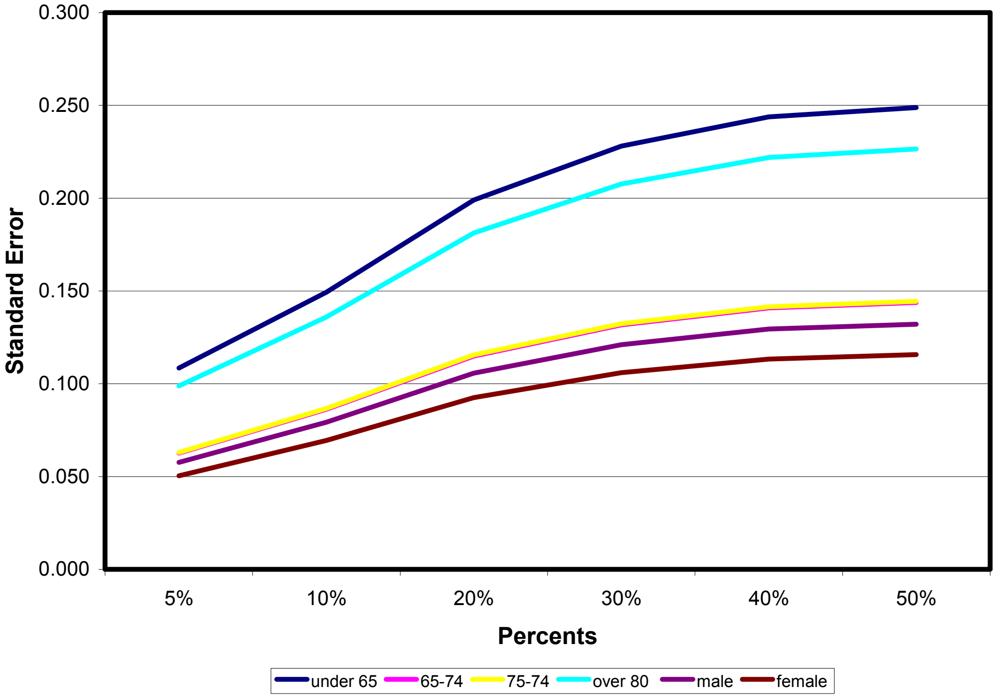


Figure 3
Standard error of percentage estimates by age and gender for Black beneficiaries

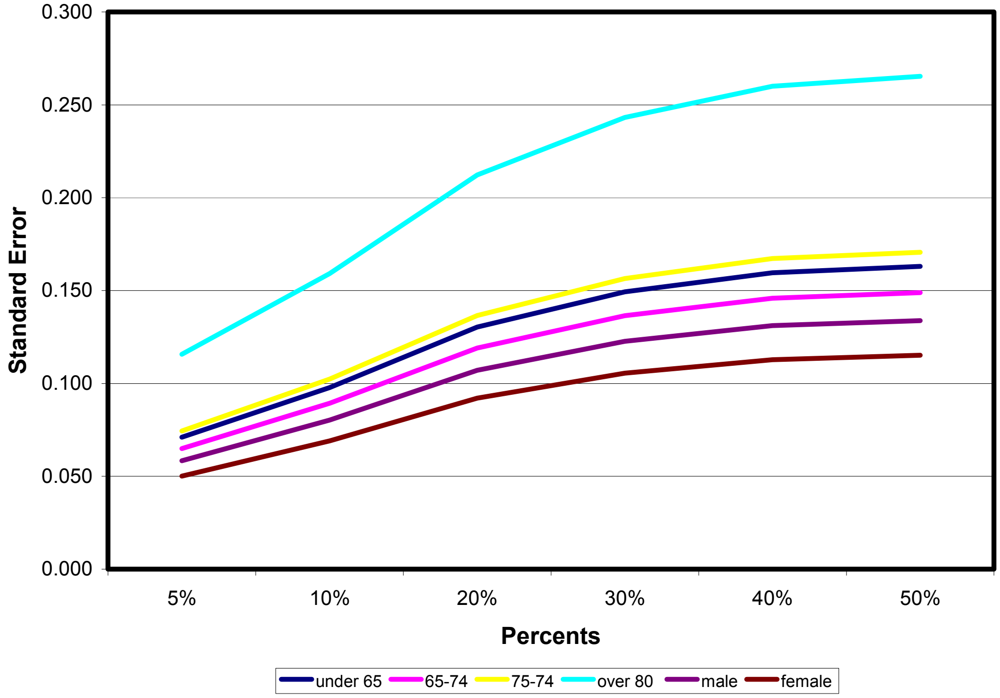


Figure 4
Standard error of percentage estimates by age and gender for Hispanic beneficiaries

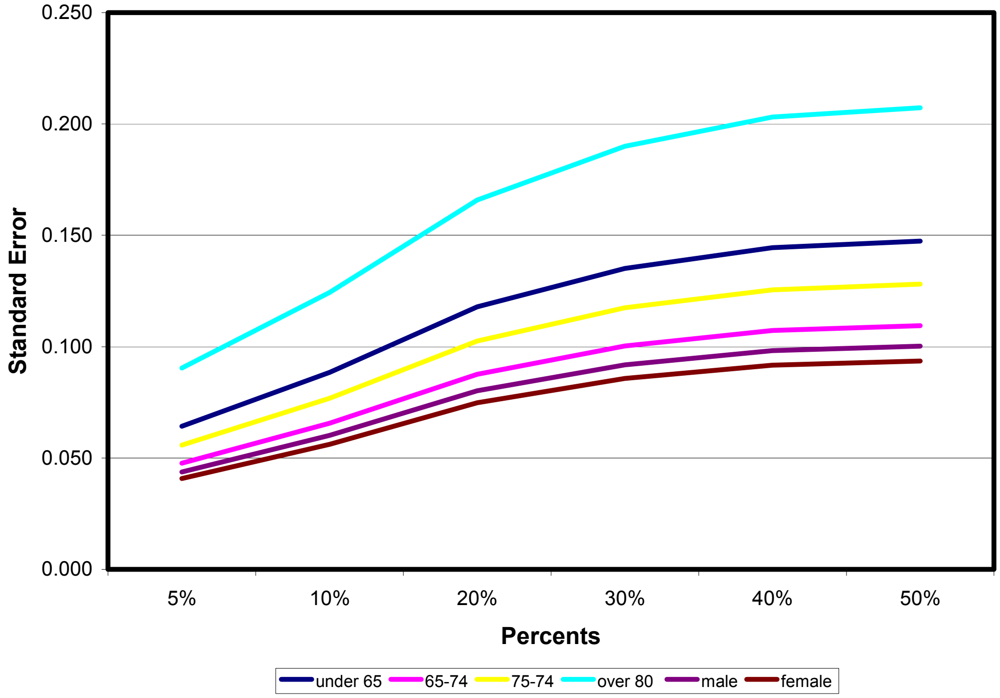


Figure 5
Standard error of percentage estimates by age and gender for Asian/Pacific Islander beneficiaries

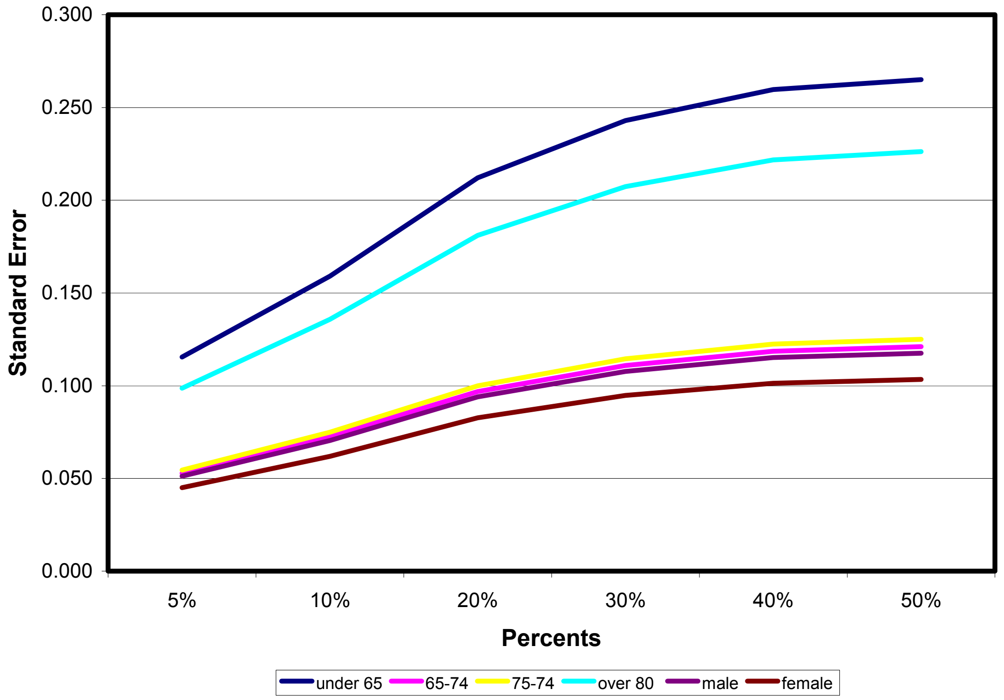


Figure 6
Standard error of percentage estimates by age and gender for American Indian/Alaska Native beneficiaries

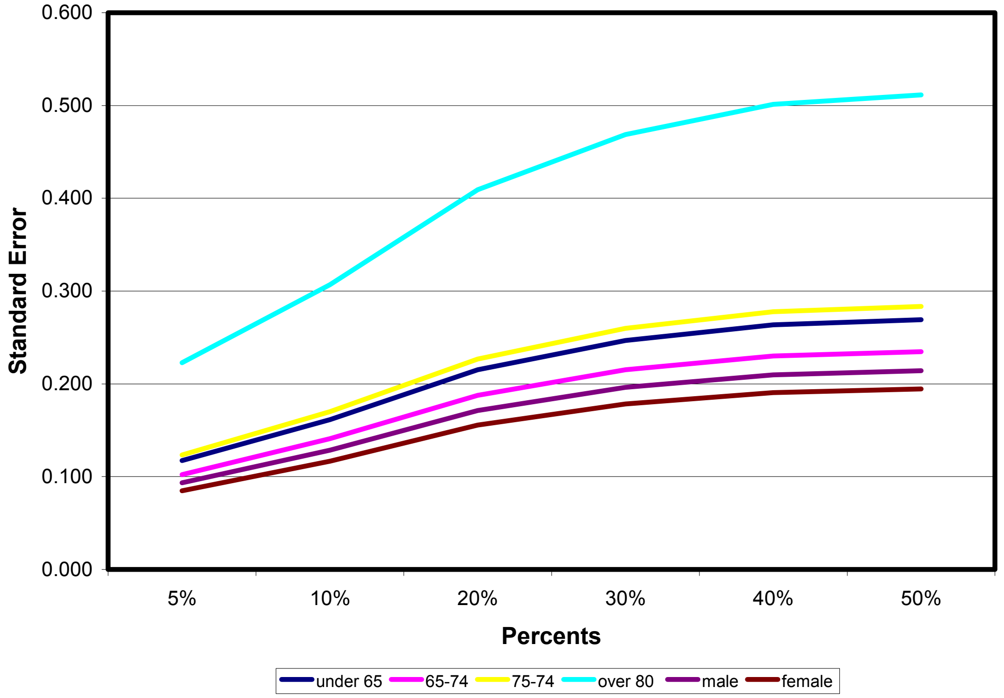


Figure 7
Standard error of percent estimates by age and gender for beneficiaries with Other race/ethnicity

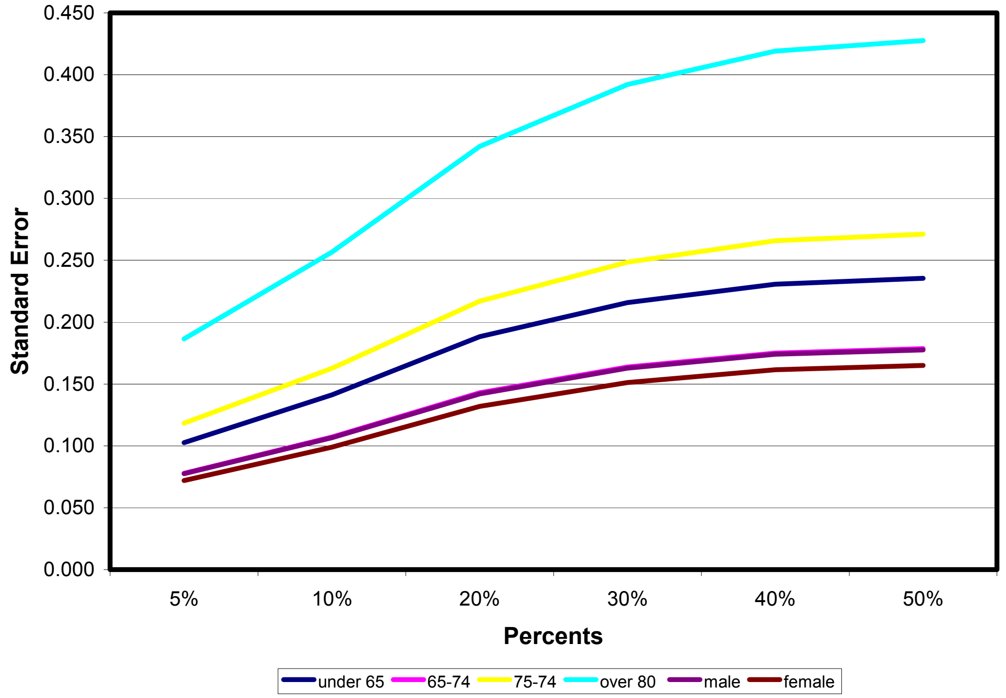
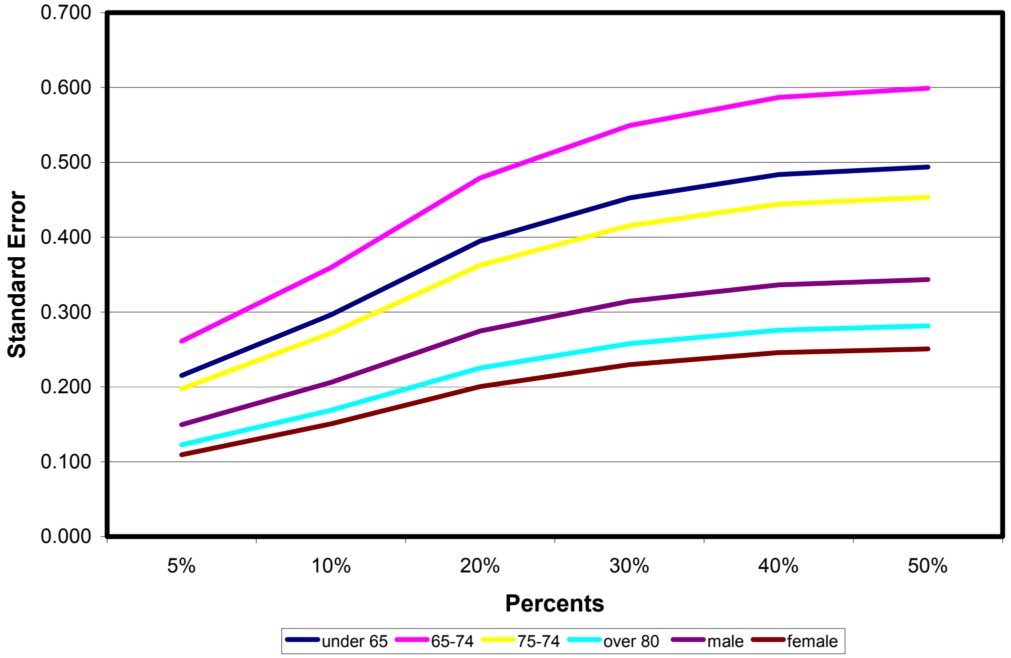


Figure 8
Standard error of percent estimates by age and gender for beneficiaries with Unknown race/ethnicity



3.3 Reporting Results for the American Indian/Alaska Native Beneficiaries

From the work we completed and reported on in an earlier part of this project (Task 2), in which we compared self-reported race/ethnicity to the EDB-reported race/ethnicity for over 830,000 beneficiaries who responded to one of the Medicare satisfaction surveys (CAHPS), we estimated that the EDB listing of race/ethnicity only captures about 36 percent of the AI/AN group. Given this high level of under-identification of AI/AN beneficiaries in the EDB, we are aware that results based on calculations using claims presented in this report for the AI/AN category may be biased because they are based solely on EDB-reported race. Clearly, if only a fraction of the AI/AN beneficiaries are represented as such on the EDB, then all estimates of the total number of dollars, days, and beneficiaries for the AI/AN group will be too low. We caution everyone not to use these counts at all, unless they are inflated (weighted) in some reasonable way.

However, we believe, based on analyses we performed in Part 1 of this report, that the situation with percentages, proportions, rates, and means is different than with the total amounts and number counts. We believe they can be useful if reported and used judiciously. Because we had a substantial sample of AI/AN beneficiaries (more than 1,100 self-identified from the 2000 and 2001 CAHPS surveys) for which we had both a self-reported race/ethnicity and the one recorded on the EDB (only 370 of which were identified as AI/AN), we were able to compare percentages, proportions, and means using the two different designations for AI/AN beneficiaries. Further, we did this for a large number of the same measures we are analyzing in the current report. As a result of this analysis, we have some insight into the direction and magnitude of any likely bias. We are confident that with the large number of AI/AN representatives in the current analyses, however, the biases will be reasonably small, since the inclusion/exclusion criteria for AI/AN beneficiaries to be included in the EDB are most likely related to where they reside (tribal lands or not) and not their use of health services.

Our analysis showed that some of the EDB-based estimates of AI/AN percentages and means were very close to the AI/AN estimate based on the CAHPS self-reported race/ethnicity and thus were unbiased (or relatively so). We found this to be true when we compared proportions with a condition, percentages using particular services, mean payments in dollars, and mean lengths of stay. To judge the level of bias, we calculated a ratio of the estimate in question based on the claims data for the CAHPS self-reported AI/AN beneficiaries and divided it by the same estimate for those identified as AI/AN on the EDB. Ratio values of less than 1.00 implied that the EDB race code for AI/AN overstated the estimate, whereas ratios above 1.00 suggested that EDB race code understated the estimate.

The ratios for numbers of persons, dollars, or days were regularly around 3 to 5, reflecting our estimate that the EDB was only identifying slightly more than one-third of self-identified AI/AN beneficiaries. The ratios of the means and proportions for self-reported AI/AN beneficiaries to EDB-reported AI/AN, on the other hand, generally ranged from .85 to 1.34. There were some higher and lower ratios, but in almost every case, they happened because the behavior being estimated occurred rarely and the EDB-identified sample on which the estimate was based was extremely small (almost always fewer than 50 cases, and often 20 or fewer cases), making the estimate of this rare behavior highly unstable and potentially biased. With the much larger sample of AI/AN beneficiaries from the EDB (over 120,000), we expected that the estimates for AI/AN, even of the rare events, would be based on larger samples and have smaller variation, making them more stable, and less biased.

We are aware of this limitation, but feel that presenting the information for AI/AN beneficiaries is more useful than having no data because it presents another point of comparison. We feel the means, proportions, and percentages, although likely still not absolutely accurate, provide useful working estimates that are within reasonable sight of the value of interest and are worthy of consideration by researchers and policy makers concerned with the issue of disparities in health and health care utilization. Persons who do not accept this viewpoint may feel free to ignore the AI/AN data that are reported.

CHAPTER 4
RESULTS

4.1 An Overview of Selected Utilization Measures in Traditional Fee-for-Service Medicare: 2002

As part of this project, we were charged with reproducing a set of tables from the Health Care Financing Review Medicare and Medicaid Statistical Supplement for the year 2000[2], but using Medicare administrative data for the year 2002. Many of those tables included breakdowns by demographic characteristics, including race, taken from the enrollment database (EDB). We produced those tables using 2002 Medicare claims data and the race/ethnicity variable resulting from applying the algorithm to the mid-2003 EDB. The range of values for race in the original tables from the Supplement was recoded from the EDB into White, Black, and Other. Instead of the limited race/ethnicity coding in the original tables, however, we produced one table that included all beneficiaries combined regardless of race, plus separate tables for each of the five race/ethnicity groups – White, Black, Hispanic, Asian/Pacific Islander (A/PI), and American Indian/Alaska Native (AI/AN) that have been the focus of this project[3]. We have reproduced those tables, modifying them slightly,[4] and have included them in Appendix A. We have extracted data from those tables to produce the graphics used in this chapter to illustrate racial/ethnic and other differences in health services utilization by Medicare beneficiaries.

Again, as we indicated in an earlier chapter on the selection of the sample of nearly two million Medicare beneficiaries we analyzed, only (1) those enrolled in fee-for-service Medicare (Part A, Part B, or both) for the entire calendar year 2002 and (2) alive for the entire calendar year 2002 were eligible for selection. The sample was then weighted to produce estimates for the entire population of Medicare beneficiaries meeting these eligibility criteria. We estimate the number of such beneficiaries to have been 31.6 million in 2002. This weighted estimate is the basis for this report.

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[2] While the title on the volume of the Health Care Financing Review Medicare and Medicaid Statistical Supplement 2000 indicates it is the report for the year 2000, the data contained in the report are for the year 1998. The tables we reproduced from the 2000 Supplement were selected in part because they included the EDB race/ethnicity variable. The tables we reproduced from the Supplement with the new race/ethnicity variable were numbered 14, 20, 25, 27, 28, 29, 37, 41, 47, 56, 57, 58, 62, 63, 64, and 67. Table 72 on ESRD beneficiaries was not reproduced because it was based on all ESRD enrollees who were identified, and not a sample like the other ones we have reproduced.

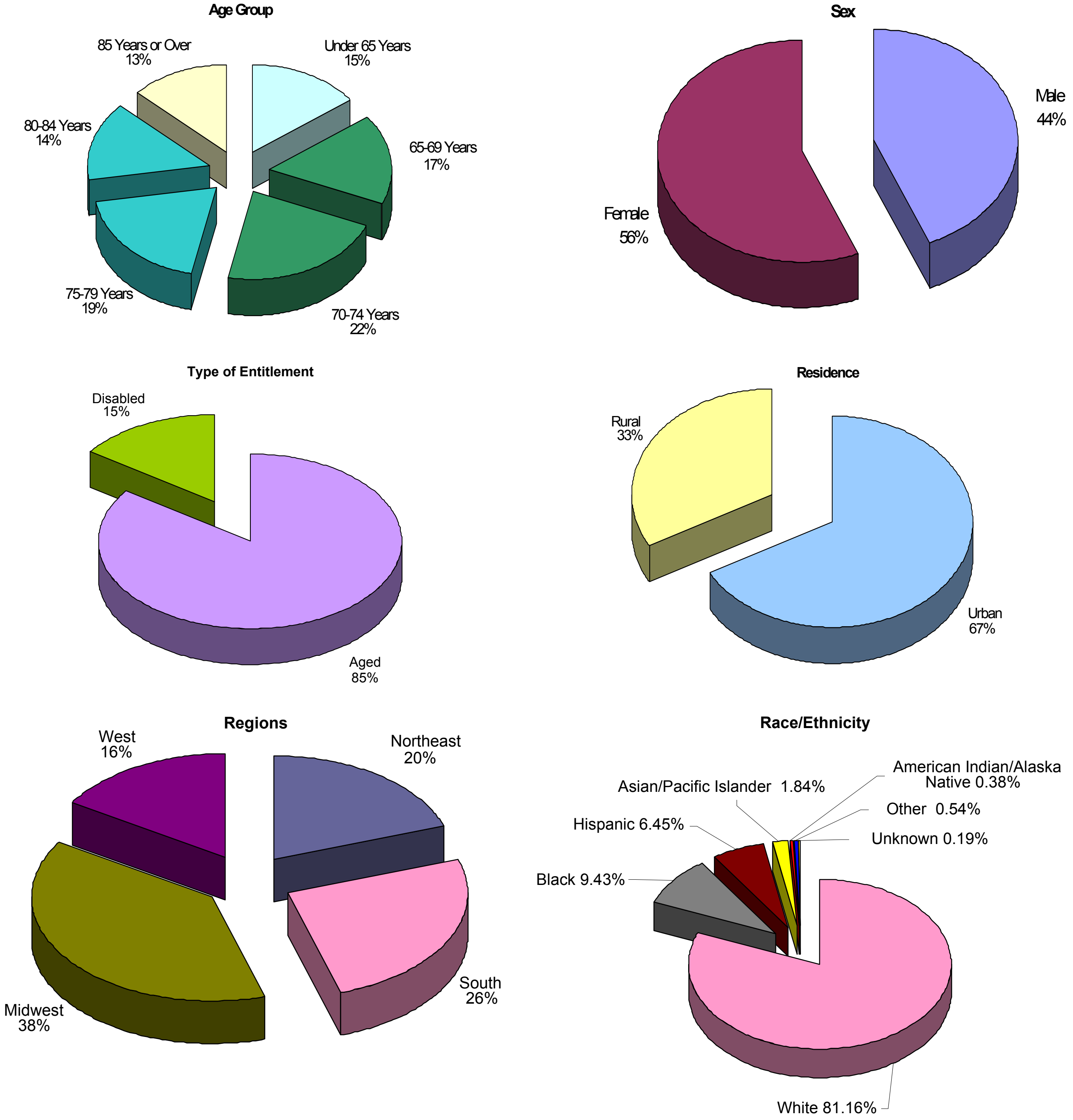
[3] We did not produce individual tables for the Other, Unknown, or Missing race/ethnicity categories, but these are included in the Total table.

[4] The slight modification was to not include historical data included in the original tables for comparison purposes because it was not available to us in a way that would parallel our presentation of race/ethnicity.

4.1.1 The Demographic Composition of Fee-for-Service Medicare

Figure 9 presents the fee-for-service Medicare enrollment in 2002 in a series of pie charts partitioned according to available beneficiary demographic characteristics. The largest age group slices are the 70-74 and 75-79 year olds, each representing just under one fourth of the fee-for-service enrollees, while the other four age group slices (including beneficiaries under 65 years of age) are smaller, only about two-thirds that size. Note that the 65-69 and 70-74 year old age groups are shaded the same color, and the same is true for the 75-79 and 80-84 year old age groups as well. This is because, in most of the remaining report, these groups are reported combined, using these same colors.

Figure 9
Demographic characteristics of Medicare fee-for-service beneficiaries: calendar year 2002



Source: Sample of 1,960,121 fee-for-service beneficiaries selected by RTI from mid-2003 EDB. The race/ethnicity variable is the result of running the algorithm on those same beneficiaries.

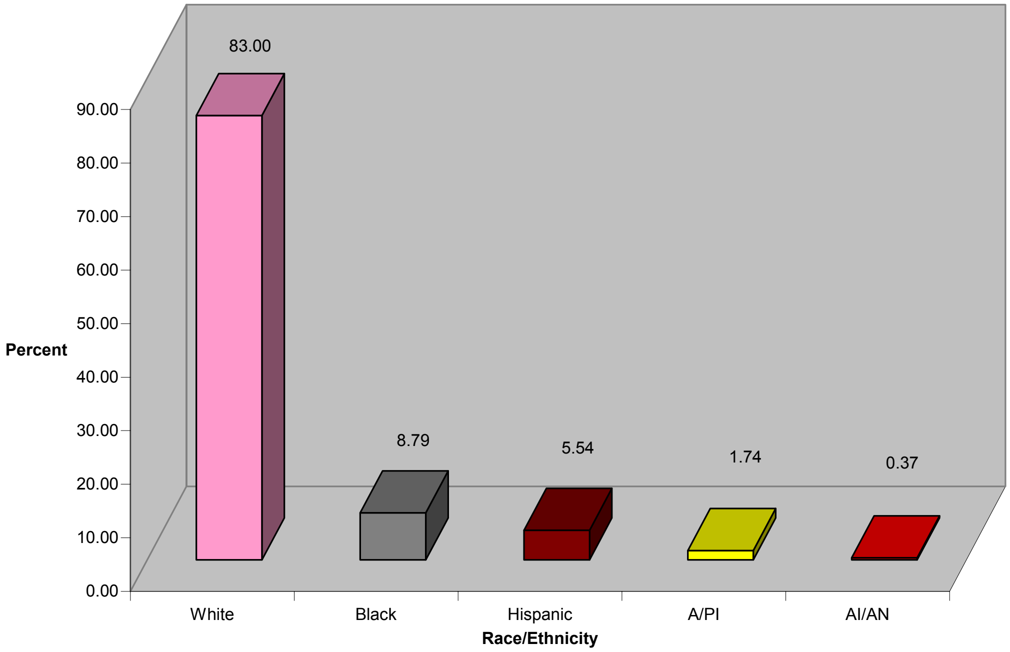
With respect to sex, 56 percent of the fee-for-service beneficiaries are females. Sliced according to the basis for their entitlement, 84 percent receive Medicare because they are 65 years of age and over, rather than under 65 and disabled or with end stage renal disease (ESRD). The next section of the figure shows that two-thirds of the beneficiaries reside in urban areas. Medicare fee-for-service beneficiaries are more heavily represented in the Midwest, 38 percent, and the South, 25 percent, than they are in the Northeast, 26 percent, and the West, only 16 percent.

The final section of the figure shows how beneficiaries are partitioned according to the new race/ethnicity measure we created for this project. The vast majority — almost 82 percent — are non-Hispanic White. The second largest group consists of non-Hispanic Black — just over nine percent. Hispanic persons constitute more than six percent of fee-for-service Medicare beneficiaries, and less than two percent are Asian/Pacific Islander (A/PI). The smallest by far is the American Indian or Alaska Native group, less than one-half of a percent (approximately 118,000) of the fee-for-service Medicare beneficiaries. Be aware that we do not show the "Other" and "Unknown" race categories in most of our tables and graphs, we have included them here for completeness. The "Other" represent almost exactly one-half percent of beneficiaries, while the "Unknown" are less than two-tenths of a percent.

4.1.2 Selected Measures of Utilization by Race/Ethnicity

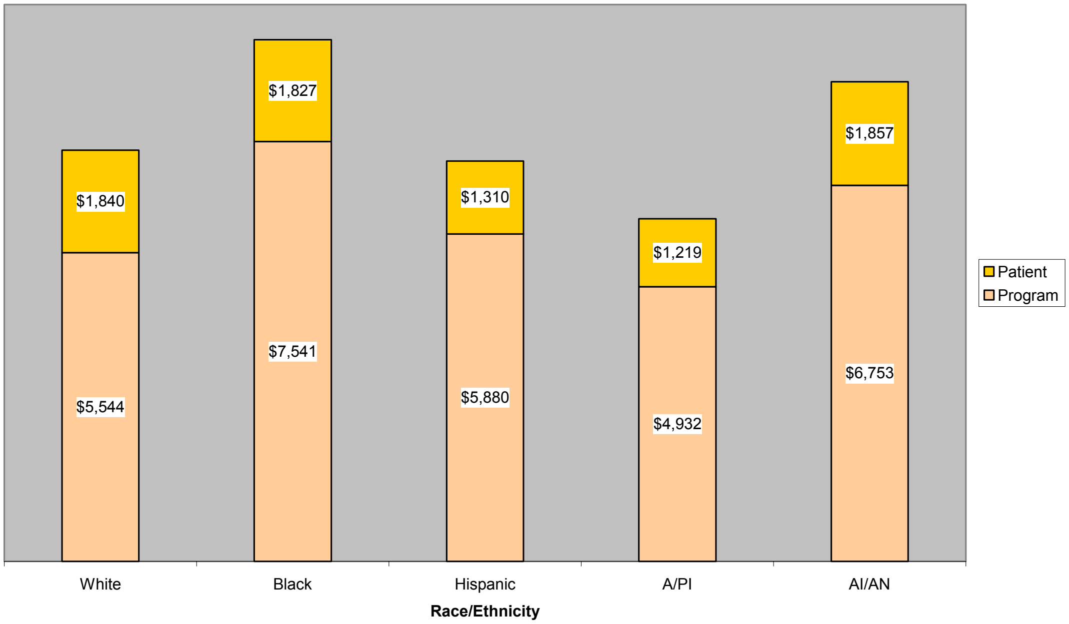
A total of 27.1 million fee-for-service Medicare beneficiaries (as described above) received one or more services covered by Medicare in calendar year 2002 and are presented according to race/ethnicity in Figure 10. The total amount paid out by the program for their care was $159.9 billion, or a mean of $5,734 per beneficiary served. The cost-sharing liability of beneficiaries served in 2002 was $50.2 billion, and the mean liability per beneficiary served was $1,799. Figure 11 presents the mean amount Medicare paid and the mean cost-sharing liability per beneficiary served by race/ethnicity.

Figure 10
Percentage of Part A enrollees served in fee-for-service Medicare by race/ethnicity: calendar year 2002



Source: Sample of 1,960,121 fee-for-service beneficiaries selected by RTI from mid-2003 EDB. The race/ethnicity variable is the result of running the algorithm on those same beneficiaries. The claims examined were for calendar year 2002.

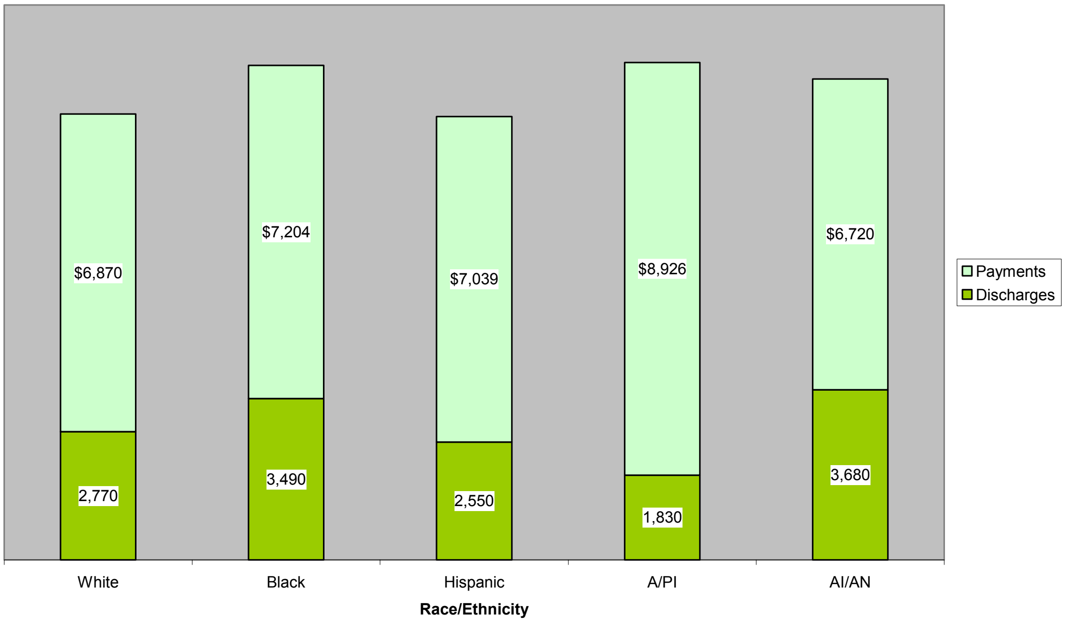
Figure 11
Mean Medicare program payments and patient liabilities per person served by race/ethnicity: calendar year 2002



Source: Sample of 1,960,121 fee-for-service beneficiaries selected by RTI from mid-2003 EDB. The race/ethnicity variable is the result of running the algorithm on those same beneficiaries. The claims examined were for calendar year 2002.

For those fee-for-service Medicare beneficiaries using services, there were a total of 8.8 million short-stay hospital discharges in 2002. The Medicare program paid $60.6 billion for these hospital discharges. Each discharge had a mean length of 5.3 days of care and Medicare paid a mean of $1,309 per day. Figure 12 shows the number of discharges per 10,000 Medicare Part A enrollees and the mean Medicare program payment per discharge by race/ethnicity.

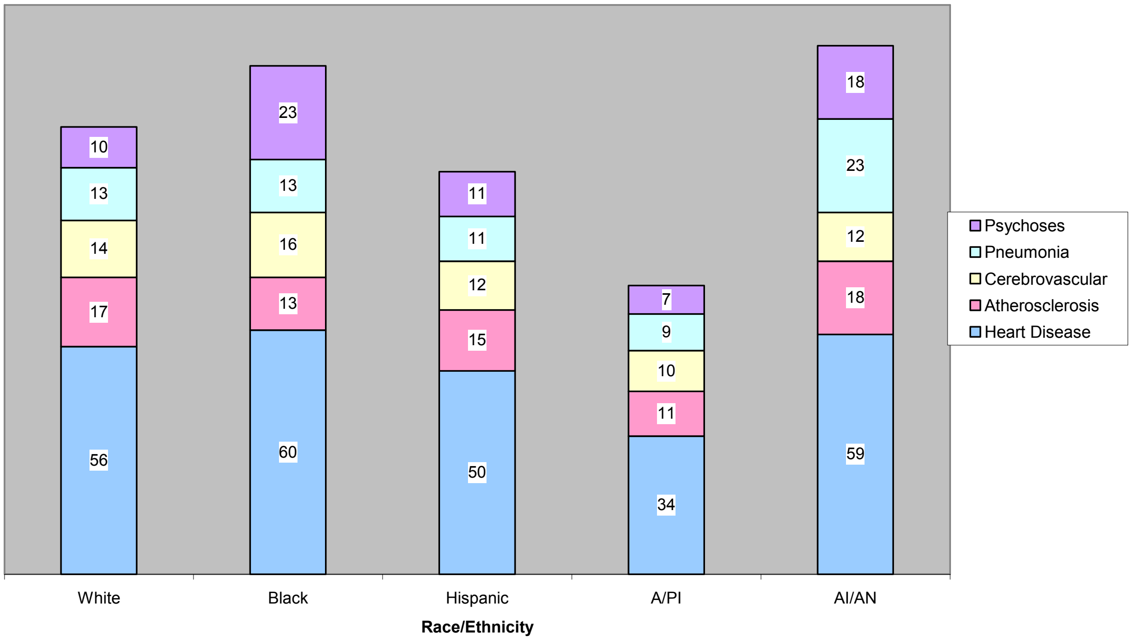
Figure 12
Discharges from short stay hospitals per 10,000 Medicare fee-for-service beneficiaries and mean payments per discharge by race/ethnicity; calendar year 2002



Source: Sample of 1,960,121 fee-for-service beneficiaries selected by RTI from mid-2003 EDB. The race/ethnicity variable is the result of running the algorithm on those same beneficiaries. The claims examined were for calendar year 2002.

The top five principal diagnoses for fee-for-service Medicare beneficiaries discharged from short-stay hospitals in calendar year 2002 were: heart disease (including congestive heart failure), coronary atheroscelerosis, cerebrovascular disease, pneumonia, and psychoses. These five diagnoses were the principal diagnosis for 3.4 million of the 8.7 million short-stay hospital discharges covered by Medicare in 2002. Medicare made $28.1 billion of its total $60.6 billion in payments for these five diagnoses. Figure 13 displays the number of discharges per 1,000 Medicare enrollees with Part A hospital coverage for each of these principal diagnoses in calendar year 2002 by race/ethnicity.

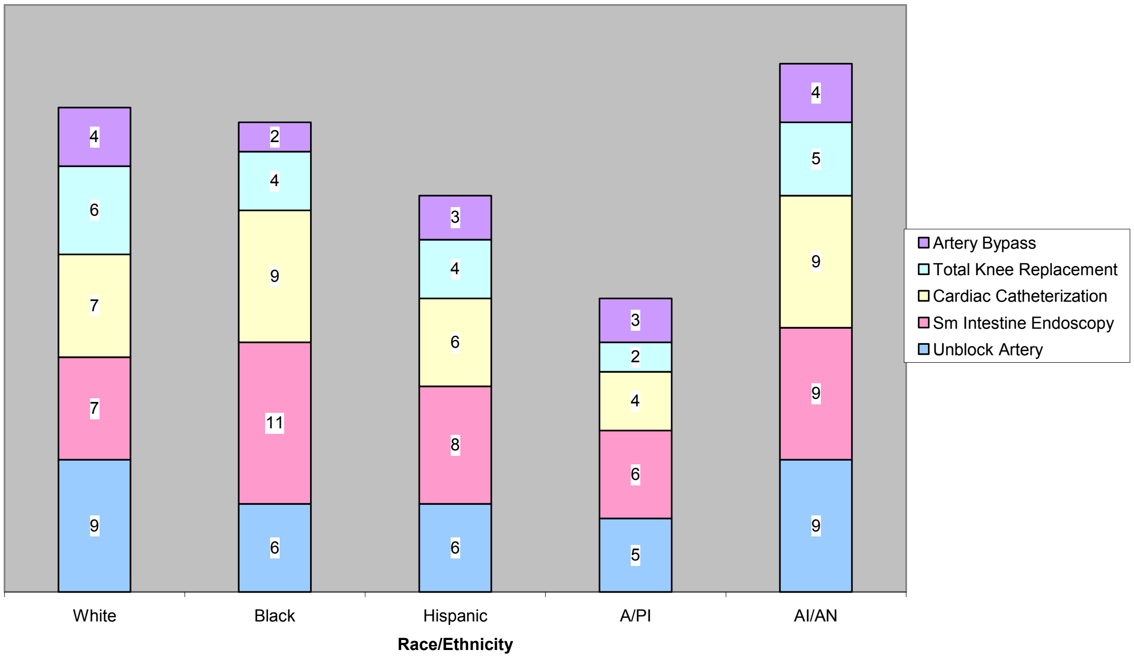
Figure 13
Discharges per 1000 Medicare fee-for-service Part A beneficiaries for overall top five diagnoses by race/ethnicity: calendar year 2002



Source: Sample of 1,960,121 fee-for-service beneficiaries selected by RTI from mid-2003 EDB. The race/ethnicity variable is the result of running the algorithm on those same beneficiaries. The claims examined were for calendar year 2002.

In the 8.7 million short-stay hospital discharges for calendar year 2002, there were a total of 4.6 million that included one or more procedures. The five most often performed procedures were: removal of coronary artery obstruction, endoscopy of small intestine, cardiac catheterization, total knee replacement, and coronary artery bypass graft. The number of discharges per 1,000 Medicare Part A enrollees for each of these procedures in calendar year 2002 is presented by race/ethnicity in Figure 14.

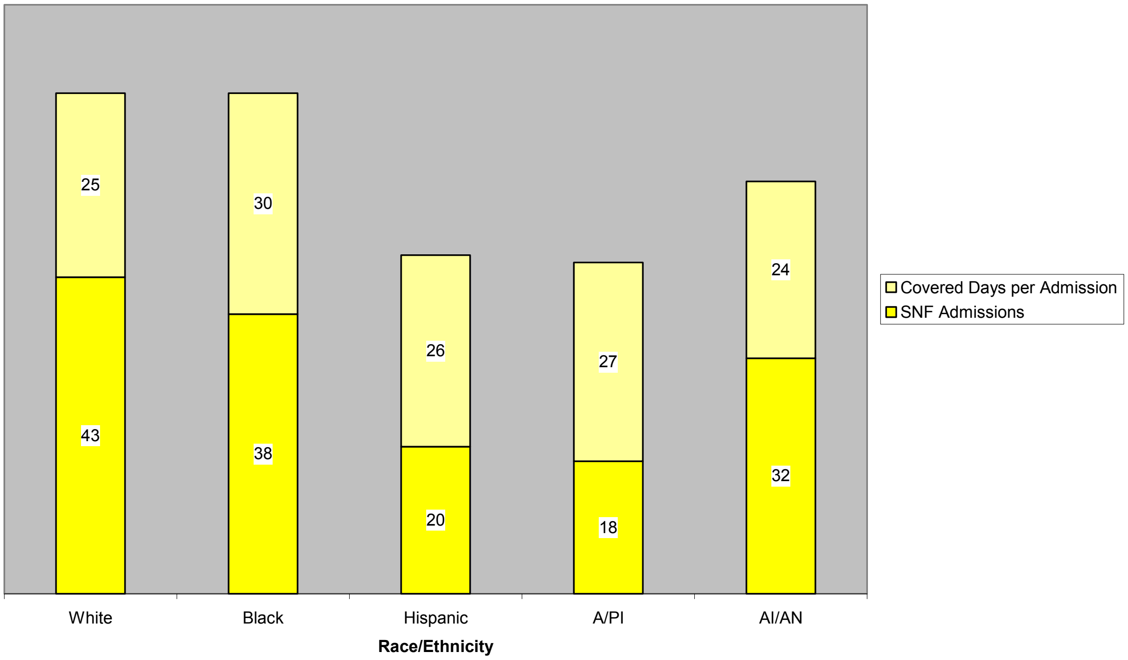
Figure 14
Number of Discharges per 1,000 Medicare fee-for-service Part A beneficiaries for top five principal procedures by race/ethnicity: calendar year 2002



Source: Sample of 1,960,121 fee-for-service beneficiaries selected by RTI from mid-2003 EDB. The race/ethnicity variable is the result of running the algorithm on those same beneficiaries. The claims examined were for calendar year 2002.

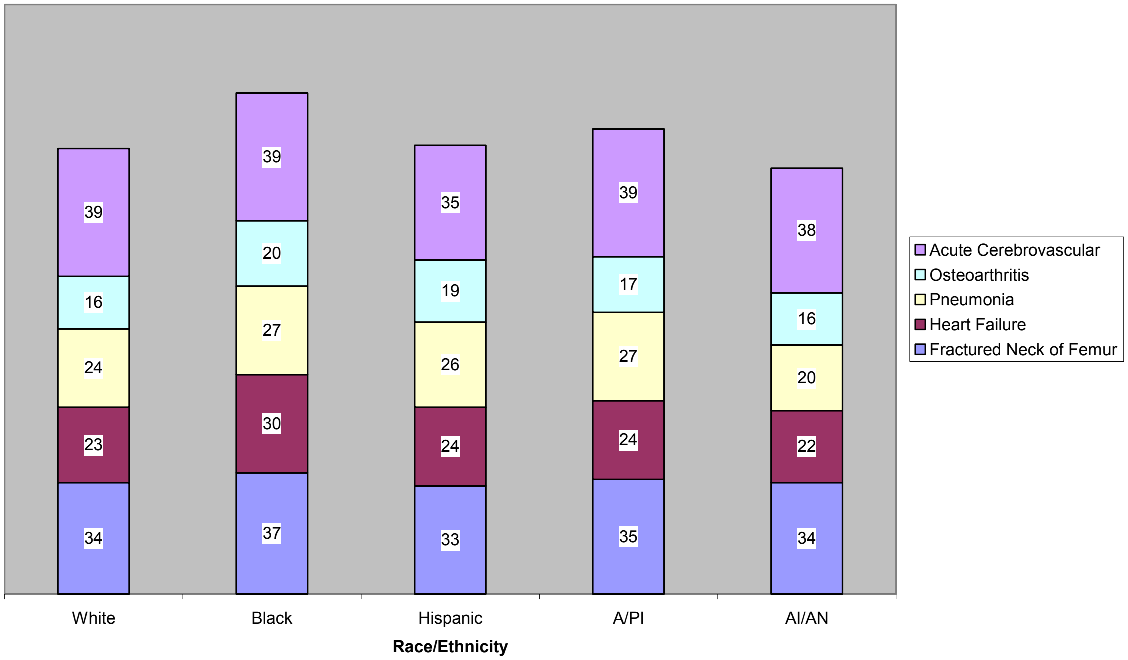
There were nearly 1.3 million covered admissions to skilled nursing facilities (SNFs) for Medicare fee-for-service beneficiaries in calendar year 2002, and the program paid nearly $8.9 billion of the total $14.1 billion in covered charges, or 63 percent. The average length of stay for admissions was 26 days and the average payment per admission was $6,960. Figure 15 presents the rate of covered admissions per 10,000 Medicare Part A enrollees and the mean number of covered days per admission by race/ethnicity. The top five principal diagnoses for admissions to skilled nursing facilities included: fracture (neck of the femur), heart failure, pneumonia, osteoarthritis, and acute cerebrovascular disease. The mean number of covered days in a SNF per admission by race/ethnicity for the top five diagnoses is shown in Figure 16.

Figure 15
Covered days per skilled nursing facility admission and number of admissions per 1,000 Medicare fee-for-service Part A beneficiaries by race/ethnicity: calendar year 2002



Source: Sample of 1,960,121 fee-for-service beneficiaries selected by RTI from mid-2003 EDB. The race/ethnicity variable is the result of running the algorithm on those same beneficiaries. The claims examined were for calendar year 2002.

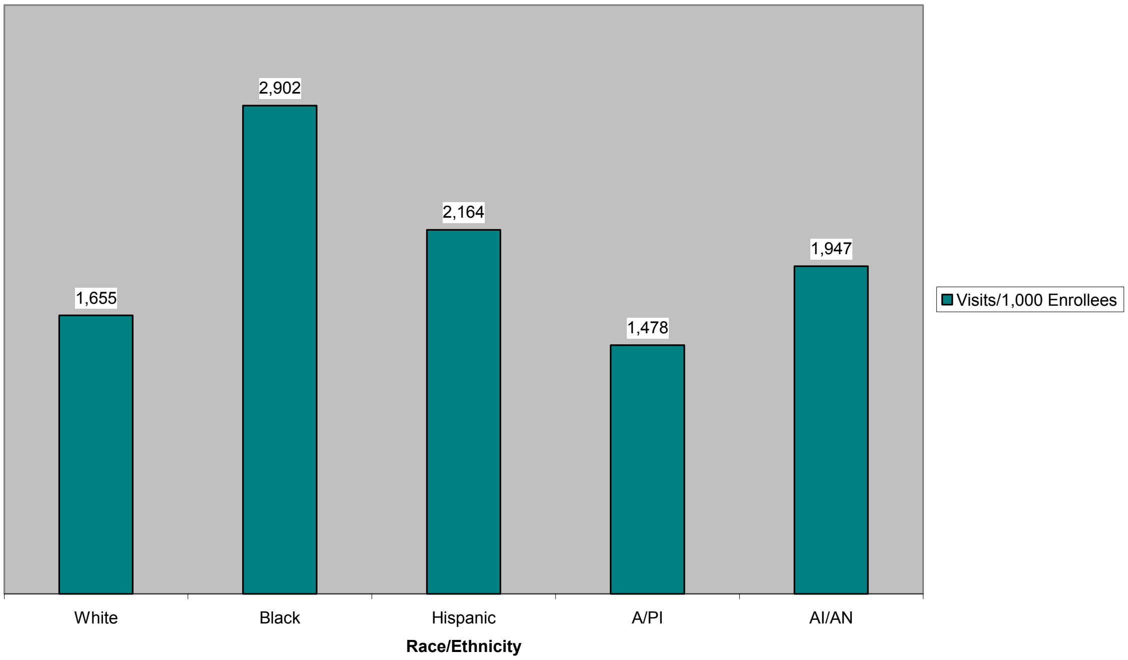
Figure 16
Number of covered skilled nursing facility days per admission for top five diagnoses by race/ethnicity: calendar year 2002



Source: Sample of 1,960,121 fee-for-service beneficiaries selected by RTI from mid-2003 EDB. The race/ethnicity variable is the result of running the algorithm on those same beneficiaries. The claims examined were for calendar year 2002.

Medicare covered home health services provided to almost 1.9 million fee-for-service beneficiaries in 2002. This included 57.9 million visits with total payments of almost $7.1 billion. Figure 17 presents the rate of home health visits per 1,000 Part A enrollees by race/ethnicity.

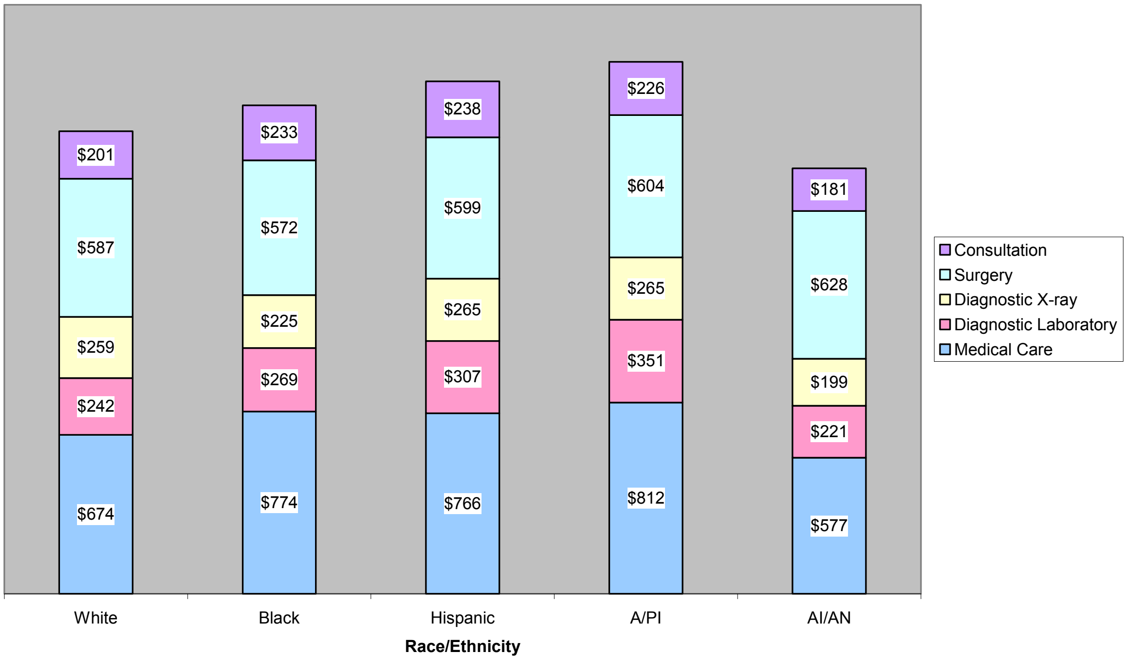
Figure 17
Home health visits/1,000 Medicare fee-for-service Part A beneficiaries by race/ethnicity: calendar year 2002



Source: Sample of 1,960,121 fee-for-service beneficiaries selected by RTI from mid-2003 EDB. The race/ethnicity variable is the result of running the algorithm on those same beneficiaries. The claims examined were for calendar year 2002.

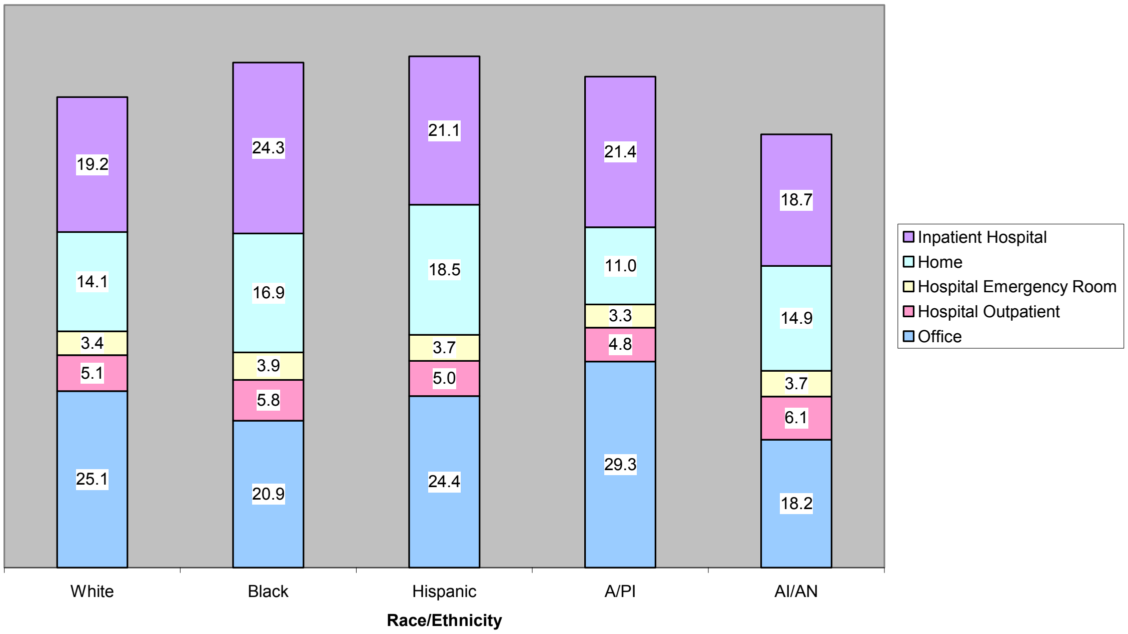
There were 27.3 million Medicare fee-for-service beneficiaries who received physician and other professional services covered through their Medicare Part B in 2002. Of the $66.6 billion in allowed charges for those services, Medicare paid $51.9 billion, or a mean of $1,942 per beneficiary receiving professional service. The top five types of services according to the number of persons served were; medical care, diagnostic laboratory, diagnostic x-ray, surgery, and consultation. Figure 18 contains the mean payments per beneficiary with professional service claims for the five most often used services by race/ethnicity. Figure 19 presents the mean number of services received per beneficiary receiving services by place of service for the five most commonly reported places for physician services by race/ethnicity.

Figure 18
Mean payments per Medicare fee-for-service Part B beneficiary using professional services for top five types of service used by race/ethnicity: calendar year 2002



Source: Sample of 1,960,121 fee-for-service beneficiaries selected by RTI from mid-2003 EDB. The race/ethnicity variable is the result of running the algorithm on those same beneficiaries. The claims examined were for calendar year 2002.

Figure 19
Mean number of services received per Medicare fee-for-service Part B beneficiary receiving services for five most often used places of service by race/ethnicity: calendar year 2002



Source: Sample of 1,960,121 fee-for-service beneficiaries selected by RTI from mid-2003 EDB. The race/ethnicity variable is the result of running the algorithm on those same beneficiaries. The claims examined were for calendar year 2002.

4.2 Race/Ethnicity and the Use of Preventive Services: Screening for Cancer

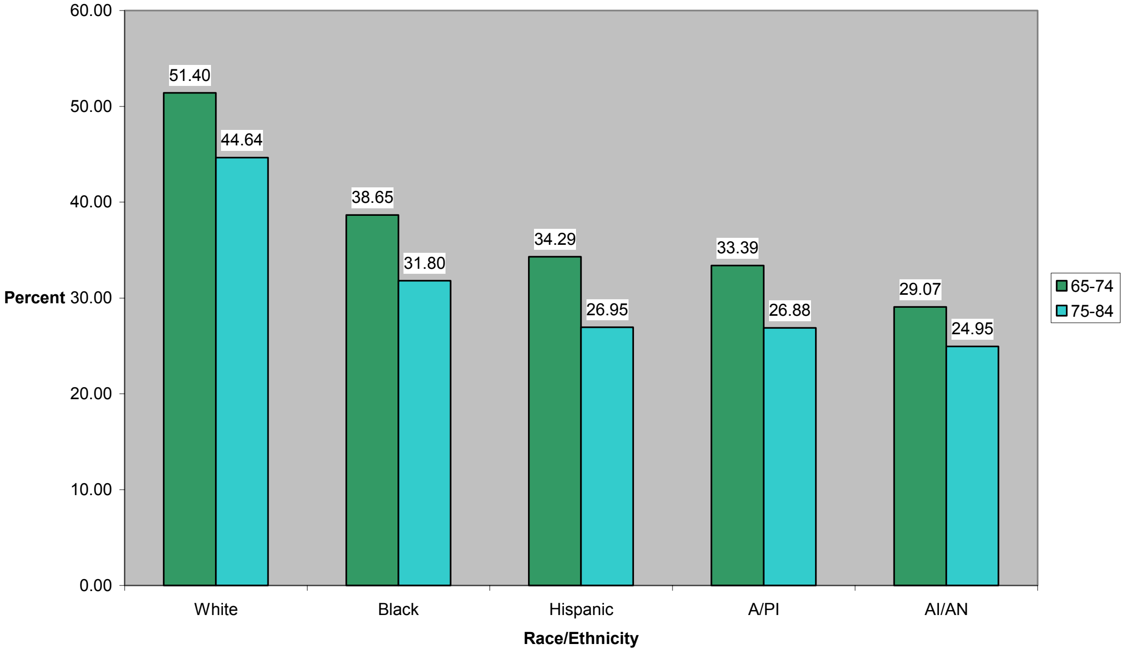
Although not truly representing primary preventive measures, routine screening for early detection and treatment of certain types of cancers may be the best course of action available for limiting the impact of cancer on a person's health, function, and longevity. Low rates of cancer screening can result in delayed diagnosis, later stages of disease, limited treatment options, greater disability, and higher mortality. Depending on the type of cancer and the screening procedure, the age at which screening should be initiated and the frequency with which it should be repeated differ. Family and personal history of cancer also affect recommendations for the initiation and periodicity of screening. We have examined the use of screening procedures for breast, cervical, prostate, and colorectal cancers in this analysis. Our analysis focuses on the most commonly used screening procedures for these cancers, with attention primarily to those age groups enrolled in Medicare for whom screening is still likely to be recommended. The complete set of tables from which this analysis has been drawn is contained in Appendix B.

Mammography is recommended on an annual basis for the detection of breast cancer in women starting at age 40 and for as long as they remain in good health. In Medicare, it is a benefit available annually; beneficiaries pay 20 percent of the Medicare-approved amount with no Part B deductible. In reviewing the results of the analysis of mammography use, it is important to recall from Chapter 2 that breast cancer is the most common cancer in Black females and that their mortality rate from breast cancer is approximately 30 percent higher than for White females. It would be reasonable to expect that mammography use would mirror the breast cancer risk, but this is not the case.

The percentage of female Medicare beneficiaries 65 to 74 and 75 to 84 years of age who had a mammogram according to their race/ethnicity is displayed in Figure 20. The use of mammography was clearly highest for White females in both age groups. Black and AI/AN females (groups that experience the highest breast cancer mortality rates) had approximately 25 and 40 percent lower mammography use, respectively, than White females. Both Hispanic and A/PI females had mammography utilization that was approximately 35 percent lower than White females. The lower mammography use among Black and AI/AN females despite their higher breast cancer mortality risk is an obvious example of a racial/ethnic difference in accessing a preventive health service. This differential access may contribute to the wide disparity in breast cancer mortality.

A Pap test and pelvic exam are covered by Medicare once every two years, with the exception of women at high risk and women of childbearing age with an abnormal Pap test within the past 36 months, in which case Medicare will cover screening every 12 months. Women aged 70 and above with three or more normal Pap tests in a row and no abnormal Pap test results in the last 10 years may choose to stop cervical cancer screening. However, women with a history of cervical cancer, DES exposure before birth, HIV infection, or a compromised immune system should continue to be screened for as long as they are in good health. Female Medicare beneficiaries pay for 20 percent of the approved amount for Pap test collection and the pelvic exam, with no part B deductible.

Figure 20
Percentage of female Medicare beneficiaries who received a mammogram by age group and race/ethnicity: calendar year 2002

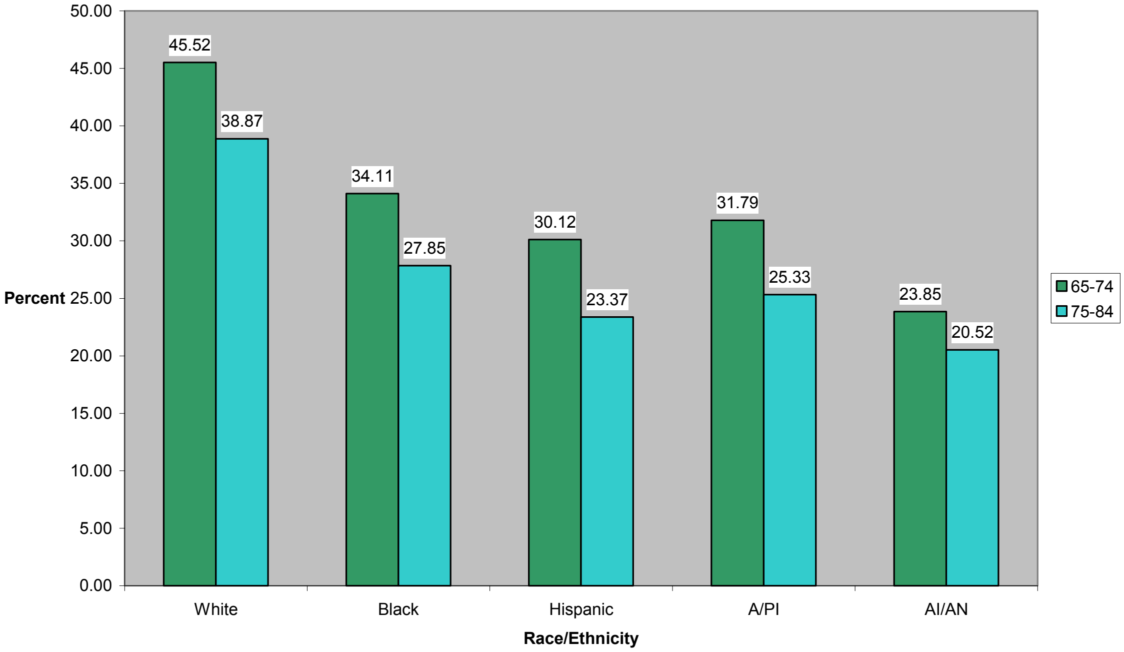


Source: Sample of 1,960,121 fee-for-service beneficiaries selected by RTI from mid-2003 EDB. The race/ethnicity variable is the result of running the algorithm on those same beneficiaries. The claims examined were for calendar year 2002.

Figure 21 presents the percentage of female Medicare beneficiaries aged 65 to 74 years and 75 to 84 years who received a Pap test in 2002. White women in both age groups had a considerably higher proportion screened than Black, Hispanic, A/PI, and AI/AN women in both age groups. Black, Hispanic, and A/PI women 65 to 74 years of age received Pap tests about 22 to 33 percent less than White women; AI/AN women in this age group received this screening about 40 percent less than White women. There were also apparent differences by age with women aged 75 to 84 receiving Pap tests less often than women aged 65 to 74 in every racial/ethnic group. The reason for this difference may be traced back to the guidelines indicating that women aged 70 and above may forego the Pap test upon three normal Pap tests and no abnormal results within the past 10 years. Hispanic women exhibited the largest difference by age group; Hispanic women aged 65 to 74 received Pap tests close to 30 percent more than Hispanic women in the 75 to 84 age group.

As mentioned in Chapter 2, Black men have earlier onset of prostate cancer, higher prostate-specific antigen (PSA) levels, twice the risk of having a diagnosis of advanced prostate cancer, and higher mortality rates compared to White men. Starting at age 50, the American Cancer Society recommends that the PSA blood test and digital rectal examination (DRE) be offered annually to men with at least a 10-year life expectancy. Males at high risk—Black men and men with one or more first-degree relatives diagnosed at an early age – should begin testing at age 45. Medicare covers a DRE and PSA test once every 12 months. Male Medicare beneficiaries pay 20 percent of the Medicare-approved amount for the DRE after meeting the yearly Part B deductible. However, there is no coinsurance and no Part B deductible for the PSA test.

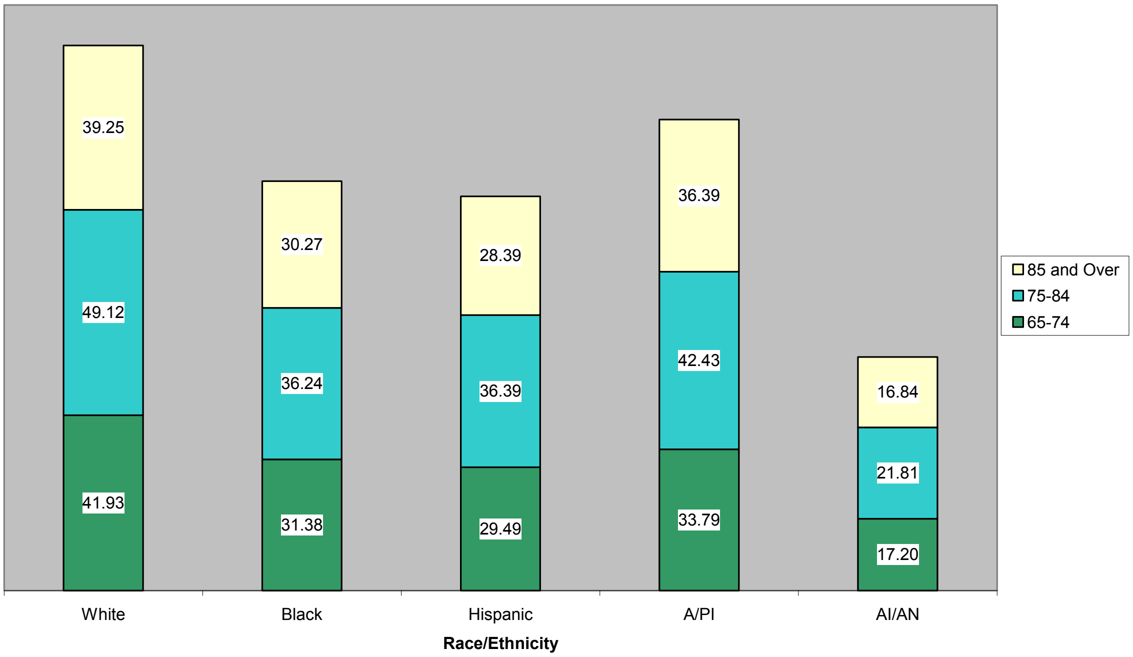
Figure 21
Percentage of female Medicare beneficiaries who received a pap test by age group and race/ethnicity: calendar year 2002



Source: Sample of 1,960,121 fee-for-service beneficiaries selected by RTI from mid-2003 EDB. The race/ethnicity variable is the result of running the algorithm on those same beneficiaries. The claims examined were for calendar year 2002.

Figure 22 shows the percentage of male Medicare beneficiaries who received a PSA test by age group and race/ethnicity. It is apparent that White men had the highest use in every age group compared to Black, Hispanic, A/PI, and AI/AN men. Particularly noteworthy was the immense variation in the receipt of a PSA test by AI/AN men in each of the three age groups compared to men of other races/ethnic groups. White, Black, Hispanic, and A/PI males obtained PSA tests 70 to 144 percent more than AI/AN males aged 65 to 74; 67 to 125 percent greater than AI/AN males aged 75 to 84; and 69 to 133 percent greater than AI/AN males aged 85 and over.

Figure 22
Percentage of male Medicare beneficiaries who received a PSA test by age group and race/ethnicity: calendar year 2002



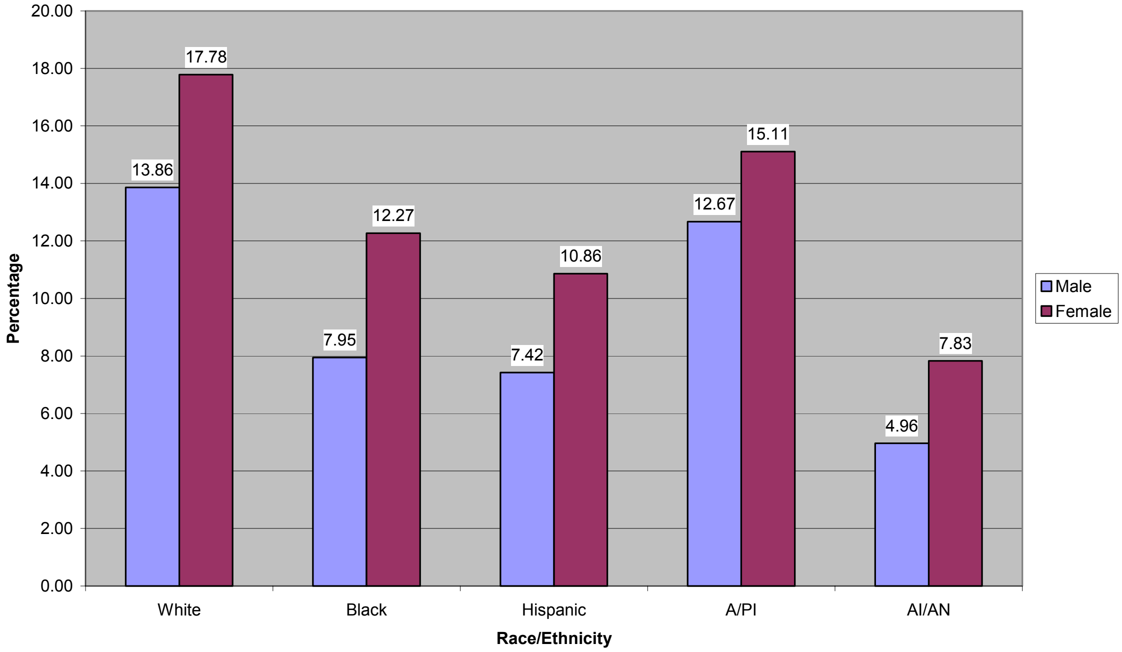
Source: Sample of 1,960,121 fee-for-service beneficiaries selected by RTI from mid-2003 EDB. The race/ethnicity variable is the result of running the algorithm on those same beneficiaries. The claims examined were for calendar year 2002.

Overall, White males received this service approximately 14 percent more than A/PI males, 45 percent more than Hispanic males, 55 percent more than Black males, and 171 percent more than AI/AN males. When examining utilization by age group, more males aged 75 to 84 received the service compared to men in the immediately lower and higher age groups. This was the case for males in all racial/ethnic groups.

American Cancer Society cancer detection guidelines suggest that men and women at average risk for developing colorectal cancer comply with one of the following testing schedules starting at age 50: annual fecal occult blood test (FOBT) or fecal immunochemical test (FIT); flexible sigmoidoscopy every 5 years; annual FOBT or FIT plus flexible sigmoidoscopy every 5 years (the recommended option); double-contrast barium enema every 5 years; or colonoscopy every 10 years. Medicare beneficiaries pay nothing for the FOBT and pay 20 percent of the Medicare-approved amount after the yearly Part B deductible for flexible sigmoidoscopy, screening colonoscopy, and barium enema.

Figure 23 shows the percentage of Medicare beneficiaries who received colorectal screening by sex and race/ethnicity. Distinctly noticeable are the low proportions of male and female beneficiaries of all races who received colorectal cancer screening. Less than 15 percent of men received colorectal cancer screening. Among AI/AN men, the rate was alarmingly low—less than 5 percent of AI/AN men received any colorectal cancer screening. AI/AN women received screening close to 60 percent more than AI/AN men. Similarly, Hispanic and Black women received colorectal cancer screening approximately 46 and 54 percent more, respectively, than Hispanic and Black men. The smallest difference (20 percent) was found between A/PI men and women.

Figure 23
Percentage of Medicare beneficiaries who received any colorectal screening by sex and race/ethnicity

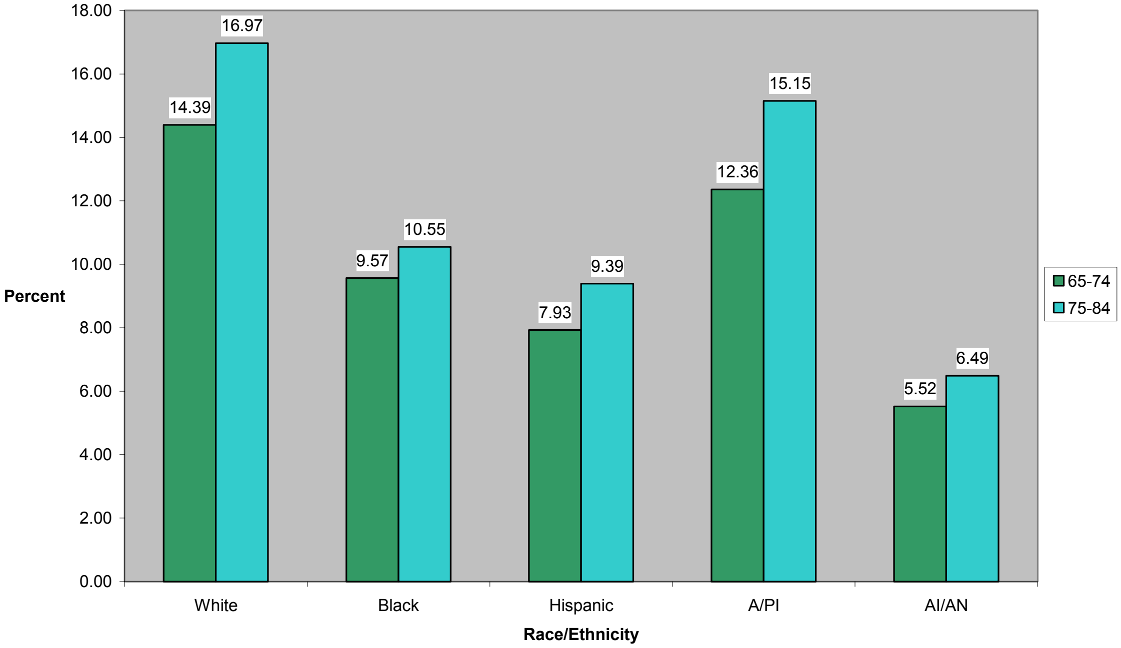


Source: Sample of 1,960,121 fee-for-service beneficiaries selected by RTI from mid-2003 EDB. The race/ethnicity variable is the result of running the algorithm on those same beneficiaries. The claims examined were for calendar year 2002.

The percentage of Medicare beneficiaries who received colorectal cancer screening by age group and race/ethnicity is presented for males (Figure 24**)** and females (Figure 25). Again, female beneficiaries clearly had a higher proportion receiving colorectal cancer screening than male beneficiaries in every age and racial/ethnic group. Examining the data by age group shows that a larger proportion of males aged 75 to 84 received colorectal screening than males aged 65 to 74 in every racial/ethnic group. The largest difference in colorectal cancer screening between the two age groups was seen among A/PI males. A/PI males aged 75 to 84 received screening 23 percent more often than A/PI males aged 65 to 74. Differences between the two age groups among females were much smaller. Among A/PI and AI/AN women, the proportion obtaining colorectal cancer screening was slightly higher among those aged 75 to 84 compared to those aged 65 to 74. The reverse was true among White and Black women where differences in the receipt of colorectal cancer screening were slightly higher among women aged 65 to 74 compared to those aged 75 to 84; among Hispanic women, the difference between the two age groups was less than one percent.

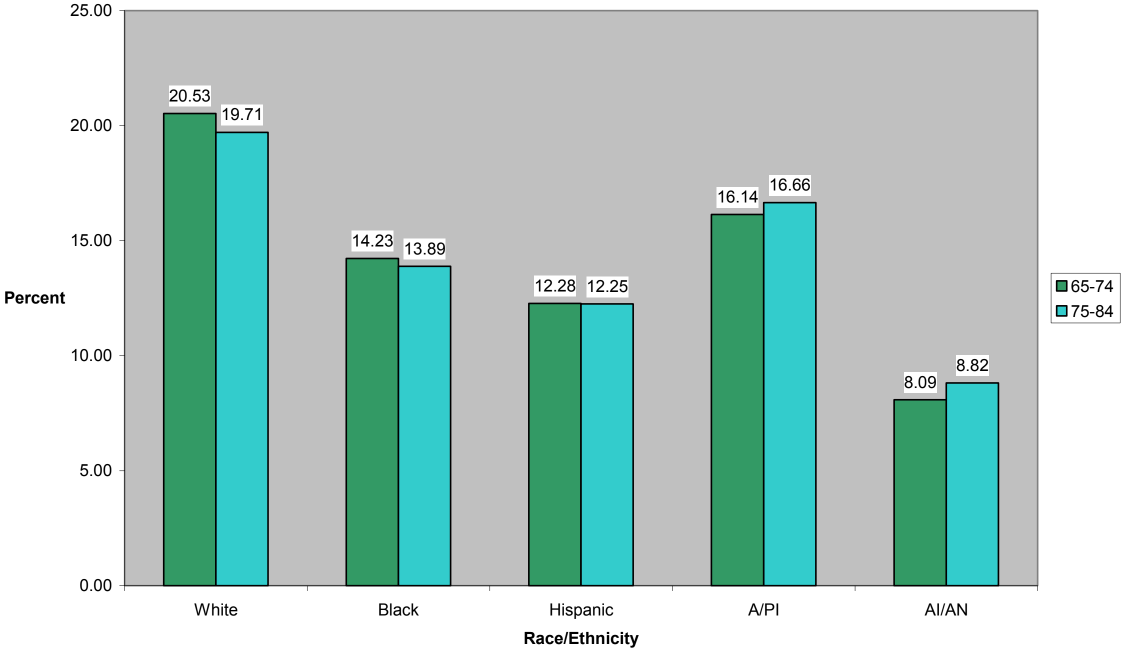
Figure 24

Percentage of male Medicare beneficiaries who received colorectal cancer screening by age group and race/ethnicity: calendar year 2002



Source: Sample of 1,960,121 fee-for-service beneficiaries selected by RTI from mid-2003 EDB. The race/ethnicity variable is the result of running the algorithm on those same beneficiaries. The claims examined were for calendar year 2002.

Figure 25
Percentage female Medicare beneficiaries who received colorectal cancer screening by age group and race/ethnicity: calendar year 2002



Source: Sample of 1,960,121 fee-for-service beneficiaries selected by RTI from mid-2003 EDB. The race/ethnicity variable is the result of running the algorithm on those same beneficiaries. The claims examined were for calendar year 2002.

Also noteworthy were the differences in colorectal screening rates between males and females by age group. Colorectal screening among males aged 65 to 74 was 23 to 35 percent lower than for females in the same age group. Hispanic males and females had the greatest differences—colorectal screening among Hispanic males aged 65 to 74 were approximately 35 percent lower than among Hispanic females in the same age group. Gender differences in screening among beneficiaries aged 75 to 84 were much smaller than the differences seen among those aged 65 to 74. Among those aged 75 to 84, screening among males was nine to 26 percent lower than females in the same age group. The largest screening differences in this age group was seen among AI/AN males and females. A/PIs exhibited the smallest differences in screening by gender in both age groups.

In summary, White Medicare beneficiaries consistently received cancer screening in significantly higher proportions than Black, Hispanic, A/PI, and AI/AN Medicare beneficiaries. At the other end of the spectrum, AI/AN beneficiaries had the lowest screening for all cancer screening types compared to the other races, thus highlighting a major disparity in the receipt of a key category of preventive services. Regarding mammography utilization, Black women received mammograms nearly 25 percent less than White women, despite having a 30 percent higher breast cancer mortality rate. While Hispanic and A/PI women had very similar mammography utilization, the proportion using was still much lower than that of White women and slightly lower than the screening rate of Black women. Moreover, within each racial/ethnic group, women aged 65 to 74 had higher mammography use than women aged 75 to 84. The same trends evident in breast cancer screening were seen in the receipt of Pap tests, although screening was slightly lower in each race/ethnic group for Pap tests compared to mammograms.

Despite the fact that Black men have been reported to have earlier onset of prostate cancer, more advanced stage and higher grade of disease at the time of diagnosis, and significantly higher prostate cancer incidence and mortality rates compared to White men, the proportion who received a PSA test ranked Black men third behind White, A/PI, and Hispanic men, and placed them only ahead of AI/AN men.

Female Medicare beneficiaries in every racial/ethnic group clearly have substantially higher proportion receiving colorectal screening compared to their male counterparts. White females have the highest level of screening followed by A/PI, Black, Hispanic, and AI/AN. Among the males, beneficiaries aged 75 to 84 consistently received the service more often than men aged 65 to 74 in every racial/ethnic group. However, this trend was not evident among the female beneficiaries. Although the difference between the age groups was very slight, those in the older age group had a higher utilization among A/PI and AI/AN females, while those in the younger age group had higher utilization among White and Black females. There was less than one percent difference among Hispanic females in these age groups.

As the second-leading cause of death in the United States after heart disease, cancer remains a major health threat to people of all races/ethnic groups. Disparities in the receipt of cancer screening are of particular concern because the mortality rate from all cancers combined is nearly 30 percent higher among Black compared to White persons, and more than double the cancer mortality rate of persons of A/PI, Hispanic, and AI/AN origins (Jemal et al., 2003). Reducing the barriers faced by these high-risk populations in accessing cancer screening may lead to earlier detection, diagnosis, and treatment, and improve the quality of life and survival rates for many in the long run.

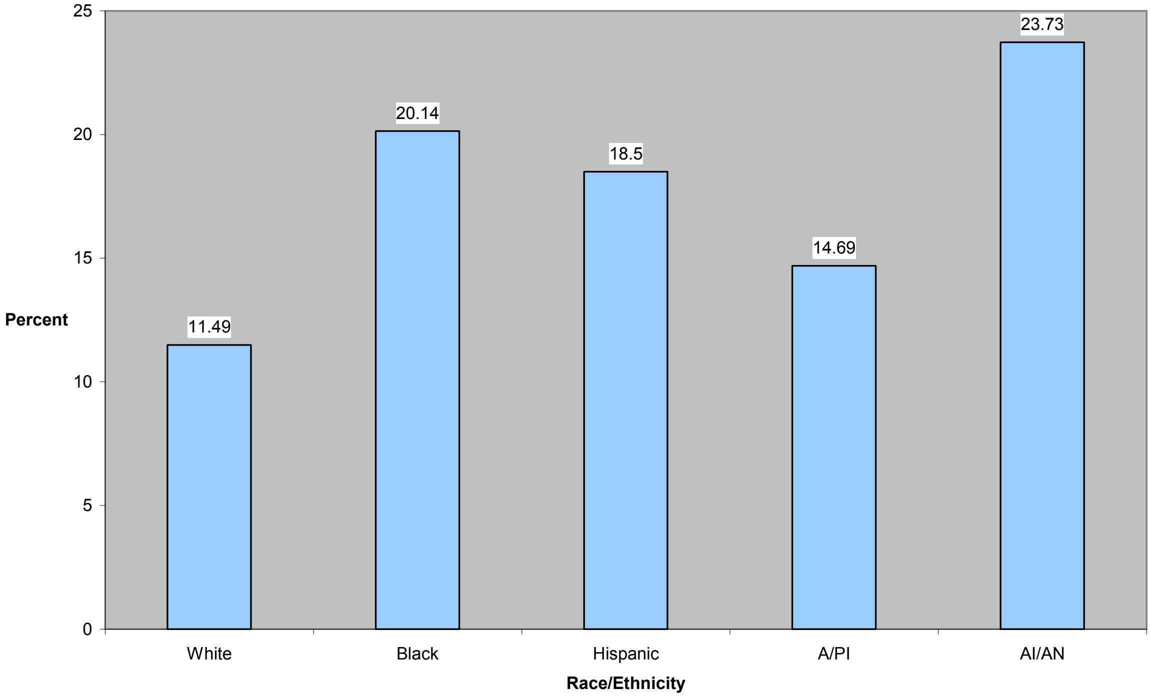
4.3 Use of Secondary Preventive Services: Diabetes Care

Secondary preventive services are intended to limit the development of further complications to persons with an existing chronic medical condition, in this case diabetes mellitus. Complications are to be avoided because they could result in hospitalization, increased expense, further disability, lessened quality of life, and death. To assess the use of secondary preventive services for diabetes, it was first necessary to identify the subpopulation that has diabetes. We also had to identify those persons with diabetes who received services that could be effective in avoiding further complications of diabetes.

We used Medicare claims for calendar year 2002 to identify beneficiaries with diabetes. Beneficiaries were identified as diabetic if they had an inpatient claim that indicated a diagnosis of diabetes, or they had an outpatient or physician claim with a diagnosis of diabetes plus at least one acute procedure or two non-acute procedures more than seven days apart. The exact procedure codes and diagnostic codes for this and the other utilization-related variables created in this report are contained in Appendix G.

From Figure 26, it is clear that the proportion of Medicare beneficiaries with diabetes was higher among those who are Black, Hispanic, A/PI, and AI/AN than it was among White beneficiaries. Nearly 11.5 percent of White beneficiaries had diabetes. The proportion was more than 100 percent higher among AI/AN, more than 50 percent higher among Black and Hispanic, but only slightly more than 25 percent higher among A/PI beneficiaries.

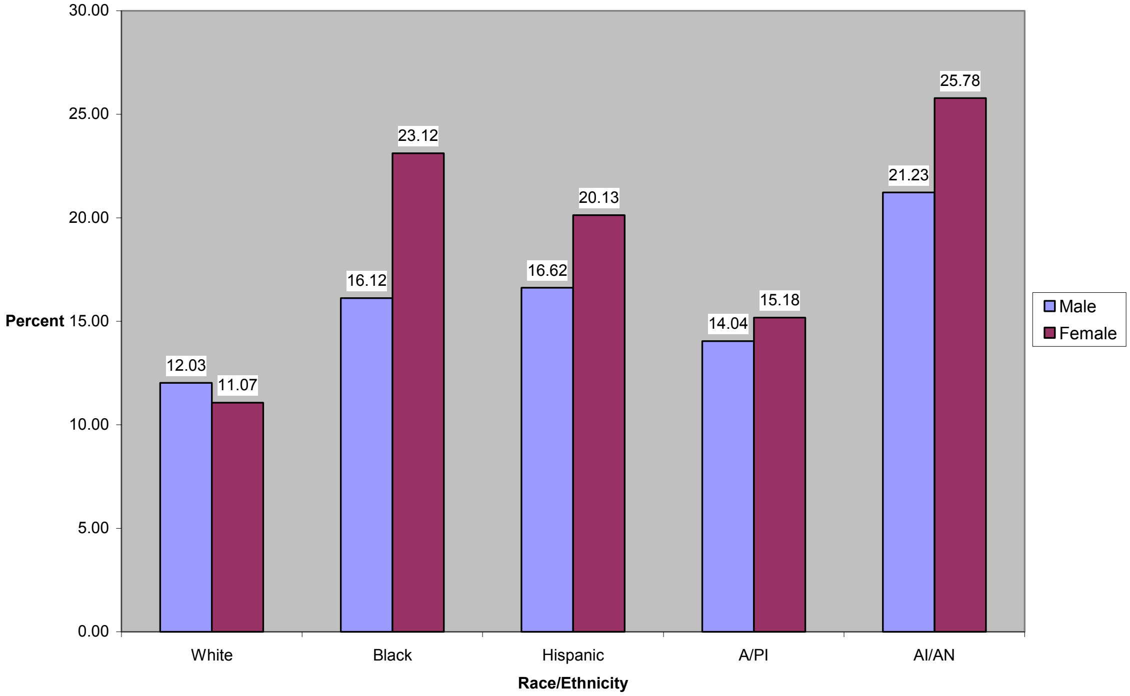
Figure 26
Percentage of Medicare beneficiaries with diabetes by race/ethnicity: calendar year 2002



Source: Sample of 1,960,121 fee-for-service beneficiaries selected by RTI from mid-2003 EDB. The race/ethnicity variable is the result of running the algorithm on those same beneficiaries. The claims examined were for calendar year 2002.

Figure 27 shows that there was very little difference in the proportion of beneficiaries with diabetes among White males and females; however, among the minority groups, the figure shows that diabetes was more prevalent among females than males, albeit just less than 10 percent higher in A/PI females than males. It is striking among Black beneficiaries, however, that the proportion with diabetes was more than 40 percent higher in females than males, but it was only about 20 percent higher in females than males among Hispanic and AI/AN beneficiaries.

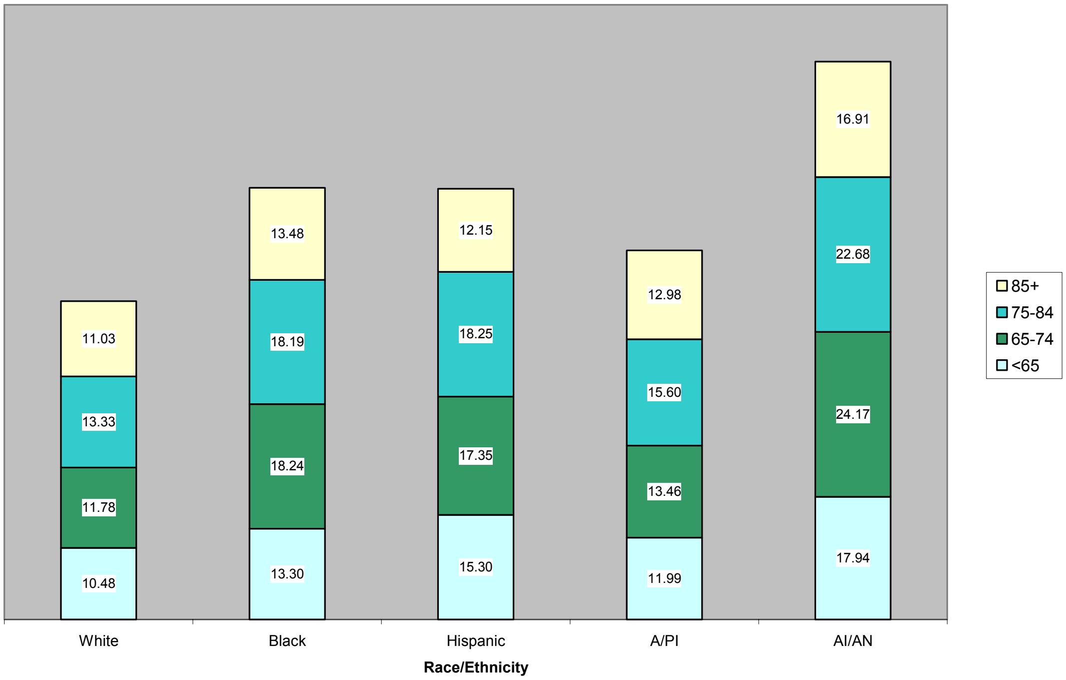
Figure 27
Percentage of Medicare beneficiaries with diabetes by sex and race/ethnicity: calendar year 2002



Source: Sample of 1,960,121 fee-for-service beneficiaries selected by RTI from mid-2003 EDB. The race/ethnicity variable is the result of running the algorithm on those same beneficiaries. The claims examined were for calendar year 2002.

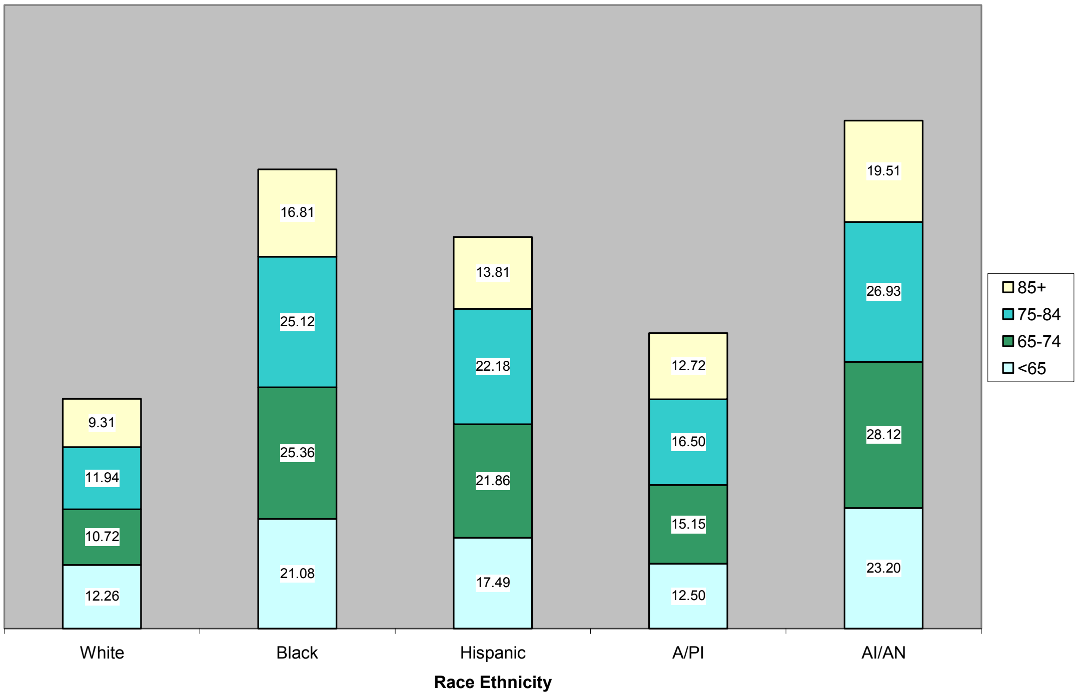
In addition to varying by race/ethnicity and sex, the prevalence of diabetes in Medicare beneficiaries differed by age group as well among both males (Figure 28) and females (Figure 29), but it seemed to vary more among females. Among Hispanic and AI/AN males, the oldest beneficiaries (85 and above) tended to have the lowest diabetes prevalence, where as among White, Black, and A/PI males, the youngest age group (under 65 years) had the lowest prevalence. However, among females of all races/ethnicities but A/PIs, the oldest age group had the lowest prevalence of diabetes. Only among A/PI females was the diabetes prevalence lowest among the youngest beneficiaries (under 65). Among male beneficiaries in all racial/ethnic groups, the middle age groups – 65 to 74 and 75 to 84 years of age – have the highest prevalence of diabetes. It was very similar among females, except among White females, where the largest proportion with diabetes was in the youngest age group. The full set of tabulations describing diabetes prevalence and secondary prevention services utilization for diabetes by these demographic characteristics is presented in Appendix C.

Figure 28
Percentage of male Medicare beneficiaries with diabetes by age and race/ethnicity: calendar year 2002



Source: Sample of 1,960,121 fee-for-service beneficiaries selected by RTI from mid-2003 EDB. The race/ethnicity variable is the result of running the algorithm on those same beneficiaries. The claims examined were for calendar year 2002.

Figure 29
Percentage of female Medicare beneficiaries with diabetes by age and race/ethnicity: calendar year 2002



Source: Sample of 1,960,121 fee-for-service beneficiaries selected by RTI from mid-2003 EDB. The race/ethnicity variable is the result of running the algorithm on those same beneficiaries. The claims examined were for calendar year 2002.

Having put diabetes prevalence among Medicare beneficiaries in context with respect to demographic differences, and race/ethnicity in particular, our focus shifted to the use of secondary preventive services that are covered and mostly paid for by Medicare. We identified four such services in 2002 from claims filed for beneficiaries with diabetes—foot care, eye examination, monitoring/testing, and instruction in self care[5]—that are covered in the traditional fee-for-service Medicare plan. Because we are looking only at the utilization of these services by beneficiaries identified as having diabetes, if there were no disparities we would expect to see little difference in utilization by racial/ethnic group, despite the large differences in diabetes prevalence by racial/ethnic group already described.

Receipt of foot care is based on ambulatory care claims that paid for therapeutic shoes or for a podiatry visit. The percentage of beneficiaries having received foot care by sex and race/ethnicity is presented in Figure 30. The most noticeable item in the figure is the low level at which this service was received among all every racial/ethnic groups. Also noticeable is the fact that, with the exception of AI/AN, females received a slightly higher level of this service than males. However, the highest levels of service were received by Black and Hispanic

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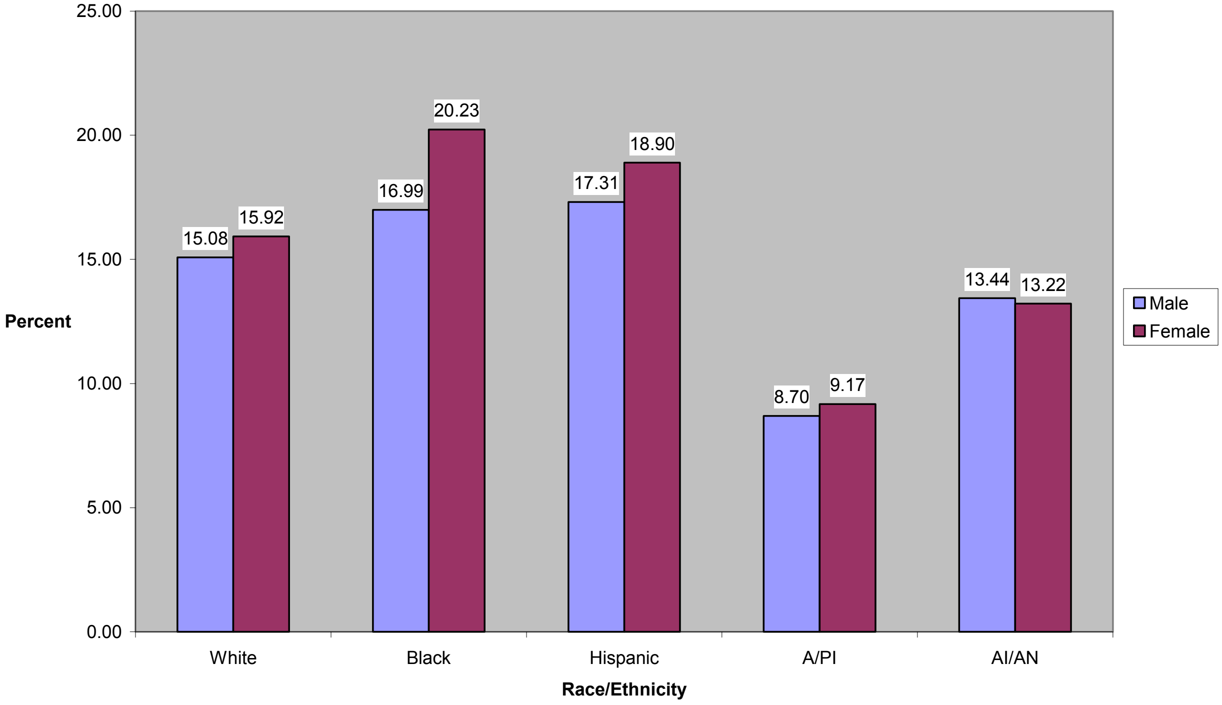
[5] The specific services and codes used to identify utilization of these four services for beneficiaries with diabetes are presented in Appendix G.

beneficiaries—more than 25 percent higher for Black than for White females, and the lowest levels of use of this service by A/PIs and AI/ANs—more than 40 percent lower for A/PI than for White females. Differences were similar in direction but not as large for males. There certainly were disparities in the use of this service, with A/PI and AI/AN beneficiaries who have diabetes using far fewer services than White beneficiaries, despite having a far higher prevalence of the disease.

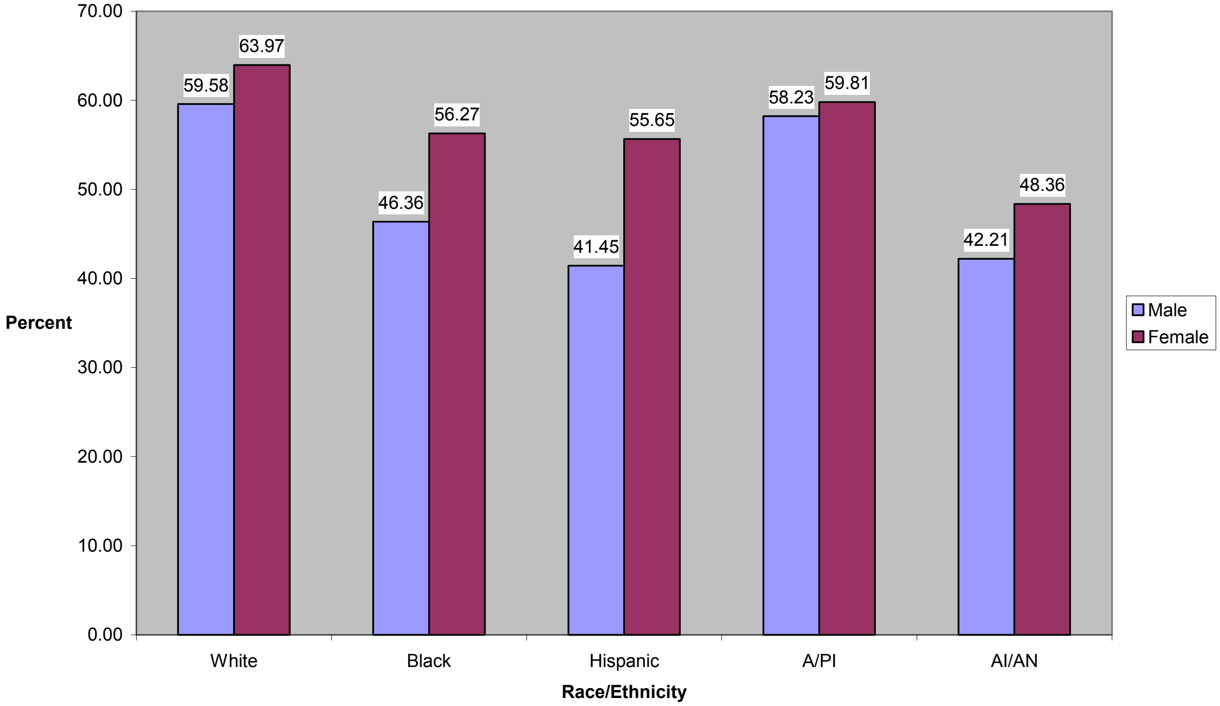
Figure 30
Percentage of Medicare beneficiaries with diabetes who received foot care by sex and race/ethnicity: calendar year 2002



Source: Sample of 1,960,121 fee-for-service beneficiaries selected by RTI from mid-2003 EDB. The race/ethnicity variable is the result of running the algorithm on those same beneficiaries. The claims examined were for calendar year 2002.

Figure 31 shows quite a different situation with respect to diabetic beneficiaries who had ambulatory care claims that indicate they received an eye examination. This was clearly a service that was more generally provided to beneficiaries with diabetes because about half or more of the female beneficiaries and over 40 percent of the males received it. Black, Hispanic, and AI/AN beneficiaries of both sexes used this service far less often than White, and only a slightly smaller proportion of A/PIs used this service than Whites. There was only a very small difference in use between the sexes for this service among White and A/PI beneficiaries, but among Black and Hispanic there was a substantial difference between the sexes. .

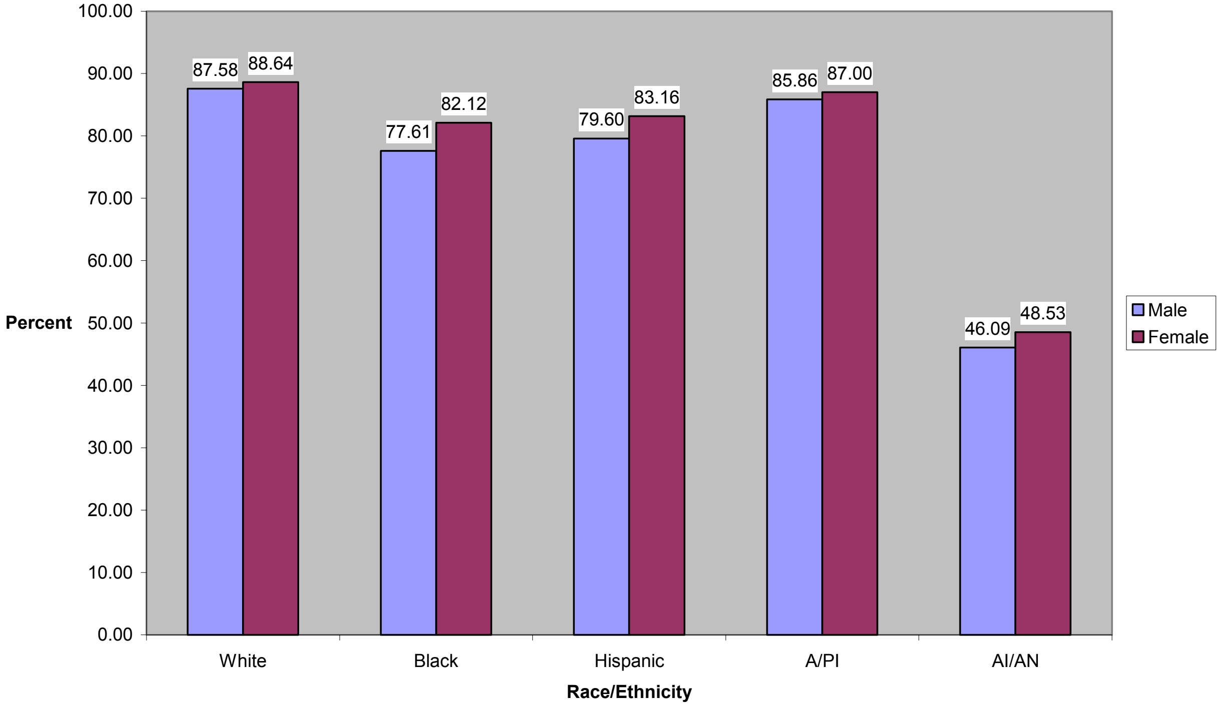
Figure 31
Percentage of Medicare beneficiaries with diabetes who received an eye exam by sex and race/ethnicity: calendar year 2002



Source: Sample of 1,960,121 fee-for-service beneficiaries selected by RTI from mid-2003 EDB. The race/ethnicity variable is the result of running the algorithm on those same beneficiaries. The claims examined were for calendar year 2002.

As Figure 32 shows, the receipt of testing services for hemoglobin A1c, lipid profiling, or microalbumin for monitoring insulin needs was the most used of the secondary prevention diabetes services we could confirm from Medicare ambulatory care claims. It is also worth noting that these testing services were received by almost the same proportion of male and female beneficiaries in all of the racial/ethnic groups. However, there was far less use of this service among both male and female AI/AN beneficiaries. AI/AN males and females received this service about 45 percent less often than White males, and almost that much less than the other racial/ethnic groups. About 10 percent smaller proportions of Black and Hispanic beneficiaries of both sexes used these services than White and A/PI beneficiaries. While the greatest disparity in use of this service was between AI/AN beneficiaries and everyone else, there were smaller proportions of Black and Hispanic beneficiaries receiving this service than White and A/PI.

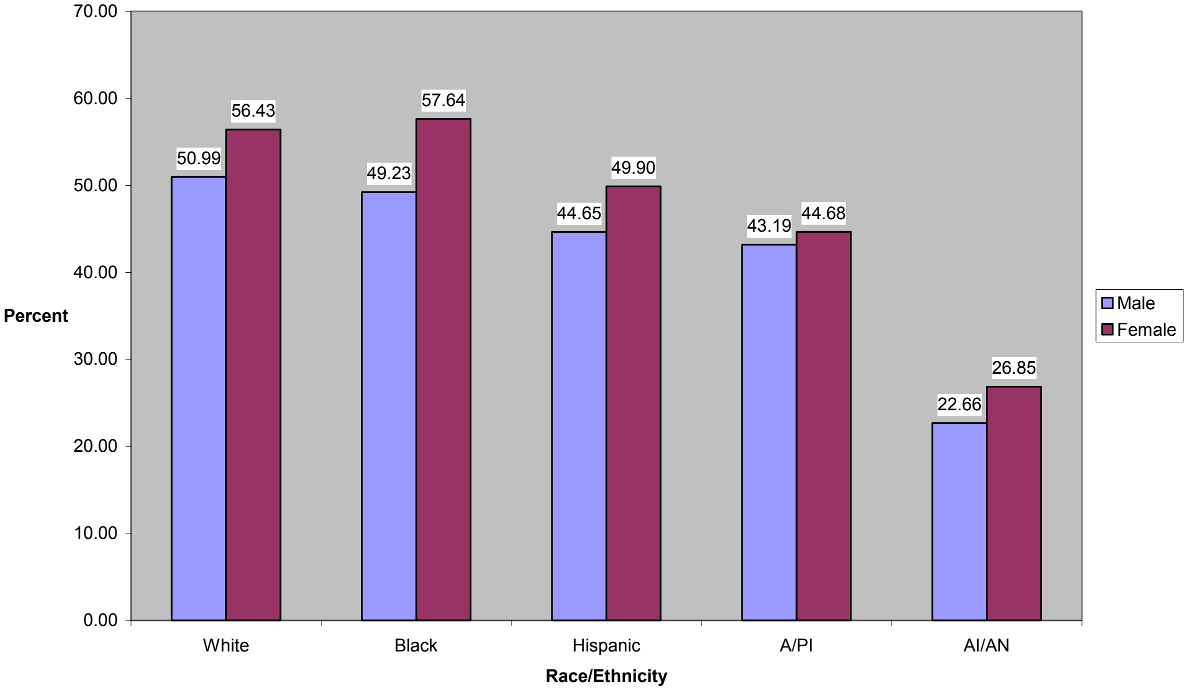
Figure 32
Percentage of Medicare beneficiaries with diabetes who received testing services by sex and race/ethnicity: calendar year 2002



Source: Sample of 1,960,121 fee-for-service beneficiaries selected by RTI from mid-2003 EDB. The race/ethnicity variable is the result of running the algorithm on those same beneficiaries. The claims examined were for calendar year 2002.

The final type of diabetes preventive service use we examined was beneficiaries having ambulatory care claims for obtaining instruction in diabetes education and self-monitoring. It is apparent from Figure 33**,** that receipt of this service differed considerably by race/ethnicity, and, while not as much, by sex for all groups of beneficiaries. White and Black male and female beneficiaries had approximately the same proportion receiving self-care services. More than 10 percent fewer Hispanics and A/PIs of both sexes used these services than Black and White beneficiaries, but AI/AN beneficiaries had even lower utilization for both sexes. AI/AN beneficiaries of both sexes had more than 50 percent fewer beneficiaries receiving self-care instruction than White and Black.

Figure 33
Percentage of Medicare beneficiaries who received instruction in self-care by sex and race/ethnicity: calendar year 2002



Source: Sample of 1,960,121 fee-for-service beneficiaries selected by RTI from mid-2003 EDB. The race/ethnicity variable is the result of running the algorithm on those same beneficiaries. The claims examined were for calendar year 2002.

In summary, Black, Hispanic, and AI/AN Medicare beneficiaries clearly had higher prevalence of diabetes than White and A/PI. Quite consistently, female beneficiaries who had diabetes were more likely to use the four secondary preventive services than males with diabetes. The picture for utilization of secondary preventive services by persons with diabetes in the racial/ethnic groups was not nearly so clear and consistent, however. For the receipt of foot care, the least reported in claims of the four services, Black and Hispanic beneficiaries, male and female, were more likely to get this service than White. Black beneficiaries were about as likely as White to receive self-care services, but less likely to receive eye exams and testing services. A/PI beneficiaries, on the other hand, fell in between, because for eye exams and testing services, they received services in a proportion that was equal to White, but for foot care and instruction in self-care, their use was considerably lower than for White beneficiaries. In fact A/PI beneficiaries had the smallest proportion of persons with diabetes receiving foot care. Hispanics of both sexes, while more often receiving foot care than White beneficiaries, were less likely to receive eye examinations, testing, and self-care services than Whites. The situation for the AI/AN beneficiaries showed the most widespread disparities with respect to the proportion of males and females with diabetes who had claims showing they received these services. Their level of use for all four services was far below that of Black, Hispanic, and White beneficiaries. It was also lower than A/PI for all of the services but foot care.

4.4 Need for Primary Care Services: Hospital and Emergency Room Admissions for Ambulatory Care-Sensitive Conditions

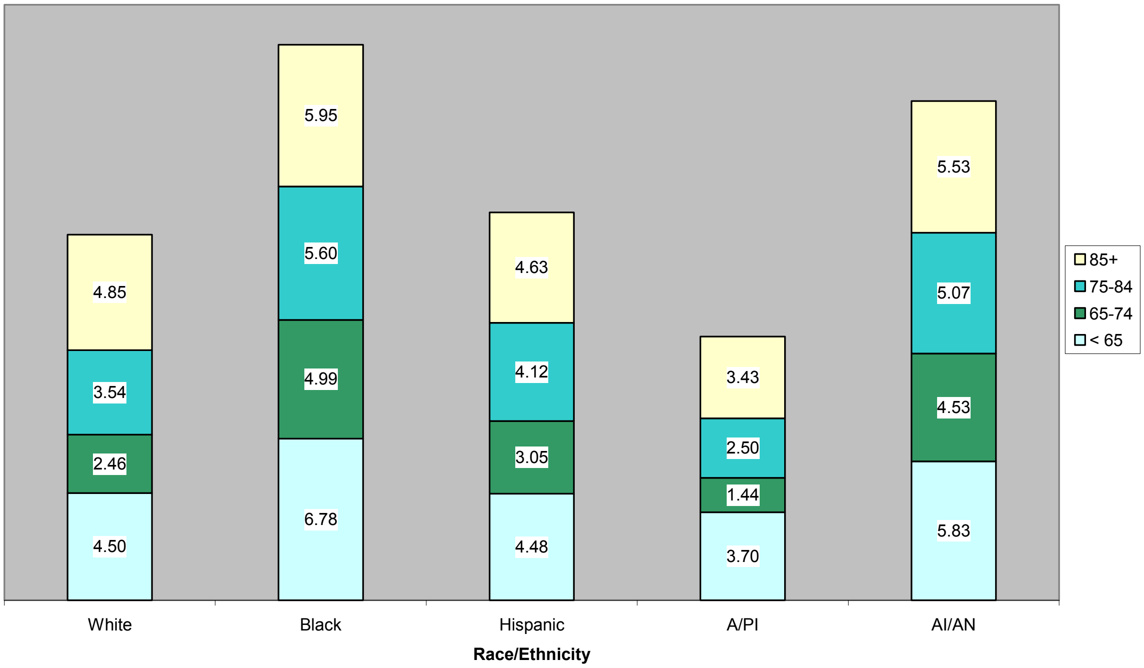
It has been asserted that timely and effective primary medical care for the management of many chronic conditions can avoid or reduce the need for expensive hospitalization and emergency room observation. Researchers studying differences in access to and quality of medical care have identified a number of conditions that are particularly responsive to timely and effective ambulatory care. They use hospitalization for these ambulatory care-sensitive conditions (ACSCs) as an indicator of inadequate access to or poor-quality of primary care (Bindman, Grumbach, Osmond, et al., 1995).

We have compared by race/ethnicity the number and percentage of beneficiaries who were admitted to a hospital or observed in an emergency room during the 2002 calendar year for a set of 15 ACSCs. It was our purpose in making these comparisons to identify racial/ethnic groups that have higher rates of admission and could conceivably benefit from more timely, appropriate, or effective primary care. Among the 15 ACSCs we examined were five chronic conditions (chronic lung disease [asthma and chronic obstructive pulmonary disease combined], congestive heart failure, seizures, diabetes mellitus, and hypertension); eight acute conditions (cellulitis, dehydration, bacterial pneumonia, urinary tract infection, gastric or duodenal ulcer, hypoglycemia, hypokalemia, and ear, nose and throat infections); and two preventable conditions (influenza and malnutrition) (McCall, Harlow, and Dayhoff, 2001).

Because of the generally small frequencies associated with the ACSCs, in some of the smaller racial/ethnic groups particularly, we have chosen to report on the numbers and proportions of beneficiaries with these conditions combined into logical sets of conditions. The conditions have been grouped according to whether there were (1) any chronic ACSCs, (2) any acute ACSCs, (3) any preventable ACSCs, and (4) any ACSCs at all. Tables that report on the number and percentage of Medicare fee-for-service beneficiaries with hospital and emergency room admissions for each of the 15 individual ACSCs as well as for these four sets of conditions are presented in Appendix D.

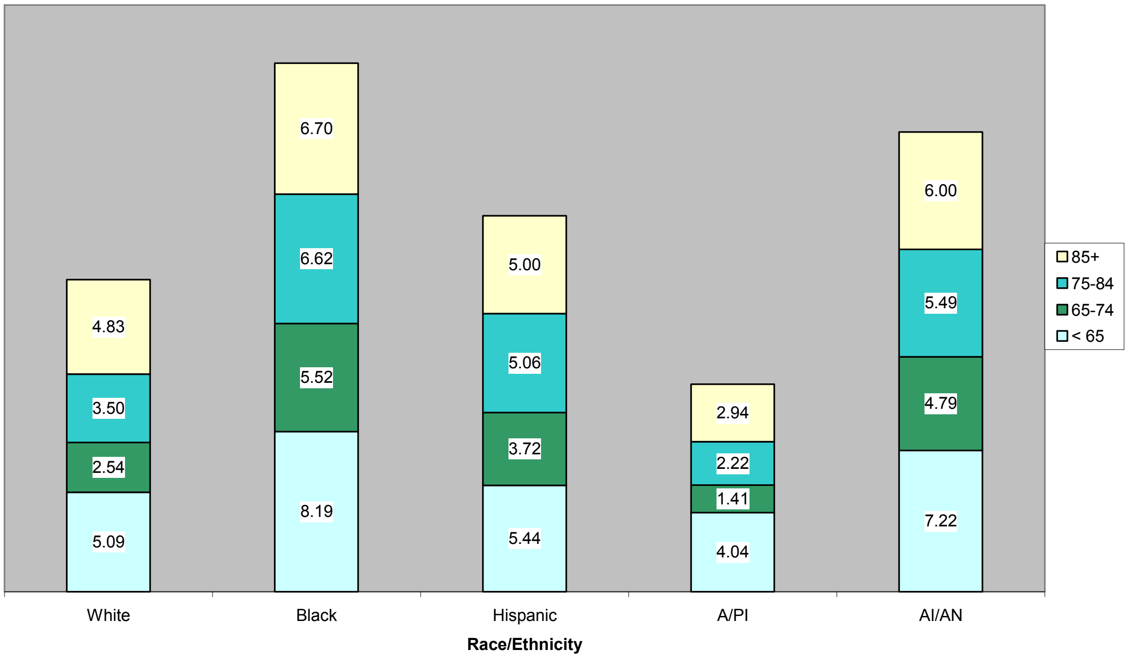
The distribution of beneficiaries with hospital and emergency room admissions for chronic disease ACSCs suggest that they differ by the age, sex, and race/ethnicity of the beneficiaries. Figure 34 displays the proportions of males in each age group for each racial/ethnic group that had at least one admission for one of the five chronic ACSCs. The overall height of the bars indicates in a cumulative way which racial/ethnic group had the largest share of its male beneficiaries with an admission. Clearly, Black and AI/AN males had higher proportions with admissions than the other groups, while A/PI males had the lowest proportion hospitalized. However, an age group gradient is also apparent, in that the Medicare beneficiaries under 65 years of age (the disabled) generally had the highest proportion of admissions, but among those 65 years of age and older the proportion rose with age, although not quite reaching that of the disabled (under 65). The very same patterns were present among females, as can be seen from Figure 35. By comparing the proportions of males and females in each age group for racial/ethnic group, however, it is clear that a larger proportion of females had an admission for a chronic disease ACSC than males in all age groups and races.

Figure 34
Percentage of male Medicare beneficiaries with a chronic ambulatory care-sensitive condition by age group and race/ethnicity: calendar year 2002



Source: Sample of 1,960,121 fee-for-service beneficiaries selected by RTI from mid-2003 EDB. The race/ethnicity variable is the result of running the algorithm on those same beneficiaries. The claims examined were for calendar year 2002.

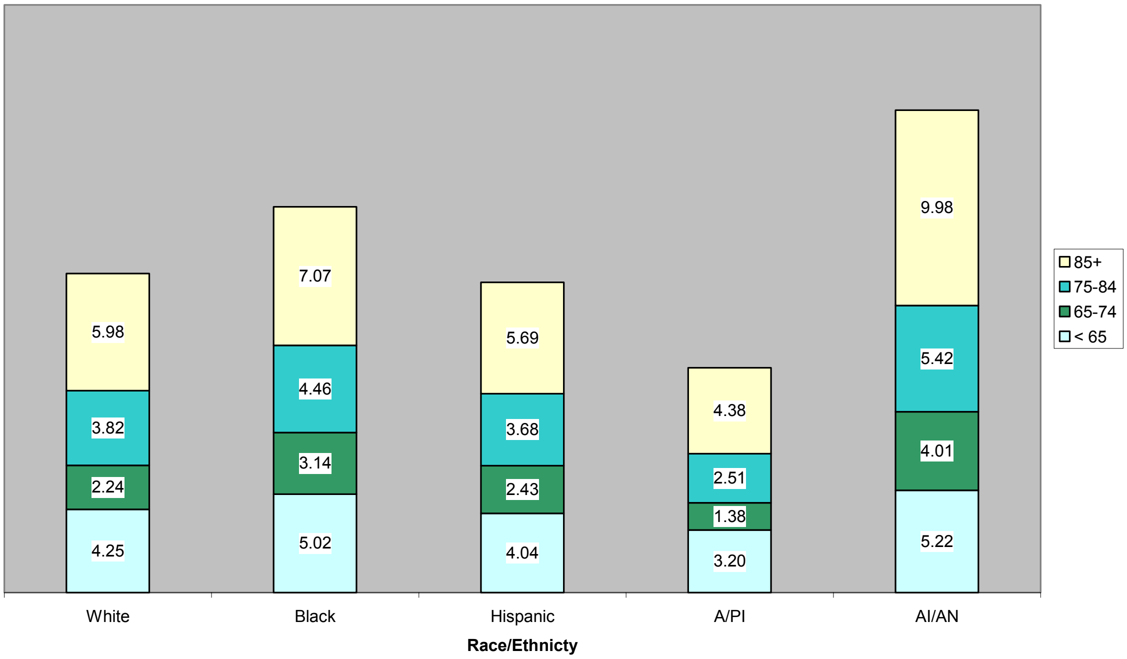
Figure 35
Percentage of female Medicare beneficiaries with admissions for chronic ambulatory care-sensitive conditions by age group and race/ethnicity; calendar year 2002



Source: Sample of 1,960,121 fee-for-service beneficiaries selected by RTI from mid-2003 EDB. The race/ethnicity variable is the result of running the algorithm on those same beneficiaries. The claims examined were for calendar year 2002.

Turning to the proportion of beneficiaries with hospital and emergency room admissions for acute illness ACSCs, the patterns were somewhat different by age group and race/ethnicity than those described for chronic disease ACSCs. As can be seen from Figure 36, among males, the most notable fact was that the largest proportion with admissions for every age group belonged to AI/AN beneficiaries. The smallest proportion with admissions was for A/PI, the same as for chronic disease ACSCs. The other difference from chronic ACSCs was that the oldest (85 years and above) rather than the youngest age group (under 65 and disabled) had the largest proportion with admissions for acute ACSCs. Similar to the situation with chronic disease ACSCs, the proportion with admissions for acute ACSCs increased sharply with age (more than doubling), starting with the 65-to-74-year-old age group.

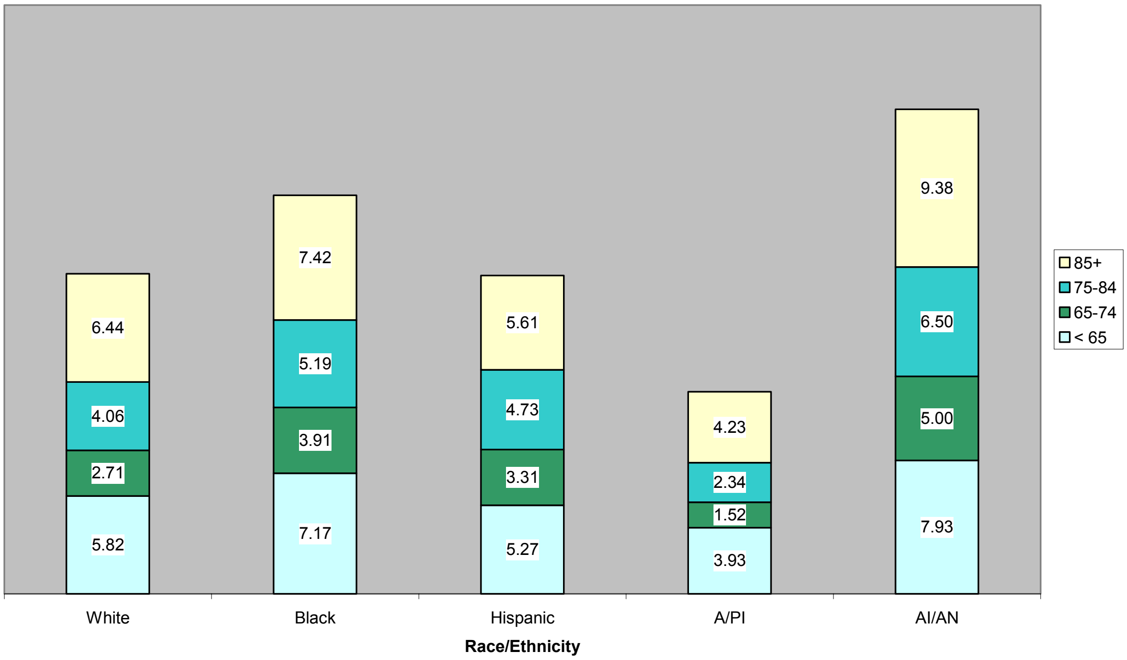
Figure 36
Percentage of male Medicare beneficiaries with admissions for ambulatory care-sensitive condition by age group and race/ethnicity: calendar year 2002



Source: Sample of 1,960,121 fee-for-service beneficiaries selected by RTI from mid-2003 EDB. The race/ethnicity variable is the result of running the algorithm on those same beneficiaries. The claims examined were for calendar year 2002.

The picture in Figure 37 for acute illness ACSCs was very similar for females and males. AI/AN females had the largest proportion with admissions for acute illness ACSCs in every age group. The A/PI females again had the smallest proportion with an admission, for acute illness this time. Unlike with the chronic disease ACSCs, the oldest age group of females in every racial/ethnic group had the largest proportion with acute ACSC admissions, and not the youngest age group. Similar to the situation with chronic disease ACSCs, the proportion with admissions for acute ACSCs increased sharply with age, starting with the 65-to-74-year-old age group. Whether males or females had a larger proportion of beneficiaries with an acute ACSC differed by racial/ethnic group.

Figure 37
Percentage of female Medicare beneficiaries with admissions for acute ambulatory care-sensitive condition by age group and race/ethnicity: calendar year 2002

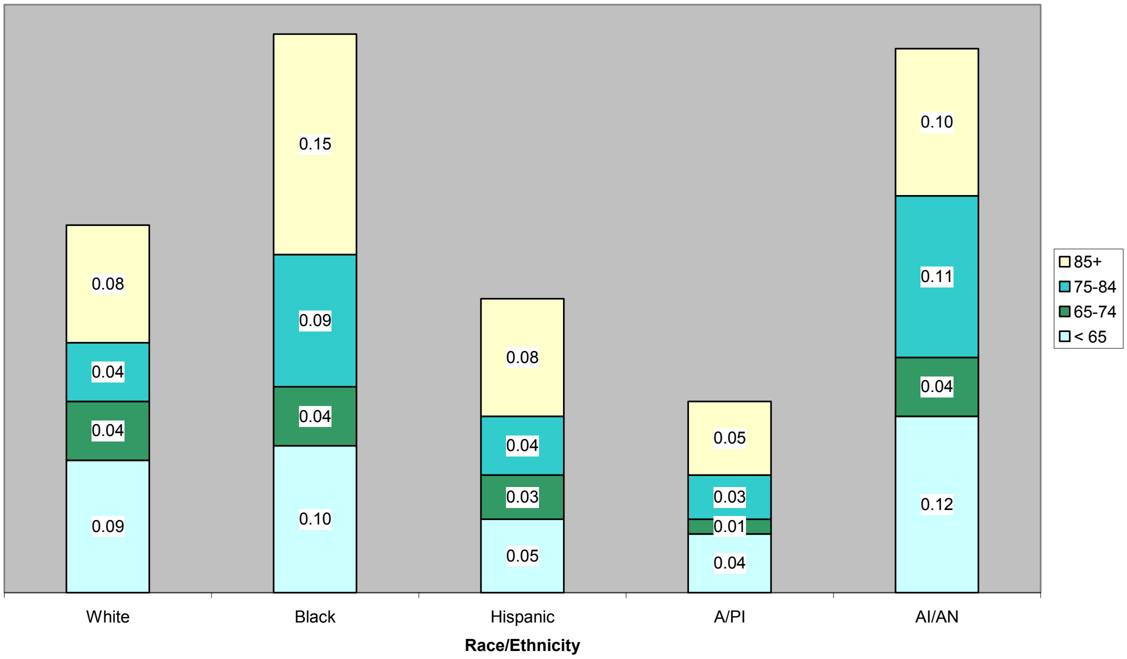


Source: Sample of 1,960,121 fee-for-service beneficiaries selected by RTI from mid-2003 EDB. The race/ethnicity variable is the result of running the algorithm on those same beneficiaries. The claims examined were for calendar year 2002.

The proportion of beneficiaries with admissions for preventable ACSCs was much smaller than for chronic and acute ACSCs. However, a very similar pattern by race/ethnicity appeared as was in evidence for chronic disease ACSC admissions. Figure 38 shows that among males, Black and AI/AN beneficiaries had the largest proportion with a preventive admission overall and by age group. There was no clear pattern of preventive ACSC admissions by age group for men. Figure 39 presents a similar experience for female preventive ACSCs admissions. Black and AI/AN females had the largest proportion of preventive ACSC admissions, and A/PI females had the smallest proportion overall and by age group. There was no clear pattern of preventive ACSC admissions by age group for females either.

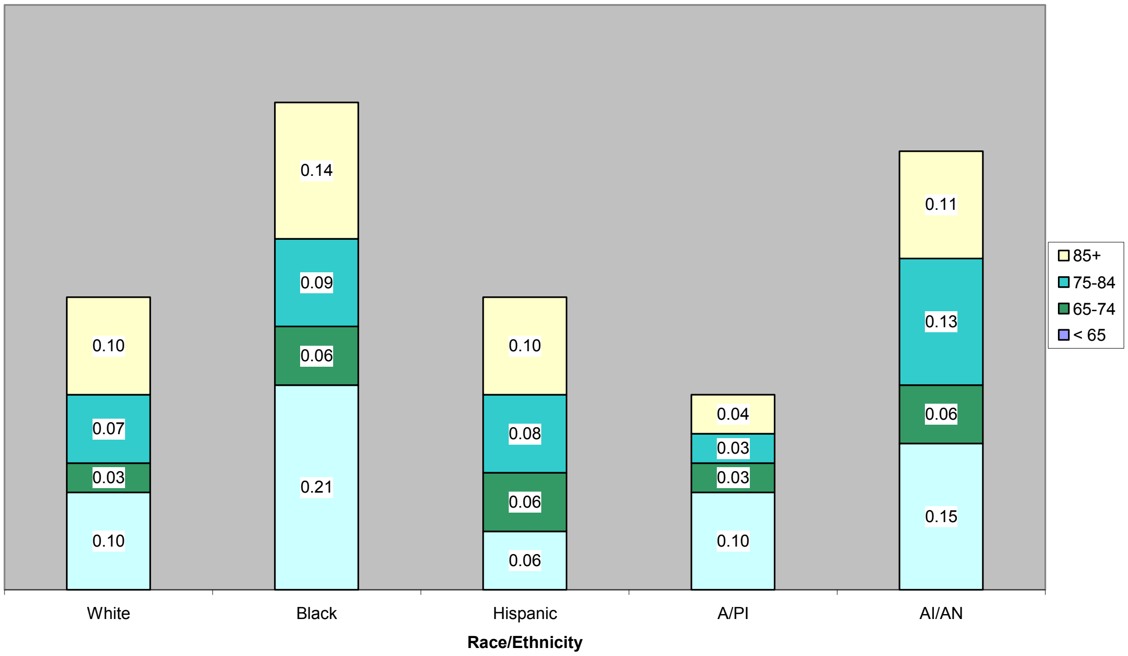
Figure 38

Percentage of male Medicare beneficiaries with admissions for preventive ambulatory care-sensitive condition by age group and race/ethnicity: calendar year 2002



Source: Sample of 1,960,121 fee-for-service beneficiaries selected by RTI from mid-2003 EDB. The race/ethnicity variable is the result of running the algorithm on those same beneficiaries. The claims examined were for calendar year 2002.

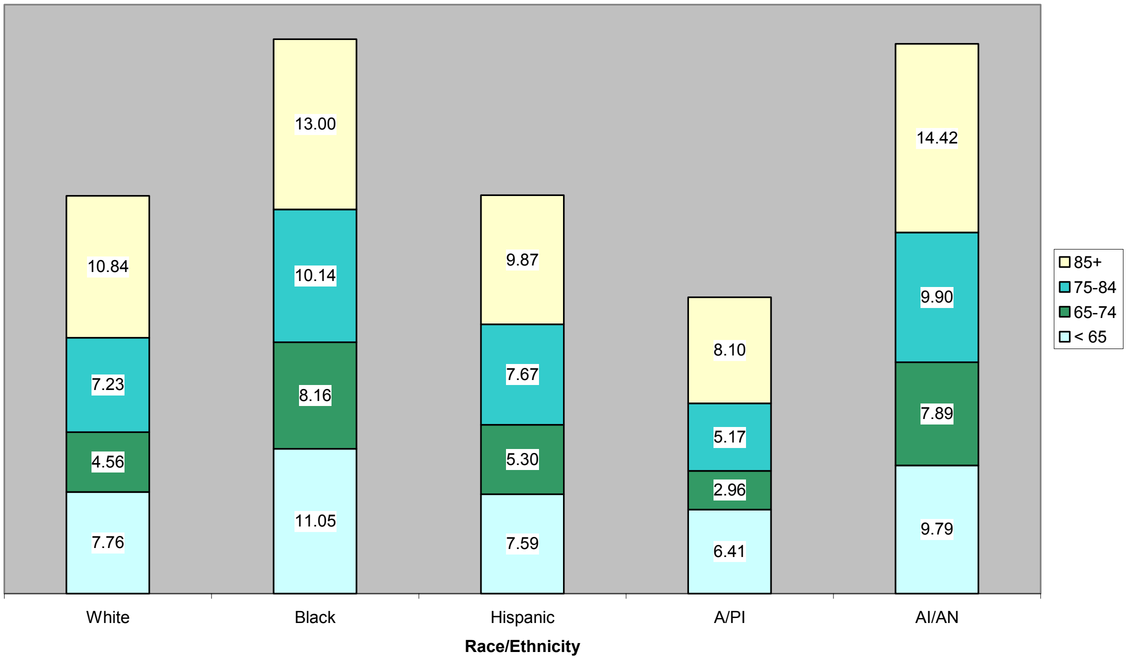
Figure 39
Percentage of female Medicare beneficiaries with admissions for preventive ambulatory care-sensitive conditions by age group and race/ethnicity: calendar year 2002



Source: Sample of 1,960,121 fee-for-service beneficiaries selected by RTI from mid-2003 EDB. The race/ethnicity variable is the result of running the algorithm on those same beneficiaries. The claims examined were for calendar year 2002.

Our final analysis of ACSCs combined all three types of ACSC admissions. It was not surprising that the pattern of male and female ACSC admissions without regard to type of condition (chronic, acute, or preventive) resembled those in the earlier figures. The proportions are definitely much higher and they reflect only a very small extent of multiple ACSCs per beneficiary in either sex or any age group. Figure 40 shows that Black and AI/AN males had the largest proportion of ACSC admissions overall and by age group. A/PI males had the smallest. The proportion of White and Hispanic males with an ACSC admission was about the same and intermediate between the extremes. Starting with the 65-and-older age group, the proportion of male beneficiaries with an admission for any ACSC increased with age, and the oldest age group had the largest proportion with an admission in all five racial/ethnic groups. The oldest age group also had a larger proportion than the age group under 65 that included disabled and ESRD beneficiaries.

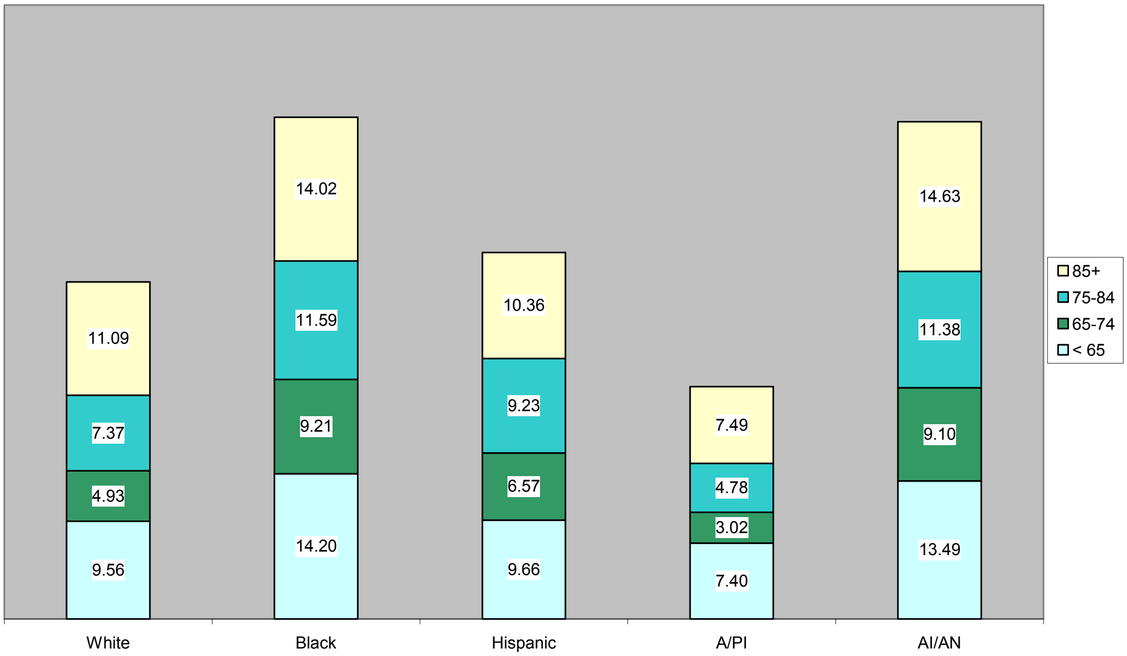
Figure 40
Percentage of male Medicare beneficiaries with admissions for any ambulatory care-sensitive condition by age group and race/ethnicity: calendar year 2002



Source: Sample of 1,960,121 fee-for-service beneficiaries selected by RTI from mid-2003 EDB. The race/ethnicity variable is the result of running the algorithm on those same beneficiaries. The claims examined were for calendar year 2002.

Figure 41 displays the same information for females. Again, Black and AI/AN female beneficiaries had the largest overall proportion of beneficiaries with an ACSC admission of any kind. As with the males, A/PIs had the smallest proportion, with White and Hispanic females intermediate to the extremes. There was clearly an age gradient among the females as well, with admissions increasing with age after turning 65 and the oldest age group typically having a larger proportion of beneficiaries with an admission than occurred in the under-65 age group that included disabled beneficiaries and those with ESRD.

Figure 41
Percentage of female Medicare beneficiaries with admissions for any ambulatory care-sensitive condition by age group and race/ethnicity: calendar year 2002



Source: Sample of 1,960,121 fee-for-service beneficiaries selected by RTI from mid-2003 EDB. The race/ethnicity variable is the result of running the algorithm on those same beneficiaries. The claims examined were for calendar year 2002.

In summary, our analysis of ACSC admissions indicated that Black and AI/AN males and females were likely not obtaining the primary care they needed to avoid unnecessary hospital and emergency department admissions for the treatment of their ambulatory care-sensitive chronic or acute illnesses. It also suggested that regardless of race/ethnicity, while ACSC admissions may be fairly common among Medicare fee-for-service beneficiaries under 65 years of age who were disabled or ESRD patients, the proportion of ACSC admissions increased with age, and was largest among those 85 years of age and older across all racial/ethnic groups. Our analysis did not indicate to what we could attribute the higher proportion of admission for ACSCs among Black and AI/AN beneficiaries. However, the consistent pattern of higher hospital and ER use for these minority groups as compared to the others and to White beneficiaries suggests that there are very likely impediments or barriers that act to restrict Black and AI/AN access to timely and effective primary care.

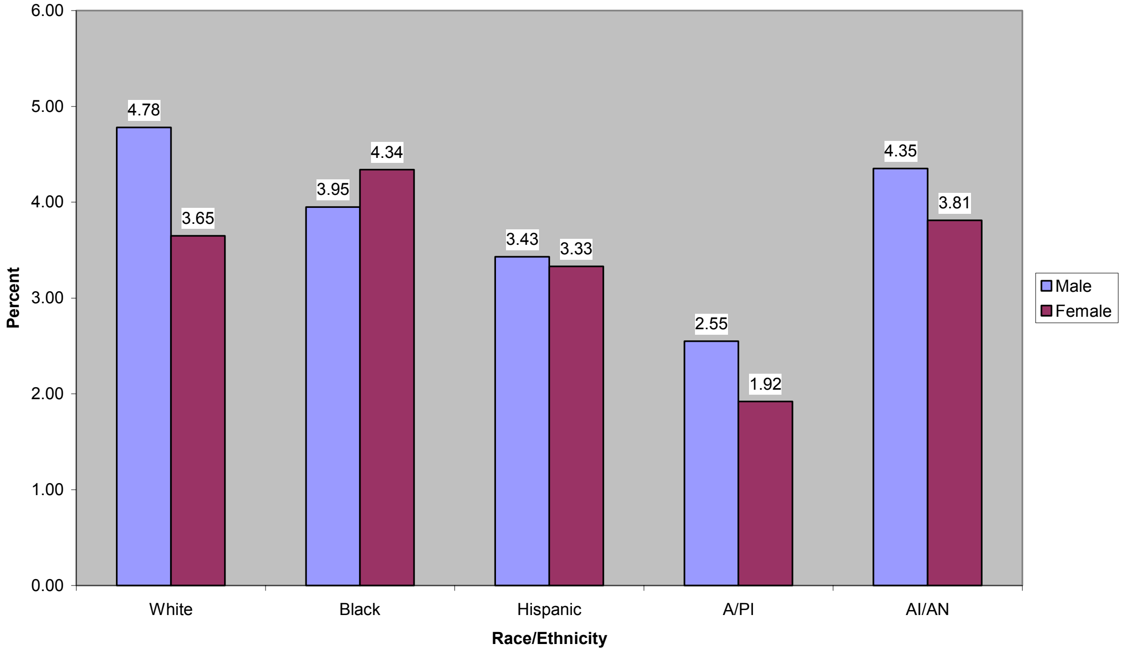
4.5 Hospital Care for Selected Common Chronic and Acute Diagnoses

We examined hospital utilization patterns among Medicare fee-for-service beneficiaries for six conditions during 2002 by race/ethnicity, sex, and age group. The conditions included heart disease, cerebrovascular disease, malignant neoplasms, diabetes, pneumonia, and fractures. In particular, we compared the proportion of persons with each of these specific diagnoses at discharge, the mean payment made per user, and the mean length of hospital stay in days.

Detailed tables for this section of the report are contained in Appendix E while specifications for the utilization measures are described in Appendix G.

There were an estimated 1.3 million or four percent of Medicare fee-for-service beneficiaries with hospital discharges for heart disease in 2002. The mean length of stay was four and nine-tenths days and the mean payment made by Medicare per discharge for this condition was $9,700. As Figure 42 shows, in all of the racial/ethnic groups but Black, larger proportions of men than women had hospital stays for heart disease. White men had the highest percentage of their hospital discharges associated with a diagnosis of heart disease, followed by Black females, while A/PI males and females had the lowest.

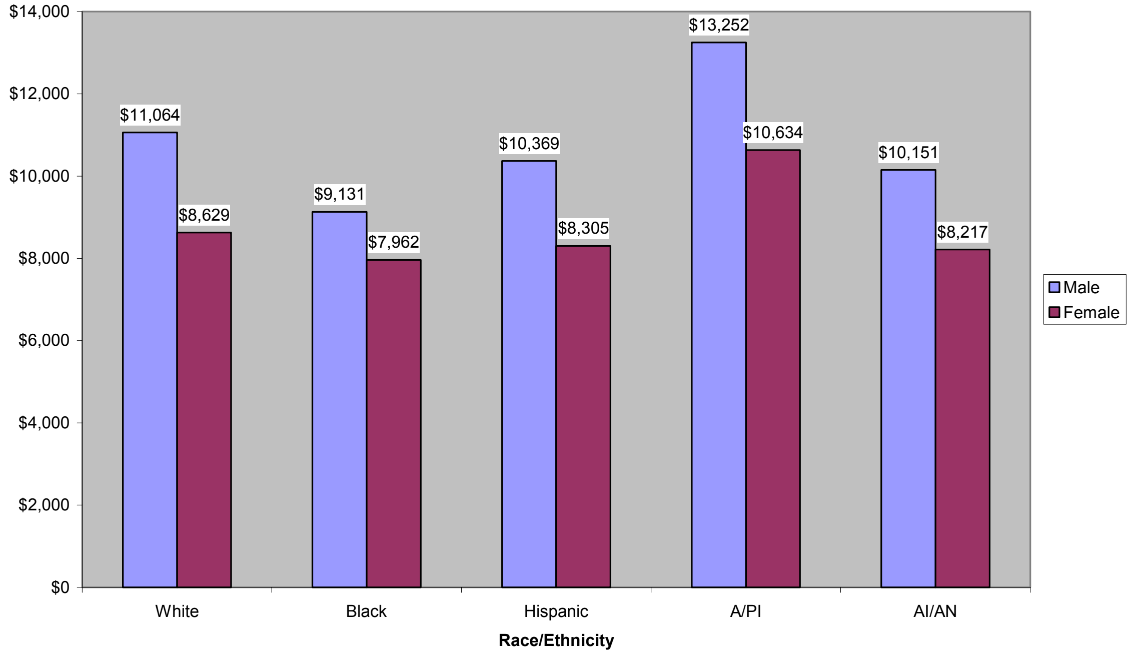
Figure 42
Percentage of Medicare fee-for-service beneficiaries with hospital discharge diagnosis of heart disease by sex and race/ethnicity: calendar year 2002



Source: Sample of 1,960,121 fee-for-service beneficiaries selected by RTI from mid-2003 EDB. The race/ethnicity variable is the result of running the algorithm on those same beneficiaries. The claims examined were for calendar year 2002.

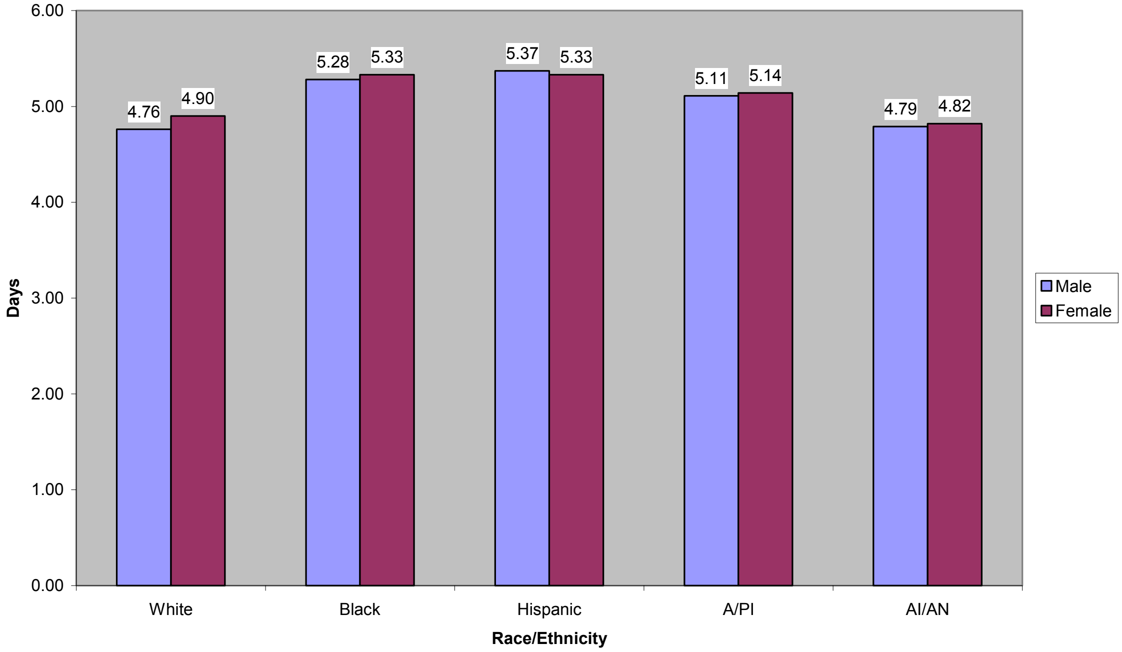
It is clear from Figure 43 that the mean payment made for hospital discharges with a heart disease diagnosis was higher for men than for women in all racial/ethnic groups. The amount was highest for A/PI males and females, respectively. The A/PI group had the lowest percentage of beneficiaries with hospitalization for that diagnosis. White males had the second-highest average payments made by Medicare, but Black females had the lowest. The average length of stay presented in Figure 44 shows only a difference of about six-tenths of a day from the highest (Hispanic males) to the lowest (While males) group, and only half a day difference between the Black and Hispanic females who had the highest average length of stay and A/PI who had the lowest average length of stay. With the exception of the Hispanic group, females had slightly longer stays for heart disease discharge diagnoses.

Figure 43
Mean payment for hospital discharge for Medicare fee-for-service beneficiaries with heart disease diagnosis by sex and race/ethnicity: calendar year 2002



Source: Sample of 1,960,121 fee-for-service beneficiaries selected by RTI from mid-2003 EDB. The race/ethnicity variable is the result of running the algorithm on those same beneficiaries. The claims examined were for calendar year 2002.

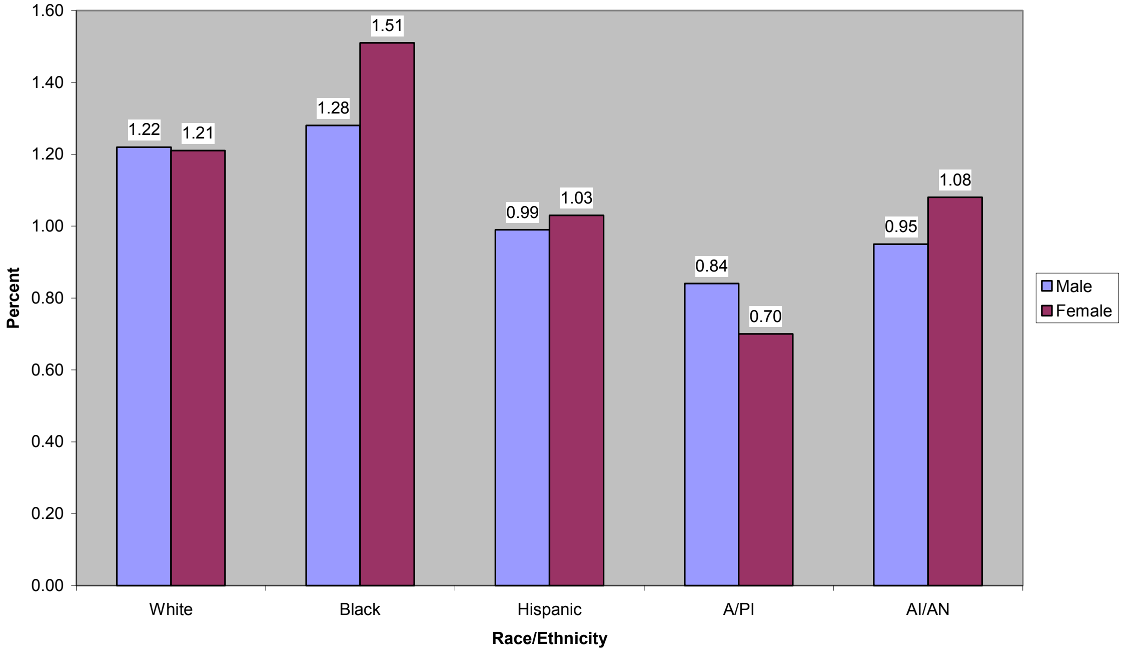
Figure 44
Mean length of stay for Medicare fee-for-service beneficiaries with a hospital discharge diagnosis of heart disease by sex and race/ethnicity: calendar year 2002



Source: Sample of 1,960,121 fee-for-service beneficiaries selected by RTI from mid-2003 EDB. The race/ethnicity variable is the result of running the algorithm on those same beneficiaries. The claims examined were for calendar year 2002.

In 2002, an estimated 381,000, or just over one percent of Medicare fee-for-service beneficiaries, were discharged from a hospital with a diagnosis of cerebrovascular disease. Their mean length of stay was four and a half days, and the mean payment made by Medicare for that hospitalization was $5,420. Black males and females had the highest percentage of beneficiaries with a cerebrovascular disease discharge, and A/PI males and females had the lowest by far, as shown in Figure 45. The proportion of Black males was about 50 percent higher than for A/PI males, and Black females had a proportion that was twice as high as A/PI females.

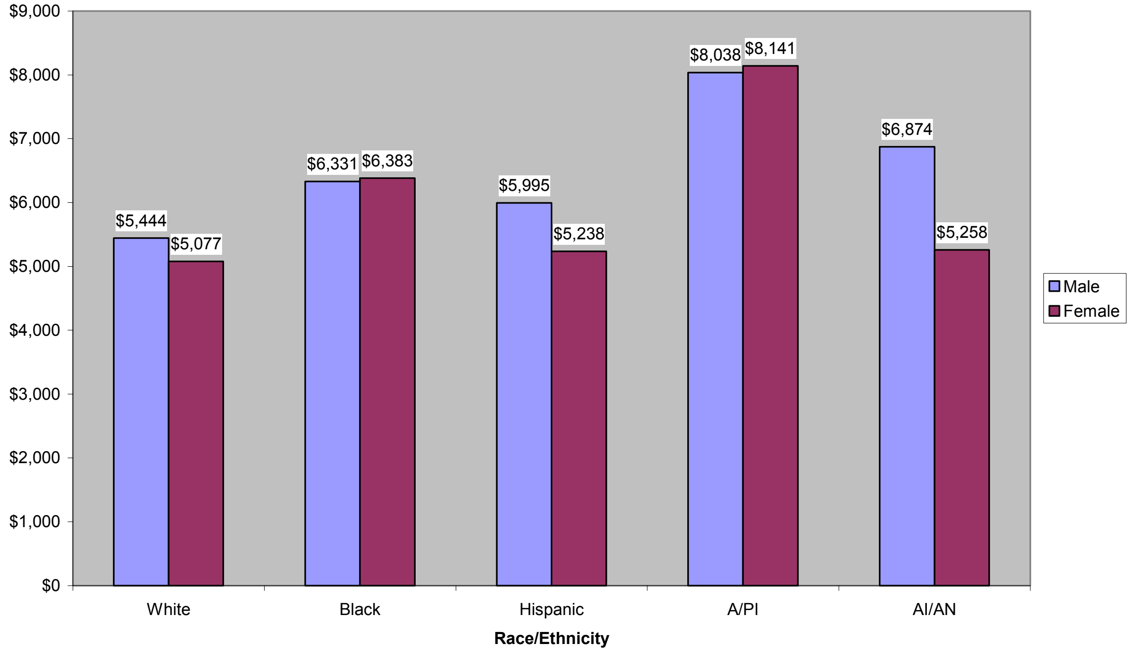
Figure 45
Percentage of Medicare fee-for-service beneficiaries with a hospital discharge diagnosis of cerebrovascular disease by sex and race/ethnicity: calendar year 2002



Source: Sample of 1,960,121 fee-for-service beneficiaries selected by RTI from mid-2003 EDB. The race/ethnicity variable is the result of running the algorithm on those same beneficiaries. The claims examined were for calendar year 2002.

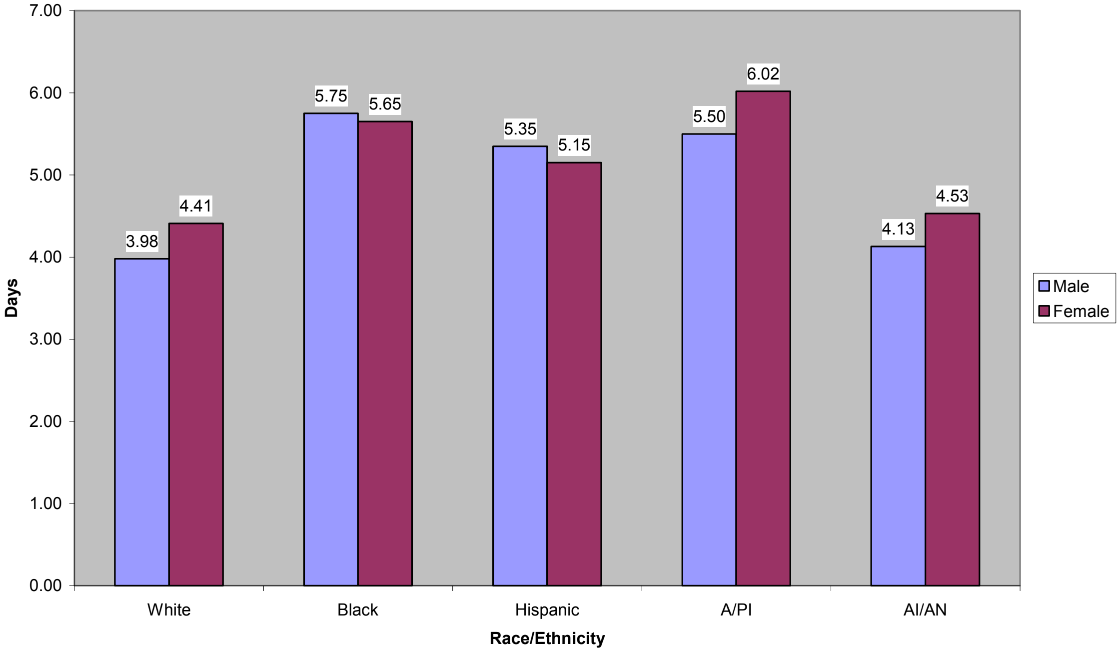
As with heart disease discharge diagnoses, Figure 46 shows that male and female A/PIs had the highest mean Medicare payment for a hospital discharge of cerebrovascular disease, and male and female Whites had the lowest by 25 and 35 percent less, respectively. The situation for the mean length of hospital stay was not as clear. What is clear from Figure 47 is that White males and females had the shortest lengths of stay while the longest for females belonged to the Hispanic group and, for males, to the Black group. The difference in mean length of stay was as much as a day and a half for these extremes.

Figure 46
Mean payment per Medicare fee-for-service beneficiary with a hospital discharge for a diagnosis of cerebrovascular disease by sex and race/ethnicity: calendar year 2002



Source: Sample of 1,960,121 fee-for-service beneficiaries selected by RTI from mid-2003 EDB. The race/ethnicity variable is the result of running the algorithm on those same beneficiaries. The claims examined were for calendar year 2002.

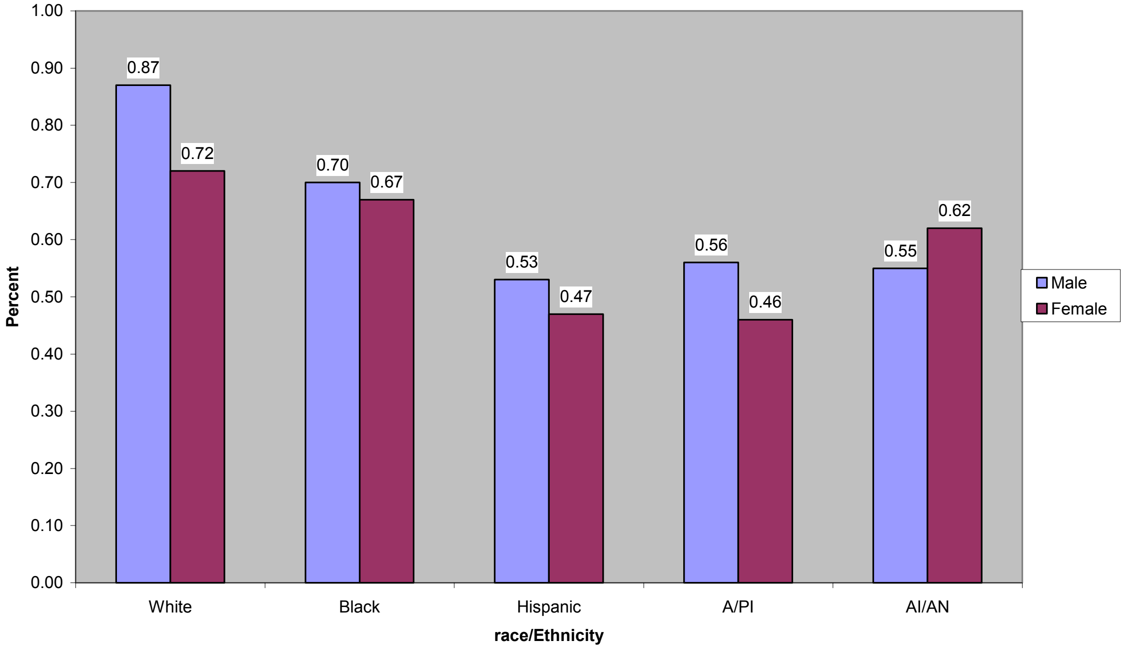
Figure 47
Mean length of hospital stay for Medicare fee-for-service beneficiaries with a discharge diagnosis of cerebrovascular disease by sex and race/ethnicity: calendar year 2002



Source: Sample of 1,960,121 fee-for-service beneficiaries selected by RTI from mid-2003 EDB. The race/ethnicity variable is the result of running the algorithm on those same beneficiaries. The claims examined were for calendar year 2002.

Almost 237,000 or three-quarters of one percent of hospital discharges for Medicare fee-for-service beneficiaries in 2002 had a diagnosis of malignant neoplasm. The mean length of stay was six days and the mean payment made for such a discharge was $10,438. Overall, a larger proportion of males than females had hospital discharges with a malignant neoplasm diagnosis. Figure 48 shows that a greater proportion of males had malignant neoplasm discharges than females in all the race/ethnic groups but AI/AN. It is clear from the figure that White males and females had the highest proportion of these discharges, and that Hispanic and A/PI males and females had the lowest.

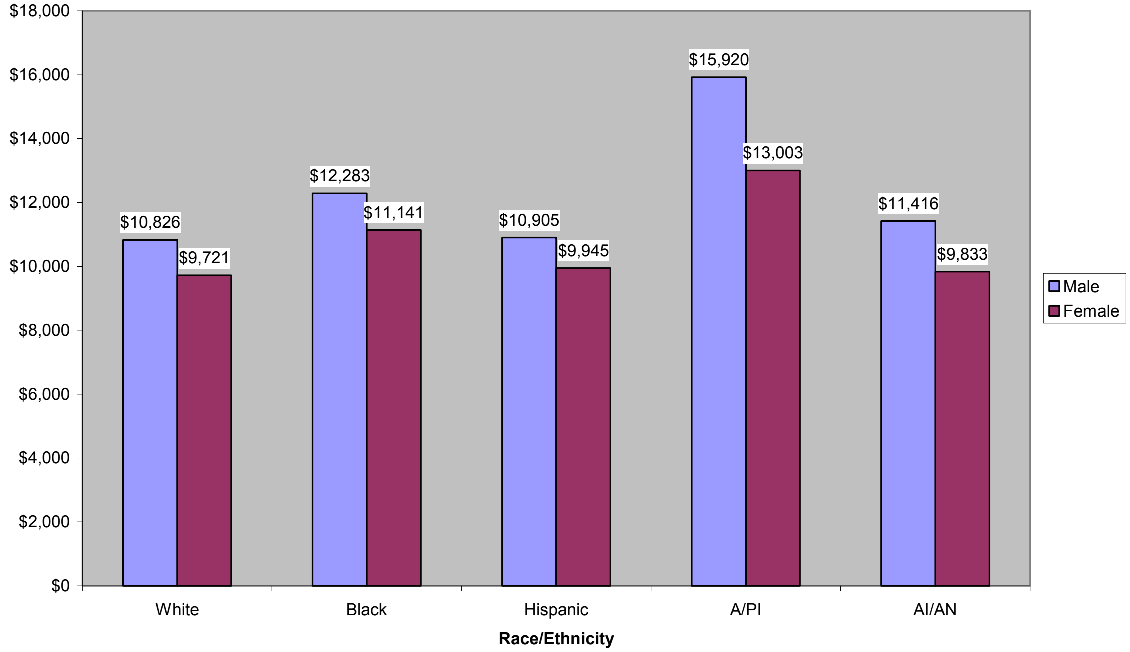
Figure 48
Percentage of Medicare fee-for-service beneficiaries with hospital discharge diagnosis of malignant neoplasm by sex and race/ethnicity: calendar year 2002



Source: Sample of 1,960,121 fee-for-service beneficiaries selected by RTI from mid-2003 EDB. The race/ethnicity variable is the result of running the algorithm on those same beneficiaries. The claims examined were for calendar year 2002.

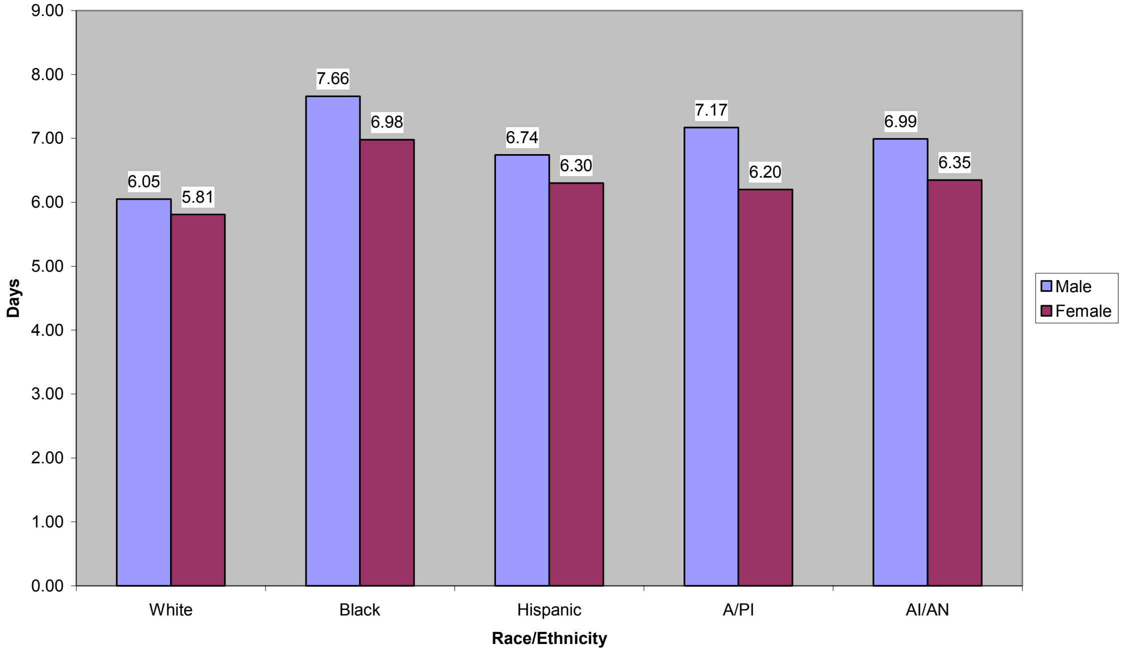
Figure 49 presents the mean payment per malignant neoplasm discharge by sex and race/ethnicity in 2002. A very similar pattern exists with respect to payments for this diagnosis as existed with the other diagnoses thus far. Across all of the race/ethnic groups, males had a higher mean payment from Medicare than females. White males and females had the lowest mean payment across the race/ethnic groups, and the A/PI group, despite their low rate of malignant neoplasm discharge diagnosis, had the highest by a considerable amount—nearly 50 and 35 percent more than for White males and females, respectively. A fairly similar pattern of mean length of hospital stay in days is displayed in Figure 50. Males had a slightly higher mean number of days for their stays than females, but the differential was about the same across the racial/ethnic groups. Black beneficiaries had the longest stays and the White had the shortest by about a day and a half for males and a day for females.

Figure 49
Mean payment for Medicare fee-for-service beneficiaries with hospital discharge diagnosis of malignant neoplasm by sex and race/ethnicity: calendar year 2002



Source: Sample of 1,960,121 fee-for-service beneficiaries selected by RTI from mid-2003 EDB. The race/ethnicity variable is the result of running the algorithm on those same beneficiaries. The claims examined were for calendar year 2002.

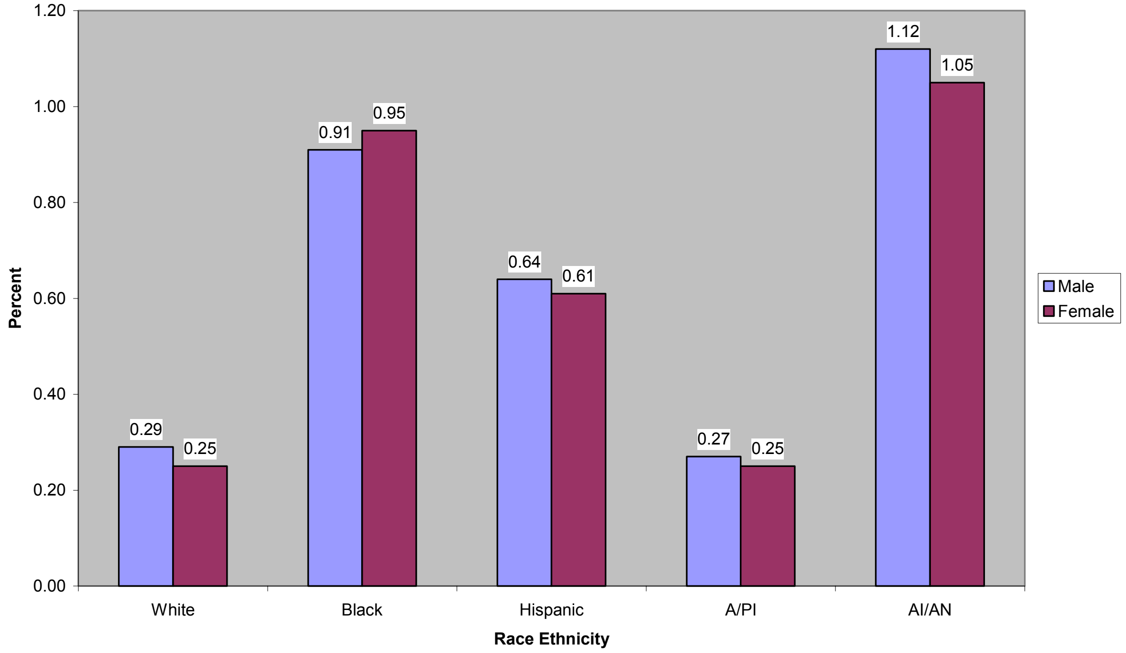
Figure 50
Mean length of stay for Medicare fee-for-service beneficiaries with a hospital discharge diagnosis of malignant neoplasm by sex and race/ethnicity: calendar year 2002



Source: Sample of 1,960,121 fee-for-service beneficiaries selected by RTI from mid-2003 EDB. The race/ethnicity variable is the result of running the algorithm on those same beneficiaries. The claims examined were for calendar year 2002.

Of the chronic conditions with hospital discharges in 2002 that we have studied among Medicare fee-for-service beneficiaries, diabetes had the smallest number, barely more than 113,000 or just over one-third of one percent of enrollees. The mean payment for diabetes discharges was $6,718, and the mean length of stay was just slightly over six days. The rate of hospitalization for diabetes differed very little by sex but considerably by race/ethnicity as evidenced in Figure 51. White and A/PI males and females had the lowest proportion of hospitalization for diabetes among Medicare enrollees, but AI/AN and Black males and females had the highest rate—more than three times higher. Hispanic males and females fell in the middle with more than twice the rate of hospitalization for diabetes as White and A/PI beneficiaries.

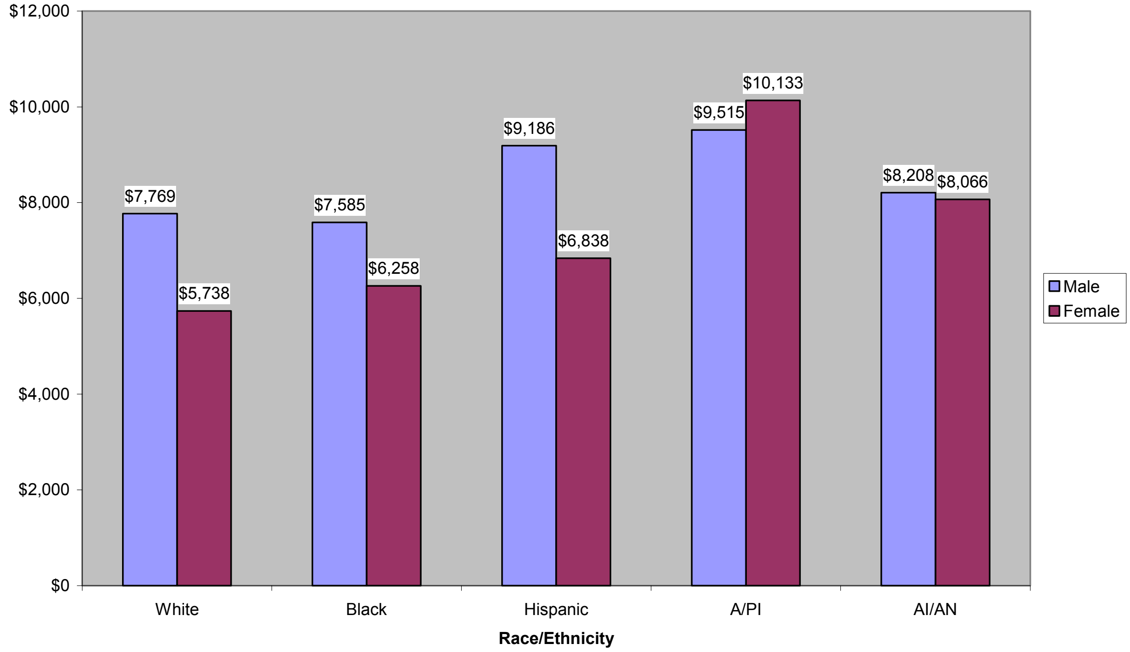
Figure 51
Percentage of Medicare fee-for-service beneficiaries with hospital discharge diagnosis of diabetes by sex and race/ethnicity: calendar year 2002



Source: Sample of 1,960,121 fee-for-service beneficiaries selected by RTI from mid-2003 EDB. The race/ethnicity variable is the result of running the algorithm on those same beneficiaries. The claims examined were for calendar year 2002.

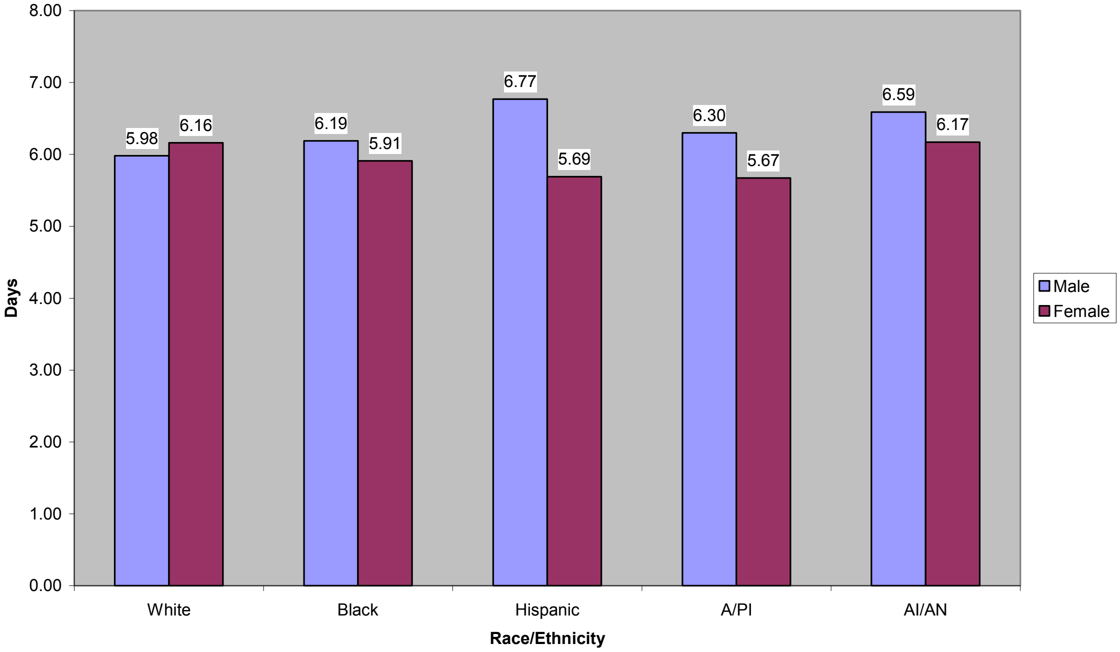
As with the other hospital discharges, Figure 52 shows that A/PI male and female Medicare fee-for-service beneficiaries with a discharge diagnosis of diabetes had the highest mean payments, but Black males and White females had the lowest. As can be seen from Figure 53**,** with the exception of the White group, males had a longer average length of stay in the hospital for diabetes. Among Hispanic beneficiaries, it was more than a day longer on average and for A/PI it was more than a half-day longer.

Figure 52
Mean payment for Medicare fee-for-service beneficiaries with hospital discharge diagnosis of diabetes by sex and race/ethnicity: calendar year 2002



Source: Sample of 1,960,121 fee-for-service beneficiaries selected by RTI from mid-2003 EDB. The race/ethnicity variable is the result of running the algorithm on those same beneficiaries. The claims examined were for calendar year 2002.

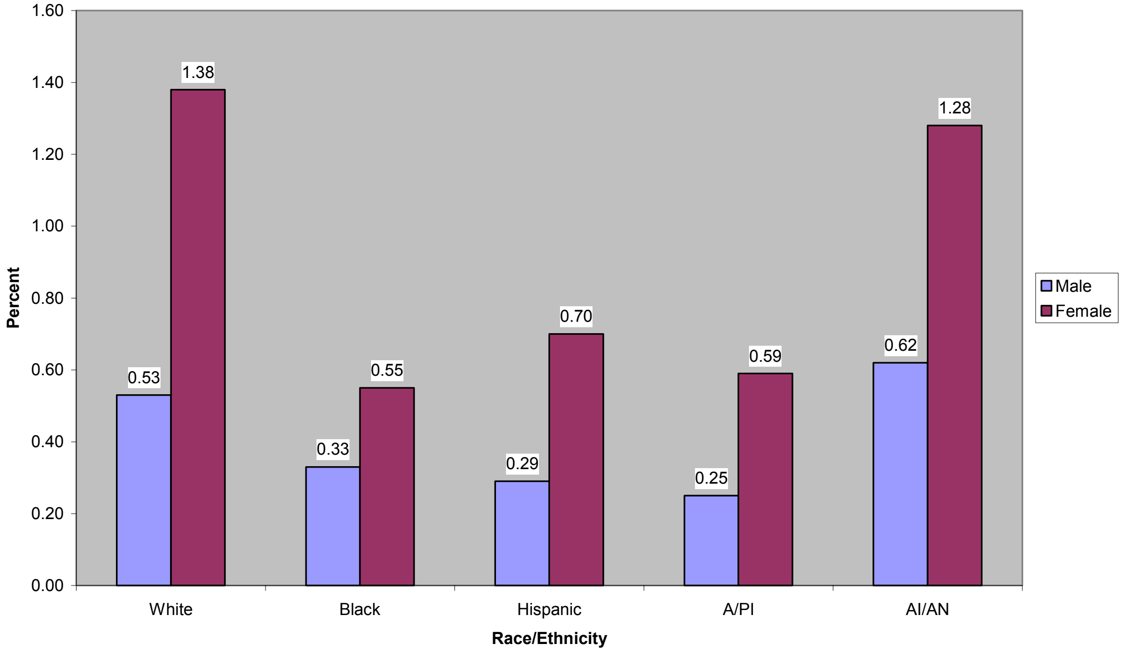
Figure 53
Mean length of hospital stay for hospital discharge diagnosis of diabetes by sex and race/ethnicity



Source: Sample of 1,960,121 fee-for-service beneficiaries selected by RTI from mid-2003 EDB. The race/ethnicity variable is the result of running the algorithm on those same beneficiaries. The claims examined were for calendar year 2002.

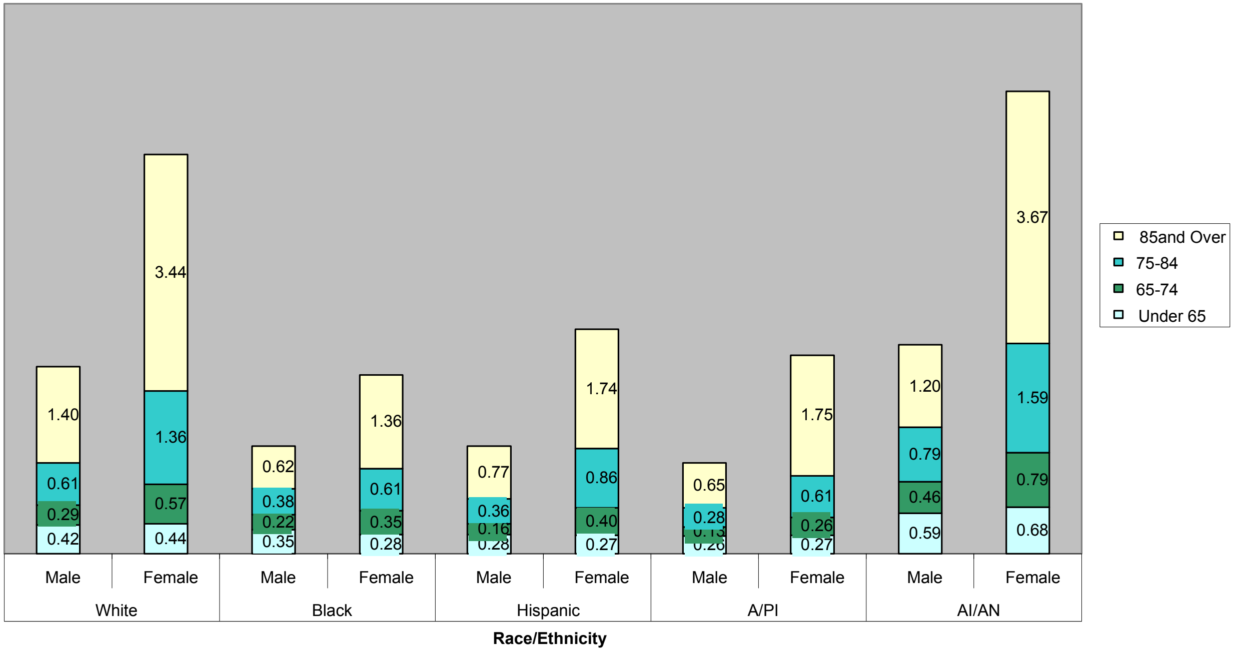
Just slightly fewer than 290,000 or nine-tenths of one percent of Medicare fee-for-service beneficiaries had a hospital discharge for diagnosis of fracture in 2002. The percentage of females that had hospital discharges with a fracture diagnoses was 250 percent higher than for males. The proportion of beneficiaries with fractures rose dramatically with age for both sexes. The percentage among beneficiaries 85 years of age and older was at least twice that for those 75 to 84 years of age. The overall mean Medicare payment for a hospital stay with a diagnosis of fracture was $6,832, and the mean length of stay was five and a half days. Figure 54 contains the distribution of fracture discharges by sex and race/ethnicity. It is clear from the figure that White and IA/AN beneficiaries had the highest proportions with fractures for both sexes, and further, that a higher proportion of females had fracture discharges than males in every racial/ethnic group**.** Figure 55 adds age group to the distribution of fractures by sex and racial/ethnic group. It demonstrates that hospital discharges for a diagnosis of fractures more commonly occurred among older beneficiaries in every race/ethnicity, but especially among White and AI/AN females.

Figure 54
Percentage of Medicare fee-for-service beneficiaries with hospital discharge for fracture diagnosis by sex and race/ethnicity: calendar year 2002



Source: Sample of 1,960,121 fee-for-service beneficiaries selected by RTI from mid-2003 EDB. The race/ethnicity variable is the result of running the algorithm on those same beneficiaries. The claims examined were for calendar year 2002.

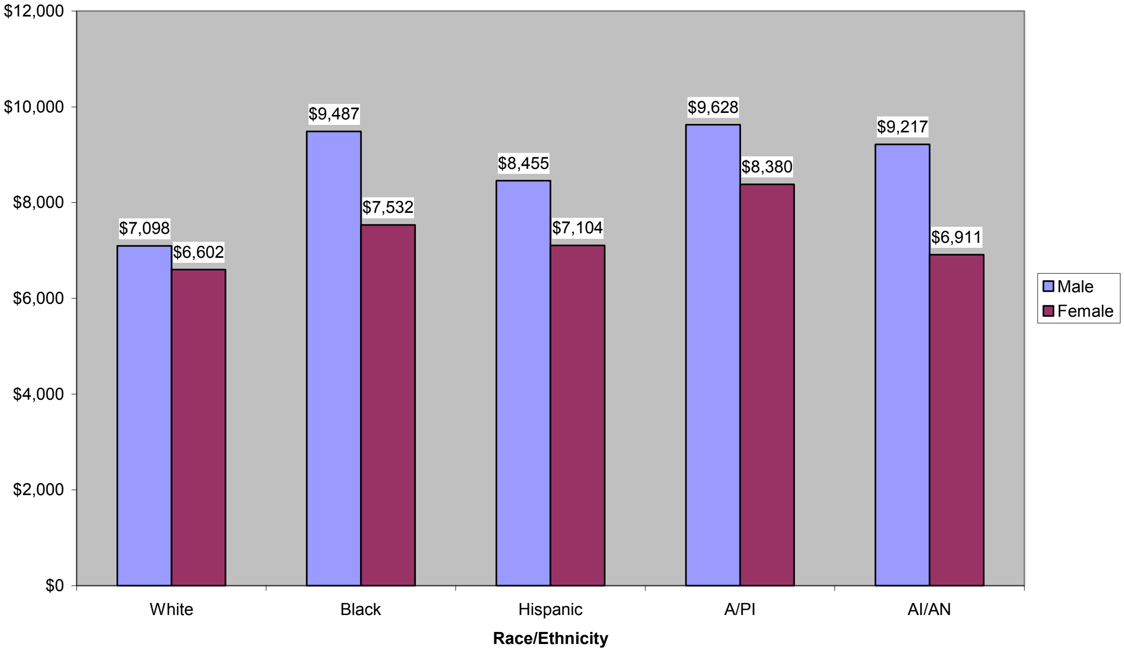
Figure 55
Percentage of Medicare fee-for-service beneficiaries with hospital discharge diagnosis of fracture by age group, sex, and race/ethnicity: calendar year 2002



Source: Sample of 1,960,121 fee-for-service beneficiaries selected by RTI from mid-2003 EDB. The race/ethnicity variable is the result of running the algorithm on those same beneficiaries. The claims examined were for calendar year 2002.

White beneficiaries of both sexes had the lowest mean Medicare payment per beneficiary with a fracture diagnosis hospital discharge, and Figure 56 also shows that the highest payments for both sexes were again among the A/PI group. Figure 57 displays the mean length in days of a hospital stay with a discharge diagnosis of fracture by sex and race/ethnicity. It indicates that for all racial/ethnic groups, males had slightly longer stays than females. In addition, the figure shows that AI/AN and A/PI beneficiaries of both sexes had the longest stays, while White of both sexes had the shortest. The difference was about a day for males and more than a half-day for females.

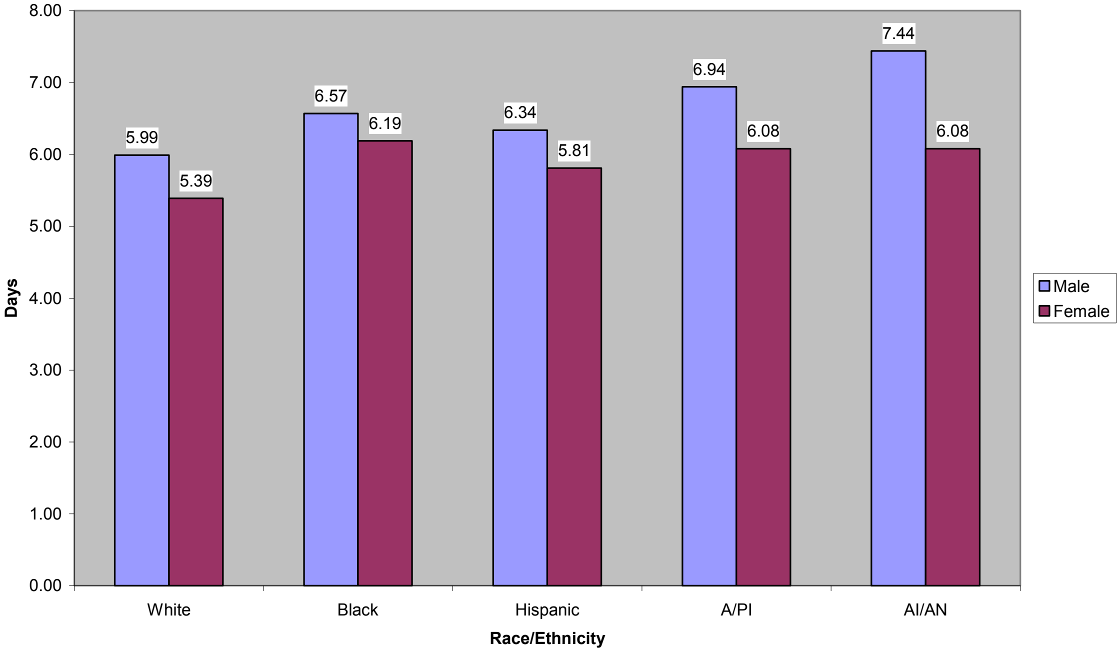
Figure 56
Mean payment for Medicare fee-for-service beneficiaries with hospital discharge diagnosis of fracture by sex and race/ethnicity: calendar year 2002



Source: Sample of 1,960,121 fee-for-service beneficiaries selected by RTI from mid-2003 EDB. The race/ethnicity variable is the result of running the algorithm on those same beneficiaries. The claims examined were for calendar year 2002.

Figure 57

Mean length of stay for Medicare fee-for-service beneficiaries with hospital discharge diagnosis of fracture by sex and race/ethnicity: calendar year 2002

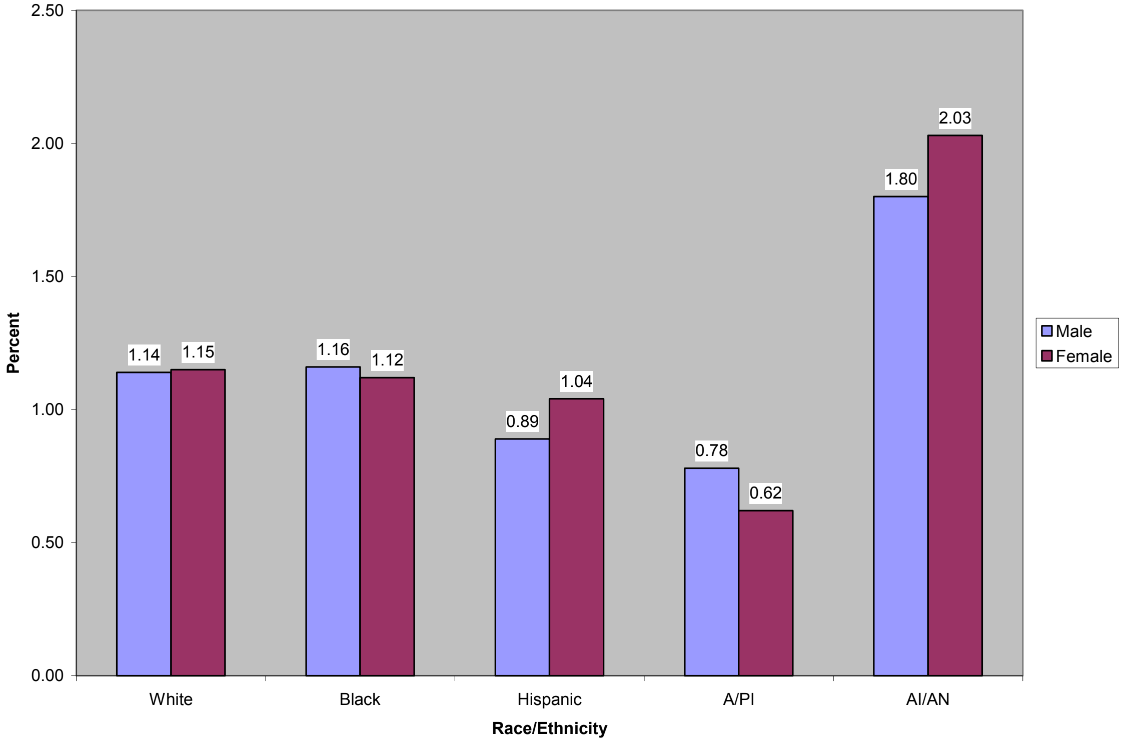


Source: Sample of 1,960,121 fee-for-service beneficiaries selected by RTI from mid-2003 EDB. The race/ethnicity variable is the result of running the algorithm on those same beneficiaries. The claims examined were for calendar year 2002.

The last discharge diagnosis we examined was pneumonia. Nearly 360,000 or just over one percent of Medicare fee-for-service beneficiaries had a hospital discharge for pneumonia in 2002. The mean payment per hospital discharge for pneumonia was $5,471 and the mean length of stay was just under 6 days. There is no overall difference between males and females in the proportion with a hospital stay for pneumonia.

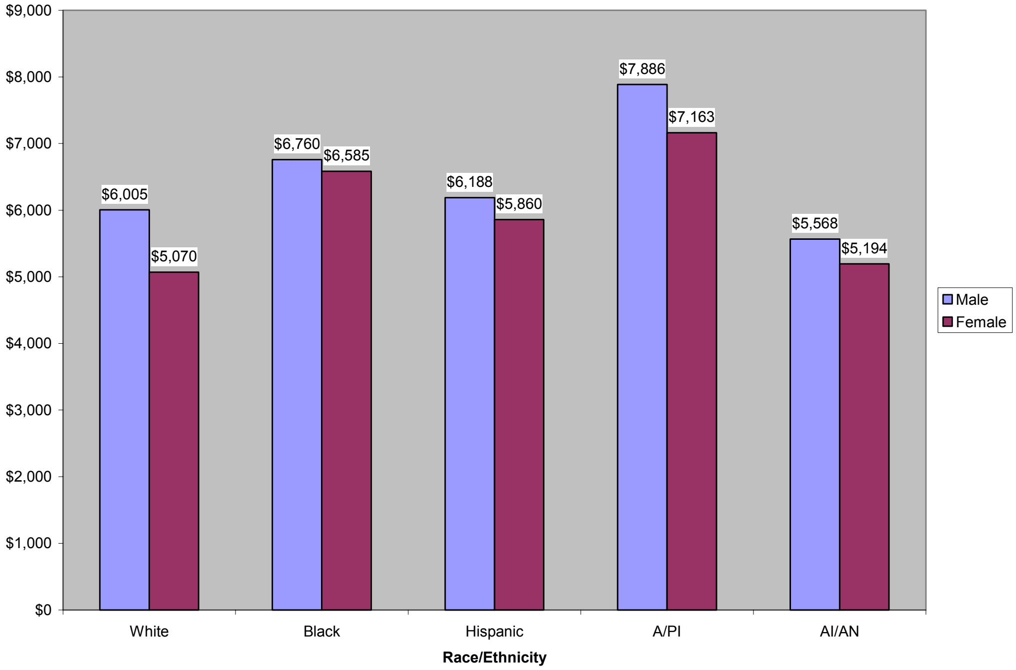
Figure 58 presents the distribution of hospital discharges for pneumonia by sex and racial/ethnic group. It is clear from the figure that the highest rate of discharge with a diagnosis of pneumonia occurred among AI/AN group in both sexes, while the lowest was among A/PI of both sexes also. However, Figure 59 indicates that the A/PI beneficiaries had the highest mean payment per person with a discharge diagnosis of pneumonia, and the AI/AN group had the lowest mean payment, about $2,000 lower. While AI/AN beneficiaries had the highest proportion of beneficiaries with a pneumonia discharge diagnosis, Figure 60 indicates that the AI/AN had the shortest mean length of hospital stay. Hispanic beneficiaries had the longest mean length of stay, about one and a half days longer on average than the AI/AN group.

Figure 58
Percentage of Medicare fee-for-service beneficiaries with hospital discharge diagnosis of pneumonia by sex and race/ethnicity: calendar year 2002



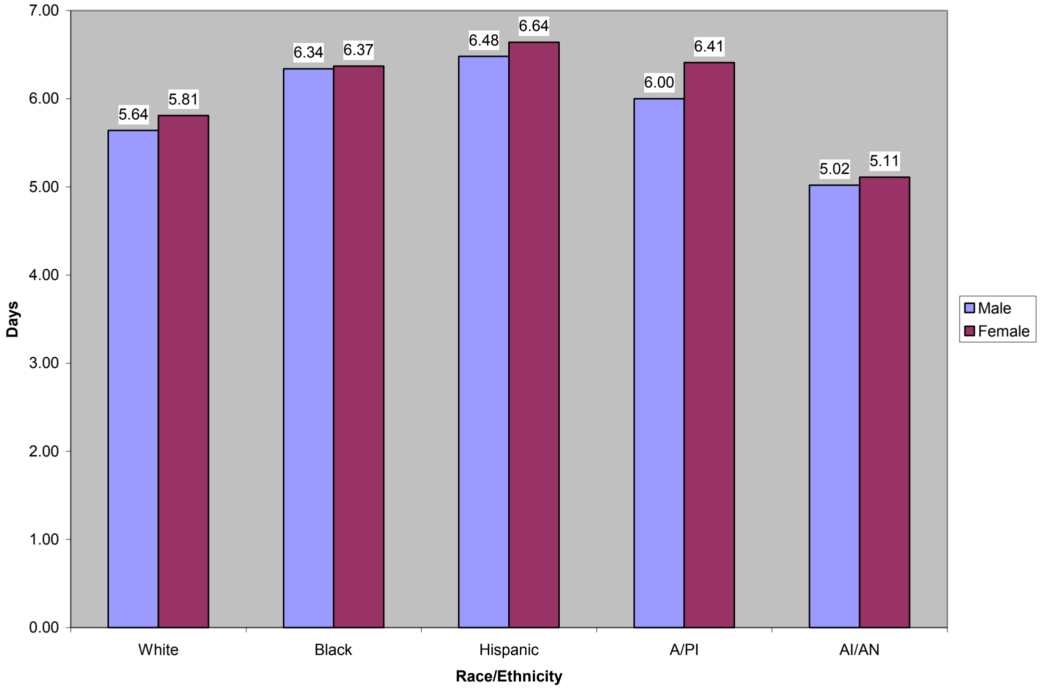
Source: Sample of 1,960,121 fee-for-service beneficiaries selected by RTI from mid-2003 EDB. The race/ethnicity variable is the result of running the algorithm on those same beneficiaries. The claims examined were for calendar year 2002.

Figure 59
Mean payment for Medicare fee-for-service beneficiaries with hospital discharge diagnosis of pneumonia by sex and race/ethnicity: calendar year 2002



Source: Sample of 1,960,121 fee-for-service beneficiaries selected by RTI from mid-2003 EDB. The race/ethnicity variable is the result of running the algorithm on those same beneficiaries. The claims examined were for calendar year 2002.

Figure 60
Mean length of stay for Medicare fee-for-service beneficiaries with hospital discharge diagnosis of pneumonia by sex and race/ethnicity: calendar year 2002



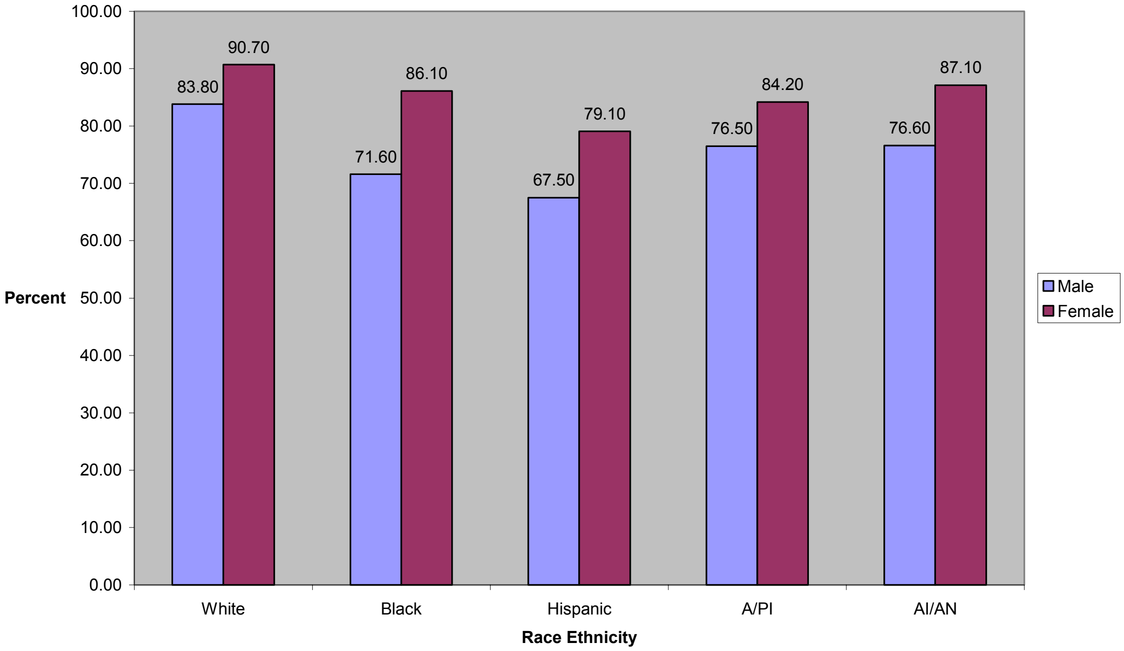
Source: Sample of 1,960,121 fee-for-service beneficiaries selected by RTI from mid-2003 EDB. The race/ethnicity variable is the result of running the algorithm on those same beneficiaries. The claims examined were for calendar year 2002.

4.6 Utilization by Type of Service

Medicare beneficiaries have coverage for the receipt of a wide array of health service types. These include inpatient hospital care, outpatient clinic and emergency room services, physician and other professional services, home health care, skilled nursing facility care, durable medical equipment, and hospice care. We examined the use of several different types of services to learn whether there were racial/ethnic group differences in patterns of use. The complete set of tables from which this analysis was prepared is contained in Appendix F.

Nearly 86 percent of Medicare fee-for-service beneficiaries had a claim for at least one type of service in 2002 with a mean payment of $4,803 for those with claims. More than 89 percent of females had at least one claim, about eight percent more than males. The mean amount of payments made by Medicare for males with claims was $5,122, about $540 more than for females. Figure 61 presents the proportions of males and females who had a claim for any type of service in 2002, according to race/ethnicity. As the figure shows, the proportion of females who had at least one Medicare claim was larger than the proportion of males with a claim for all racial/ethnic groups. The figure also shows that Hispanic males and females had the lowest proportion of users while White males and females had the highest.

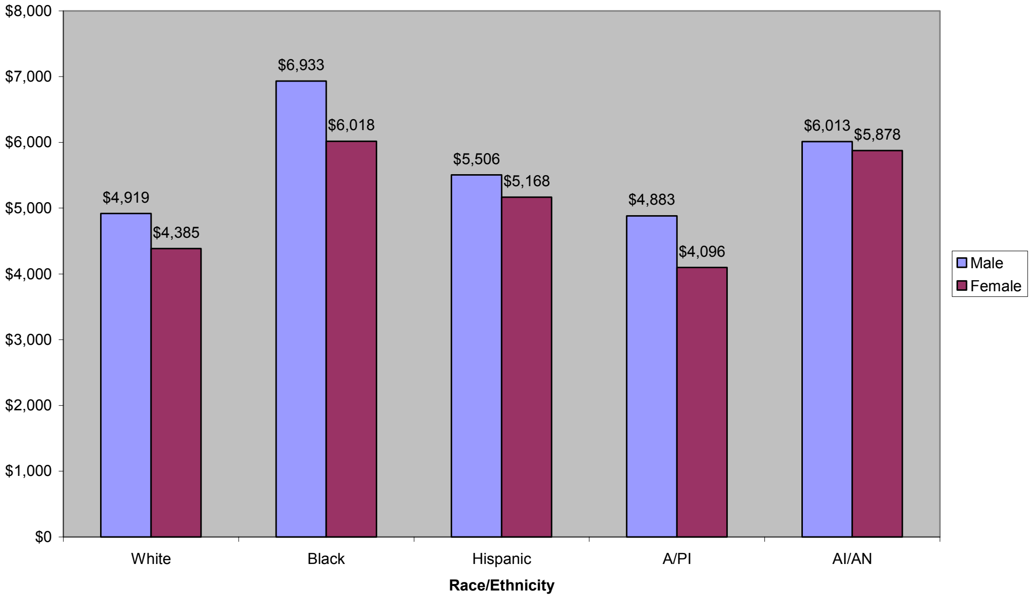
Figure 61
Percentage of beneficiaries who had at least one claim for use of any type of Medicare covered service by sex and race/ethnicity: calendar year 2002



Source: Sample of 1,960,121 fee-for-service beneficiaries selected by RTI from mid-2003 EDB. The race/ethnicity variable is the result of running the algorithm on those same beneficiaries. The claims examined were for calendar year 2002.

Figure 62 presents the mean payments made by Medicare for persons with claims by sex and race/ethnicity. The figure shows that the lowest mean payments for service use made by Medicare were for A/PI and White males and females, and the highest mean payments were made for Black and AI/AN males and females. Across every racial/ethnic group, males had higher average payments than did females.

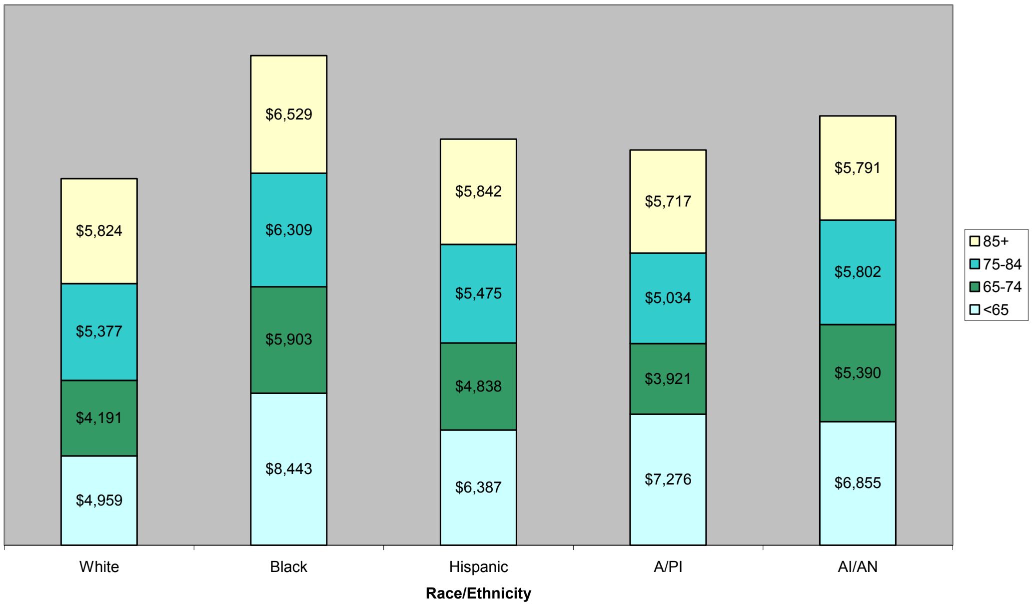
Figure 62
Mean annual payment for beneficiaries who had at least one claim for use of any type of Medicare covered service by sex and race/ethnicity: calendar year 2002



Source: Sample of 1,960,121 fee-for-service beneficiaries selected by RTI from mid-2003 EDB. The race/ethnicity variable is the result of running the algorithm on those same beneficiaries. The claims examined were for calendar year 2002.

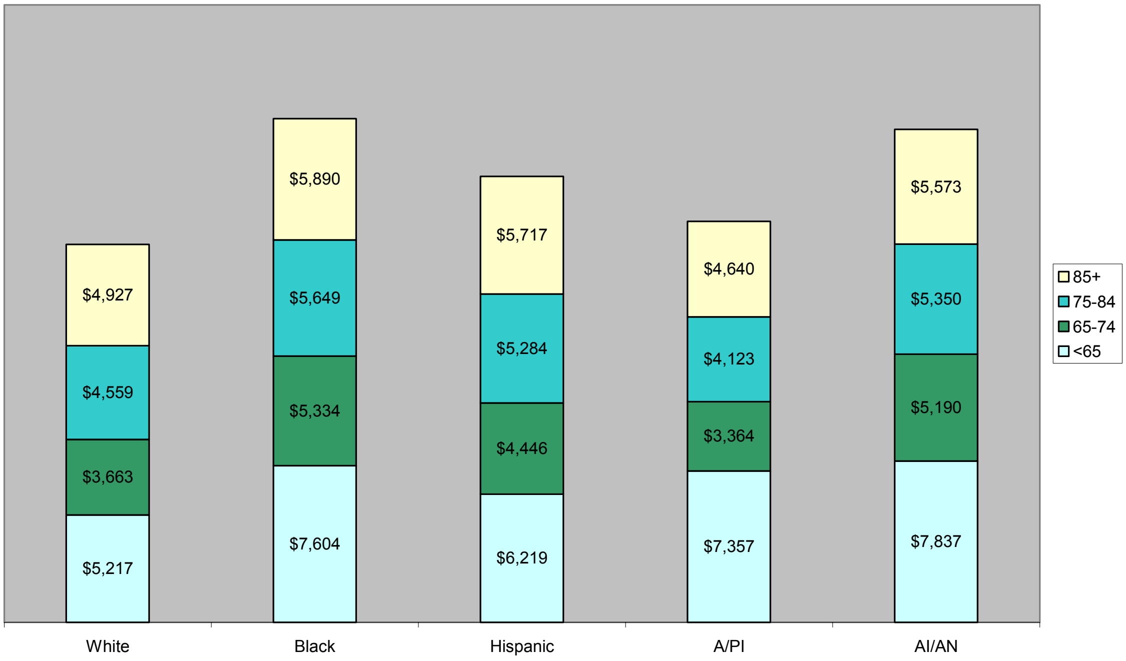
The next two figures display mean payments made across age and racial/ethnic groups separately by sex. Figure 63 shows that for males, with the exception of the White group, the largest mean payment was made for those under-65-years of age, which was comprised of the disabled and non-aged ESRD beneficiaries. With the groups starting at age 65, mean payments generally increased with age in all of the race/ethnicity categories. Figure 64 shows that much the same situation was true for females.

Figure 63
Mean annual payments for male beneficiaries with at least one claim for use of any type of Medicare covered service by age group and race/ethnicity: calendar year 2002



Source: Sample of 1,960,121 fee-for-service beneficiaries selected by RTI from mid-2003 EDB. The race/ethnicity variable is the result of running the algorithm on those same beneficiaries. The claims examined were for calendar year 2002.

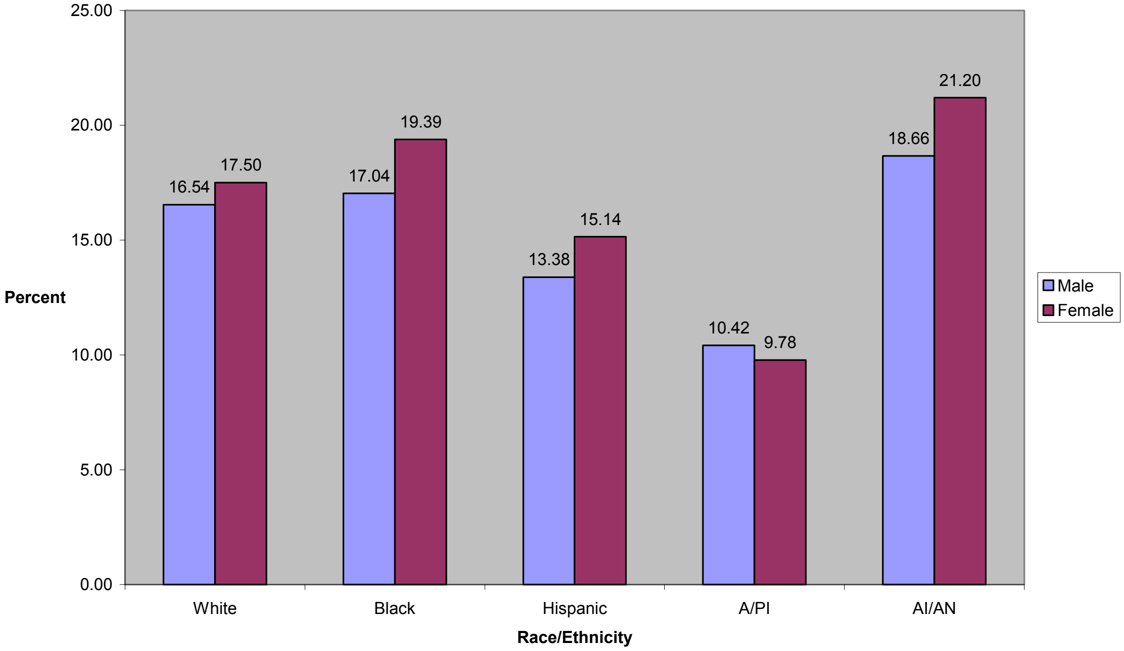
Figure 64
Mean annual payments for female Medicare beneficiaries with at least one claim for use of any type of Medicare covered service by age group and race/ethnicity: calendar year 2002



Source: Sample of 1,960,121 fee-for-service beneficiaries selected by RTI from mid-2003 EDB. The race/ethnicity variable is the result of running the algorithm on those same beneficiaries. The claims examined were for calendar year 2002.

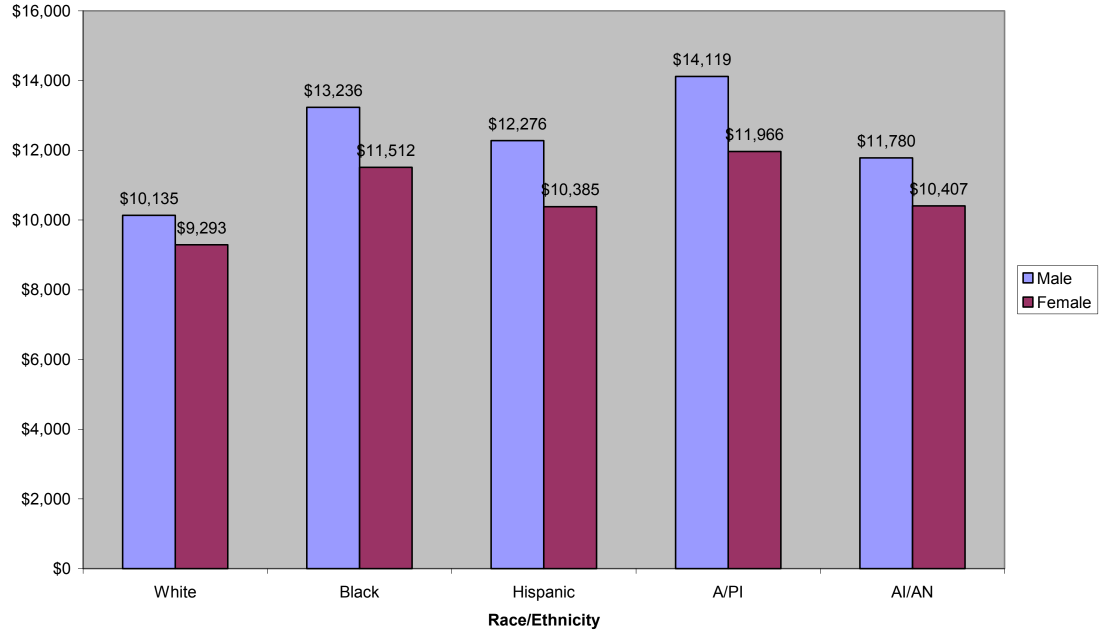
The first individual type of service we examined was inpatient hospital admissions. Nearly 17 percent of Medicare fee-for-service beneficiaries had one or more hospital stays in 2002, with a mean payment by Medicare of $10, 447 per discharge. Overall, while a slightly higher proportion of females had at least one hospital stay compared to males, the mean payment per stay for males was considerably more than for females. Figure 65 shows that the overall pattern of a larger proportion of female inpatient hospital users existed within racial/ethnic groups as well, with the sole exception of A/PI beneficiaries. Only Hispanic and A/PI beneficiaries had smaller proportions of males and females with inpatient stays than White. The overall higher mean cost per hospital stay for males was also replicated in Figure 66 across all racial/ethnic groups. While not exceptionally low relative to the other groups, White beneficiaries had the lowest mean payment per stay for both sexes.

Figure 65
Percentage of Medicare beneficiaries with at least one hospital stay by sex and race/ethnicity: calendar year 2002



Source: Sample of 1,960,121 fee-for-service beneficiaries selected by RTI from mid-2003 EDB. The race/ethnicity variable is the result of running the algorithm on those same beneficiaries. The claims examined were for calendar year 2002.

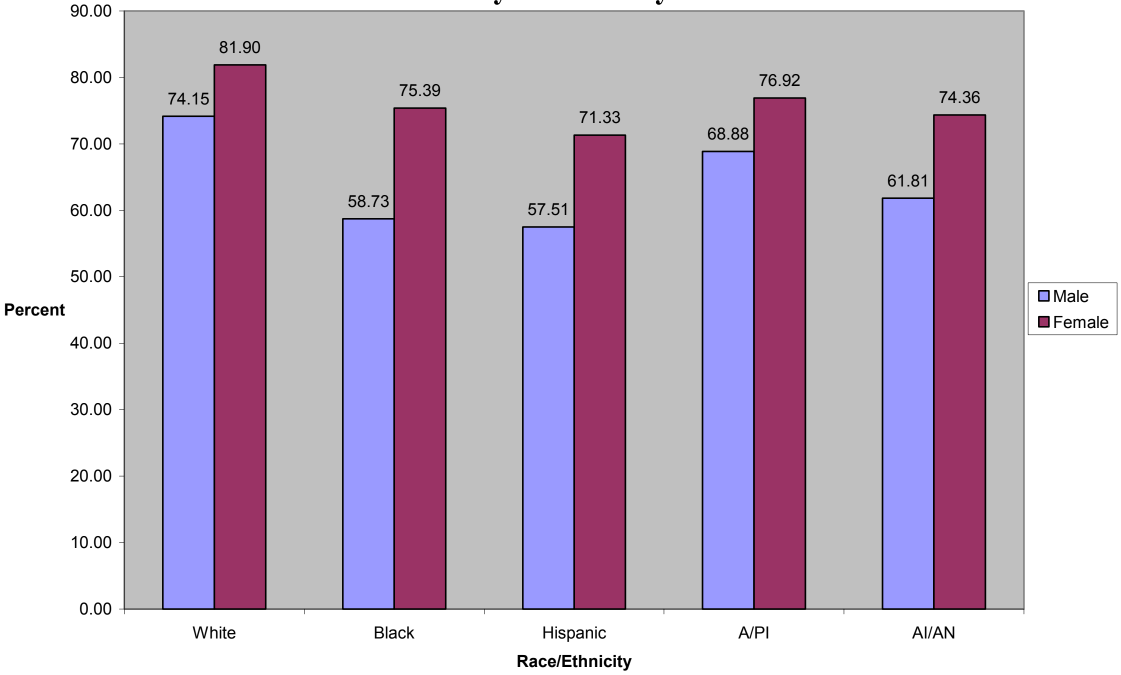
Figure 66
Mean annual payments for Medicare beneficiaries with at least one hospital stay by sex and race/ethnicity: calendar year 2002



Source: Sample of 1,960,121 fee-for-service beneficiaries selected by RTI from mid-2003 EDB. The race/ethnicity variable is the result of running the algorithm on those same beneficiaries. The claims examined were for calendar year 2002.

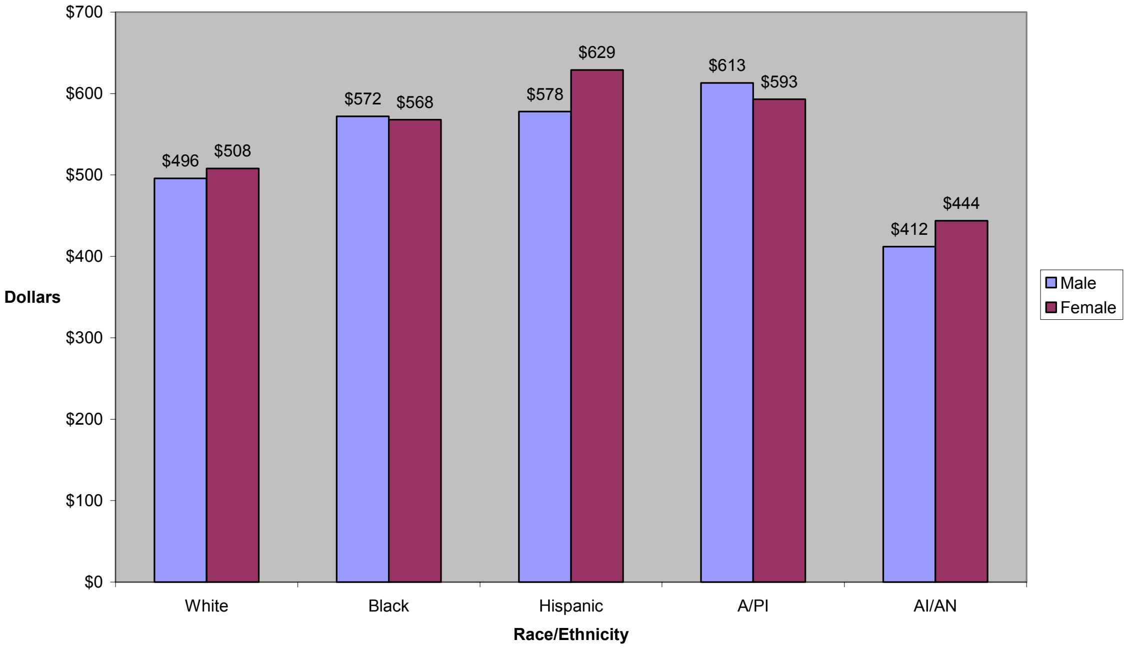
Next we examined the use of physician services. This was by far the most used type of service covered by Medicare. More than 76 percent of Medicare fee-for-service beneficiaries had one or more claims for physician services in 2002. The mean annual Medicare payment for physician services for those who used them was $517. Overall, a larger proportion of female than male Medicare beneficiaries had claims for physicians' services. Figure 67 shows that a larger proportion of females than males had physician visits across all of the race/ethnic groups as well. It is also apparent from the figure that White beneficiaries have the largest proportion of males and females with physician visits, while beneficiaries of Hispanic origin have the lowest proportions of both sexes with claims showing physician visits. Differences in the payments made for male and female beneficiaries were fairly small for White, Black, and A/PI beneficiaries, and only slightly larger for Hispanic and AI/AN, among whom females had slightly higher payments, as can be seen in Figure 68. This figure also shows that Hispanic beneficiaries who had the lowest proportion with claims for physician services had the highest mean annual payments per user for those services, while White beneficiaries who had the highest proportions with physician services had the lowest mean payments per user.

Figure 67
Percentage of Medicare beneficiaries with at least one claim for a physician visit by sex and race/ethnicity: calendar year 2002



Source: Sample of 1,960,121 fee-for-service beneficiaries selected by RTI from mid-2003 EDB. The race/ethnicity variable is the result of running the algorithm on those same beneficiaries. The claims examined were for calendar year 2002.

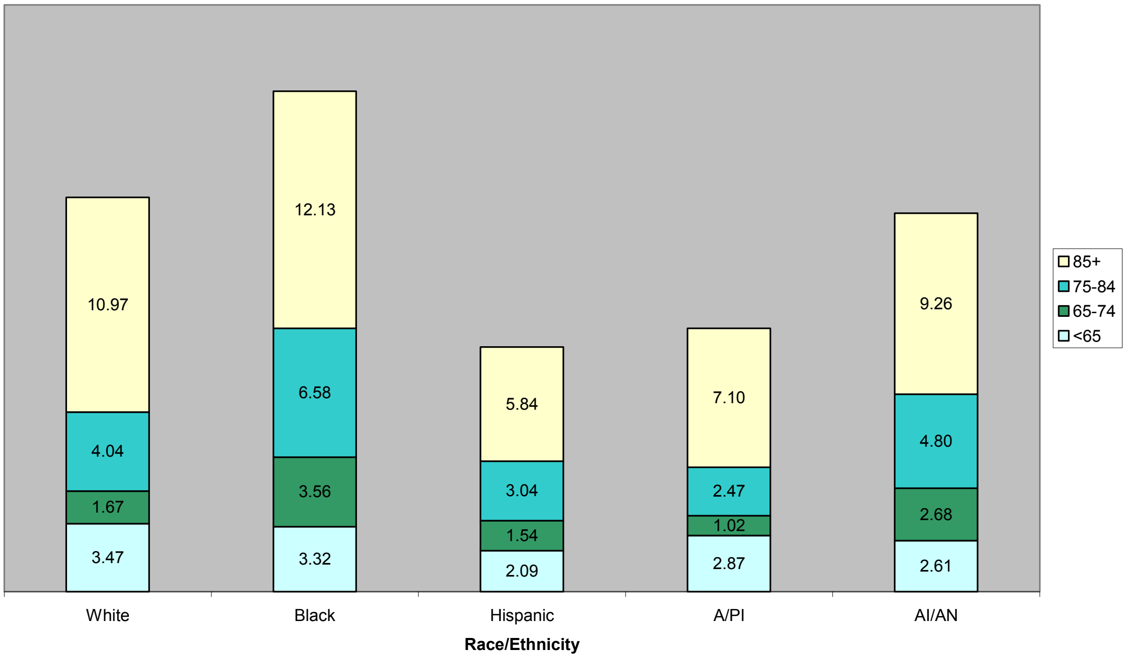
Figure 68
Mean annual payment for Medicare beneficiaries with at least one claim for a physician visit by sex and race/ethnicity: calendar year 2002



Source: Sample of 1,960,121 fee-for-service beneficiaries selected by RTI from mid-2003 EDB. The race/ethnicity variable is the result of running the algorithm on those same beneficiaries. The claims examined were for calendar year 2002.

While not among the most used types of services, skilled nursing facility services were used by more than five percent of Medicare fee-for-service beneficiaries in 2002, and very nearly used twice as often by females as males overall. The average annual payment per user in 2002 was $5,398. The proportion of males using this type of service increased dramatically with age across all race/ethnic groups, and as Figure 69 shows, the proportion of males using these services was highest for Black and White beneficiaries and lowest for Hispanic and A/PI.

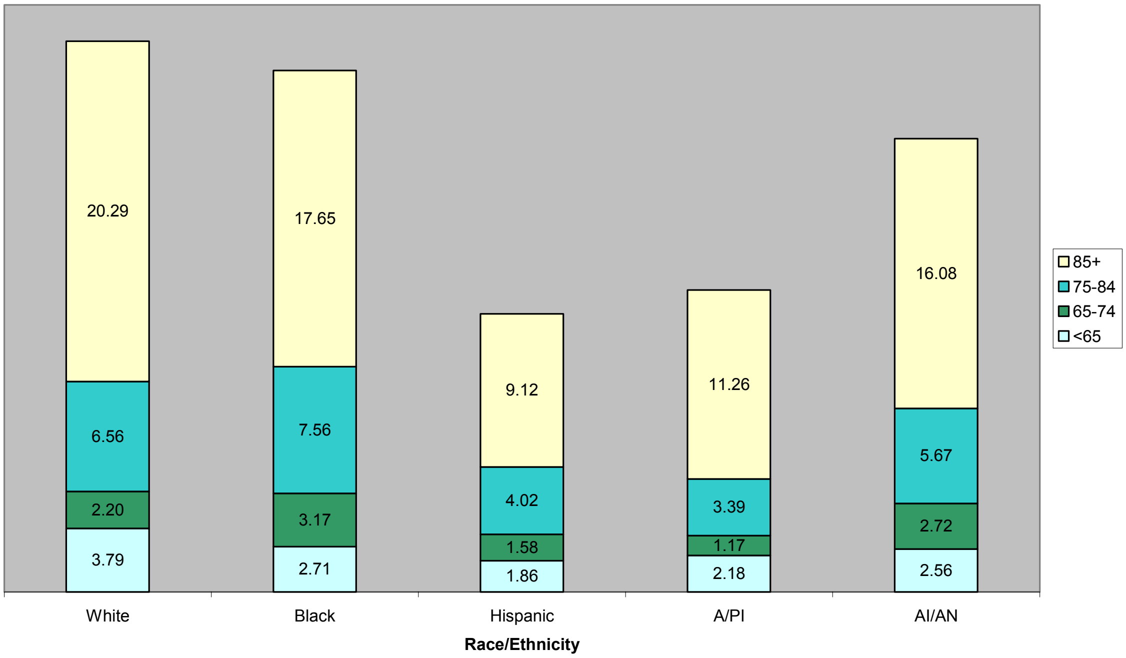
Figure 69
Percentage of male Medicare beneficiaries who used skilled nursing facility services by age group and race/ethnicity: calendar year 2002



Source: Sample of 1,960,121 fee-for-service beneficiaries selected by RTI from mid-2003 EDB. The race/ethnicity variable is the result of running the algorithm on those same beneficiaries. The claims examined were for calendar year 2002.

Figure 70 tells a similar story about the use of skilled nursing facilities by female beneficiaries. White and Black females had the highest proportion of skilled nursing facility use, and Hispanic and A/PI females had the lowest. In every racial/ethnic group, the oldest age group (85 years of age and over) had the largest proportion of users, but among female beneficiaries, the proportion more than doubled (and approached tripling) in moving from the next-oldest group (75 to 84 years) to the oldest, something it only did for White males.

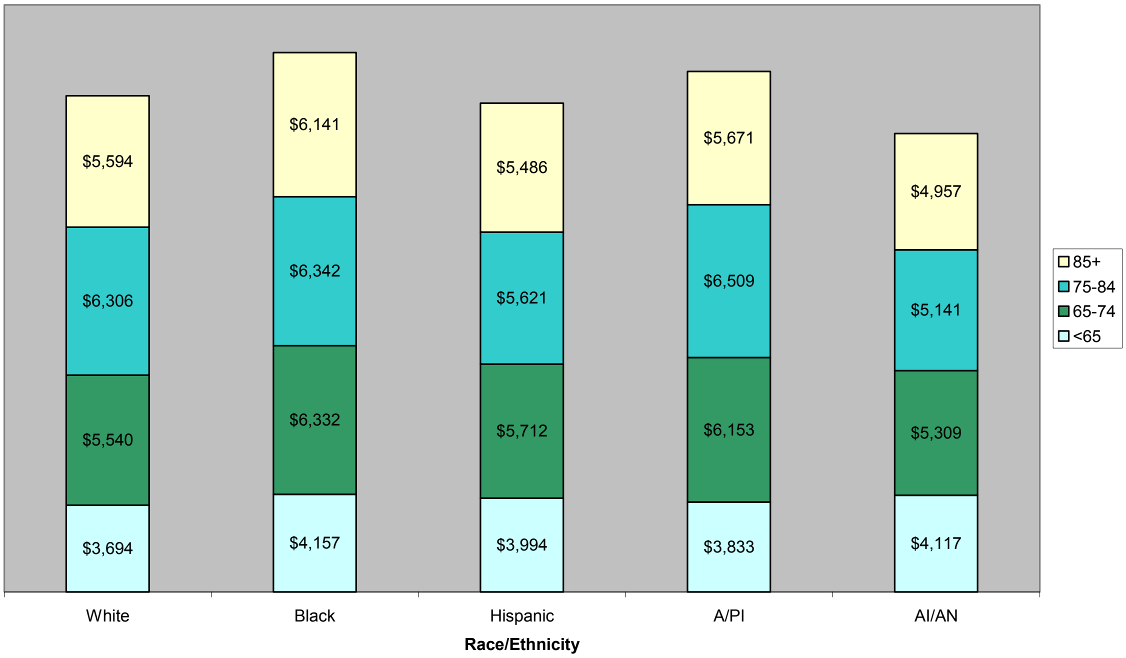
Figure 70
Percentage of female Medicare beneficiaries who used skilled nursing facility services by age group and race/ethnicity: calendar year 2002



Source: Sample of 1,960,121 fee-for-service beneficiaries selected by RTI from mid-2003 EDB. The race/ethnicity variable is the result of running the algorithm on those same beneficiaries. The claims examined were for calendar year 2002.

Figure 71 indicates that, regardless of racial/ethnic group, male beneficiaries under 65 years of age (the disabled) had the lowest payments per user. Further, this figure suggests that there was little difference in average payments for males receiving skilled nursing care across the other age groups regardless of race/ethnicity.

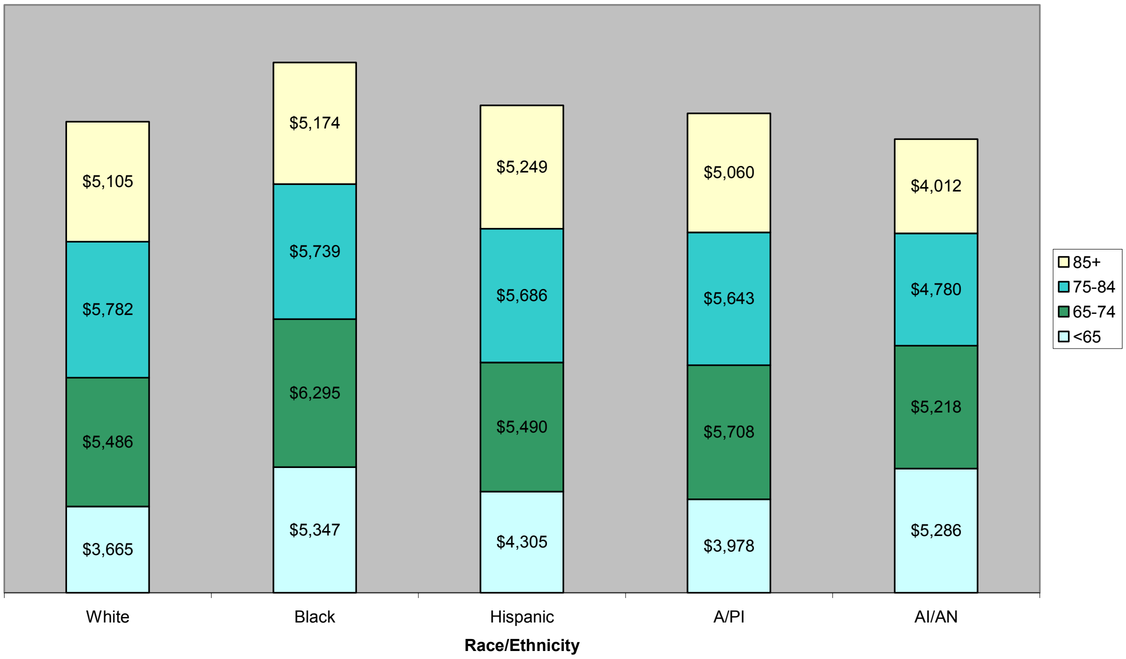
Figure 71
Mean annual payment for male Medicare beneficiaries who used skilled nursing facility services by age group and race/ethnicity: calendar year 2002



Source: Sample of 1,960,121 fee-for-service beneficiaries selected by RTI from mid-2003 EDB. The race/ethnicity variable is the result of running the algorithm on those same beneficiaries. The claims examined were for calendar year 2002.

The average annual payment for females who used skilled nursing facility services is displayed in Figure 72. Only among AI/AN females was the mean payment of the age group under 65 higher than for any other age group. In the other racial/ethnic groups, females in the 65 to 74 and 75 to 84 age groups had the highest payments for their care, and the oldest age group had the lowest mean payments.

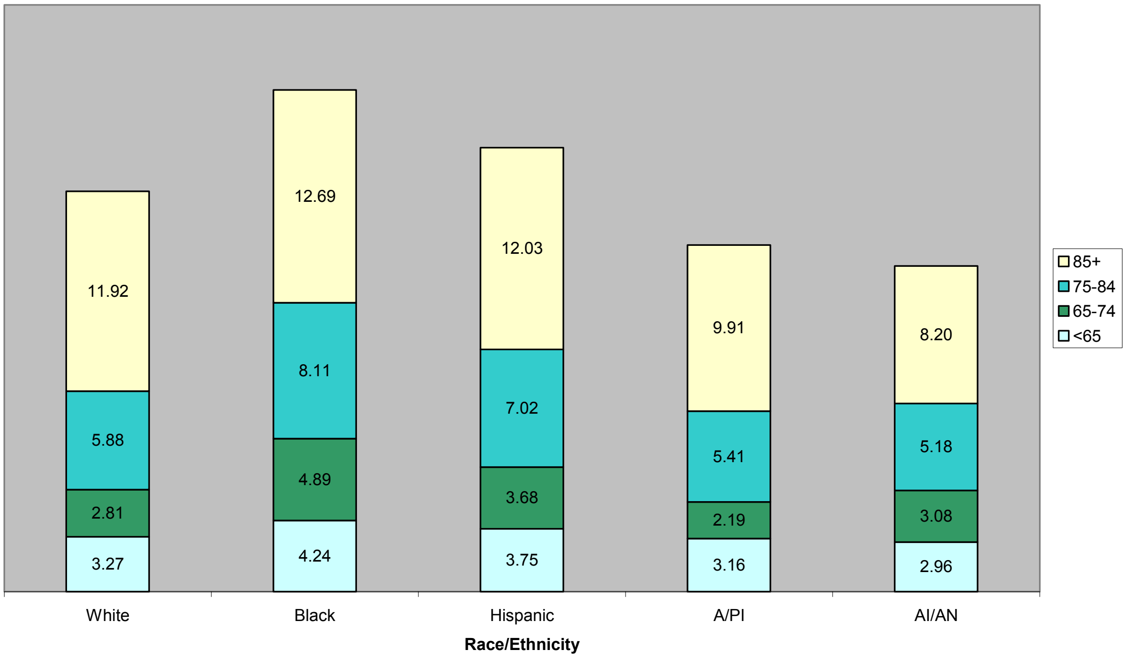
Figure 72
Mean annual payment for female Medicare beneficiaries who used skilled nursing facility services by age group and race/ethnicity: calendar year 2002



Source: Sample of 1,960,121 fee-for-service beneficiaries selected by RTI from mid-2003 EDB. The race/ethnicity variable is the result of running the algorithm on those same beneficiaries. The claims examined were for calendar year 2002.

Home health services were used by nearly seven percent of Medicare fee-for-service beneficiaries in 2002. Females used this service half again as much as males. The overall average annual payment for these services was $3,479. From Figure 73, the proportion of males using this service appeared to follow an increasing age gradient across all of the racial/ethnic groups, with use in the oldest age group from 60 percent to almost 100 percent more than in the next-oldest group. Black and Hispanic males tended to have the largest proportion of users, while A/PI and AI/AN males had the smallest.

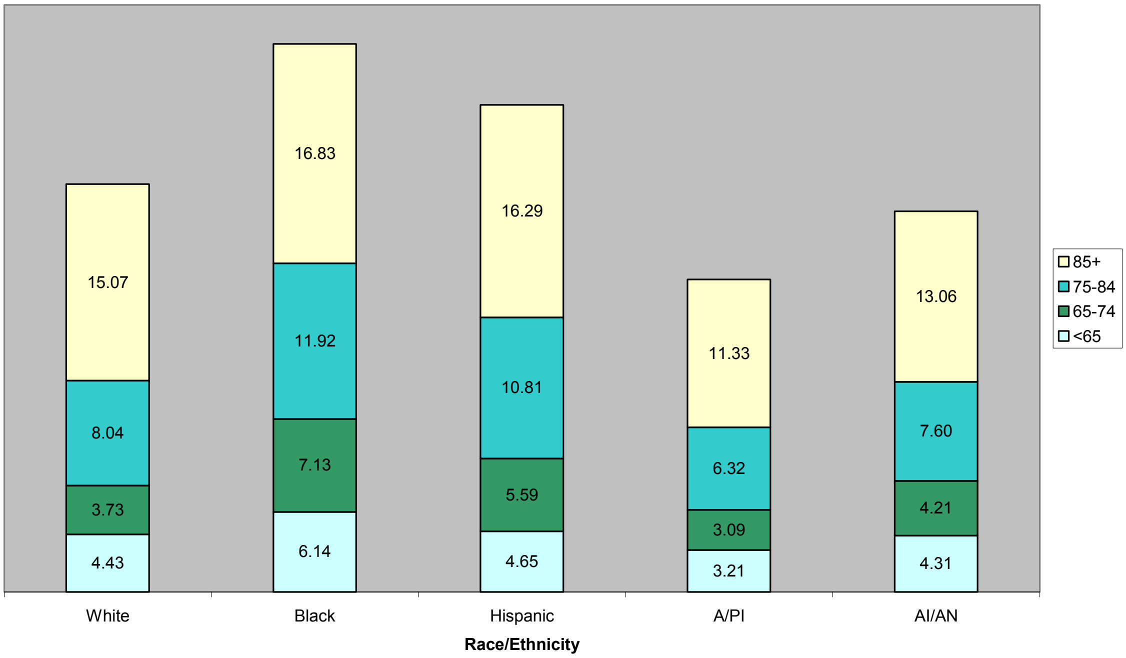
Figure 73
Percentage of male Medicare beneficiaries with home health services by age group and race/ethnicity: calendar year 2002



Source: Sample of 1,960,121 fee-for-service beneficiaries selected by RTI from mid-2003 EDB. The race/ethnicity variable is the result of running the algorithm on those same beneficiaries. The claims examined were for calendar year 2002.

Figure 74 presents the proportion of females using home health services. The situation was the same as among the males. Black and Hispanic females had the largest proportion of users, while A/PI and AI/AN females had the smallest. The proportion of females using this service followed an increasing age gradient across all of the racial/ethnic groups, with use in the oldest age group considerably more than in the next-oldest group.

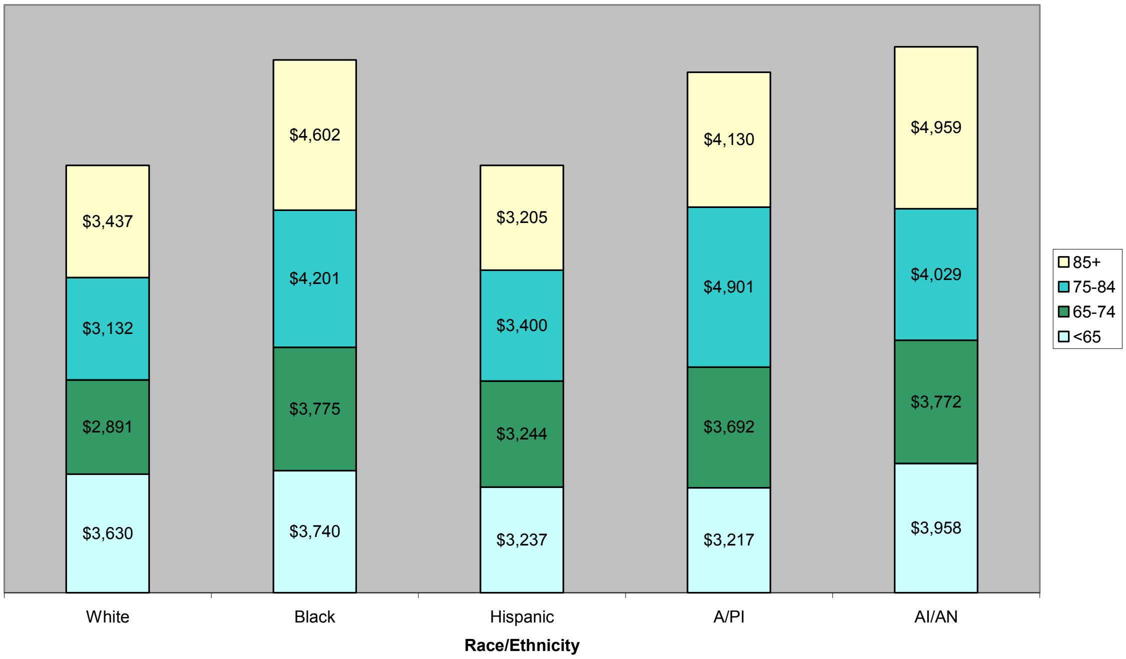
Figure 74
Percentage of female Medicare beneficiaries with home health services by age group and race/ethnicity: calendar year 2002



Source: Sample of 1,960,121 fee-for-service beneficiaries selected by RTI from mid-2003 EDB. The race/ethnicity variable is the result of running the algorithm on those same beneficiaries. The claims examined were for calendar year 2002.

The mean annual payment made for male Medicare beneficiaries is reported in Figure 75 by age and racial/ethnic group. This figure shows that the highest mean payments were made for AI/AN, Black, and Hispanic males, while the lowest were made for White and A/PI.

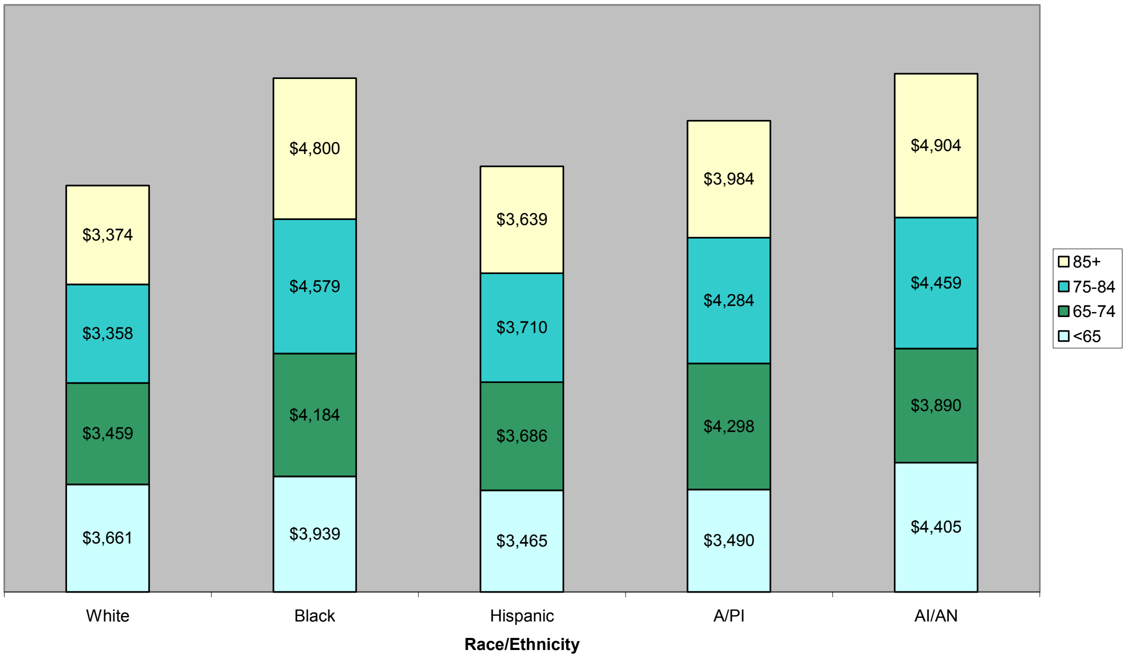
Figure 75
Mean annual payment for male Medicare beneficiaries with home health services by age group and race/ethnicity: calendar year 2002



Source: Sample of 1,960,121 fee-for-service beneficiaries selected by RTI from mid-2003 EDB. The race/ethnicity variable is the result of running the algorithm on those same beneficiaries. The claims examined were for calendar year 2002.

For females, the picture presented in Figure 76 is similar to males by race/ethnicity, but there were more comparable average amounts paid by Medicare across the age range for all of the race/ethnic groups. Nonetheless, Black and AI/AN females typically had the highest amounts paid, while White and Hispanic females had the lowest.

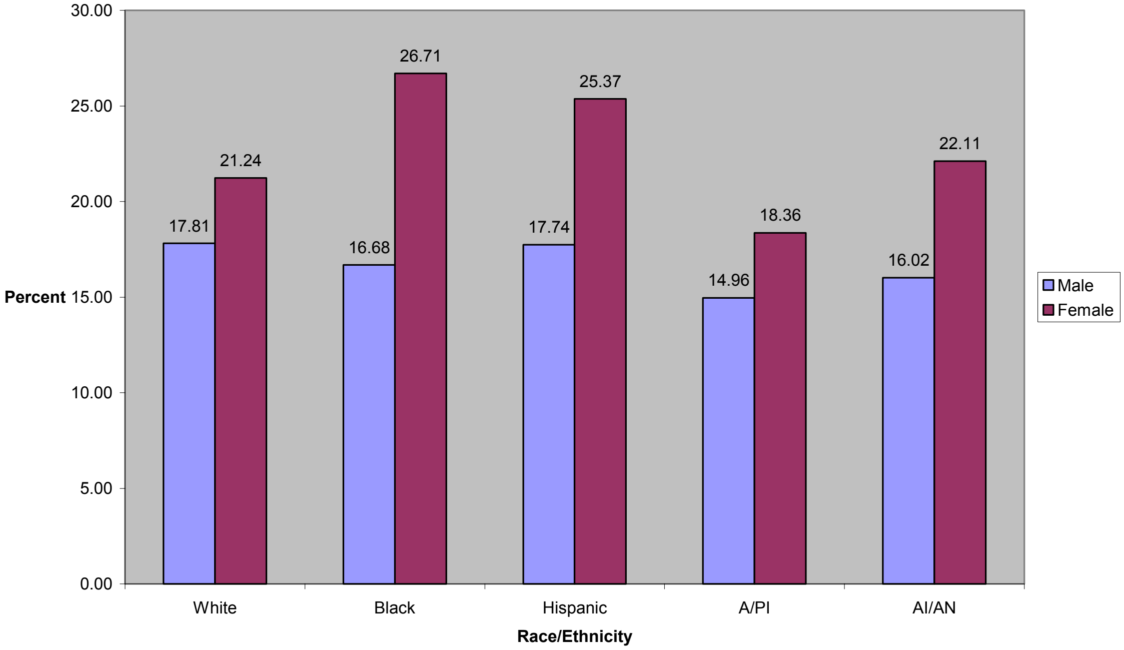
Figure 76
Mean annual payment for female Medicare beneficiaries with home health services by age group and race/ethnicity: calendar year 2002



Source: Sample of 1,960,121 fee-for-service beneficiaries selected by RTI from mid-2003 EDB. The race/ethnicity variable is the result of running the algorithm on those same beneficiaries. The claims examined were for calendar year 2002.

Twenty percent of Medicare fee-for-service beneficiaries made use of the durable medical equipment benefit in 2002, with about 20 percent more females using it than males. The overall average payment made per user was $396. As Figure 77 reports, Black and Hispanic females are the most likely to have used this Medicare benefit, although a larger proportion of females than males received durable medical equipment under Medicare in all of the racial/ethnic groups. A/PIs have the smallest proportion of beneficiaries using this benefit.

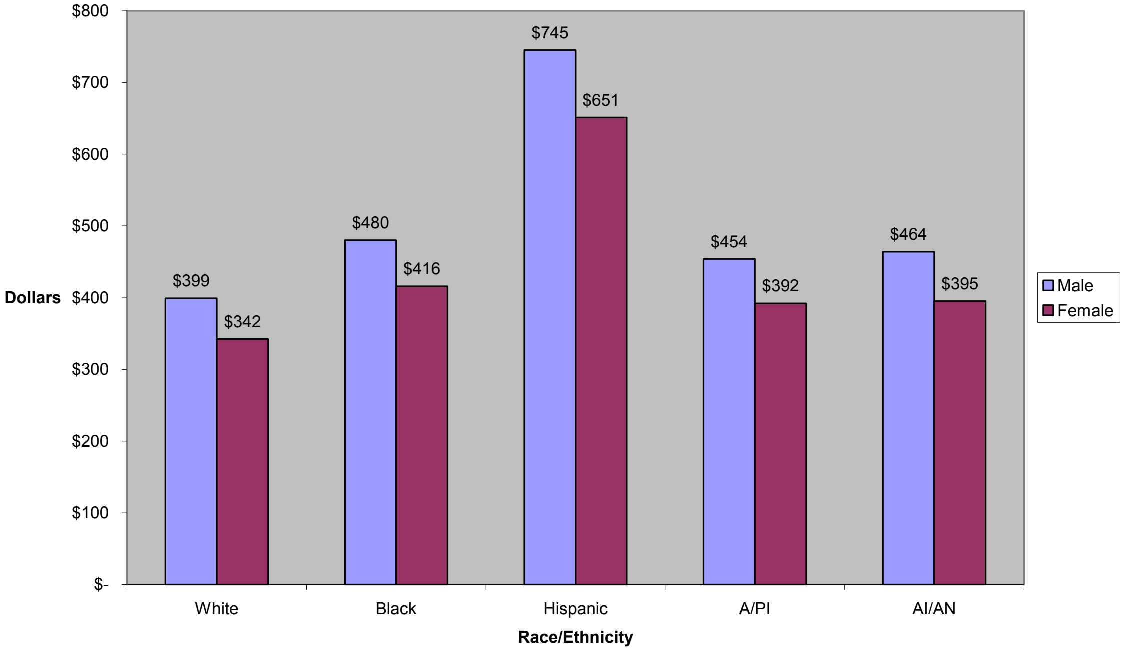
Figure 77
Percentage of Medicare beneficiaries receiving durable medical equipment by sex and race/ethnicity: calendar year 2002



Source: Sample of 1,960,121 fee-for-service beneficiaries selected by RTI from mid-2003 EDB. The race/ethnicity variable is the result of running the algorithm on those same beneficiaries. The claims examined were for calendar year 2002.

While females are more likely to use the durable medical equipment benefit, male beneficiaries have larger payments made for them in every racial/ethnic group, as can be seen in Figure 78. This figure also shows that Hispanic beneficiaries of both sexes have the largest mean payment amount, while White males and females have the smallest.

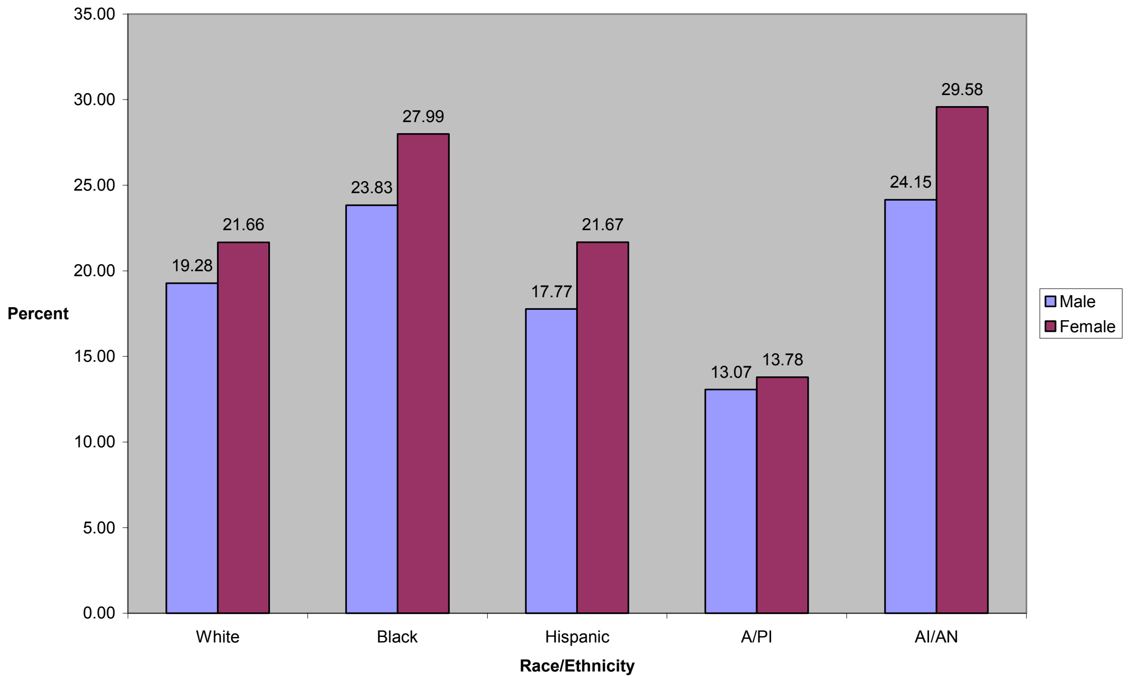
Figure 78
Mean annual payment for Medicare beneficiaries receiving durable medical equipment by sex and race/ethnicity: calendar year 2002



Source: Sample of 1,960,121 fee-for-service beneficiaries selected by RTI from mid-2003 EDB. The race/ethnicity variable is the result of running the algorithm on those same beneficiaries. The claims examined were for calendar year 2002.

The final type of service use we examined was the emergency room. The emergency room was used by 21 percent of Medicare fee-for-service beneficiaries in 2002, about 10 percent more by females than males. The mean annual amount Medicare paid for users of this service was $587. Figure 79 shows that use of the emergency room is highest for both AI/AN and Black males and females, and lowest by a large margin for both A/PI males and females.

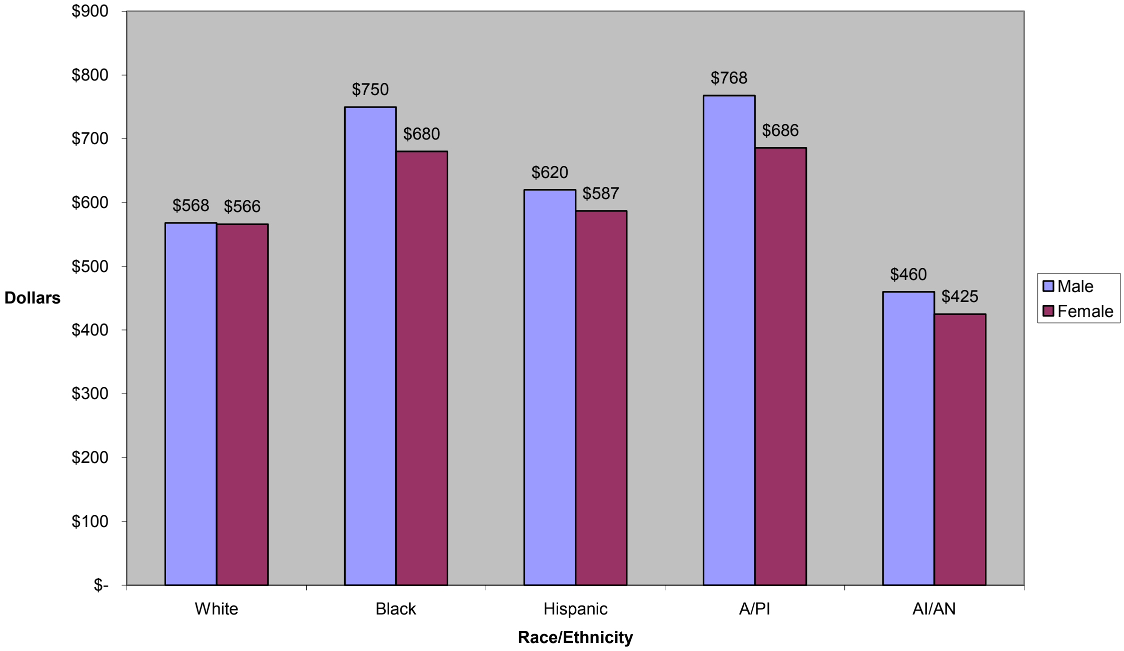
Figure 79
Percentage of Medicare beneficiaries receiving emergency room services: calendar year 2002



Source: Sample of 1,960,121 fee-for-service beneficiaries selected by RTI from mid-2003 EDB. The race/ethnicity variable is the result of running the algorithm on those same beneficiaries. The claims examined were for calendar year 2002.

The mean annual payments for emergency room use made by Medicare per user are presented in Figure 80 and show that payments were slightly higher for males than females in all racial/ethnic groups. In this case, the largest mean payments were made for Black and Hispanic beneficiaries, and the smallest by about one-third were made for A/PI.

Figure 80
Mean annual payment for Medicare beneficiaries receiving emergency room services by sex and race/ethnicity: calendar year 2002



Source: Sample of 1,960,121 fee-for-service beneficiaries selected by RTI from mid-2003 EDB. The race/ethnicity variable is the result of running the algorithm on those same beneficiaries. The claims examined were for calendar year 2002.

CHAPTER 5
CONCLUSIONS

5.1 Summary of Study Approach and Methods

The overall goal of this project was to identify and document, where possible, disparities in health care use as well as to indicate where disparities in use are likely to be associated with disparities in health status between the dominant White population and racial and ethnic minorities enrolled in the traditional fee-for-service Medicare program. To do this in a valid and reliable manner, we first had to improve the race/ethnicity coding of Hispanic and Asian and Pacific Islander (A/PI) Medicare beneficiaries, given the documented deficiencies in their coding which has been amply documented over the years. We did this through the development and testing of an algorithm using Hispanic and A/PI surname lists created by the U.S. Census Bureau and information available on the Medicare enrollment database (EDB). Part 1 of this project Final Report documented how this was done and the success that was achieved in improving the validity and accuracy of the EDB race/ethnicity code for Hispanic and A/PI beneficiaries.

To achieve the overall project goal, it was also necessary to have an understanding of what is generally meant by the term “disparity”, and to identify from the published literature a variety of conditions for which there are documented health disparities between minority group members and the dominant White population that are associated with disparities in the use of or access to necessary and appropriate health services. Merely identifying differences in health status or the use of health services is generally not enough to establish the existence of a disparity. There may be legitimate reasons for differences in service use to exist. For example, different disease prevalence among racial and ethnic groups can justify greater use of screening and diagnostic procedures among the group with the higher disease prevalence, and this would be a difference but not be considered a disparity.

For our purposes in this report, a disparity in health service use is said to exist in a situation when, by reason of greater minority group risk factors, disease prevalence, mortality, disability, or other unacceptable health outcome, there is no way to justify a difference in the health service use of the minority group and the rest of the population. Disparity suggests that a segment of the population is not receiving appropriate or adequate services or receiving them in a timely manner, and that it is not an acceptable state of affairs for the segment , i.e.not merely a difference. Thus, the concept of disparity carries with it a social justice connotation that labeling something a difference does not have. This is not to say that some differences that seem reasonable today will not be considered disparities in the future as more research is conducted. Medicare beneficiaries in the fee-for-service option are an ideal group in which to examine disparities because they have similar benefits under the program, most are older and they have developed chronic health problems that require continued use of services to manage them well, and they use even more services when their health problems are not well managed and become acute.

The selective literature review of known health disparities by race/ethnicity that we prepared indicated that Blacks face higher cancer prevalence and mortality, particularly for colorectal and breast cancer, as compared with Whites. We also noted that Blacks had higher rates of diabetes and its complications than Whites, but received fewer secondary preventive services. In addition, we reported that American Indians and Alaska Natives had much higher rates of heart disease, breast and prostate cancer, and diabetes than Whites, and they reported receiving fewer preventive services for these conditions. Further, larger proportions of Asians reported stomach and liver cancer than Whites and received fewer preventive services and less counseling from their physician. Hispanics had higher rates of hypertension, diabetes, and breast and cervical cancer than Whites, and more often included persons who report never having received preventive services or screening.

Finally, we selected a random sample of nearly 2 million Medicare beneficiaries, stratified by race/ethnicity, who were enrolled in traditional fee-for-service Medicare for the entire year to provide us with information on the service use of Medicare beneficiaries in calendar year 2002. Data extracted from the claims submitted for this sample of beneficiaries were used to examine patterns among the minority racial/ethnic groups as well as White beneficiaries. The data from these claims were used to create tables broken down by race/ethnicity for:

- assorted global measures of utilization last reported in the Medicare and Medicaid Supplement: 2000;
- preventive services use measures that involve screening for different forms of cancer;
- secondary preventive services use measures for a group of beneficiaries identified as having diabetes;
- measures that reflect necessary access to primary care to avoid hospitalization for conditions that can be adequately managed on an ambulatory basis;
- measures of hospital services for the treatment of chronic and acute conditions common to Medicare beneficiaries; and
- measures of the use of different types of Medicare covered services.

Our focus on the use of cancer screening services, secondary preventive services for diabetes, and access to appropriate primary care as measured by hospital and ER admissions for ambulatory care sensitive conditions are the most directly associated with identifying disparities in the use of health services.

5.2 Summary of Results

Cancer Screening Services

Our analysis looked for disparities among the races in the use of screening procedures for breast, cervical, prostate, and colorectal cancers by women and, where applicable, by men 65 to 84 years of age. Overall, we found that higher percentages of White Medicare beneficiaries consistently received screening services for breast, cervical, colorectal, and prostate cancer than Black, Hispanic, and American Indian/Alaska Native Medicare beneficiaries, despite the fact that these groups experience equal or higher incidence of and higher mortality from these cancers. Smaller percentages of Asian/Pacific Islander than White Medicare beneficiaries also received these screening services, but their incidence and mortality from these cancers are lower than for Whites. Our analysis indicates that there are racial/ethnic disparities in the use of cancer screening services.

Diabetes Prevention Services

Secondary preventive services are intended to limit the development of further complications to persons with an existing chronic medical condition. To assess the use of secondary preventive services, it is necessary to identify a subpopulation that has the condition whose further complication is to be avoided. We examined diabetes mellitus because it is possible to identify persons with diabetes from their Medicare claims. In addition, diabetes has been identified as a condition for which minorities suffer disparities in health, possibly resulting from limited access to appropriate care. We examined the use of four secondary preventive services by persons with diabetes —foot care, eye examination, monitoring/testing, and instruction in self care—all covered in the traditional fee-for-service Medicare plan.

We found that across the four diabetes secondary prevention services, White beneficiaries with diabetes most consistently received the highest level of services followed closely by Asians/Pacific Islanders. These two groups had the lowest percentage of diabetic beneficiaries. Blacks and Hispanics, groups with high diabetes prevalence, had lower preventive service use than Whites and Asians/Pacific Islanders, with the exception of the least used service (foot care). American Indians/Alaska Natives, the group with the highest diabetes prevalence had the lowest use levels of all the services except foot care. Clearly, racial/ethnic disparities exist in the use of these secondary preventive services for diabetes.

Ambulatory Care Sensitive Conditions

Timely and effective primary medical care for the management of many chronic conditions can avoid or reduce the need for expensive hospitalization and emergency room observation. Researchers studying differences in access to and quality of medical care have identified a number of conditions that are particularly responsive to ambulatory care. Hospitalizations for these ambulatory care-sensitive conditions (ACSCs) are taken as an indicator of inadequate (neither timely nor effective) or poor-quality primary care. For our analysis of what are relatively small numbers, we grouped 15 ACSCs into three categories: chronic (chronic lung disease [asthma and chronic obstructive pulmonary disease combined], congestive heart failure, seizures, diabetes mellitus, and hypertension); acute (cellulitis, dehydration, bacterial pneumonia, urinary tract infection, gastric or duodenal ulcer, hypoglycemia, hypokalemia, and ear, nose and throat infections); and preventable conditions (influenza and malnutrition).

There were relatively few hospitalizations for the three categories of ACSCs, so we pooled the data for all three types of ACSCs and found a strong pattern of differences in hospitalization for ACSCs. The percentage of Black and American Indian/Alaska Native beneficiaries with a hospitalization for an ACSC was more than double that of Asian/Pacific Islander beneficiaries. White and Hispanic beneficiaries had intermediate levels of hospitalization that was still less than three-fourths that of Black and American Indian/Alaska Native beneficiaries. While Asian/Pacific Islander beneficiaries appear to be an exception, the analysis points to racial/ethnic disparities in the use of hospital care for conditions that should be attenuated by the more timely use of the appropriate primary care.

Hospitalization for Selected Medical Conditions

We analyzed hospital utilization patterns among Medicare fee-for-service beneficiaries for six conditions. The conditions included heart disease, cerebrovascular disease, malignant neoplasms, diabetes, pneumonia, and fractures. Specifically, we compared the percentage of persons with each of the six diagnoses at discharge, the mean length of hospital stay per discharge in days, and the mean payments made per hospital user.

We were not readily able to conclude anything definitive about racial/ethnic health care disparities from our analysis of hospital discharges for the selected diagnoses and their associated lengths of stay, except that there were differences between the racial/ethnic groups. Whether the differences in diagnoses reflect alternative diets or modes of treatment, genetic differences in susceptibility and prevalence, differences in exposure risks, or a different quality of care being provided, we cannot say. One pattern that emerged, however, was that Asian/Pacific Islanders frequently had the highest annual average payments made for their care. It may be due to the higher prices that their providers charge or to a higher intensity of service being provided.

Types of Services

Medicare provides for treatment in different care settings and utilizing different kinds of care providers. We examined whether there were racial/ethnic group differences in the use of different types of services. The services included inpatient care, physician services, skilled nursing facilities, home health care, durable medical equipment, and emergency department care.

We found that there were some rather large differences in the way the different racial/ethnic groups used their Medicare benefits. It is not possible to tell from the analyses we have done whether these differences are the result of choices made along social or cultural lines to provide care for elders in alternative ways, an absence of a need for the services, limited availability of the services in their residential areas, or discrimination of some kind. From the analyses of the average annual payments across the types of services we observed that Asian/Pacific Islander beneficiaries, despite being low users of Medicare services as a group, fairly regularly had the highest payments made for the services they used. It was not possible to discern from our analysis whether this was the result of receiving services from high priced providers or having received fairly intensive (and therefore expensive) treatments.

5.3 Caveats and Limitations

While this report represents exciting new work improving the racial/ethnic identification of Medicare beneficiaries and examining racial/ethnic disparities in health services utilization among fee-for-service Medicare beneficiaries, there are some limitations to which attention should be paid.

We were very successful in our efforts to improve racial/ethnic identification of beneficiaries on the EDB, increasing the sensitivity of the race/ethnicity code for Hispanic and Asian/Pacific Islander beneficiaries from less than 30 percent and 55 percent respectively to approximately 80 percent for both. However, despite the success of the surname algorithm in more correctly identifying Hispanics and A/PI beneficiaries than the original EDB codes, there were still errors remaining in the improved racial/ethnic codes assigned. Using the CAHPS survey respondents as the gold standard, we estimate that approximately 20 percent of the Hispanics and Asians/Pacific Islanders remain miscoded.

CMS has undoubtedly improved the coding and identification of American Indians/Alaska Natives in the Medicare enrollment data base (EDB) through arrangements it has made with the Indian Health Service and tribal health care providers. Nonetheless, our analysis suggests that only about one third of those who would self-identify themselves as being of American Indian/Alaska Native heritage are currently identified on the EDB. This means that the analyses we have reported of American Indians/Alaska Natives may well be biased. We have chosen to report them because the results reflect what others have reported: for many services that American Indians/Alaska Natives should be receiving, they are not getting them at the same level that other racial/ethnic groups with lower identified need are receiving them. Thus, if the picture of utilization we have painted is biased, it is the magnitude of differences in service use and not the direction of the differences that are most likely incorrectly estimated.

Another limitation of our analyses is that we looked at only a limited number of the types of services, service provider locations, and diagnoses to find whether there were racial/ethnic differences. We looked at cancer screening and diabetes preventive care but we did not, for example, analyze whether there were racial/ethnic differences in the types of treatments for different forms of cancer or for treating the resultant complications of diabetes. Further, while we examined whether there were racial/ethnic differences in the extent to which common medical conditions that are considered responsive to timely and appropriate ambulatory care resulted in hospitalizations, and the extent to which selected conditions resulted in hospital and other types of service use, there are certainly other diagnoses and settings for which the appropriateness and timeliness of care have yet to be analyzed to examine possible racial/ethnic differences. Clearly, more intensive disease and treatment specific analyses remain to be performed before it can be established whether there are racial/ethnic disparities in those areas of care.

The final limitation concerns the fact that our analyses do not demonstrate a direct link between the differences in service use and why they exist, and the health outcomes of the beneficiaries included in the study. We do attempt to tie the historical record of greater disease and worse health to differences in service utilization for the racial/ethnic groups studied, but the current patterns of utilization cannot strictly be used to explain patterns of historical outcomes without demonstrating that the patterns of care have not changed markedly over time. Further, from these analyses we are not able to explain why the differences in service utilization exist. Clearly the insurance coverage through Medicare is the same, but that is only one element of beneficiary access to care. Differences in supplemental coverage through private insurance, retiree coverage, or Medicaid aspect may alter the payment component of access. It may be that the providers of care are not as conveniently located, experienced, well-trained, or capable of providing the best care possible. And of course it may be that for some reason, the beneficiaries do not recognize or accept the need for care or they may for social or cultural reasons choose not to receive the appropriate care in a timely manner despite knowing their need. Provider discrimination is also a possibility. Depending on the reasons that the differences in service utilization exist, the approach to altering the situation will differ.

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