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MEDICARE PHYSICIAN SERVICES

Utilization Trends
Indicate Sustained
Beneficiary Access
with High and
Growing Levels of
Service in Some Areas
of the Nation



GAO

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Highlights of [GAO-09-559](#), a report to the Committee on Finance, U.S. Senate

MEDICARE PHYSICIAN SERVICES

Utilization Trends Indicate Sustained Beneficiary Access with High and Growing Levels of Service in Some Areas of the Nation

Why GAO Did This Study

Congress, policy analysts, and groups representing physicians have raised questions about beneficiary access to Medicare physician services. At the same time, high levels of spending for health care in some parts of the country, and rapid increases in spending for physician services, have been identified as factors that threaten the long-term fiscal sustainability of the Medicare program.

GAO was asked to assess beneficiary access to physician services and to identify indicators of potential overutilization of physician services. In this report, GAO (1) examines whether, from 2000 through 2008, beneficiaries had problems accessing physician services; (2) identifies areas of the country in which Medicare beneficiaries are potentially overserved by physicians; and (3) describes characteristics that distinguish the potentially overserved areas from other areas in the nation.

GAO analyzed the most recent data available from several sources, including an annual Centers for Medicare & Medicaid Services (CMS) survey of fee-for-service (FFS) Medicare beneficiaries, Medicare physician claims for services provided in April of each year from 2000 through 2008, the Health Resources and Services Administration's Area Resource File, and the U.S. Census Bureau.

What GAO Found

GAO found that Medicare beneficiaries experienced few problems accessing physician services during its period of study. Very small percentages of Medicare beneficiaries—less than 3 percent—reported major difficulties accessing physician services in 2007 and 2008. The proportion of beneficiaries who received physician services and the number of services per beneficiary served increased nationwide from April 2000 to April 2008. (See figure.) Indicators of physician willingness to serve Medicare beneficiaries and to accept Medicare fees as payments in full also rose from 2000 to 2008.

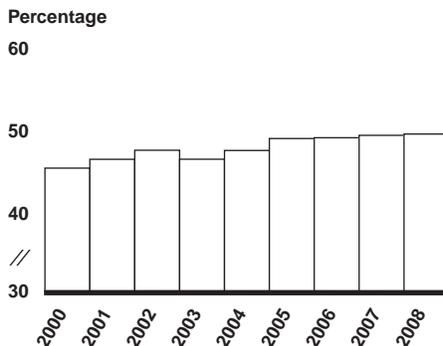
Potentially overserved areas—areas that were in the top half in both the level and growth in utilization of physician services—tend to be in the more densely populated urban regions and the eastern part of the United States. Large metropolitan areas were much more likely to be potentially overserved than rural and small metropolitan areas. Areas east of the Mississippi River were also more likely to be potentially overserved than those in the west.

Potentially overserved and other areas are similar in demographic characteristics and the capacity to provide health care services. The two groups are also similar in Medicare beneficiary satisfaction with health care. In contrast, certain types of physician services, such as advanced imaging and minor procedures, are performed more frequently in potentially overserved areas relative to other areas, suggesting differences in physician practice patterns.

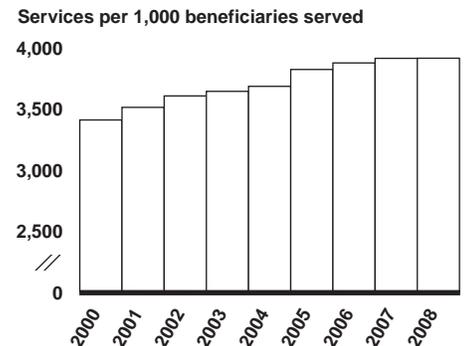
In commenting on a draft of this report, CMS noted the agency's longstanding practice of monitoring the effect of policy changes on beneficiary access to Medicare services, and stated that this report would help in that effort.

Trends in Utilization of Physician Services

Percentage of Medicare FFS beneficiaries receiving physician services in April, 2000-2008



Number of physician services provided per 1,000 Medicare FFS beneficiaries served in April, 2000-2008



Source: GAO analysis of Medicare Part B claims and enrollment data from CMS.

View [GAO-09-559](#) or [key components](#). For more information, contact A. Bruce Steinwald at (202) 512-7114 or steinwalda@gao.gov.

Contents

Letter		1
	Background	7
	Indicators Show Few Problems in Beneficiary Access to Physician Services	12
	Potentially Overserved Areas Tend to Be in More Densely Populated Urban Regions and the Eastern Part of the Country	23
	Potentially Overserved Areas Are Largely Similar to Other Areas, with the Exception of Physician Practice Patterns	26
	Concluding Observations	35
	Agency and Industry Comments and Our Evaluation	35
Appendix I	Scope and Methodology	37
Appendix II	Average Utilization Values by Geographic Area Type	45
Appendix III	Utilization Status of Geographic Areas	46
Appendix IV	Selected Physician Services in Potentially Overserved and Other Areas	60
Appendix V	Utilization Status of Medicare Physician Payment Localities	62
Appendix VI	Selected Physician Services in Potentially Overserved and Other Medicare Physician Payment Localities	67
Appendix VII	Utilization Status of Hospital Referral Regions	69

Appendix VIII	Selected Physician Services in Potentially Overserved and Other HRRs	79
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Appendix IX	Comments from the Centers for Medicare & Medicaid Services	81
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Appendix X	GAO Contact and Staff Acknowledgments	84

Tables

Table 1: Medicare Beneficiaries Who Reported Major Difficulties Accessing Physician Services, 2007-2008	13
Table 2: Distribution of Utilization Status by Type of Geographic Area	23
Table 3: Selected Demographic Characteristics in Potentially Overserved and Other Areas	28
Table 4: Selected Health Care Capacity Characteristics in Potentially Overserved and Other Areas	29
Table 5: Selected Medicare Beneficiary Satisfaction Indicators in Potentially Overserved and Other Areas, 2008	31
Table 6: Selected Physician Service Categories per 1,000 Medicare FFS Beneficiaries in Potentially Overserved and Other Areas, 2008	32
Table 7: Selected Physician Services per 1,000 Medicare FFS Beneficiaries in Potentially Overserved and Other Areas, 2008	34
Table 8: Selected CAHPS Survey Questions Related to Beneficiary Access to Physician Services, 2008	38
Table 9: Geographic Area Types for Utilization Analysis	41
Table 10: Distribution of Geographic Areas by Ranking	42
Table 11: Average Utilization by Geographic Area Type	45
Table 12: Utilization Status of Geographic Areas	47
Table 13: Selected Physician Services Provided per 1,000 Medicare FFS Beneficiaries in Potentially Overserved Areas and Other Areas	61
Table 14: Utilization Status of Medicare Physician Payment Localities	63

Table 15: Selected Physician Services Provided per 1,000 Medicare FFS Beneficiaries in Potentially Overserved and Other Medicare Physician Payment Localities	68
Table 16: Utilization Status of Hospital Referral Regions	70
Table 17: Selected Physician Services Provided per 1,000 Medicare FFS Beneficiaries in Potentially Overserved and Other Hospital Referral Regions	80

Figures

Figure 1: Percentage of Medicare Beneficiaries Receiving Physician Services in April, 2000-2008	14
Figure 2: Change from 2000 to 2008 in Proportion of Medicare Beneficiaries Receiving Physician Services in April, by State Urban and Rural Areas	15
Figure 3: Number of Physician Services Provided per 1,000 Medicare Beneficiaries Served in April, 2000-2008	16
Figure 4: Change from 2000 to 2008 in Number of Physician Services Provided per 1,000 Medicare Beneficiaries Served in April, by State Urban and Rural Areas	18
Figure 5: Numbers of Emergency Room Visits, Office Visits for New Patients, and Office Visits for Established Patients per 1,000 FFS Medicare Beneficiaries in April, 2000-2008	20
Figure 6: Number of Physicians Billing Medicare for Services Provided to Medicare Beneficiaries in April and Number of Medicare FFS Beneficiaries, 2000-2007	21
Figure 7: Proportion of Physician Services by Medicare Participation and Assignment Status	22
Figure 8: Geographic Areas by Type of Area and Utilization Status	25

Abbreviations

AMA	American Medical Association
ARF	Area Resource File
BETOS	Berenson-Eggers Type of Service
CAHPS	Consumer Assessment of Healthcare Providers and Systems
CBO	Congressional Budget Office
CMS	Centers for Medicare & Medicaid Services
CT	computed tomography
EKG	electrocardiogram
FFS	fee-for-service
HRR	hospital referral region
HRSA	Health Resources and Services Administration
HSC	Center for Studying Health System Change
MedPAC	Medicare Payment Advisory Commission
MEI	Medicare Economic Index
MRI	magnetic resonance imaging
MSA	metropolitan statistical area
NCH	National Claims History
OMB	Office of Management and Budget
SGR	sustainable growth rate
UPIN	unique physician identification number

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United States Government Accountability Office
Washington, DC 20548

August 28, 2009

The Honorable Max Baucus
Chairman
The Honorable Charles E. Grassley
Ranking Member
Committee on Finance
United States Senate

Over the last several years, rapid spending growth in Medicare Part B services—driven in part by growth in physician services—has heightened concerns regarding the Medicare program’s fiscal sustainability.¹ According to the Medicare Trustees, despite statutory controls on physician fee increases, spending for physician services has steadily increased from about \$32 billion in 1998 to about \$61 billion in 2008.² Medicare fee-for-service (FFS) pays for more than 7,000 physician services through an annually updated fee schedule. Since the early 1990s, Congress, policy analysts, and groups representing physicians have periodically questioned whether efforts to control spending by limiting increases in physician fees could undermine beneficiary access to physician services.

The Medicare physician fee schedule is updated annually by the sustainable growth rate (SGR) system, with the intent of limiting the total growth in Medicare spending for physician services over time. Since the SGR’s establishment, annual updates to physician fees have varied and produced a 4.8 percent reduction in physician fees in 2002. Congressional and administrative actions averted subsequent reductions in physician fees for 2003 through 2009. However, concerns about access remained as the fee updates during this period did not keep pace with the growth in

¹Medicare is the federally financed health insurance program for persons aged 65 and over, certain individuals with disabilities, and individuals with end-stage renal disease. Eligible individuals are automatically covered by Medicare Part A, which covers hospital and other inpatient stays. Medicare Part B is optional insurance and covers hospital outpatient, physician, and other services. Medicare Parts A and B are known as traditional Medicare or Medicare fee-for-service.

²The Boards of Trustees of the Federal Hospital Insurance and Federal Supplementary Medical Insurance Trust Funds, *2009 Annual Report of the Boards of Trustees of the Federal Hospital Insurance and Federal Supplementary Medical Insurance Trust Funds* (Washington, D.C., May 12, 2009), and *2008 Annual Report of the Boards of Trustees of the Federal Hospital Insurance and Federal Supplementary Medical Insurance Trust Funds* (Washington, D.C., Mar. 25, 2008).

Medicare's estimated cost to physicians for providing their services. Under current law, Medicare's fees to physicians are projected to be reduced by about 21 percent in January 2010.³ Although these fee reductions may not occur if Congress intervenes, the uncertainty surrounding physicians' Medicare fees points to the ongoing need to monitor beneficiary access to physician services.

Our previous work has shown that this uncertainty about physician fees has not been accompanied by reduced beneficiary access to physician services, as measured by changes in FFS beneficiary utilization of these services. In 2005, we reported that utilization of Medicare physician services increased from 2000 to 2002 and that the 2002 reduction in physician fees did not appear to have an impact on beneficiary access.⁴ In a 2006 report, we found no evidence of a decrease in access from 2000 to 2005, as measured in terms of utilization; our findings suggested that beneficiary access actually increased.⁵ Specifically, during the years we studied, relatively small proportions of beneficiaries reported problems accessing physician services, the percentage of beneficiaries who received physician services increased, and the number of services provided per beneficiary increased as well.

Although these increases in utilization demonstrated that beneficiaries were able to access physician services, our previous work did not determine whether all of the increases in utilization we found were appropriate. Wide geographic variation in Medicare spending for physician services—unrelated to beneficiary health status or outcomes—indicates that in some areas of the country, health needs alone may not always determine the level of utilization of, and therefore the amount of spending

³The Medicare Improvements for Patients and Providers Act of 2008 canceled a 10.6 percent reduction in Medicare's payments for physician services that was scheduled to go into effect on July 1, 2008. Pub. L. No. 110-275, § 131, 122 Stat. 2494, 2520. The act froze physician payment rates for the remainder of 2008 and increased them by 1.1 percent in January 2009. The Congressional Budget Office estimated that when payment rates are again determined by the SGR in 2010, Medicare payments for physician services will be reduced by 21 percent. Congressional Budget Office Cost Estimate, *H.R. 6331 Medicare Improvements for Patients and Providers Act of 2008* (Washington, D.C., July 23, 2008).

⁴GAO, *Medicare Fee-for-Service Beneficiary Access to Physician Services: Trends in Utilization of Services, 2000 to 2002*, [GAO-05-145R](#) (Washington, D.C.: Jan. 12, 2005).

⁵GAO, *Medicare Physician Services: Use of Services Increasing Nationwide and Relatively Few Beneficiaries Report Major Access Problems*, [GAO-06-704](#) (Washington, D.C.: July 21, 2006).

on, physician services.⁶ These areas may be potentially overserved compared to other areas of the nation. Some studies have shown that the provision of more care does not necessarily mean better health care or better health outcomes for patients and in some cases may lead to harm.⁷ Therefore, some of the increased utilization of physician services that we identified in previous studies may not have been warranted.

You raised questions about Medicare beneficiary access to physician services, as well as questions about long-term fiscal challenges for and inefficiency in Medicare. To obtain more information on these topics, you asked us to provide an assessment of beneficiary access to physician services and also to identify indicators of potential beneficiary overutilization of physician services. This report (1) examines whether, from 2000 through 2008, beneficiaries had problems accessing physician services; (2) identifies areas of the country in which Medicare beneficiaries are potentially overserved by physicians; and (3) describes characteristics that distinguish the potentially overserved areas from other areas in the nation.

To address the first objective, we constructed three types of indicators to measure beneficiary access to physician services: beneficiary perceptions about access, utilization of physician services, and indicators of physician willingness to participate in Medicare and serve Medicare beneficiaries. Beneficiary perceptions about access were obtained from an analysis of the Consumer Assessment of Healthcare Providers and Systems (CAHPS) survey data from 2007 and 2008. CAHPS is an annual Centers for Medicare & Medicaid Services (CMS) patient satisfaction survey of Medicare beneficiaries.⁸ Specifically, we examined beneficiary responses to two

⁶Elliott S. Fisher et al., "The Implications of Regional Variations in Medicare Spending. Part 1: The Content, Quality, and Accessibility of Care," *Annals of Internal Medicine*, vol. 138, no. 4 (2003): 273-287, and Elliott S. Fisher et al., "The Implications of Regional Variations in Medicare Spending. Part 2: Health Outcomes and Satisfaction with Care," *Annals of Internal Medicine*, vol. 138, no. 4 (2003): 288-298.

⁷Fisher et al., "The Implications of Regional Variations in Medicare Spending. Part 1: The Content, Quality, and Accessibility of Care"; Fisher et al., "The Implications of Regional Variations in Medicare Spending. Part 2: Health Outcomes and Satisfaction with Care"; Elliott S. Fisher and H. Gilbert Welch, "Avoiding the Unintended Consequences of Growth in Medical Care: How Might More Be Worse?" *Journal of the American Medical Association*, vol. 281, no. 5 (1999): 446-453; and Joseph P. Newhouse and The Insurance Experiment Group, *Free for All? Lessons from the RAND Health Insurance Experiment* (Cambridge, Mass.: Harvard University Press, 1993).

⁸We used only CAHPS survey data from Medicare FFS beneficiaries.

questions related to access to physician services. The survey questions asked how often an appointment for routine care was available as soon as the respondent thought necessary and how often it was easy to obtain an appointment with a specialist; our analysis was limited to beneficiaries who needed such appointments. The possible responses were “never,” “sometimes,” “usually,” and “always.” We considered respondents to have reported a major access problem when they responded “never” to one of the two survey questions. We analyzed utilization trends by examining all Medicare claims for physician services provided in the first 28 days of each April from 2000 through 2008.^{9,10,11} Specifically, we calculated two measures of utilization—the proportion of FFS beneficiaries receiving physician services and the number of services per 1,000 beneficiaries who received services. We examined these trends in both urban and rural areas nationwide and in individual states.¹² We also examined trends in utilization of specific services, such as physician office visits, from 2000 through 2008. We further utilized claims data to analyze trends in the number of physicians billing Medicare and in the proportion of services for which Medicare fees were accepted as payment in full. (For more information on our scope and methodology, see app. I.)

⁹We examined over 60 million claims for the first 28 days of April of each year. These claims represent an annual snapshot of beneficiary access to physician services for each of the 9 years. Physician fee updates generally occur at the beginning of each calendar year and remain constant throughout the year. We selected April to allow time for the annual fee updates to be implemented beginning January 1, and for physician behavior to adjust to the new fees. To avoid “calendar bias”—that is, the occurrence of more weekdays in April in one year compared to another—and to create an equal number of weekdays in each year’s data set, we limited each year’s claims to services performed within the first 28 days of the month.

¹⁰We defined physician services to include those services provided by a medical doctor and paid under the physician fee schedule—such as office visits, major and minor surgeries, and imaging services. We also included anesthesia services. We excluded claims for services provided by nurse practitioners, physician assistants, and other nonphysician practitioners.

¹¹We excluded beneficiaries in Guam, Puerto Rico, and the U.S. Virgin Islands.

¹²Using the Office of Management and Budget’s system for defining metropolitan statistical areas, we classified the nation’s counties as urban or rural. We consolidated the urban counties and rural counties in each state and the District of Columbia, and created 99 geographic areas. There were 51 urban areas and 48 rural areas. There are no rural areas in New Jersey, Rhode Island, and the District of Columbia.

To address our second objective, we identified areas of the country where utilization of physician services in Medicare is potentially excessive. Because policymakers have expressed concerns about both the level and growth of services in the Medicare program, we incorporated both factors in our measure of potential overservice.¹³ Specifically, we identified areas that were both relatively high in their level of utilization and relatively high in their growth in utilization. Using U.S. Census Bureau¹⁴ and Office of Management and Budget (OMB) classifications, we classified counties into one of four types of geographic areas: metropolitan divisions, large metropolitan statistical areas (MSA), small MSA areas, and rural areas.¹⁵ Metropolitan divisions and large MSAs (MSAs with at least 200,000 residents) each constituted a separate geographic area. We combined smaller MSAs with other small MSAs within each state. We designated counties outside of metropolitan divisions and MSAs as rural and combined these rural areas within each state. This classification process yielded 296 areas across the United States. To determine utilization status, we measured utilization in each of these areas by examining the number of services per beneficiary who received services in April 2000 and April 2008. We ranked the areas by their level of utilization in 2000 and the change in utilization from 2000 to 2008. We then designated areas in the

¹³U.S. Senator Max Baucus, *Call to Action: Health Care Reform 2009* (Washington, D.C., Nov. 12, 2008), and Congressional Budget Office, *Factors Underlying the Growth in Medicare's Spending for Physician Services* (Washington, D.C., June 2007).

¹⁴We referenced counties to metropolitan statistical areas and metropolitan divisions using U.S. Census Bureau data from the Missouri Census Data Center.

¹⁵We excluded four counties with low populations because they lacked data on Medicare enrollment or utilization of physician services.

top half of both measures as “potentially overserved” areas and the rest of the areas as “other” areas (for more information on the rank of each area, see app. III).^{16,17}

To address the third objective, we reviewed literature to identify and construct area-level characteristics that could drive the use of physician services.¹⁸ We then compared potentially overserved and other areas based on these characteristics. Specifically, we examined demographic characteristics and the capacity to provide health care services. We also compared beneficiary satisfaction with their health care in the two groups of areas, as measured by a beneficiary survey, and the types of physician services provided in the two types of areas. To make these comparisons, we obtained the most recent available data on demographic and health care utilization capacity characteristics from the Area Resource File (ARF), a national county-level health resource information database produced by the Health Resources and Services Administration (HRSA) of the Department of Health and Human Services; population and income data from the U.S. Census Bureau; data on beneficiary experiences from the 2008 CAHPS survey; and utilization data from Medicare physician claims from April 2008.¹⁹ We also analyzed and compared utilization of

¹⁶By labeling areas as “potentially overserved” and “other,” we do not suggest that the level of care in the other areas is uniformly appropriate. For example, the level of services provided in the Los Angeles-Long Beach-Glendale metropolitan division (see table 12 in app. III) was among the highest in the nation in both 2000 and 2008. However, because the growth rate was below average in this area, it did not meet our criteria for being placed in the potentially overserved category.

¹⁷In addition, we analyzed the number of services per beneficiary who received services in April 2000 and April 2008 in Medicare’s 87 physician payment localities and in the 306 hospital referral regions as defined by the Dartmouth Atlas Project. We ranked the two area types by their level of utilization in 2000 and the change in utilization from 2000 to 2008. We then designated Medicare physician payment localities and hospital referral regions in the top half of both measures as “potentially overserved” and the rest of the Medicare physician payment localities and hospital referral regions as “other.” For more information on the rank of each Medicare physician payment locality, see app. V, and for more information on the rank of each hospital referral region, see app. VII.

¹⁸We were not able to construct variables to exhaustively examine all of the potential drivers of health care utilization. For example, we were not able to construct a variable to measure the prevalence of coordinated care in an area using either data on managed care penetration or the number of physician group practices in an area.

¹⁹To account for different levels of urbanization between potentially overserved and other areas, we adjusted the other areas group to reflect the same urban/rural composition as the potentially overserved group.

specific types of physician services in potentially overserved and other areas (see app. IV for more information).²⁰

We took several steps to measure the reliability of data used in this report. For the CAHPS and Medicare claims data, we reviewed the documentation for both data sets, examined the accuracy and completeness of the data, and interviewed experts to ensure that we were using the data appropriately. The utilization information in claims data is generally considered reliable, as the data are used by the Medicare program to determine payment to health care providers and are closely monitored by CMS and Medicare carriers. We also examined the reliability of the U.S. Census Bureau and ARF data by reviewing documentation and checking for obvious errors in the data sets. We found all four data sources sufficiently reliable for this report.

We conducted this performance audit from May 2008 through August 2009 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Background

Since 1992, the Medicare program has used a resource-based fee schedule to pay for physician services in the traditional FFS Medicare program. The physician fee schedule includes three components: the relative value for the service, a geographic adjustment, and a conversion factor. The relative value for a service compares the resources involved in performing one service with those of other services. There are more than 7,000 physician services in the fee schedule and each one is assigned a relative value. The geographic adjustment was designed to ensure that fees appropriately

²⁰In addition, we analyzed the utilization of specific services in April 2008 in potentially overserved and other Medicare physician payment localities and in potentially overserved and other hospital referral regions as defined by the Dartmouth Atlas Project. For more information on the difference in utilization of these services between potentially overserved and other Medicare physician payment localities, see app. VI, and for more information on the difference in utilization of these services between potentially overserved and other hospital referral regions, see app. VIII.

reflect the geographic variation in costs associated with operating a medical practice. Finally, the fee schedule uses a conversion factor expressed in dollars to determine the payment rate for a particular physician service.²¹ The conversion factor is updated annually based on the SGR formula, which is set by law. The SGR is a spending target system designed to control growth in spending attributable to increases in the number of services, known as volume, and to the services' complexity and costliness, known as intensity. Although the SGR formula has called for negative physician fee updates in recent years, Congress has mandated either no change or a positive update that has been less than growth in the estimated cost to physicians for providing their services.²² Beginning in 2010, physician fees are projected to be reduced by 21 percent, according to the Congressional Budget Office (CBO).

Medicare generally pays physicians a predetermined amount for each service provided. Physicians who "accept assignment" are those who agree to accept Medicare's fee as payment in full. The fee includes the coinsurance amount (usually 20 percent) paid by the beneficiary. Physicians who sign Medicare participation agreements—referred to as participating physicians—must accept assignment for all Medicare-covered services that they provide to beneficiaries. Physicians who do not sign participation agreements—referred to as nonparticipating physicians—can either opt to accept assignment on a service-by-service basis or not at all. When a nonparticipating physician accepts assignment, the fee schedule amount, also known as the Medicare-approved amount, is reduced by 5 percent. Medicare pays the physician 80 percent of the reduced amount; the beneficiary pays 20 percent of the reduced amount. When a nonparticipating physician does not accept assignment, the Medicare-approved amount is also reduced by 5 percent, but the physician may collect from beneficiaries a portion of the difference between his or

²¹There is a separate anesthesia services conversion factor that is updated each year.

²²The change in the cost of providing physician services is measured by the Medicare Economic Index (MEI). MEI measures input prices for resources needed to provide physician services. It is designed to estimate the increase in the total cost for the average physician to operate a medical practice.

her charge and the Medicare-approved amount—a practice known as balance billing.^{23,24}

Access to Physician Services

Several recent surveys of Medicare beneficiary access to physician services have not identified major access issues. For example, a 2008 Medicare Payment Advisory Commission (MedPAC) survey,²⁵ a 2007 Center for Studying Health System Change (HSC) survey, a 2007 Commonwealth Fund survey, and a 2007 AARP survey all concluded that Medicare beneficiaries had few problems obtaining physician services.²⁶ MedPAC found that most beneficiaries were able to schedule timely routine appointments and find a new physician when needed. Additionally, Medicare beneficiaries reported similar or better access to physician services compared to individuals covered by private insurance, according to MedPAC, HSC, Commonwealth Fund, and AARP surveys. Both the Commonwealth Fund and AARP also found that Medicare beneficiaries are more likely than those with private insurance to report high levels of satisfaction with their health care and access to physicians.

²³Specifically, nonparticipating physicians who do not accept assignment can charge up to 15 percent above the reduced Medicare-approved amount and thus receive approximately 109 percent of the Medicare-approved fee for that service—this amount is known as the limiting charge. The beneficiary typically has to pay the nonparticipating physician the full amount of the limiting charge, and Medicare reimburses the beneficiary for 80 percent of the reduced Medicare-approved amount.

²⁴Physicians may “opt out” of the Medicare program altogether and charge any amount for the services they provide, but they must inform beneficiaries in advance of this arrangement. Under this option, physicians must agree not to file any Medicare claims for 2 years, and their patients are responsible for 100 percent of the charges. Since 1998, relatively few physicians—approximately 8,300 at the end of 2008—have opted out of the Medicare program.

²⁵MedPAC was established by the Balanced Budget Act of 1997, Pub. L. No. 105-33 § 4022, 111 Stat. 251, 350, 42 U.S.C. § 1395b-6 (2000), to advise Congress on issues affecting the Medicare program.

²⁶Medicare Payment Advisory Commission, *Report to the Congress: Medicare Payment Policy* (Washington, D.C., March 2009); Center for Studying Health System Change as cited by MedPAC; Karen Davis, et al., “Meeting Enrollees’ Needs: How Do Medicare and Employer Coverage Stack Up?” *Health Affairs*, vol. 28, no. 4 (published online May 12, 2009); and AARP, *Access to Physicians Survey* (Washington: D.C., February 2007).

Geographic Variation in the Utilization of Physician Services

Physician spending under the Medicare program has historically grown at a rapid pace, at times reaching double-digit increases, but these increases may not mean better health care or better outcomes for beneficiaries. Specifically, some of the higher volume and intensity that drive spending growth may not be medically necessary. Physicians have a financial incentive to perform as many services as possible because Medicare pays them a fee for each service provided, with little accountability for quality or efficiency. The Senate Finance Committee has stated that the combination of high health care spending and lagging quality is unsustainable for both the government and patients.²⁷

Several studies of geographic variation in Medicare spending have concluded that some utilization may not be warranted. A February 2008 CBO report found that per capita Medicare spending varied substantially among states, ranging in 2004 from \$4,000 in Utah to \$6,700 in Massachusetts.²⁸ CBO found that the price paid for health care services and severity of illness were important factors, but cited research indicating that these two factors together likely account for less than half of the geographic variation in spending. CBO also found that patient preferences and income appear to explain little of the variation and concluded that some variation in medical practice may be attributable to differences in the supply of medical resources, such as specialist physicians.

Several studies from Dartmouth have found that Medicare beneficiaries living in areas with high levels of health care spending and utilization do not experience better health outcomes or quality of care. One Dartmouth study noted that Medicare spending would fall by 29 percent if spending levels in the lowest decile of areas were realized in all higher spending regions.²⁹ Dartmouth researchers concluded that geographic variation in Medicare spending can be attributed to how physicians respond to

²⁷U.S. Senate, Committee on Finance, *Transforming the Health Care Delivery System: Proposals to Improve Patient Care and Reduce Health Care Costs* (Washington, D.C., Apr. 29, 2009), <http://www.finance.senate.gov/sitepages/leg/LEG%202009/042809%20Health%20Care%20Description%20of%20Policy%20Option.pdf> (accessed June 3, 2009).

²⁸Congressional Budget Office, *Geographic Variation in Health Care Spending* (Washington, D.C., February 2008).

²⁹John E. Wennberg et al., "Geography and the Debate Over Medicare Reform," *Health Affairs*, Web exclusive (Feb. 13, 2002): W96-W114.

technology, capital, and other resources under FFS.³⁰ For example, physicians in higher-spending regions were more likely than those in lower-spending regions to recommend discretionary services and more resource-intensive services.³¹ Clinical decisions are associated with physician discretion when the evidence does not point clearly to a correct action in a specific clinical situation. In a review of 2,500 treatments for a variety of medical conditions, more than half were subject to physician discretion.³²

Congress has recently shown an interest in varying annual Medicare physician payment updates by geographic area. In the Deficit Reduction Act of 2005, Congress directed MedPAC to examine alternatives to the current payment system, including options that varied payment updates by geographic areas.³³ In a 2007 study, MedPAC found that setting fee update amounts by geographic area would recognize that practice patterns differ regionally and therefore have different contributions to overall growth in volume and spending.³⁴ MedPAC suggested that regional updates would improve equity across the nation and could help reduce geographic variation over time. Congress has also held hearings on revising the method used to update physician payments, and the Chairman of the Senate Finance Committee has stated that reforming physician payment is an important component of health care reform.³⁵

³⁰Elliott S. Fisher et al., “Slowing the Growth of Health Care Costs—Lessons from Regional Variation,” *New England Journal of Medicine*, vol. 360, no. 9 (2009): 849-852.

³¹B. Sirovich, et al., “Discretionary Decision Making by Primary Care Physicians and the Cost of U.S. Health Care,” *Health Affairs*, vol. 27, no. 3 (2008): 813-23. Using a survey of about 800 primary care physicians, this study found that compared with those in areas with the lowest quintile of spending, physicians practicing in areas with the highest quintile of spending would recommend the following additional services each year per 100 patients in each clinical category: 80 hypertension follow-up visits, 14 spiral computed tomography scans, 25 echocardiograms, 24 cardiac care unit admissions, and 29 gastroenterology referrals.

³²“How Much Do We Know?” *BMJ Clinical Evidence*, <http://clinicalevidence.bmj.com/ceweb/about/knowledge.jsp> (accessed Apr. 24, 2009).

³³Pub. L. No. 109-171, § 5104(c), 120 Stat. 4, 40 (2006).

³⁴Medicare Payment Advisory Commission, *Report to the Congress: Assessing Alternatives to the Sustainable Growth Rate System* (Washington, D.C., March 2007).

³⁵Baucus, *Reforming America’s Health Care System: A Call to Action*.

Indicators Show Few Problems in Beneficiary Access to Physician Services

Together, the three types of indicators we reviewed show that Medicare beneficiaries experienced few problems accessing physician services. Small percentages of Medicare beneficiaries reported never easily obtaining appointments; measures of beneficiaries receiving physician services increased nationwide from 2000 to 2008; and indicators of physician willingness to serve Medicare beneficiaries and to accept Medicare fees as payment in full also increased from 2000 to 2008.

Few Beneficiaries Reported Major Access Problems in 2007 and 2008

Few Medicare beneficiaries reported major difficulties accessing physician services in 2007 and 2008. (See table 1.) Specifically, among those who needed routine care, very small percentages of beneficiaries reported that it was never easy to schedule an appointment as soon as they felt they needed it—2.5 percent in 2007 and 2.4 percent in 2008. Similarly, in both 2007 and 2008, 2.1 percent of beneficiaries who needed to see a specialist reported that it was never easy to get appointments with specialists when needed. Nationwide, the percentages of beneficiaries who reported major difficulties accessing routine or specialist care were the same for those living in urban areas and in rural areas in 2008—2.4 percent for routine care and 2.1 percent for specialist care. Within every state and the District of Columbia, less than 5 percent of the beneficiaries reported major difficulties accessing physician services in 2008. For example, the proportion of beneficiaries who reported never being able to easily schedule an appointment with a specialist in 2008 ranged from 0.3 percent in North Dakota to 4.7 percent in New Mexico. The proportion of beneficiaries who reported it was never easy to promptly schedule an appointment for routine care ranged from 1.5 percent in Oregon to 4.0 percent in Alaska.

Table 1: Medicare Beneficiaries Who Reported Major Difficulties Accessing Physician Services, 2007-2008

CAHPS survey questions regarding access to physician services	Percentage of respondents who reported having major difficulties	
	2007	2008
In the last 6 months, not counting the times you needed care right away, how often did you get an appointment for your health care at a doctor's office or clinic as soon as you thought you needed?	2.5	2.4
In the last 6 months, how often was it easy to get appointments with specialists?	2.1	2.1

Source: GAO analysis of Medicare CAHPS surveys from CMS.

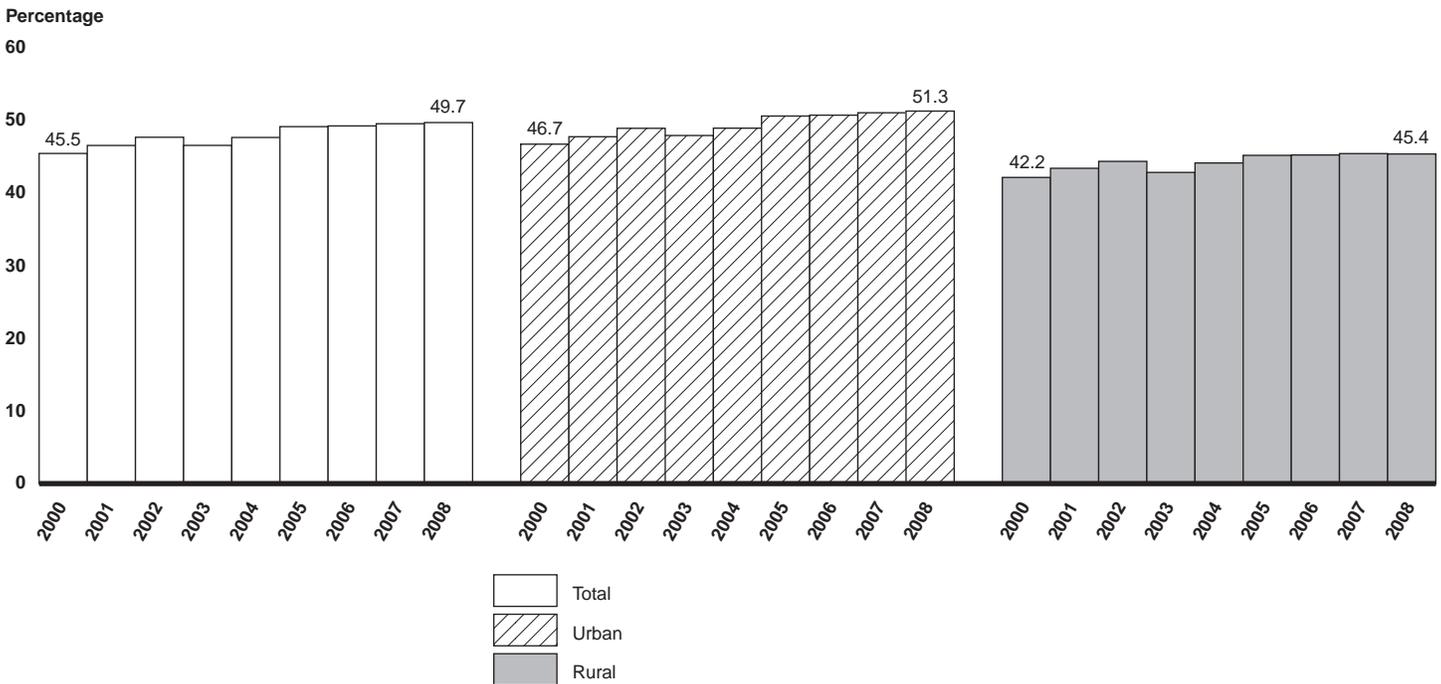
Notes: We defined major difficulties as reporting "never" being able to schedule an appointment for routine care or with a specialist in the past 6 months. The total number of individuals responding to each question varied from year to year. We reported proportions only for those beneficiaries who stated a need to schedule an appointment for routine care or see a specialist.

Proportion of Beneficiaries Receiving Physician Services Increased from 2000 to 2008

In general, the proportion of beneficiaries who received physician services rose during the period covered by our review. (See fig. 1.) Specifically, from 2000 to 2008, the proportion of beneficiaries receiving services during the month of April rose from about 46 percent to about 50 percent. Although the proportion of beneficiaries receiving physician services increased from 2000 to 2008, the rate of increase was not constant. The measure declined slightly in April 2003, but the proportion of beneficiaries receiving services remained about one percentage point higher than in April 2000, and the upward trend resumed in 2004. Nationwide, this measure increased in both urban and rural areas.³⁶ Specifically, the proportion of beneficiaries receiving services rose from about 47 percent in April 2000 to about 51 percent in April 2008 in urban areas and from about 42 percent in April 2000 to about 45 percent in April 2008 in rural areas.

³⁶Using OMB's system for defining MSAs, we classified the nation's counties as urban or rural. We consolidated the urban counties and rural counties in each state and the District of Columbia, creating 99 geographic areas. There were 51 urban areas and 48 rural areas. There were no rural areas in New Jersey, Rhode Island, and the District of Columbia.

Figure 1: Percentage of Medicare Beneficiaries Receiving Physician Services in April, 2000-2008



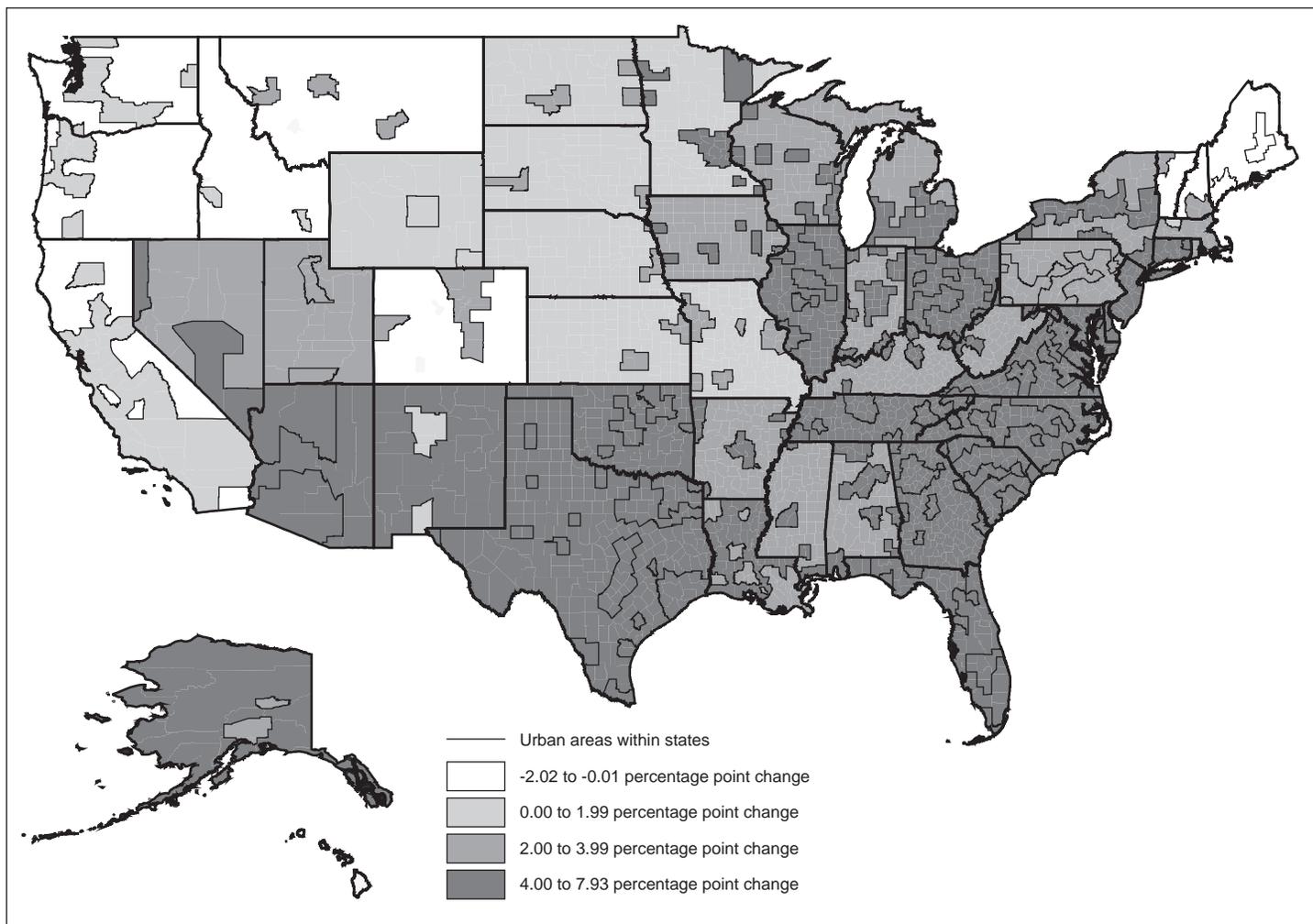
Source: GAO analysis of Medicare Part B claims and enrollment data from CMS.

Note: Beneficiaries were included in the count if they received a service in the first 28 days of April and their claim was processed by the end of the third quarter of each calendar year.

From 2000 through 2008, the proportions of beneficiaries receiving services in April varied by state urban and rural areas. For example, in April 2000, the proportion of beneficiaries served ranged from 28.4 percent in rural Alaska to 51.8 percent in urban Pennsylvania. In April 2008, the proportion of beneficiaries served ranged from 32.7 percent in rural Alaska to 57.5 percent in urban Florida.

Within 88 of the 99 urban and rural areas we examined, the proportion of beneficiaries receiving services increased from April 2000 to April 2008. (See fig. 2.) The largest increase in the percentage of beneficiaries receiving services was 7.9 percentage points in rural Maryland. There was a slight decline—less than 1 percentage point—in six areas: rural California, rural Colorado, rural Idaho, urban Maine, rural Montana, and rural Oregon. The largest decline in the proportion of beneficiaries served—about 2 percentage points—occurred in rural New Hampshire and rural Hawaii.

Figure 2: Change from 2000 to 2008 in Proportion of Medicare Beneficiaries Receiving Physician Services in April, by State Urban and Rural Areas



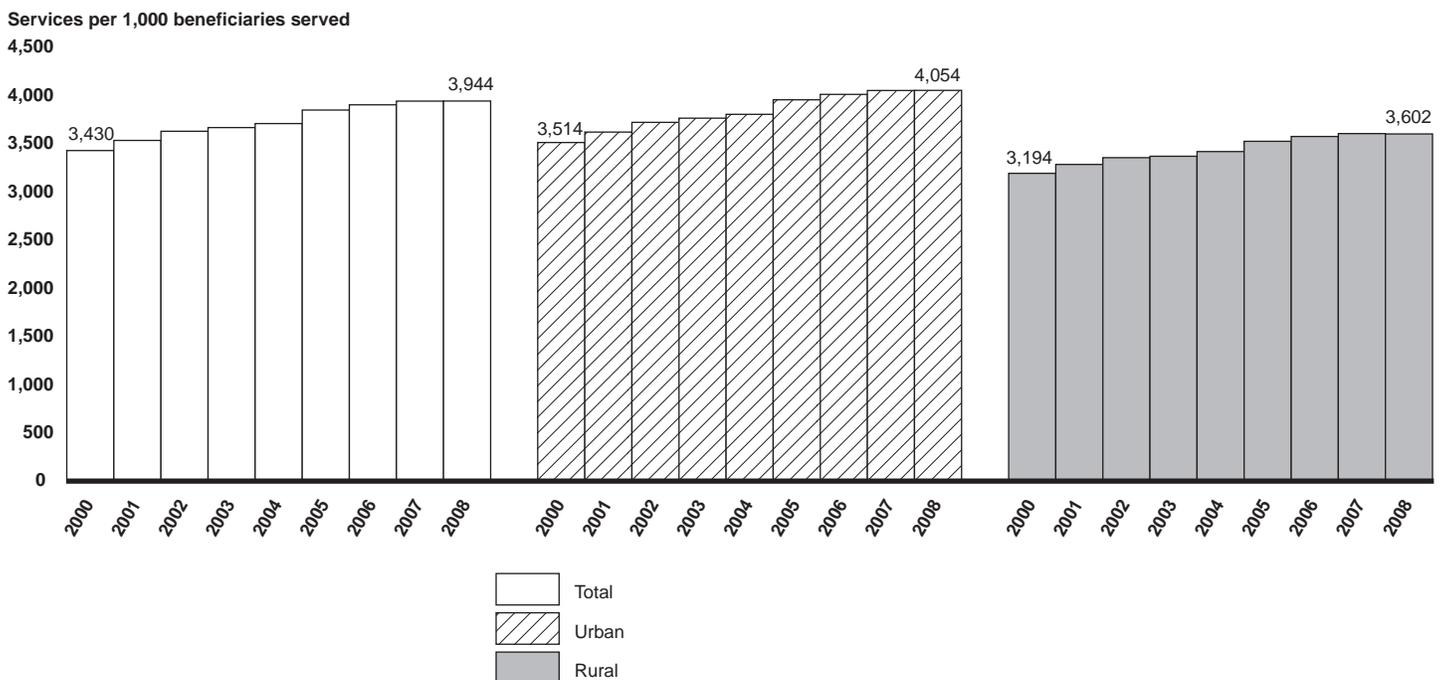
Source: GAO analysis of CMS's Medicare Part B claims data and enrollment data.

Notes: Beneficiaries were included in the count if they received a service in the first 28 days of April and their claim was processed by the end of the third quarter of each calendar year. There were no rural areas in New Jersey, Rhode Island, and the District of Columbia.

Average Number of Physician Services Provided per Beneficiary Rose from 2000 to 2008

From April 2000 to April 2008, an increasing number of services were provided to beneficiaries who were treated by a physician. (See fig. 3.) Specifically, in that period, the average number of services provided per 1,000 beneficiaries who were treated increased by about 15 percent—from about 3,400 to about 3,900. From April 2000 through April 2008, the number of services provided per 1,000 beneficiaries who were treated was lower in rural areas relative to urban areas. However, in percentage terms, the urban and rural areas experienced similar increases in the number of services per 1,000 treated beneficiaries—about a 17 percent increase in urban areas (from about 3,500 in April 2000 to about 4,100 in April 2008) and about a 13 percent increase in rural areas (from about 3,200 in April 2000 to about 3,600 in April 2008).

Figure 3: Number of Physician Services Provided per 1,000 Medicare Beneficiaries Served in April, 2000-2008



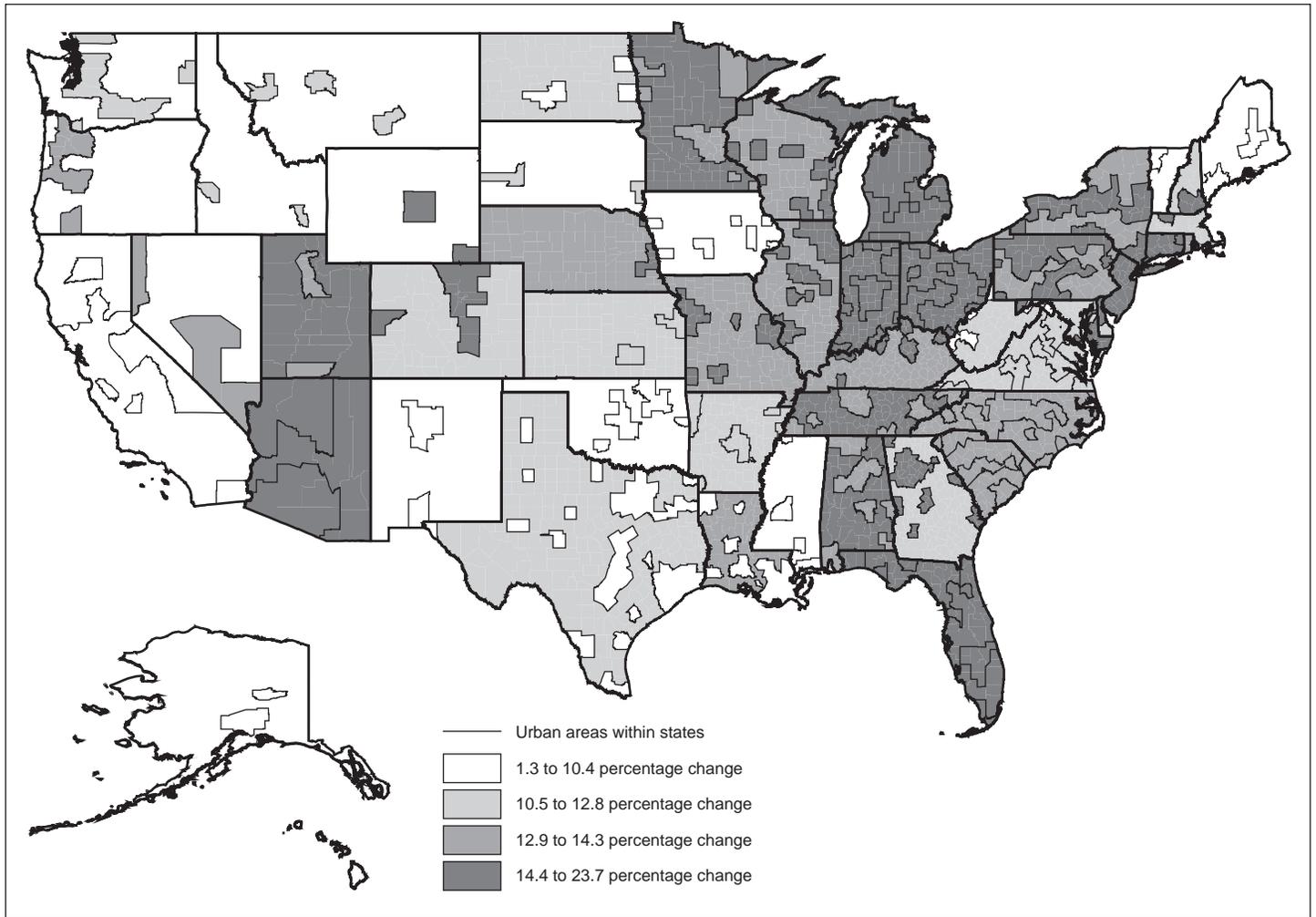
Source: GAO analysis of Medicare Part B claims data from CMS.

Note: Beneficiaries and services were included in the count if the service was received in the first 28 days of April and the claim was processed by the end of the third quarter of each calendar year.

The number of services provided also varied among states' urban areas and rural areas. For example, in April 2000, the number of services per 1,000 beneficiaries served ranged from about 2,800 in rural Utah to about 3,900 in urban Texas. In April 2008, the number of services per 1,000 beneficiaries served ranged from about 3,100 in rural Hawaii to about 4,500 in urban Florida.

Within every state's urban and rural areas, there was an increase from April 2000 to April 2008 in the average number of services provided for each beneficiary who was treated by a physician. (See fig. 4.) In 59 of the 99 areas we examined, the number of services provided per 1,000 beneficiaries increased by about 12 percent or more. Among the 51 urban areas we examined, the percentage increase in the number of services provided per 1,000 beneficiaries ranged from about 5 percent in Vermont to about 24 percent in New York. Among the 48 rural areas, the increase ranged from about 1 percent in Alaska to about 23 percent in Connecticut.

Figure 4: Change from 2000 to 2008 in Number of Physician Services Provided per 1,000 Medicare Beneficiaries Served in April, by State Urban and Rural Areas



Source: GAO analysis of CMS's Medicare Part B claims data.

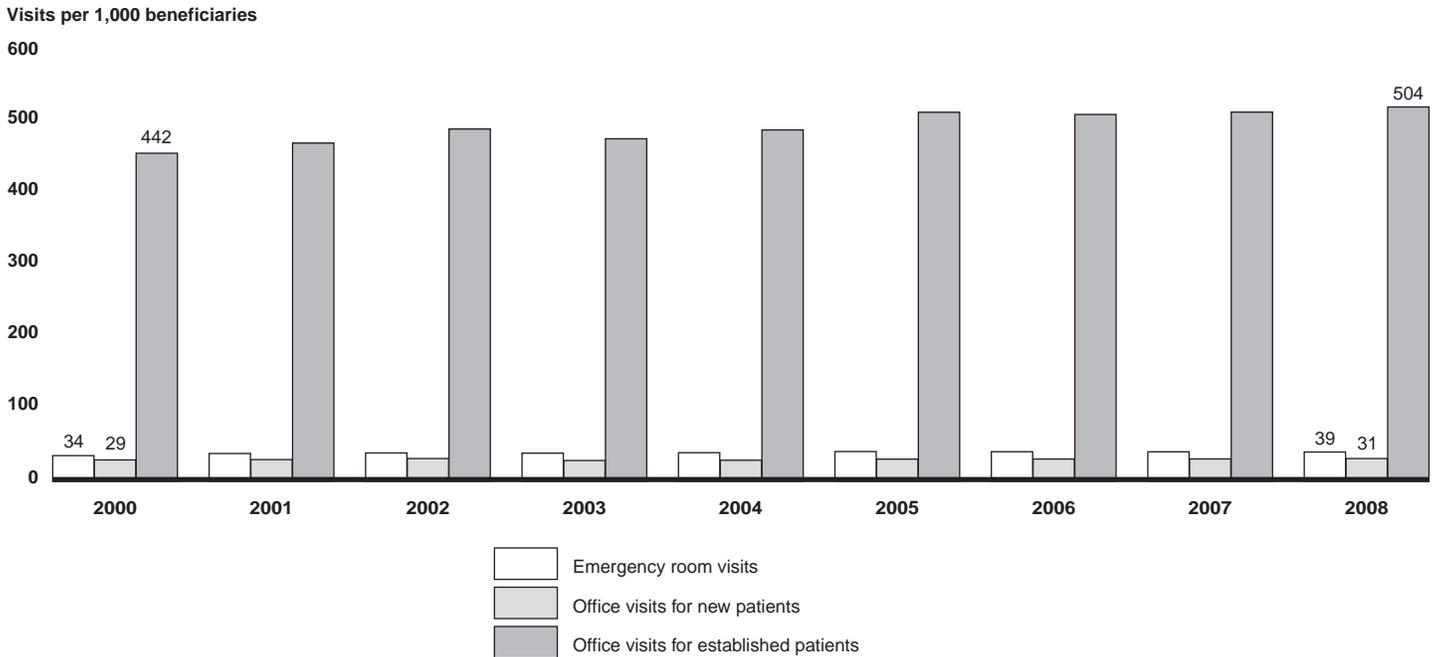
Notes: Beneficiaries and services were included in the count if the service was received in the first 28 days of April and the claim was processed by the end of the third quarter of each calendar year. There were no rural areas in New Jersey, Rhode Island, and the District of Columbia.

The average number of physician office visits—an indicator of beneficiary access to the typical entry point into the health care system and most basic level of physician services—rose for Medicare beneficiaries from April 2000 to April 2008. (See fig. 5.) The number of office visits increased during that period from about 29 to 31 (about 7 percent) per 1,000

Medicare beneficiaries for new patients and from about 442 to 504 (about 14 percent) per 1,000 Medicare beneficiaries for established patients. Research indicates that an increased number of emergency room visits above the growth in physician services could signify problems accessing primary care because patients who have difficulties obtaining routine care may instead seek health care in emergency rooms.³⁷ However, our analysis demonstrates similar increases in emergency room visits, total office visits, and overall physician services from 2000 to 2008. Specifically, emergency room visits rose from about 34 to 39 per 1,000 beneficiaries—about 15 percent—which was approximately equal to the increase in total (new and established patient) office visits and the increase in the overall number of physician services per 1,000 beneficiaries treated.

³⁷Peter Cunningham and Jack Hadley, “Expanding Care Versus Expanding Coverage: How To Improve Access To Care,” *Health Affairs*, vol. 23, no. 4 (2004), and Medicare Payment Advisory Commission, *Report to the Congress: Medicare Payment Policy*, 93.

Figure 5: Numbers of Emergency Room Visits, Office Visits for New Patients, and Office Visits for Established Patients per 1,000 FFS Medicare Beneficiaries in April, 2000-2008



Source: GAO analysis of Medicare Part B claims and enrollment data from CMS.

Note: Beneficiaries and services were included in the count if the service was received in the first 28 days of April and the claim was processed by the end of the third quarter of each calendar year.

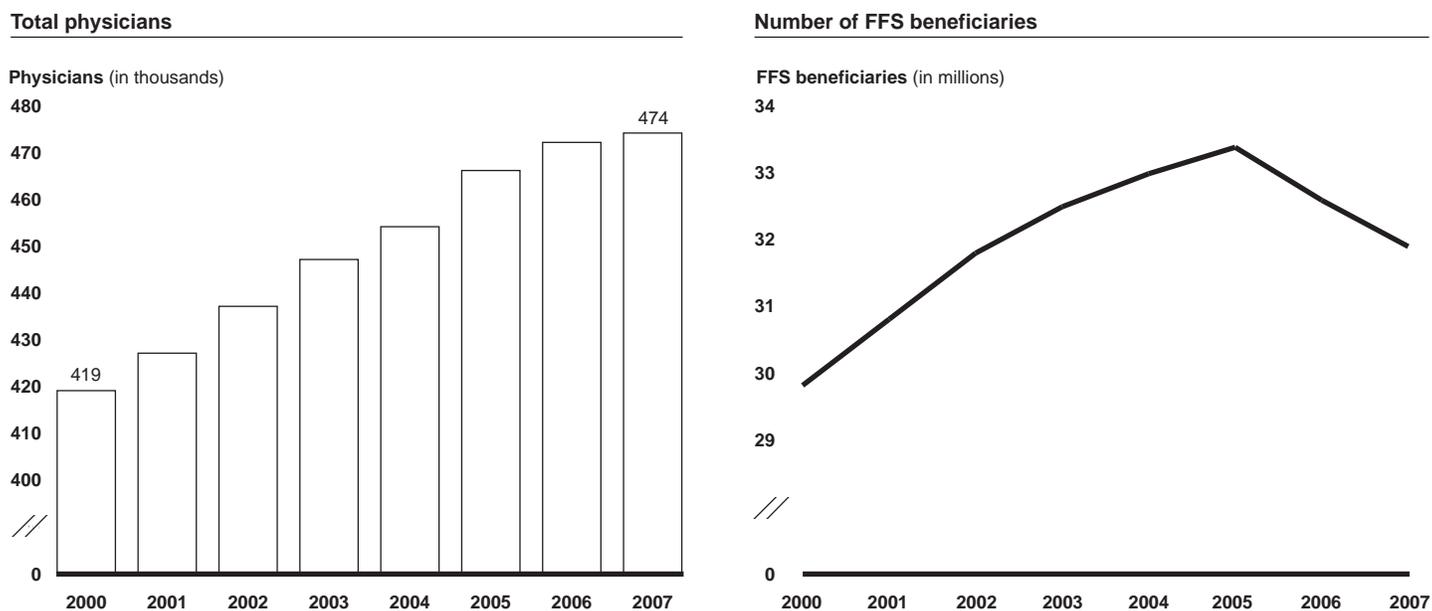
Indicators of Physician Willingness to Serve Medicare Beneficiaries Remain Favorable

Two additional access-related indicators—the number of physicians billing Medicare for services and the percentage of services for which Medicare’s fees were accepted as payment in full—increased since 2000. (See fig. 6.) Specifically, the number of physicians billing Medicare increased from about 419,000 in April 2000 to about 474,000 in April 2007.³⁸ The number of physicians continued to increase even as the number of beneficiaries in Medicare FFS declined over the last 2 years. The number of beneficiaries in traditional FFS Medicare decreased from about 33.4 million in 2005 to

³⁸These values are based on a count of unique physician identification numbers (UPIN) on Medicare Part B claims for physicians who performed services. As part of its transition to using the National Provider Identifier, in May 2007 CMS stopped issuing UPINs for physicians billing Medicare for the first time. Therefore, we were unable to obtain a comparable count of UPINs for 2008.

about 31.9 million in 2007, as more beneficiaries joined Medicare Advantage plans.³⁹ Increases in the number of physicians billing Medicare, in spite of the decline in Medicare FFS beneficiaries, suggest that in the aggregate, physicians continued to accept FFS Medicare patients during this period.

Figure 6: Number of Physicians Billing Medicare for Services Provided to Medicare Beneficiaries in April and Number of Medicare FFS Beneficiaries, 2000-2007



Source: GAO analysis of Medicare Part B claims and enrollment data from CMS.

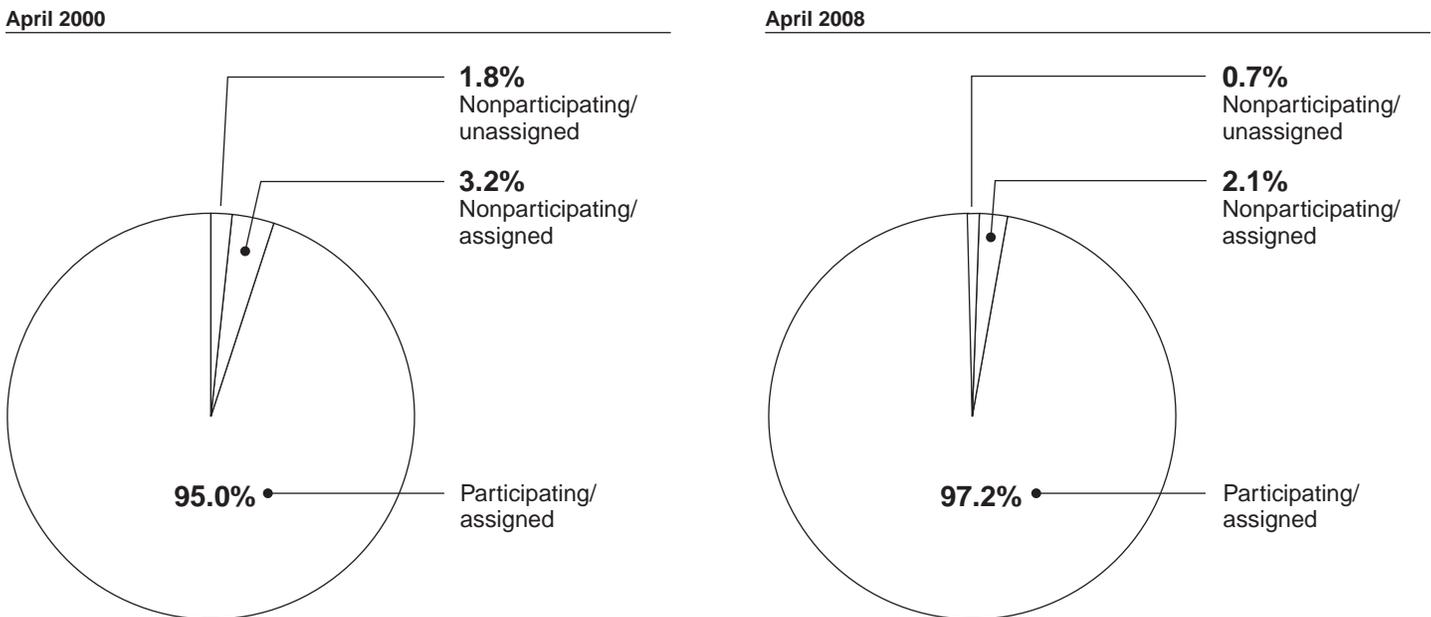
Notes: Physicians were included in the count if they served a beneficiary in the first 28 days of April and their claim was processed by the end of the third quarter of each calendar year. We counted each occurrence of the unique physician identification number on the claim once.

From April 2000 to April 2008, the majority of Medicare physician services were performed by physicians who accepted Medicare’s fees as payment in full. (See fig. 7.) In April 2000, about 98 percent of physician services were performed by physicians who accepted Medicare’s fee as payment in

³⁹ Medicare beneficiaries may choose how they receive services covered under Parts A and B. Most beneficiaries receive services through Medicare’s traditional FFS option and can obtain care from any licensed provider willing to accept Medicare patients. Beneficiaries can also enroll in the Medicare Advantage program, in which private health plans generally contract with providers to serve Medicare beneficiaries.

full (on assignment), and in April 2008, about 99 percent of physician services were paid on assignment. A smaller share of beneficiaries were likely subject to balance billing for physician services in April 2008 than in April 2000, as the percentage of services for which physicians did not accept Medicare’s fee as payment in full decreased from about 1.8 percent to about 0.7 percent. The proportion of services provided by participating physicians—that is, physicians who formally agreed to participate in the Medicare program and submit all claims on assignment—increased from about 95 percent in April 2000 to about 97 percent in April 2008.⁴⁰

Figure 7: Proportion of Physician Services by Medicare Participation and Assignment Status



Source: GAO analysis of Medicare Part B claims data from CMS.

Note: Services were counted if they were received in the first 28 days in April and claims for these services were processed by the end of the third quarter of each calendar year.

⁴⁰Physicians may decide on an annual basis whether they will be Medicare participating physicians.

Potentially Overserved Areas Tend to Be in More Densely Populated Urban Regions and the Eastern Part of the Country

Potentially overserved areas tend to be the more densely populated urban regions. Higher population density tended to increase an area’s likelihood of being potentially overserved. Nearly half of the 32 metropolitan divisions—the most densely populated group of areas—were potentially overserved. (See table 2.) Similarly, a little more than a quarter of large MSAs were potentially overserved while among small MSA areas and rural areas, barely 1 in 10 was potentially overserved.⁴¹

Table 2: Distribution of Utilization Status by Type of Geographic Area

Type of geographic area	Number of areas	Percentage	
		Potentially overserved areas	Other areas
Metropolitan divisions	32	47	53
Large MSAs	174	27	73
Small MSA areas	43	12	88
Rural areas	47	11	89
All areas	296	24	76

Source: GAO analysis of data from the U.S. Census Bureau and Medicare Part B claims and enrollment data for April 2000 and April 2008 from CMS.

Notes: Connecticut, the District of Columbia, New Jersey and Rhode Island had no rural areas. Counties were mapped to metropolitan divisions based on U.S. Census Bureau designations. Nonrural counties outside of metropolitan divisions were mapped to MSAs based on U.S. Census Bureau and OMB designations. Small MSA areas are MSAs with fewer than 200,000 in population grouped together within each state. Rural areas include all rural counties within a state.

Of the 296 geographic areas we examined, about one in four was potentially overserved—that is, they were in the top half of areas in both utilization of physician services in 2000 and growth in utilization of these services from 2000 to 2008. Areas that were in the top half in utilization in 2000 were nearly as likely to be in the top half in growth from 2000 to 2008 as areas that started in the bottom half in utilization. Specifically, of the 148 areas that were in the top half in utilization in 2000, 72 were in the top half in growth from 2000 to 2008. (See table 10 in app. I.) Similarly, of the 148 areas that were in the bottom half in utilization in 2000, 76 were in the top half in growth from 2000 to 2008.

⁴¹In our analysis, we grouped small MSAs—that is, MSAs with fewer than 200,000 residents—together within the same state. Counties outside of metropolitan divisions and MSAs were designated as rural areas and were similarly grouped together.

Potentially overserved areas and other areas experienced wide differences in utilization. These differences tended to be widest in the more densely populated regions. In 2000, the average number of services per beneficiary who received services was 3.58 in potentially overserved areas versus 3.24 in other areas, or a difference of more than 10 percent. (See app. II for more information on utilization by type of geographic area.) Among areas with the largest populations—the metropolitan divisions and large MSAs—average utilization in 2000 was 9 percent higher in potentially overserved areas, compared with a difference of about 5 percent among small MSA areas and 8 percent among rural areas. The growth in utilization from 2000 to 2008 displayed a similar pattern. Overall, the average increase for potentially overserved areas was nearly 18 percent, while for other areas it was just over 12 percent. The average increase in utilization in potentially overserved metropolitan divisions was 21 percent, compared with 12 percent in other metropolitan divisions. For the less densely populated areas, utilization also grew more rapidly in potentially overserved areas, although the gap in growth rates between potentially overserved and other areas tended to be smaller than it was for the metropolitan divisions. For example, the average increase in utilization was 17 percent in potentially overserved large MSAs, compared with 13 percent for other large MSAs.

Our analysis found that areas in states east of the Mississippi River were much more likely to be potentially overserved. (See fig. 8.) Of the 174 areas in states that are east of the Mississippi River, 60 were potentially overserved. For example, nearly the entire states of Alabama, Florida, and Illinois comprised potentially overserved areas. Of the 122 areas in states that are west of the Mississippi River, only 12 were potentially overserved.⁴²

⁴²We defined Arkansas, Iowa, Louisiana, Minnesota, Missouri, and all states to their west as “west of the Mississippi River.”

Figure 8: Geographic Areas by Type of Area and Utilization Status



Source: GAO analysis of 2006 U.S. Census Bureau data and Medicare Part B claims data for April 2000 and April 2008.

Notes: We classified U.S. counties into one of four types of geographic areas: metropolitan divisions, large MSAs, small MSA areas, and rural areas. Potentially overserved areas are areas that were in the top half of areas in both utilization of physician services in 2000 and growth in utilization of physician services from 2000 to 2008. The rest of the areas were designated as other areas.

Beneficiaries residing east of the Mississippi River are much more likely to reside in a potentially overserved area, because the most densely populated areas in the east are more likely to be potentially overserved than are those in the west. In 2008 nearly half the beneficiaries who resided in a state east of the Mississippi River were in a potentially

overserved area, while in the western part of the country only 1 beneficiary in 10 resided in a potentially overserved area. In terms of population, the largest of the major metropolitan divisions east of the Mississippi River, including New York-White Plains, Chicago-Naperville-Joliet, and Philadelphia, were potentially overserved areas.⁴³ In contrast, the largest western metropolitan divisions of Los Angeles-Long Beach-Glendale, Dallas-Plano-Irving, and Santa Ana-Anaheim-Irvine were not potentially overserved areas by our measure.⁴⁴ Similarly, beneficiaries in five of the six most populous large MSAs in the east were in potentially overserved areas, while beneficiaries in five of the six most populous large MSAs in the west were not. Only a minority of small MSA areas and rural areas in the east were potentially overserved and none of either of these two area types were potentially overserved in the west. (See app. III for a list of all areas.)⁴⁵

Potentially Overserved Areas Are Largely Similar to Other Areas, with the Exception of Physician Practice Patterns

Potentially overserved areas and other areas are largely similar in characteristics that could drive the use of physician services, including demographic characteristics and the capacity to provide health care services. In contrast, certain types of physician services are performed more frequently in potentially overserved areas than in other areas, suggesting differences in physician practice patterns.

⁴³Certain U.S. Census Bureau metropolitan divisions crossed state lines. In our analysis, we subdivided these entities into areas within states.

⁴⁴By labeling areas as “potentially overserved” and “other,” we do not suggest that the level of care in the other areas is uniformly appropriate. For example, the level of services provided in the Los Angeles-Long Beach-Glendale metropolitan division (see table 12 in app. III) was among the highest in the nation in both 2000 and 2008. However, because the growth rate was below the national median in this area, it did not meet our criteria for being placed in the potentially overserved category.

⁴⁵See app. V for more information on potentially overserved and other Medicare physician payment localities and app. VII for more information on potentially overserved and other hospital referral regions.

Demographic Characteristics and Capacity to Provide Health Care Are Similar among Potentially Overserved and Other Areas

Potentially overserved and other areas appear similar in demographic characteristics that could be expected to affect the use of physician services. (See table 3.) For example, in 2006 Medicare beneficiaries in both groups of areas had similar risk scores, meaning they are expected to require similar amounts of Medicare resources because of their health status.⁴⁶ Potentially overserved areas and other areas also had a similar racial composition and average income levels, although they differed somewhat in educational attainment.⁴⁷ While these local factors are not under the control of the health care delivery system, they could be expected to influence the utilization of health care services. For example, income levels and insurance coverage have been shown to be related to patient preferences and demand for health care.⁴⁸

⁴⁶The risk scores are based on the demographics and diagnoses of the entire FFS population in a county and reflect the likelihood of needing more expensive care for Medicare Parts A and B combined. The population we used to determine whether an area is potentially overserved consists of beneficiaries who received Part B physician services in April 2000 or April 2008.

⁴⁷In the potentially overserved areas, 22.9 percent of the 2006 population attained at least 4 years of college education, compared to 25.5 percent in other areas.

⁴⁸Newhouse et al., *Free for All? Lessons from the RAND Health Insurance Experiment*.

Table 3: Selected Demographic Characteristics in Potentially Overserved and Other Areas

	Potentially overserved areas	Other areas
Deaths per 1,000 people, 2006	8.8	8.1
Average risk score, 2006 ^a	1.03	0.98
Average Medicare beneficiary age, 2008	71.2	70.8
Income per capita, 1999	\$21,315	\$21,653
Percentage of population enrolled in Medicare, 2007	11.7	10.8
Percentage of Medicare beneficiaries reporting having insurance in addition to Medicare	75	77
Percentage of population nonwhite, 2006	19.0	18.6
Percentage of population with at least 4 years of college education, 2006	22.9	25.5

Source: GAO analysis of Medicare Part B claims data, enrollment data, CAHPS survey data, and Medicare Advantage rate calculation data from CMS; ARF data from HRSA; and data from the U.S. Census Bureau.

Notes: Data were the most recent available at the time of our analysis. We classified U.S. counties into one of four types of geographic areas: metropolitan divisions, large MSAs, small MSA areas, and rural areas. Potentially overserved areas are areas that were in the top half of areas in both utilization of physician services in April 2000 and growth in utilization of physician services from April 2000 to April 2008. The rest of the areas were designated as other areas.

^aThe risk scores are based on the demographics and diagnoses of the entire FFS population in a county and reflect the likelihood of needing more expensive care for Medicare Parts A and B combined. The population we used to determine whether an area is potentially overserved consists of beneficiaries who received Part B physician services in April 2000 or April 2008.

Potentially overserved areas and other areas are also similar in terms of their capacities to provide health care services, as measured by number of beds and physicians per 1,000 people. (See table 4.) Specifically, in 2005, potentially overserved and other areas had a similar number of hospital beds per 1,000 people. In 2004, potentially overserved areas and other areas also had a similar number of physicians per 1,000 people. Studies have demonstrated strong associations between the number of hospital

beds and hospital utilization and between physician supply and the rate of physician visits.⁴⁹

Table 4: Selected Health Care Capacity Characteristics in Potentially Overserved and Other Areas

	Potentially overserved areas	Other areas
Hospital beds per 1,000 population, 2005	3.4	3.5
Short-term hospital inpatient days per Medicare beneficiary, 2005	2.3	2.0
Number of physicians per 1,000 people, 2004	2.8	2.8
Ratio of primary care physicians to specialists, 2004	0.5	0.5

Source: GAO analysis of ARF data from HRSA.

Notes: Data were the most recent available at the time of our analysis. We classified U.S. counties into one of four types of geographic areas: metropolitan divisions, large MSAs, small MSA areas, and rural areas. Potentially overserved areas are areas that were in the top half of areas in both utilization of physician services in April 2000 and growth in utilization of physician services from April 2000 to April 2008. The rest of the areas were designated as other areas.

As table 4 shows, in 2004, potentially overserved areas and other areas had similar numbers of primary care physicians compared to specialists—about a one-to-two ratio. Studies have shown that areas with higher ratios of primary care physicians to specialists have better health outcomes and better meet quality measures, such as administering beta-blockers after a heart attack or performing regular eye exams on diabetic patients.⁵⁰ Conversely, studies have demonstrated that areas with more specialty

⁴⁹The view that health care supply creates its own demand is sometimes referred to as Roemer’s Law. M.I. Roemer and M. Shain, *Hospital Utilization Under Insurance*, Hospital Monograph Series No. 6 (Chicago: American Hospital Association, 1959); Fisher et al., “The Implications of Regional Variations in Medicare Spending. Part 1: The Content, Quality, and Accessibility of Care,” 273-287; Fisher et al., “The Implications of Regional Variations in Medicare Spending. Part 2: Health Outcomes and Satisfaction with Care,” 288-298; and E.S. Fisher, J.E. Wennberg, T.A. Stukel, and S.M. Sharp, “Hospital Readmission Rates for Cohorts of Medicare Beneficiaries in Boston and New Haven,” *New England Journal of Medicine*, vol. 331, no.15 (1994): 989-995.

⁵⁰K. Baicker and A. Chandra, “Medicare Spending, the Physician Workforce, and Beneficiaries’ Quality of Care,” *Health Affairs*, Web exclusive (Apr. 7, 2004): 184-197, and B. Starfield, L. Shi, and J. Macinko, “Contribution of Primary Care to Health Systems and Health,” *The Milbank Quarterly*, vol. 83, no. 3 (2005): 457-502.

services are associated with higher spending but not better access or health outcomes.⁵¹

Beneficiary Satisfaction Is Similar in Potentially Overserved and Other Areas

Potentially overserved areas and other areas have similar Medicare beneficiary satisfaction, as measured by beneficiary perceptions of health care and health status. (See table 5.) For example, 94 percent of beneficiaries in potentially overserved areas reported having a personal doctor, compared to 93 percent of beneficiaries in other areas. Beneficiaries in both groups of areas also reported similar average health status, and similarly rated their health care and personal doctors highly. This finding is consistent with studies showing that geographic areas with high Medicare spending do not have better outcomes or perceptions of quality of medical care.⁵²

⁵¹John E. Wennberg et al., *Tracking the Care of Patients with Severe Chronic Illness: Dartmouth Atlas of Health Care 2008* (Lebanon, N.H.: 2008); Fisher et al., “The Implications of Regional Variations in Medicare Spending. Part 1: The Content, Quality, and Accessibility of Care,” 273-287; and Fisher et al., “The Implications of Regional Variations in Medicare Spending. Part 2: Health Outcomes and Satisfaction with Care,” 288-298.

⁵²Floyd J. Fowler, Jr., et al., “Relationship Between Regional Per Capita Medicare Expenditures and Patient Perceptions of Quality of Care,” *Journal of the American Medical Association*, vol. 299, no. 20 (2008): 2406-2412; Fisher et al., “The Implications of Regional Variations in Medicare Spending. Part 1: The Content, Quality, and Accessibility of Care,” 273-287; and Fisher et al., “The Implications of Regional Variations in Medicare Spending. Part 2: Health Outcomes and Satisfaction with Care,” 288-298.

Table 5: Selected Medicare Beneficiary Satisfaction Indicators in Potentially Overserved and Other Areas, 2008

	Potentially overserved areas	Other areas
Percentage reporting having a personal doctor	94	93
Percentage reporting that it was never easy to schedule an appointment with a specialist	2	2
Percentage reporting never being able to promptly schedule an appointment for routine care	2	2
Self-reported health status (1=Excellent, 3=Good, 5=Poor)	3.1	3.1
Average rating of personal doctor (0=worst, 10=best)	8.9	8.9
Average rating of overall health care (0=worst, 10=best)	8.3	8.4

Source: GAO analysis of the Medicare CAHPS survey from CMS.

Notes: The total number of individuals responding to each question varied. We report proportions of beneficiaries who were never able to easily schedule an appointment for routine care with a doctor or a specialist in the past 6 months only for those beneficiaries who needed routine care or a specialist. Similarly, we report beneficiary ratings of their personal doctor and overall health care only for those beneficiaries who visited a personal doctor or received health care services in the past 6 months. We classified U.S. counties into one of four types of geographic areas: metropolitan divisions, large MSAs, small MSA areas, and rural areas. Potentially overserved areas are areas that were in the top half of areas in both utilization of physician services in April 2000 and growth in utilization of physician services from April 2000 to April 2008. The rest of the areas were designated as other areas.

Potentially Overserved and Other Areas Have Substantial Differences in Use of Certain Types of Physician Services

When we compared types of physician services provided to Medicare beneficiaries, we found that potentially overserved areas and other areas differed in the frequency with which certain categories of physician services are used. (See table 6.) Specifically, we found that in April 2008, potentially overserved areas used substantially more evaluation and management services, minor procedures, and imaging services per 1,000 beneficiaries than other areas. For example, potentially overserved areas had 44 percent more minor procedures—which include services such as ambulatory procedures, eye procedure treatments, and colonoscopies—per 1,000 beneficiaries than other areas. Potentially overserved areas also had 29 percent more laboratory tests and 19 percent more imaging services per 1,000 beneficiaries than other areas. The two groups of areas, however, had similar rates of major procedures. (See app. IV for additional

trends in selected physician services in potentially overserved and other areas.)⁵³

Table 6: Selected Physician Service Categories per 1,000 Medicare FFS Beneficiaries in Potentially Overserved and Other Areas, 2008

	Potentially overserved areas	Other areas
All services	2,247	1,812
Evaluation and management services	1,188	969
Procedures		
Major ^a	25	22
Minor ^b	191	133
Imaging services	457	385
Laboratory tests	44	34

Source: GAO analysis of Medicare Part B claims data and enrollment data from CMS.

Notes: Beneficiaries and services were included in the count if the service was received in the first 28 days of April and the claim was processed by the end of the third quarter of each calendar year. We classified U.S. counties into one of four types of geographic areas: metropolitan divisions, large MSAs, small MSA areas, and rural areas. Potentially overserved areas are areas that were in the top half of areas in both utilization of physician services in 2000 and growth in utilization of physician services from 2000 to 2008. The rest of the areas were designated as other areas.

^aMajor procedures is a clinical category defined by CMS, and includes physician services such as coronary artery bypass grafts, hip fracture repairs, and knee replacements.

^bMinor procedures is a clinical category defined by CMS, and includes physician services such as ambulatory procedures, eye procedure treatments, and colonoscopies.

We also found that specific services associated with the exercise of physician discretion are performed more frequently in potentially overserved areas, indicating differences in physician practice patterns. (See table 7.) When there is not a universally accepted treatment approach, the choice of services is subject to physician discretion. Several studies have identified certain services as prone to overuse or misuse for

⁵³See app. VI for trends in selected physician services in potentially overserved and other Medicare physician payment localities and app. VIII for trends in selected physician services in potentially overserved and other hospital referral regions.

various reasons, including physician discretion.⁵⁴ Two of the three physician services identified in the literature as being related to physician discretion were performed substantially more frequently in potentially overserved areas than in other areas in April 2008. Advanced imaging services, which includes computed tomography (CT) and magnetic resonance imaging (MRI), were 16.1 percent more prevalent per 1,000 beneficiaries in potentially overserved areas than in other areas in April 2008.⁵⁵ Electrocardiograms (EKG) were performed 30.1 percent more frequently per 1,000 beneficiaries in potentially overserved areas than in other areas. However, the frequency of knee replacements was similar in potentially overserved and other areas.⁵⁶

⁵⁴Wennberg et al., *Tracking the Care of Patients with Severe Chronic Illness: Dartmouth Atlas of Health Care 2008*; E.S. Fisher and J.E. Wennberg, "Health Care Quality, Geographic Variations, and the Challenge of Supply-Sensitive Care," *Perspectives in Biology and Medicine*, vol. 46, no. 1, (Winter 2003): 69-79; Center for the Evaluative Clinical Sciences, *Dartmouth Atlas Project Topic Brief: Effective Care* (Lebanon, N.H.: 2007); Center for the Evaluative Clinical Sciences, *Dartmouth Atlas Project Topic Brief: Preference-Sensitive Care* (Lebanon, N.H.: 2007); Center for the Evaluative Clinical Sciences, *Dartmouth Atlas Project Topic Brief: Supply-Sensitive Care* (Lebanon, N.H.: 2007); and RAND, *Assessing the Appropriateness of Care: How Much Is Too Much?* (1998).

⁵⁵Imaging and diagnostic tests are examples of supply-sensitive care, a term used by the Dartmouth Atlas of Health Care to mean care for which the supply of resources partially determines the frequency of use.

⁵⁶Dartmouth researchers have identified knee replacements as an example of preference-sensitive care, meaning interventions for which there is a choice between at least two treatments that have different risks and benefits. Treatment choices among preference-sensitive care depend on patient preference and, often, physician discretion.

Table 7: Selected Physician Services per 1,000 Medicare FFS Beneficiaries in Potentially Overserved and Other Areas, 2008

	Potentially overserved areas	Other areas
Services associated with physician discretion		
Knee replacement ^a	0.8	0.8
Advanced imaging ^b	74.8	64.4
EKG ^b	85.2	65.5
Services not associated with physician discretion		
Hip surgery for hip fracture ^c	0.4	0.4
Colonoscopy for cancer screening ^c	8.2	7.4
Cataract removal ^d	5.0	5.1

Source: GAO analysis of Medicare Part B claims data and enrollment data from CMS, and GAO review of literature.

Notes: Beneficiaries and services were included in the count if the service was received in the first 28 days of April and the claim was processed by the end of the third quarter of each calendar year. We classified U.S. counties into one of four types of geographic areas: metropolitan divisions, large MSAs, small MSA areas, and rural areas. Potentially overserved areas are areas that were in the top half of areas in both utilization of physician services in 2000 and growth in utilization of physician services from 2000 to 2008. The rest of the areas were designated as other areas. Physician services associated with physician discretion are situations in which there is not a universally accepted approach to treating the diagnosis.

^aDartmouth researchers have identified knee replacement as an example of preference-sensitive care, meaning interventions for which there is a choice between at least two treatments that have different risks and benefits. Treatment choices among preference-sensitive care depend on patient preference and, often, physician discretion.

^bDartmouth researchers have identified imaging and diagnostic testing as examples of supply-sensitive care, meaning care for which supply of resources governs the frequency of use.

^cDartmouth researchers have identified hip surgery for hip fracture and colonoscopy for cancer screening as examples of situations in which there is a universally accepted approach to treating the diagnosis.

^dResearchers at RAND identified cataract removal as a service with low rates of inappropriate use.

We also found that two of three services identified in the literature as being universally accepted approaches to diagnoses or having low rates of inappropriate use were performed at similar frequencies in the two groups of areas in April 2008. Specifically, hip surgery for hip fracture and cataract removal were performed at similar frequencies in the two groups of areas. However, colonoscopy for cancer screening—another procedure identified in the literature as effective and strongly supported by evidence—was performed 10.8 percent more often per 1,000 beneficiaries in potentially overserved areas than in other areas in the United States.

Concluding Observations

Although concerns have been raised that Congress's efforts to control spending on physician services could limit beneficiary access to those services, our analysis suggests that beneficiary access generally remained the same or increased from 2000 to 2008. These findings are consistent with our earlier work. However, we also found that some geographic areas of the country experienced much higher levels of utilization of physician services and much greater increases in utilization compared to the rest of the nation—which may indicate excessive care not driven by medical need. Our definition of areas that are potentially overserved was based on both levels of service and growth rates, while past research has generally concentrated on levels of service. Nevertheless, our findings are consistent with past research—they underscore the importance of geography in the utilization of physician services and can help inform ongoing discussions regarding Medicare physician payment reform. Medicare's SGR, which is used to help control spending on physician services, does not account for geographic differences in utilization rates. As Congress considers options for revising the SGR and other payment reforms, the issue of geographic differences will likely continue to be part of this discussion.

Agency and Industry Comments and Our Evaluation

Agency Comments

In written comments on a draft of this report, CMS noted the agency's longstanding practice of monitoring the effect of policy changes on beneficiary access to Medicare services, and stated that this report would help in that effort. We have reprinted CMS's letter in appendix IX.

American Medical Association Comments

We obtained oral comments on a draft of our report from an official representing the American Medical Association (AMA). The AMA official shared two overall observations. First, the AMA official said that the rate of growth in per beneficiary utilization of physician services had declined each year since 2004. While the growth rate has not been uniform, our report finds that an increasing number of services were provided to beneficiaries who were treated by a physician from April 2000 to April 2008. Second, the AMA official said that beneficiaries could face access problems that would not appear in our analysis of survey and claims data. The AMA official explained, for example, that physicians could increase the number of claims they submit, while seeing fewer patients or could be

accepting fewer Medicare beneficiaries seeking new appointments. However, the three overall indicators we constructed to measure access trends—from both the beneficiary and physician perspective—demonstrated sustained beneficiary access to services. As we reported in our draft, we found very few beneficiaries reporting major access difficulties in 2007 and 2008, the utilization of services increased nationwide from April 2000 to April 2008, and physician participation in Medicare also rose over this period. The AMA official also shared technical comments with us, which we incorporated into our report as appropriate.

As agreed with your offices, unless you publicly announce the contents of this report earlier, we plan no further distribution until 30 days from the report date. At the time, we will send copies to the Acting Administrator of CMS and interested congressional committees. The report also will be available at no charge on GAO's Web site at <http://www.gao.gov>.

If you or your staff have any questions, please contact me at (202) 512-7114 or steinwalda@gao.gov. Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this report. GAO staff who made major contributions to this report are listed in appendix X.



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Director, Health Care

Appendix I: Scope and Methodology

This appendix explains the scope and methodology that we used to address our reporting objectives. Specifically, we wanted to (1) determine how beneficiary access to physician services has changed from 2000 to 2008; (2) identify areas of the country where Medicare beneficiaries are potentially overserved by physicians; and (3) describe characteristics that distinguish potentially overserved areas from other areas in the nation.

To determine how beneficiary access to physician services changed from 2000 to 2008, we constructed three types of indicators to measure beneficiary access to physician services: beneficiary perceptions about access, utilization of physician services, and indicators of physicians' willingness to participate in Medicare and serve Medicare beneficiaries. To measure beneficiary perceptions of access, we analyzed 2007 and 2008 responses to the Consumer Assessment of Healthcare Providers and Systems (CAHPS) survey conducted by the Centers for Medicare & Medicaid Services (CMS). We used CAHPS survey data that asked beneficiaries to describe their experiences with the Medicare fee-for-service (FFS) program.¹ These annual surveys are a nationally representative source of Medicare beneficiary perceptions of their access to health care that would enable comparisons over time among states and between urban and rural areas. Respondents were asked about their experiences in the 6 months before the survey.² CMS surveyed approximately 431,000 FFS beneficiaries in the spring of 2007 and approximately 306,000 in the spring of 2008. We excluded responses from beneficiaries residing outside the 50 states and the District of Columbia from our analysis. The number of FFS beneficiaries residing in the areas that were part of our analysis who completed the survey was 199,000 in 2007 and 163,000 in 2008.³

¹Medicare is the federally financed health insurance program for persons aged 65 and over, certain individuals with disabilities, and individuals with end-stage renal disease. Eligible individuals are automatically covered by Medicare Part A, which covers hospital and other inpatient stays. Medicare Part B is optional insurance and covers hospital outpatient, physician, and other services. Medicare Parts A and B are known as traditional Medicare or Medicare FFS.

²We analyzed the CAHPS survey of FFS beneficiaries, including respondents with and without Part D coverage.

³According to CMS officials, fewer beneficiaries were surveyed in 2008 because of resource limitations.

We focused on two CAHPS questions that were related to beneficiary access to physician services. The questions, reproduced in table 8, asked about the ease of scheduling prompt appointments for routine care and beneficiary ability to gain access to specialists. For each question, we included only the responses from those beneficiaries who could have encountered an access problem—that is, those who reported trying to schedule an appointment with any doctor and those who attempted to make an appointment to see a specialist. For example, we include responses to the specialist access question only for those beneficiaries who answered in a prior survey question that they needed to see a specialist in the past 6 months. We calculated the proportion of respondents who responded the most negatively—those who responded that they were “never” able to schedule an appointment as soon as they thought they needed it.

Table 8: Selected CAHPS Survey Questions Related to Beneficiary Access to Physician Services, 2008

Respondents included in analysis	Percentage of all survey respondents	Question	Possible responses
Beneficiaries who reported making an appointment at a doctor’s office and clinic with the exception of those who needed care right away.	81	In the last 6 months, not counting the times you needed care right away, how often did you get an appointment for your health care at a doctor’s office or clinic as soon as you thought you needed?	Never Sometimes Usually Always
Beneficiaries who reported trying to make an appointment to see a specialist	53	In the last 6 months, how often was it easy to get appointments with specialists?	Never Sometimes Usually Always

Source: GAO analysis of the 2008 Medicare CAHPS survey conducted by CMS.

We also examined whether these responses varied by state or between urban and rural areas nationwide.

To analyze Medicare beneficiary access to physician services based on their utilization of services, we used Medicare Part B claims data from the National Claims History (NCH) files. We constructed data sets for 100 percent of Medicare claims for physician services performed by physicians in the first 28 days of April of 2000 through 2008, which yielded

more than 60 million claims per year.⁴ These claims represent an annual snapshot of beneficiary access to physician services for each of the 9 years. We selected April to allow time for the annual fee updates to be implemented beginning January 1 and for physician behavior to adjust to the new fees. To avoid “calendar bias”—that is, the occurrence of more weekdays in April in one year compared to another—and to create an equal number of weekdays in each year’s data set, we limited each year’s claims to services performed within the first 28 days of the month. These data encompass several periods: 2 years in which fee increases were greater than the increase in the estimated cost of providing services (2000 and 2001), 1 year in which fees decreased (2002), and 6 years in which fee increases were less than the growth in the estimated cost of providing services (2003 through 2008).⁵ We established a consistent cutoff date (the last Friday in September of each year) for each year’s data file and only included those claims for April services that had been processed by that date.⁶ Because claims continue to accrete in the data files, this step was necessary to ensure that earlier years were not more complete than later years. To determine the number of FFS beneficiaries, we used the April enrollment data from the Denominator file—a database that contains enrollment data and entitlement status for all Medicare beneficiaries enrolled, entitled, or both in each month in a given year. In addition, on the basis of beneficiary location, we associated each service with an urban or rural location, using the Office of Management and Budget (OMB) classification of metropolitan statistical areas (MSA). We constructed multiple utilization measures to determine whether Medicare beneficiaries experienced changes in their access to physician services; these indicators included

⁴We excluded claims for services provided by nurse practitioners, physician assistants, and other nonphysician practitioners. We included services covered by the fee schedule—such as office visits, major and minor surgeries, and imaging services—as well as anesthesia services. We identified claims for physician services covered by the fee schedule by limiting the files to include only Healthcare Common Procedure Codes that are on the physician fee schedule and covered by Medicare. We excluded claims from beneficiaries in Guam, Puerto Rico, and the U.S. Virgin Islands.

⁵The change in the cost of providing physician services is measured by the Medicare Economic Index (MEI). MEI measures input prices for resources needed to provide physician services. It is designed to estimate the increase in the total cost for the average physician to operate a medical practice.

⁶We chose September so our data would include up to two quarters of processed claims from April of each year. This equates to about 95 percent of the claims for services provided in April of each year.

- the percentage of Medicare FFS beneficiaries obtaining services in April of each year and
- the number of physician services per 1,000 beneficiaries who received services.

We analyzed these utilization measures nationally, for urban and rural areas within each state, and for specific services, such as office visits for new and established patients and emergency room visits. Using MSAs, we classified the nation's counties as urban or rural, consolidated the urban counties and rural counties in each state and the District of Columbia, and created 99 geographic areas to analyze access at a subnational level.⁷

To indicate physicians' willingness to participate in Medicare, we determined the number of physicians billing Medicare from 2000 through 2007,⁸ whether services were performed by participating or nonparticipating physicians, and whether claims for physician services were paid on assignment or not on assignment.⁹ We did not adjust the data for factors that could affect the provision and use of physician services, such as incidence of illness or coverage of new benefits.

To identify areas of the country where Medicare beneficiaries are potentially overserved by physicians, we identified areas of the country where utilization of physician services in Medicare is potentially excessive. Because policymakers have expressed concerns about both the level and growth of services in the Medicare program, we incorporated both factors in our measure of potential overservice. Specifically, we identified areas that were both relatively high in their level of utilization and relatively high in their growth in utilization. We analyzed one of our access indicators, services per beneficiary served, to measure potential overutilization. Using

⁷There are no rural counties in Rhode Island, New Jersey, and the District of Columbia.

⁸These values are based on a count of unique physician identification numbers (UPIN) on Medicare FFS claims for physicians who performed services. As part of its transition to using the National Provider Identifier, in May 2007 CMS stopped issuing UPINs for physicians billing Medicare for the first time.

⁹Physicians who "accept assignment" are those who agree to accept Medicare's fee as payment in full. The fee includes the coinsurance amount (usually 20 percent) paid by the beneficiary. Participating physicians must accept assignment for all Medicare-covered services that they provide to beneficiaries.

the U.S. Census Bureau¹⁰ and OMB classifications, we divided states into urban and rural areas and made additional distinctions among urban areas, allowing us to classify counties into one of four types of areas, as shown in table 9.¹¹

Table 9: Geographic Area Types for Utilization Analysis

Geographic area	Method of selection	Number of areas	Percentage share of U.S. population
Metropolitan divisions	Identified by the U.S. Census Bureau	32	26
Large MSAs	MSAs with 200,000 or more in population	174	49
Small MSAs combined within states	A combination of MSAs within the same state with fewer than 200,000 residents	43	6
Rural areas combined within states	A combination of counties within the same state that were outside of metropolitan divisions and MSAs	47	19

Source: GAO analysis of U.S. Census Bureau data and Medicare Part B claims and enrollment data.

Note: Area types are listed in descending order of population density.

We did not allow areas to cross state lines, so a metropolitan division or MSA that crossed state lines was subdivided into separate areas for each state. We examined a total of 296 areas, ranking them by their level of utilization in 2000 and their change in utilization from 2000 to 2008. To determine an area’s utilization status, we designated areas in the top half of both measures as “potentially overserved” and the rest as “other” areas. (See table 10.) This method resulted in 72 of the 296 areas being designated as potentially overserved.¹²

¹⁰We referenced counties to MSAs and metropolitan divisions using U.S. Census Bureau data from the Missouri Census Data Center.

¹¹We excluded four counties with low populations because they lacked data on Medicare enrollment or utilization of physician services.

¹²We also analyzed utilization of physician services in Medicare’s 87 physician payment localities and in the 306 hospital referral regions (HRR) as defined by the Dartmouth Atlas Project. We combined certain Medicare physician payment localities in California, Kansas, and Missouri. We ranked both the Medicare physician payment localities and the HRRs by their level of utilization in 2000 and their change in utilization from 2000 to 2008. To determine the utilization status of either a Medicare physician payment locality or an HRR, we designated areas in the top half of both measures as “potentially overserved” and the rest as “other” areas.

Table 10: Distribution of Geographic Areas by Ranking

Ranking by number of services per beneficiary served, 2000	Ranking by change in the number of services per beneficiary served, 2000 to 2008		Total
	Top half	Bottom half	
Top half	72	76	148
Bottom half	76	72	148
Total	148	148	296

Source: GAO analysis of U.S. Census Bureau data and Medicare Part B claims data for April 2000 and April 2008.

To describe characteristics that distinguish potentially overserved areas from other areas in the nation, we reviewed literature to identify characteristics that could drive the use of physician services.¹³ Using the most recently available data sources, we constructed several area-level characteristics and compared them between potentially overserved areas and all other areas. Specifically we compared various demographic characteristics and compared the capacity to provide health care services—both of which are factors that could drive the use of physician services. We also compared beneficiary satisfaction with their health care and the types of physician services provided in the two types of areas. We examined the provision of physician services broadly. However, our review of clinical and economic studies in the literature suggested that certain services might be or might not be prone to overuse and thus we also compared the utilization of these services for both potentially overserved and other areas. We obtained demographic data on mortality, race, and education as well as data on health services capacity from the Area Resource File (ARF), a national county-level health resource information database produced by the Health Resources and Services Administration of the Department of Health and Human Services; population and income data from the U.S. Census Bureau; beneficiary age and enrollment data from the Denominator file; and risk score data from the CMS Medicare Advantage rate calculation data for 2009.¹⁴ We obtained

¹³We were not able to obtain data to account for all the factors that might explain differences in utilization. For example, we were unable to find sufficient data to measure the level of coordinated care across all areas.

¹⁴Risk scores are based on the demographics and diagnoses of the entire FFS population in a county and reflect the likelihood of greater combined Medicare Part A and Part B expenditures. Geographic area risk scores are the population-weighted average of risk scores for the counties within an area.

data on beneficiary perceptions and satisfaction with care from the 2008 CAHPS survey. We used Medicare Part B claims to obtain physician services utilization data.

As part of our analysis we found that potentially overserved areas were more likely to be urban—that is, have greater population density—than other areas. Therefore, when comparing various characteristics of potentially overserved areas and other areas, we accounted for this difference in population density by weighting the data from other areas to reflect the same proportion of urbanization found in potentially overserved areas.

We also analyzed the utilization of specific types of physician services in potentially overserved and other areas. This analysis was based on the Berenson-Eggers Type of Service (BETOS) code assigned to each physician service in the Part B claims data. According to CMS, the BETOS coding system consists of readily understood clinical categories, is stable over time, and is relatively immune to minor changes in technology or practice patterns. We compared the number of services per 1,000 Medicare FFS beneficiaries in potentially overserved and other areas for selected service categories.¹⁵ We collapsed data on other services and procedures into summary categories.

Data Reliability and Limitations

We took several steps to ensure that the CAHPS, Medicare claims and enrollment, U.S. Census Bureau, and ARF data were sufficiently reliable for our analysis. For the CAHPS survey data, we examined the accuracy and completeness of the data by testing for implausible values and internal consistency and reviewed relevant documentation.¹⁶ In addition, we interviewed experts at CMS about whether the CAHPS data could appropriately be used as we intended. We concluded that the data were sufficiently reliable for the purpose of this analysis. Our analysis of the proportion of beneficiaries reporting major difficulties accessing physician

¹⁵Using the BETOS codes, we also compared the utilization of specific types of physician services in potentially overserved and other Medicare physician payment localities and in potentially overserved and other HRRs.

¹⁶In order to ensure the consistency of individuals' responses to both the question on the need for care and the related access question, we used recoded survey responses. For example, if an individual answered in a prior question that he or she did not need a specialist, the recoded response on the access question related to specialists was "not applicable."

services was limited to beneficiaries who needed an appointment for either routine or specialist care; it does not refer to the entire population of Medicare beneficiaries.

Medicare claims data, which are used by the Medicare program as a record of payments made to health care providers, are closely monitored by both CMS and the Medicare carriers—contractors that process, review, and pay claims for Part B-covered services. The data are subject to various internal controls, including checks and edits performed by the carriers before claims are submitted to CMS for payment approval. Although we did not review these internal controls, we did assess the reliability of the NCH data. First, we reviewed existing information about the data, including the data dictionary and file layouts. We also interviewed knowledgeable CMS officials about the data. We examined the data files for obvious errors, missing values, values outside of expected ranges, and dates outside of expected time frames. We found the data to be sufficiently reliable for the purposes of this report. We assessed the reliability of the U.S. Census Bureau and ARF data by reviewing relevant documentation and examining the data for obvious errors.

We conducted this performance audit from May 2008 through August 2009 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Appendix II: Average Utilization Values by Geographic Area Type

We classified geographic areas of the country by type of area and utilization status. Our measure of utilization—services per beneficiary served—is based on Medicare claims data for services performed in the first 28 days of April 2000 and April 2008. An area was designated as potentially overserved if it was in both the top half of all areas in number of services per beneficiary served in 2000 and in the top half of the growth rate in services per beneficiary served from 2000 to 2008. Table 11 presents information, by geographic area type and utilization status, on the average number of services per beneficiary in 2000 and 2008, and the average change in the number of services per beneficiary from 2000 to 2008.

Table 11: Average Utilization by Geographic Area Type

Geographic area type ^a	Utilization status		Average number services per beneficiary served, 2000		Average number of services per beneficiary served, 2008		Average percentage change in services per beneficiary served, 2000 to 2008 ^b	
	Potentially overserved areas	Other areas	Potentially overserved areas	Other areas	Potentially overserved areas	Other areas	Potentially overserved areas	Other areas
	Metropolitan divisions	15	17	3.84	3.52	4.65	3.93	21.02
Large MSAs	47	127	3.54	3.25	4.15	3.66	17.16	13.07
Small MSA areas	5	38	3.42	3.25	3.97	3.61	16.15	11.19
Rural areas	5	42	3.36	3.12	3.86	3.46	14.69	11.12
All areas	72	224	3.58	3.24	4.22	3.64	17.72	12.31

Source: GAO analysis of U.S. Census Bureau data and Medicare Part B claims and enrollment data for 2000 and 2008 from CMS.

^aCounties were mapped to metropolitan divisions based on U.S. Census Bureau designations. Nonrural counties outside of metropolitan divisions were mapped to MSAs based on U.S. Census Bureau and OMB designations. Small MSA areas are MSAs with fewer than 200,000 in population grouped together within each state. Rural areas include all rural counties within a state.

^bThe percentages presented in this table represent the average percentages of individual areas within each geographic area type.

Appendix III: Utilization Status of Geographic Areas

We identified potentially overserved areas of the country by classifying U.S. counties into one of four types of geographic areas: metropolitan divisions, large MSAs, small MSA areas, and rural areas. This classification process yielded 296 areas across the United States. We measured utilization in each of these areas by examining the number of services per beneficiary who received services in April 2000 and April 2008, and ranked them by their level of utilization in 2000 and changes in utilization from 2000 to 2008. To determine an area's utilization status, we designated areas in the top half of both measures as potentially overserved areas and designated the rest as other areas. Across all areas, the median number of services per beneficiary served was 3.28 in 2000 and 3.71 in 2008. The median percentage change in services per beneficiary served from 2000 to 2008 was 13.7. (See table 12.)

Appendix III: Utilization Status of Geographic Areas

Table 12: Utilization Status of Geographic Areas

State	Area name	Status ^a	Type of area ^b	Population, 2007	Services per beneficiary served, 2000	Services per beneficiary served, 2008	Percentage change in services per beneficiary served, 2000 to 2008
Alabama	Birmingham	Potentially overserved area	Large MSA	975,560	3.38	3.91	15.8
Alabama	Huntsville	Other area	Large MSA	386,632	3.27	3.82	17.0
Alabama	Mobile	Other area	Large MSA	576,175	3.59	4.06	13.2
Alabama	Montgomery	Potentially overserved area	Large MSA	353,276	3.30	3.76	14.2
Alabama	Small metropolitan areas	Other area	Small MSA areas	1,012,674	3.40	3.82	12.5
Alabama	Rural counties	Potentially overserved area	Rural areas	1,323,534	3.30	3.78	14.4
Alaska	Anchorage	Other area	Large MSA	279,671	3.30	3.49	5.6
Alaska	Rural counties	Other area	Rural areas	403,807	3.29	3.39	2.8
Arizona	Phoenix-Mesa	Potentially overserved area	Large MSA	4,179,427	3.60	4.21	16.9
Arizona	Tucson	Potentially overserved area	Large MSA	967,089	3.29	3.89	18.3
Arizona	Small metropolitan areas	Other area	Small MSA areas	512,951	3.51	3.94	12.3
Arizona	Rural counties	Other area	Rural areas	679,288	3.18	3.66	14.8
Arkansas	Fayetteville-Springdale-Rogers	Other area	Large MSA	397,399	3.15	3.52	11.7
Arkansas	Little Rock-North Little Rock	Other area	Large MSA	638,550	3.63	3.96	9.3
Arkansas	Small metropolitan areas	Other area	Small MSA areas	446,100	3.33	3.69	10.8
Arkansas	Rural counties	Other area	Rural areas	1,352,748	3.32	3.69	11.1
California	Los Angeles-Long Beach-Glendale	Other area	Metropolitan division	9,878,554	4.48	4.63	3.4
California	Oakland-Fremont-Hayward	Other area	Metropolitan division	2,483,842	3.23	3.76	16.5
California	San Francisco-San Mateo-Redwood City	Other area	Metropolitan division	1,720,056	3.17	3.60	13.8
California	Santa Ana-Anaheim-Irvine	Other area	Metropolitan division	2,997,033	3.98	4.37	9.6

Appendix III: Utilization Status of Geographic Areas

State	Area name	Status ^a	Type of area ^b	Population, 2007	Services per beneficiary served, 2000	Services per beneficiary served, 2008	Percentage change in services per beneficiary served, 2000 to 2008
California	Bakersfield	Potentially overserved area	Large MSA	790,710	3.67	4.24	15.4
California	Chico-Paradise	Other area	Large MSA	218,779	3.06	3.47	13.6
California	Fresno	Other area	Large MSA	1,045,861	3.12	3.66	17.3
California	Merced	Other area	Large MSA	245,514	3.33	3.67	10.2
California	Modesto	Other area	Large MSA	511,263	3.10	3.61	16.2
California	Riverside County ^c	Other area	Large MSA	4,879,735	3.75	4.07	8.5
California	Sacramento-Yolo	Other area	Large MSA	2,091,120	3.18	3.46	8.7
California	Salinas	Other area	Large MSA	407,637	3.29	3.55	7.9
California	San Diego	Other area	Large MSA	2,974,859	3.56	3.98	12.0
California	San Luis Obispo-Atascadero-Paso Robles	Other area	Large MSA	262,436	3.09	3.49	12.7
California	Santa Barbara-Santa Maria-Lompoc	Other area	Large MSA	404,197	3.43	3.64	6.2
California	Santa Clara County ^c	Other area	Large MSA	3,006,322	3.07	3.58	16.7
California	Stockton-Lodi	Other area	Large MSA	670,990	3.16	3.51	10.9
California	Small metropolitan areas	Other area	Small MSA areas	343,565	3.39	3.68	8.6
California	Rural counties	Other area	Rural areas	1,199,189	3.16	3.39	7.3
Colorado	Colorado Springs	Other area	Large MSA	587,272	3.17	3.68	16.1
Colorado	Denver-Boulder-Greeley	Potentially overserved area	Large MSA	2,945,107	3.29	3.77	14.6
Colorado	Fort Collins-Loveland	Other area	Large MSA	287,574	3.02	3.52	16.3
Colorado	Small metropolitan areas	Other area	Small MSA areas	293,620	2.92	3.28	12.3
Colorado	Rural counties	Other area	Rural areas	747,942	2.92	3.28	12.4
Connecticut	Fairfield County ^c	Other area	Large MSA	1,928,782	3.28	3.95	20.6
Connecticut	Hartford	Other area	Large MSA	1,306,151	3.00	3.61	20.3
Connecticut	New London-Norwich	Other area	Large MSA	267,376	3.09	3.83	23.9
Delaware	Wilmington	Other area	Metropolitan division	528,218	3.27	3.97	21.5
Delaware	Small metropolitan areas	Potentially overserved area	Small MSA areas	152,255	3.32	3.90	17.5

Appendix III: Utilization Status of Geographic Areas

State	Area name	Status^a	Type of area^b	Population, 2007	Services per beneficiary served, 2000	Services per beneficiary served, 2008	Percentage change in services per beneficiary served, 2000 to 2008
Delaware	Rural counties	Other area	Rural areas	184,291	3.34	3.72	11.6
District of Columbia	Washington ^c	Other area	Metropolitan division	588,292	3.86	4.22	9.2
Florida	Fort Lauderdale-Pompano Beach-Deerfield Beach	Potentially overserved area	Metropolitan division	1,759,591	4.24	5.13	21.1
Florida	Miami-Miami Beach-Kendall	Potentially overserved area	Metropolitan division	2,387,170	4.53	5.15	13.7
Florida	West Palm Beach-Boca Raton-Boynton Beach	Potentially overserved area	Metropolitan division	1,266,451	4.25	5.15	21.4
Florida	Daytona Beach	Other area	Large MSA	588,810	3.27	4.08	24.8
Florida	Fort Myers-Cape Coral	Potentially overserved area	Large MSA	590,564	3.55	4.48	26.1
Florida	Fort Pierce-Port St. Lucie	Potentially overserved area	Large MSA	400,121	3.81	4.56	19.4
Florida	Gainesville	Potentially overserved area	Large MSA	240,082	3.35	3.92	17.1
Florida	Jacksonville	Potentially overserved area	Large MSA	1,275,078	3.83	4.59	20.0
Florida	Lakeland-Winter Haven	Potentially overserved area	Large MSA	574,746	3.47	4.14	19.3
Florida	Melbourne-Titusville-Palm Bay	Potentially overserved area	Large MSA	536,161	3.66	4.43	21.1
Florida	Naples	Potentially overserved area	Large MSA	315,839	3.88	4.63	19.4
Florida	Ocala	Potentially overserved area	Large MSA	324,857	3.45	4.02	16.7
Florida	Orlando	Potentially overserved area	Large MSA	2,032,496	3.65	4.32	18.3
Florida	Pensacola	Potentially overserved area	Large MSA	453,451	3.32	3.81	14.9
Florida	Sarasota-Bradenton	Potentially overserved area	Large MSA	687,181	3.61	4.33	20.2
Florida	Tallahassee	Other area	Large MSA	308,142	3.08	3.62	17.6
Florida	Tampa-St. Petersburg-Clearwater	Potentially overserved area	Large MSA	2,723,949	3.75	4.47	19.2

Appendix III: Utilization Status of Geographic Areas

State	Area name	Status^a	Type of area^b	Population, 2007	Services per beneficiary served, 2000	Services per beneficiary served, 2008	Percentage change in services per beneficiary served, 2000 to 2008
Florida	Small metropolitan areas	Potentially overserved area	Small MSA areas	498,297	3.69	4.34	17.9
Florida	Rural counties	Potentially overserved area	Rural areas	1,288,257	3.60	4.18	16.1
Georgia	Atlanta	Potentially overserved area	Large MSA	5,122,983	3.31	3.88	17.4
Georgia	Augusta ^c	Other area	Large MSA	328,023	3.26	3.44	5.6
Georgia	Columbus	Other area	Large MSA	225,549	3.10	3.55	14.5
Georgia	Macon	Other area	Large MSA	348,906	3.24	4.00	23.5
Georgia	Savannah	Other area	Large MSA	329,329	3.52	3.92	11.6
Georgia	Small metropolitan areas	Other area	Small MSA areas	445,078	3.33	3.60	8.1
Georgia	Rural counties	Other area	Rural areas	2,744,882	3.19	3.59	12.7
Hawaii	Honolulu	Other area	Large MSA	905,601	3.04	3.29	8.5
Hawaii	Rural counties	Other area	Rural areas	377,668	2.93	3.12	6.6
Idaho	Boise City	Other area	Large MSA	552,787	2.90	3.23	11.6
Idaho	Small metropolitan areas	Other area	Small MSA areas	79,925	2.72	2.99	9.6
Idaho	Rural counties	Other area	Rural areas	866,690	2.91	3.14	7.7
Illinois	Chicago-Naperville-Joliet	Potentially overserved area	Metropolitan division	7,952,540	3.71	4.48	20.7
Illinois	Lake County ^c	Potentially overserved area	Metropolitan division	710,241	3.41	4.28	25.6
Illinois	Madison County ^c	Potentially overserved area	Large MSA	619,940	3.35	3.82	13.9
Illinois	Peoria-Pekin	Other area	Large MSA	352,164	3.15	3.63	15.2
Illinois	Rockford	Other area	Large MSA	407,301	3.12	3.81	22.2
Illinois	Springfield	Potentially overserved area	Large MSA	206,588	3.35	4.01	19.7
Illinois	Small metropolitan areas	Potentially overserved area	Small MSA areas	770,889	3.29	3.83	16.2
Illinois	Rural counties	Potentially overserved	Rural areas	1,832,885	3.30	3.76	13.9
Indiana	Gary	Potentially overserved area	Metropolitan division	652,682	3.56	4.45	24.7
Indiana	Clark County ^c	Potentially overserved area	Large MSA	238,588	3.43	4.01	16.9
Indiana	Evansville ^c	Other area	Large MSA	257,777	3.05	3.70	21.3

Appendix III: Utilization Status of Geographic Areas

State	Area name	Status^a	Type of area^b	Population, 2007	Services per beneficiary served, 2000	Services per beneficiary served, 2008	Percentage change in services per beneficiary served, 2000 to 2008
Indiana	Fort Wayne	Other area	Large MSA	523,253	2.99	3.56	19.2
Indiana	Indianapolis	Other area	Large MSA	1,774,665	3.19	3.64	14.4
Indiana	South Bend	Other area	Large MSA	266,088	2.98	3.64	21.9
Indiana	Small metropolitan areas	Other area	Small MSA areas	942,519	3.14	3.66	16.8
Indiana	Rural counties	Other area	Rural areas	1,689,717	3.05	3.49	14.7
Iowa	Cedar Rapids	Other area	Large MSA	205,836	3.09	3.40	10.1
Iowa	Des Moines	Other area	Large MSA	520,130	3.43	3.67	6.9
Iowa	Small metropolitan areas	Other area	Small MSA areas	699,880	3.25	3.59	10.4
Iowa	Rural counties	Other area	Rural areas	1,562,200	3.06	3.35	9.6
Kansas	Johnson County ^c	Other area	Large MSA	784,956	3.60	3.90	8.5
Kansas	Wichita	Other area	Large MSA	572,564	3.26	3.66	12.4
Kansas	Small metropolitan areas	Other area	Small MSA areas	286,964	3.03	3.45	14.0
Kansas	Rural counties	Other area	Rural areas	1,131,513	3.15	3.51	11.4
Kentucky	Kenton County ^c	Other area	Large MSA	404,246	3.25	4.13	27.0
Kentucky	Lexington	Other area	Large MSA	528,276	3.10	3.67	18.5
Kentucky	Louisville ^c	Potentially overserved area	Large MSA	839,130	3.65	4.20	15.1
Kentucky	Small metropolitan areas	Other area	Small MSA areas	333,095	3.52	3.90	10.8
Kentucky	Rural counties	Other area	Rural areas	2,136,727	3.26	3.71	13.8
Louisiana	Baton Rouge	Other area	Large MSA	668,578	3.76	3.97	5.7
Louisiana	Houma	Potentially overserved area	Large MSA	201,137	3.40	3.90	14.7
Louisiana	Lafayette	Other area	Large MSA	407,814	3.46	3.89	12.5
Louisiana	New Orleans	Other area	Large MSA	1,051,941	3.75	4.20	12.1
Louisiana	Shreveport-Bossier City	Other area	Large MSA	402,238	3.58	3.98	11.3
Louisiana	Small metropolitan areas	Other area	Small MSA areas	464,093	3.65	3.90	6.7
Louisiana	Rural counties	Other area	Rural areas	1,097,403	3.54	4.01	13.1
Maine	Portland	Other area	Large MSA	275,374	3.16	3.34	5.8
Maine	York County ^c	Other area	Large MSA	201,341	3.07	3.42	11.3

Appendix III: Utilization Status of Geographic Areas

State	Area name	Status^a	Type of area^b	Population, 2007	Services per beneficiary served, 2000	Services per beneficiary served, 2008	Percentage change in services per beneficiary served, 2000 to 2008
Maine	Small metropolitan areas	Other area	Small MSA areas	330,497	3.13	3.25	3.8
Maine	Rural counties	Other area	Rural areas	509,995	2.97	3.18	7.0
Maryland	Bethesda-Frederick-Gaithersburg	Other area	Metropolitan division	1,155,518	3.59	4.06	13.3
Maryland	Prince George's County ^c	Other area	Metropolitan division	1,057,437	3.80	4.08	7.5
Maryland	Baltimore ^c	Other area	Large MSA	2,813,169	3.47	3.88	11.8
Maryland	Small metropolitan areas	Other area	Small MSA areas	172,289	3.48	3.84	10.4
Maryland	Rural counties	Potentially overserved area	Rural areas	419,931	3.33	3.82	14.5
Massachusetts	Boston-Quincy	Other area	Metropolitan division	1,858,216	3.49	3.83	9.8
Massachusetts	Essex	Other area	Metropolitan division	733,101	3.37	3.80	12.8
Massachusetts	Newton-Framingham ^c	Other area	Metropolitan division	1,473,416	3.43	3.78	10.2
Massachusetts	Barnstable-Yarmouth	Other area	Large MSA	222,175	3.21	3.64	13.6
Massachusetts	Springfield	Other area	Large MSA	682,657	3.12	3.50	12.3
Massachusetts	Worcester County ^e	Other area	Large MSA	1,324,376	3.31	3.70	11.7
Massachusetts	Small metropolitan areas	Other area	Small MSA areas	129,798	3.13	3.71	18.4
Massachusetts	Rural counties	Other area	Rural areas	26,016	3.07	3.43	11.6
Michigan	Detroit-Livonia-Dearborn	Potentially overserved area	Metropolitan division	1,985,101	3.87	4.76	23.1
Michigan	Warren-Troy-Farmington Hills	Potentially overserved area	Metropolitan division	2,482,491	3.82	4.70	23.2
Michigan	Ann Arbor-Flint ^c	Potentially overserved area	Large MSA	1,039,569	3.49	4.19	20.0
Michigan	Grand Rapids-Muskegon-Holland	Other area	Large MSA	1,150,683	2.94	3.52	19.5
Michigan	Kalamazoo-Battle Creek	Other area	Large MSA	459,879	3.00	3.55	18.5
Michigan	Lansing-East Lansing	Potentially overserved area	Large MSA	456,440	3.37	3.96	17.6

Appendix III: Utilization Status of Geographic Areas

State	Area name	Status ^a	Type of area ^b	Population, 2007	Services per beneficiary served, 2000	Services per beneficiary served, 2008	Percentage change in services per beneficiary served, 2000 to 2008
Michigan	Saginaw-Bay City-Midland	Potentially overserved area	Large MSA	392,603	3.45	4.01	16.1
Michigan	Small metropolitan areas	Other area	Small MSA areas	322,595	3.16	3.67	16.2
Michigan	Rural counties	Other area	Rural areas	1,782,461	3.14	3.68	17.1
Minnesota	Minneapolis-St. Paul	Other area	Large MSA	3,087,504	3.13	3.61	15.4
Minnesota	Small metropolitan areas	Other area	Small MSA areas	627,054	3.16	3.48	10.4
Minnesota	Rural counties	Other area	Rural areas	1,483,063	2.94	3.37	14.6
Mississippi	Biloxi-Gulfport-Pascagoula	Other area	Large MSA	345,890	3.80	3.92	3.1
Mississippi	Jackson	Potentially overserved area	Large MSA	476,906	3.29	3.77	14.5
Mississippi	Small metropolitan areas	Other area	Small MSA areas	275,332	3.65	4.01	9.8
Mississippi	Rural counties	Other area	Rural areas	1,820,657	3.33	3.67	10.2
Missouri	Kansas City ^c	Other area	Large MSA	1,137,909	3.49	3.91	11.9
Missouri	Springfield	Other area	Large MSA	372,973	2.88	3.29	14.1
Missouri	St. Louis ^c	Potentially overserved area	Large MSA	2,087,945	3.35	3.96	18.0
Missouri	Small metropolitan areas	Other area	Small MSA areas	427,062	3.25	3.76	15.6
Missouri	Rural counties	Other area	Rural areas	1,852,526	3.23	3.69	14.1
Montana	Small metropolitan areas	Other area	Small MSA areas	327,361	3.10	3.47	11.9
Montana	Rural counties	Other area	Rural areas	630,500	3.02	3.25	7.6
Nebraska	Lincoln	Other area	Large MSA	275,665	3.13	3.77	20.4
Nebraska	Omaha	Potentially overserved area	Large MSA	689,708	3.40	3.96	16.7
Nebraska	Small metropolitan areas	Other area	Small MSA areas	20,312	3.37	3.23	-4.2
Nebraska	Rural counties	Other area	Rural areas	788,886	3.05	3.47	13.7
Nevada	Las Vegas	Other area	Large MSA	1,880,449	4.09	4.63	13.4
Nevada	Reno	Other area	Large MSA	406,079	3.21	3.63	13.1
Nevada	Rural counties	Other area	Rural areas	278,854	3.10	3.41	10.0

Appendix III: Utilization Status of Geographic Areas

State	Area name	Status^a	Type of area^b	Population, 2007	Services per beneficiary served, 2000	Services per beneficiary served, 2008	Percentage change in services per beneficiary served, 2000 to 2008
New Hampshire	Rockingham County- Strafford County	Other area	Metropolitan division	418,124	3.09	3.61	16.9
New Hampshire	Hillsborough County ^c	Other area	Large MSA	550,576	3.04	3.43	13.0
New Hampshire	Rural counties	Other area	Rural areas	347,128	2.85	3.20	12.5
New Jersey	Camden	Other area	Metropolitan division	1,246,339	3.66	4.15	13.4
New Jersey	Edison-New Brunswick	Potentially overserved area	Metropolitan division	2,319,704	3.72	4.46	20.0
New Jersey	Newark-Union	Potentially overserved area	Metropolitan division	2,070,046	3.70	4.47	20.8
New Jersey	Wayne ^c	Potentially overserved area	Metropolitan division	1,986,019	3.84	4.61	20.0
New Jersey	Atlantic County ^c	Potentially overserved area	Large MSA	522,610	3.71	4.24	14.2
New Jersey	Mercer County ^c	Potentially overserved area	Large MSA	475,186	3.70	4.39	18.7
New Jersey	Small metropolitan areas	Other area	Small MSA areas	66,016	3.73	4.04	8.2
New Mexico	Albuquerque	Other area	Large MSA	818,522	3.02	3.23	6.7
New Mexico	Small metropolitan areas	Other area	Small MSA areas	360,304	3.09	3.41	10.4
New Mexico	Rural counties	Other area	Rural areas	791,089	3.08	3.30	6.9
New York	Nassau-Suffolk	Potentially overserved area	Metropolitan division	2,759,762	3.86	4.76	23.2
New York	New York-White Plains ^c	Potentially overserved area	Metropolitan division	9,621,824	3.91	4.97	27.0
New York	Albany-Schenectady-Troy	Potentially overserved area	Large MSA	902,053	3.34	3.82	14.4
New York	Binghamton	Other area	Large MSA	246,426	3.17	3.45	9.0
New York	Buffalo-Niagara Falls	Other area	Large MSA	1,128,183	3.13	3.55	13.5
New York	Orange County	Potentially overserved area	Large MSA	669,915	3.43	4.20	22.7
New York	Rochester	Other area	Large MSA	1,088,617	2.87	3.36	17.0
New York	Syracuse	Other area	Large MSA	725,359	3.28	3.60	9.7
New York	Utica-Rome	Other area	Large MSA	294,862	3.15	3.57	13.3

Appendix III: Utilization Status of Geographic Areas

State	Area name	Status^a	Type of area^b	Population, 2007	Services per beneficiary served, 2000	Services per beneficiary served, 2008	Percentage change in services per beneficiary served, 2000 to 2008
New York	Small metropolitan areas	Other area	Small MSA areas	350,846	3.24	3.74	15.2
New York	Rural counties	Other area	Rural areas	1,509,882	3.13	3.57	13.9
North Carolina	Asheville	Other area	Large MSA	247,080	3.13	3.28	4.7
North Carolina	Charlotte-Gastonia ^c	Other area	Large MSA	1,628,028	3.20	3.67	14.7
North Carolina	Fayetteville	Other area	Large MSA	306,518	2.96	3.69	24.7
North Carolina	Greensboro–Winston Salem–High Point	Other area	Large MSA	1,371,125	3.10	3.58	15.2
North Carolina	Hickory-Morganton-Lenoir	Other area	Large MSA	360,471	3.05	3.46	13.5
North Carolina	Raleigh-Durham-Chapel Hill	Other area	Large MSA	1,489,897	3.05	3.54	16.1
North Carolina	Wilmington	Other area	Large MSA	289,646	3.37	3.55	5.5
North Carolina	Small metropolitan areas	Other area	Small MSA areas	657,154	3.19	3.57	12.0
North Carolina	Rural counties	Other area	Rural areas	2,711,113	3.13	3.55	13.3
North Dakota	Small metropolitan areas	Other area	Small MSA areas	307,807	3.15	3.40	7.9
North Dakota	Rural counties	Other area	Rural areas	331,908	2.98	3.30	10.7
Ohio	Canton-Massillon	Other area	Large MSA	407,180	3.39	3.84	13.1
Ohio	Cincinnati ^c	Other area	Large MSA	1,642,093	3.16	3.82	20.9
Ohio	Cleveland-Akron	Potentially overserved area	Large MSA	2,896,968	3.42	4.08	19.6
Ohio	Columbus	Other area	Large MSA	1,672,583	3.33	3.78	13.3
Ohio	Dayton-Springfield	Other area	Large MSA	934,275	3.25	3.93	21.1
Ohio	Toledo	Potentially overserved area	Large MSA	609,871	3.56	4.07	14.2
Ohio	Youngstown-Warren	Potentially overserved area	Large MSA	562,593	3.50	4.17	19.1
Ohio	Small metropolitan areas	Potentially overserved area	Small MSA areas	582,391	3.39	3.90	15.0
Ohio	Rural counties	Other area	Rural areas	2,158,963	3.17	3.70	17.0
Oklahoma	Oklahoma City	Other area	Large MSA	1,179,140	3.32	3.62	8.9
Oklahoma	Tulsa	Other area	Large MSA	850,008	3.24	3.57	10.3

Appendix III: Utilization Status of Geographic Areas

State	Area name	Status^a	Type of area^b	Population, 2007	Services per beneficiary served, 2000	Services per beneficiary served, 2008	Percentage change in services per beneficiary served, 2000 to 2008
Oklahoma	Small metropolitan areas	Other area	Small MSA areas	212,492	3.30	3.61	9.3
Oklahoma	Rural counties	Other area	Rural areas	1,375,676	3.25	3.46	6.2
Oregon	Eugene-Springfield	Other area	Large MSA	343,591	2.84	3.21	13.3
Oregon	Portland-Salem ^c	Other area	Large MSA	2,133,034	2.95	3.36	13.9
Oregon	Small metropolitan areas	Other area	Small MSA areas	280,723	2.91	3.34	15.0
Oregon	Rural counties	Other area	Rural areas	990,107	2.89	3.16	9.4
Pennsylvania	Philadelphia	Potentially overserved area	Metropolitan division	3,887,694	3.77	4.34	15.2
Pennsylvania	Allentown-Bethlehem-Easton	Potentially overserved area	Large MSA	694,107	3.44	3.92	14.0
Pennsylvania	Erie	Other area	Large MSA	279,092	3.26	3.82	17.0
Pennsylvania	Harrisburg-Lebanon-Carlisle	Other area	Large MSA	656,781	3.28	3.72	13.6
Pennsylvania	Johnstown	Potentially overserved area	Large MSA	222,856	3.31	3.95	19.6
Pennsylvania	Lancaster	Other area	Large MSA	498,465	3.28	3.74	14.1
Pennsylvania	Pittsburgh	Potentially overserved area	Large MSA	2,286,653	3.79	4.45	17.2
Pennsylvania	Reading	Other area	Large MSA	401,955	3.19	3.83	20.0
Pennsylvania	Scranton-Wilkes-Barre-Hazleton	Other area	Large MSA	614,156	3.47	3.87	11.5
Pennsylvania	York	Other area	Large MSA	421,049	3.06	3.52	15.0
Pennsylvania	Small metropolitan areas	Other area	Small MSA areas	562,438	3.39	3.66	7.9
Pennsylvania	Rural counties	Potentially overserved area	Rural areas	1,907,546	3.28	3.76	14.5
Rhode Island	Providence-Warwick ^c	Other area	Large MSA	1,057,832	3.28	3.73	13.6
South Carolina	Charleston-North Charleston	Other area	Large MSA	630,100	3.25	3.67	13.0
South Carolina	Columbia	Other area	Large MSA	601,004	3.26	3.84	17.8
South Carolina	Greenville-Spartanburg-Anderson	Other area	Large MSA	1,053,776	3.09	3.50	13.4
South Carolina	Myrtle Beach	Other area	Large MSA	249,925	3.47	3.73	7.6

Appendix III: Utilization Status of Geographic Areas

State	Area name	Status ^a	Type of area ^b	Population, 2007	Services per beneficiary served, 2000	Services per beneficiary served, 2008	Percentage change in services per beneficiary served, 2000 to 2008
South Carolina	York County ^c	Other area	Large MSA	208,827	3.08	3.69	19.8
South Carolina	Small metropolitan areas	Other area	Small MSA areas	413,571	3.28	3.65	11.1
South Carolina	Rural counties	Other area	Rural areas	1,250,506	3.27	3.70	13.0
South Dakota	Sioux Falls	Other area	Large MSA	213,037	3.16	3.71	17.5
South Dakota	Small metropolitan areas	Other area	Small MSA areas	96,280	3.21	3.30	2.8
South Dakota	Rural counties	Other area	Rural areas	486,897	3.15	3.30	4.9
Tennessee	Chattanooga	Other area	Large MSA	358,306	3.45	3.79	10.0
Tennessee	Johnson City-Kingsport-Bristol	Other area	Large MSA	404,127	3.21	3.59	11.8
Tennessee	Knoxville	Other area	Large MSA	765,052	3.39	3.77	11.3
Tennessee	Memphis	Potentially overserved area	Large MSA	1,004,979	3.94	4.49	14.2
Tennessee	Nashville	Potentially overserved area	Large MSA	1,436,104	3.28	3.78	15.1
Tennessee	Small metropolitan areas	Potentially overserved area	Small MSA areas	267,120	3.40	3.88	14.2
Tennessee	Rural counties	Other area	Rural areas	1,921,031	3.23	3.70	14.7
Texas	Dallas-Plano-Irving	Other area	Metropolitan division	4,106,154	3.73	4.16	11.6
Texas	Fort Worth-Arlington	Potentially overserved area	Metropolitan division	1,975,919	3.45	3.98	15.5
Texas	Amarillo	Other area	Large MSA	233,811	3.58	3.90	9.0
Texas	Austin-San Marcos	Other area	Large MSA	1,598,161	3.52	3.87	9.8
Texas	Beaumont-Port Arthur	Other area	Large MSA	376,241	3.76	4.24	12.8
Texas	Brownsville-Harlingen-San Benito	Potentially overserved area	Large MSA	387,210	4.10	4.66	13.8
Texas	Corpus Christi	Potentially overserved area	Large MSA	389,655	3.76	4.29	13.9
Texas	El Paso	Other area	Large MSA	734,669	3.64	3.89	6.7
Texas	Houston-Galveston-Brazoria	Other area	Large MSA	5,576,673	4.85	4.80	-1.1
Texas	Killeen-Temple	Other area	Large MSA	349,131	3.33	3.38	1.4

Appendix III: Utilization Status of Geographic Areas

State	Area name	Status ^a	Type of area ^b	Population, 2007	Services per beneficiary served, 2000	Services per beneficiary served, 2008	Percentage change in services per beneficiary served, 2000 to 2008
Texas	Laredo	Potentially overserved area	Large MSA	233,152	3.87	4.52	16.7
Texas	Longview-Marshall	Other area	Large MSA	218,547	3.61	3.88	7.3
Texas	Lubbock	Other area	Large MSA	260,901	3.85	4.28	11.1
Texas	McAllen-Edinburg-Mission	Potentially overserved area	Large MSA	710,514	4.37	5.06	15.7
Texas	Odessa-Midland	Other area	Large MSA	255,978	3.68	3.37	-8.3
Texas	San Antonio	Other area	Large MSA	1,851,721	3.75	4.25	13.2
Texas	Waco	Other area	Large MSA	228,123	3.18	3.56	12.0
Texas	Small metropolitan areas	Other area	Small MSA areas	1,164,156	3.55	3.91	10.3
Texas	Rural counties	Other area	Rural areas	3,253,664	3.58	3.96	10.5
Utah	Provo-Orem	Other area	Large MSA	483,702	2.79	3.33	19.5
Utah	Salt Lake City-Ogden	Other area	Large MSA	1,519,510	2.88	3.23	11.9
Utah	Small metropolitan areas	Other area	Small MSA areas	6,523	3.27	3.57	8.9
Utah	Rural counties	Other area	Rural areas	635,595	2.83	3.26	15.3
Vermont	Burlington	Other area	Large MSA	207,361	2.98	3.14	5.4
Vermont	Rural counties	Other area	Rural areas	413,893	2.88	3.13	8.6
Virginia	Arlington-Alexandria ^c	Other area	Metropolitan division	2,443,060	3.47	3.91	12.6
Virginia	Lynchburg	Other area	Large MSA	223,095	2.84	3.36	18.2
Virginia	Norfolk-Virginia Beach-Newport News	Other area	Large MSA	1,627,705	3.32	3.71	11.8
Virginia	Richmond-Petersburg	Other area	Large MSA	1,096,629	3.33	3.58	7.4
Virginia	Roanoke	Other area	Large MSA	240,258	3.10	3.34	7.7
Virginia	Small metropolitan areas	Other area	Small MSA areas	444,773	3.03	3.38	11.8
Virginia	Rural counties	Other area	Rural areas	1,613,240	3.03	3.36	11.0
Washington	Seattle-Bellevue-Everett	Other area	Metropolitan division	2,536,182	3.12	3.43	9.8
Washington	Tacoma	Other area	Metropolitan division	773,165	3.04	3.42	12.5
Washington	Clark County ^c	Other area	Large MSA	418,070	2.93	3.50	19.5

Appendix III: Utilization Status of Geographic Areas

State	Area name	Status ^a	Type of area ^b	Population, 2007	Services per beneficiary served, 2000	Services per beneficiary served, 2008	Percentage change in services per beneficiary served, 2000 to 2008
Washington	Richland-Kennewick-Pasco	Other area	Large MSA	228,992	3.27	3.50	7.1
Washington	Spokane	Other area	Large MSA	456,175	3.00	3.52	17.4
Washington	Thurston County ^c	Other area	Large MSA	556,613	2.94	3.36	14.3
Washington	Yakima	Other area	Large MSA	233,062	2.88	3.28	13.8
Washington	Small metropolitan areas	Other area	Small MSA areas	192,999	2.90	3.56	22.7
Washington	Rural counties	Other area	Rural areas	1,073,166	2.99	3.29	9.9
West Virginia	Charleston	Other area	Large MSA	246,307	3.51	3.74	6.7
West Virginia	Small metropolitan areas	Other area	Small MSA areas	530,438	3.35	3.74	11.7
West Virginia	Rural counties	Other area	Rural areas	1,035,290	3.35	3.75	12.0
Wisconsin	Appleton-Oshkosh-Neenah	Other area	Large MSA	380,180	2.98	3.37	13.0
Wisconsin	Green Bay	Other area	Large MSA	243,132	2.95	3.43	16.3
Wisconsin	Madison	Other area	Large MSA	476,785	2.92	3.32	13.8
Wisconsin	Milwaukee-Racine	Potentially overserved area	Large MSA	1,739,497	3.29	3.81	15.9
Wisconsin	Small metropolitan areas	Other area	Small MSA areas	1,000,654	3.12	3.65	16.9
Wisconsin	Rural counties	Other area	Rural areas	1,761,392	2.96	3.38	14.0
Wyoming	Small metropolitan areas	Other area	Small MSA areas	158,103	3.03	3.58	18.1
Wyoming	Rural counties	Other area	Rural areas	364,727	2.99	3.21	7.4

Source: GAO analysis of U.S. Census Bureau data and Medicare Part B claims data for April 2000 and April 2008 from CMS.

^aPotentially overserved areas are areas that were in the top half of areas in both utilization of physician services in 2000 and growth in utilization of physician services from 2000 to 2008. The rest of the areas were designated as other areas.

^bCounties were mapped to metropolitan divisions based on U.S. Census Bureau designations. Counties mapped to MSAs based on U.S. Census Bureau and OMB designations were classified as MSA areas. Small MSA areas are MSAs with fewer than 200,000 in population grouped together within each state. Rural areas include all rural counties within a state.

^cSome counties were reassigned to different areas as result of overlap between metropolitan divisions and large MSAs or because the original entity crossed state lines. The revised areas were renamed after the remaining municipalities in the area or the largest county in the area.

Appendix IV: Selected Physician Services in Potentially Overserved and Other Areas

Using the BETOS code to which each procedure code in our claims data was assigned, we reviewed specific categories of physician services.¹ We collapsed data on other services and procedures into summary categories. We classified geographic areas of the country by type of area and utilization status. Our measure of utilization—services per beneficiary served—is based on Medicare claims data for services performed in the first 28 days of April 2000 and April 2008. An area was designated as potentially overserved if it was in both the top half of all areas in number of services per beneficiary served in 2000 and in the top half of the growth rate in services per beneficiary served from 2000 to 2008. Table 13 shows the specific service categories we reviewed, the change in the number of services provided per 1,000 FFS beneficiaries from April 2000 to April 2008, and the number of and difference in services provided in potentially overserved and other areas.

¹According to CMS, the BETOS coding system consists of readily understood clinical categories, is stable over time, and is relatively immune to minor changes in technology or practice patterns.

Appendix IV: Selected Physician Services in Potentially Overserved and Other Areas

Table 13: Selected Physician Services Provided per 1,000 Medicare FFS Beneficiaries in Potentially Overserved Areas and Other Areas

Service category	Percentage change from 2000 to 2008 in services per 1,000 Medicare FFS beneficiaries	Services per 1,000 Medicare FFS beneficiaries in potentially overserved areas, 2008	Services per 1,000 Medicare FFS beneficiaries in other areas, 2008	Percentage difference in services per 1,000 Medicare FFS beneficiaries in potentially overserved and other areas, 2008
All evaluation and management	15.1	1,229.2	948.1	29.7
Office visits-new patients	6.4	34.8	28.5	22.1
Office visits-established patients	14.1	566.6	474.4	19.4
Hospital visits	28.7	297.9	211.8	40.7
Emergency room visits	14.1	40.3	38.8	3.7
All imaging	41.4	457.4	386.5	18.3
CT scans	94.2	58.0	49.5	17.2
MRIs	116.4	16.9	14.8	14.7
Endoscopy	20.8	26.2	22.2	18.0
Lab tests	548.2	45.1	34.6	30.6
Other tests	26.7	166.1	121.4	36.7
All major procedures	-9.5	24.2	22.5	7.4
Major cardiac procedures	-22.9	12.1	10.6	14.5
Major orthopedic procedures	25.7	3.9	4.1	-4.8
Minor procedures	37.3	208.3	130.9	59.2
Ambulatory procedures	73.7	67.5	51.5	31.2
Eye procedures	28.5	13.4	12.0	12.0
Anesthesia	16.8	22.6	16.5	36.6
Oncology	10.2	34.3	26.4	29.9
All services	25.7	2,314.7	1,788.9	29.4

Source: GAO analysis of Medicare Part B claims data and enrollment data from CMS.

Note: Potentially overserved areas are areas that were in the top half of areas in both utilization of physician services in 2000 and growth in utilization of physician services from 2000 to 2008. The rest of the areas were designated as other areas.

Appendix V: Utilization Status of Medicare Physician Payment Localities

Medicare designates 87 distinct physician payment localities across the 50 states and the District of Columbia to adjust physician payments for the geographic difference in the costs of operating a private medical practice.¹ We measured utilization in each of the Medicare physician payment localities by examining the number of services per beneficiary who received services in April 2000 and April 2008, and ranked each payment locality by the level of utilization in 2000 and the change in utilization from 2000 to 2008. To determine a locality's utilization status, we designated Medicare physician payment localities in the top half of both measures as potentially overserved payment localities and designated the rest as other payment localities. Across all Medicare physician payment localities, the median number of services per beneficiary served was 3.34 in 2000 and 3.81 in 2008. The median percentage change in services per beneficiary served from 2000 to 2008 was 13.4 percent. (See table 14.)

¹There are 89 Medicare physician payment localities across the United States and surrounding territories. We excluded the Medicare physician payment localities for the U.S. Virgin Islands and Puerto Rico from our analysis.

**Appendix V: Utilization Status of Medicare
Physician Payment Localities**

Table 14: Utilization Status of Medicare Physician Payment Localities

Locality name	Status	Services per beneficiary served, 2000	Services per beneficiary served, 2008	Percentage change in services per beneficiary served, 2000 to 2008
Alaska	Other payment locality	3.30	3.43	4.0
Alabama	Potentially overserved payment locality	3.36	3.84	14.2
Arkansas	Other payment locality	3.36	3.73	11.1
Arizona	Potentially overserved payment locality	3.47	4.03	16.2
Anaheim/Santa Ana, CA	Other payment locality	3.98	4.37	9.6
Los Angeles, CA	Other payment locality	4.48	4.63	3.4
Marin/Napa/Solano, CA	Other payment locality	3.13	3.71	18.3
Oakland/Berkley, CA	Other payment locality	3.23	3.76	16.5
Rest of California	Other payment locality	3.35	3.72	11.1
San Francisco, CA	Other payment locality	3.16	3.52	11.2
San Mateo, CA	Other payment locality	3.15	3.74	18.9
Santa Clara, CA	Other payment locality	3.01	3.52	16.7
Ventura, CA	Other payment locality	3.75	4.08	8.8
Colorado	Other payment locality	3.12	3.58	14.7
Connecticut	Other payment locality	3.16	3.81	20.8
DC and MD/VA suburbs	Other payment locality	3.69	4.07	10.3
Delaware	Other payment locality	3.29	3.87	17.6
Fort Lauderdale, FL	Potentially overserved payment locality	4.03	4.87	20.9
Miami, FL	Potentially overserved payment locality	4.49	5.10	13.6
Rest of Florida	Potentially overserved payment locality	3.61	4.29	19.1
Atlanta, GA	Other payment locality	3.34	3.90	16.5
Rest of Georgia	Other payment locality	3.22	3.65	13.4
Hawaii/Guam	Other payment locality	3.01	3.25	8.0
Iowa	Other payment locality	3.14	3.45	9.6
Idaho	Other payment locality	2.90	3.15	8.9
Chicago, IL	Potentially overserved payment locality	3.79	4.55	20.0
East St. Louis, IL	Other payment locality	3.35	3.80	13.3
Rest of Illinois	Other payment locality	3.27	3.82	16.7

**Appendix V: Utilization Status of Medicare
Physician Payment Localities**

Locality name	Status	Services per beneficiary served, 2000	Services per beneficiary served, 2008	Percentage change in services per beneficiary served, 2000 to 2008
Suburban Chicago, IL	Potentially overserved payment locality	3.50	4.34	24.0
Indiana	Other payment locality	3.15	3.71	17.7
Kansas	Other payment locality	3.23	3.61	11.8
Kentucky	Potentially overserved payment locality	3.34	3.84	15.0
New Orleans, LA	Other payment locality	3.79	4.18	10.4
Rest of Louisiana	Other payment locality	3.57	3.98	11.4
Metropolitan Boston	Other payment locality	3.47	3.81	9.8
Rest of Massachusetts	Other payment locality	3.27	3.69	12.8
Baltimore/surrounding counties, MD	Other payment locality	3.48	3.90	11.9
Rest of Maryland	Other payment locality	3.40	3.81	12.1
Rest of Maine	Other payment locality	3.03	3.20	5.7
Southern Maine	Other payment locality	3.12	3.37	8.1
Detroit, MI	Potentially overserved payment locality	3.84	4.73	23.1
Rest of Michigan	Other payment locality	3.21	3.82	18.9
Minnesota	Other payment locality	3.05	3.50	14.7
Metropolitan Kansas City, MO	Other payment locality	3.52	3.92	11.5
Metropolitan St. Louis, MO	Potentially overserved payment locality	3.37	3.97	17.6
Rest of Missouri	Other payment locality	3.20	3.68	14.9
Mississippi	Other payment locality	3.40	3.74	10.0
Montana	Other payment locality	3.05	3.33	9.1
North Carolina	Other payment locality	3.13	3.56	13.6
North Dakota	Other payment locality	3.04	3.34	9.9
Nebraska	Other payment locality	3.15	3.66	16.0
New Hampshire	Other payment locality	2.99	3.42	14.4
Northern New Jersey	Potentially overserved payment locality	3.78	4.53	19.9
Rest of New Jersey	Potentially overserved payment locality	3.67	4.31	17.3
New Mexico	Other payment locality	3.07	3.30	7.6
Nevada	Other payment locality	3.75	4.25	13.2
Manhattan, NY	Potentially overserved payment locality	3.83	4.50	17.6

**Appendix V: Utilization Status of Medicare
Physician Payment Localities**

Locality name	Status	Services per beneficiary served, 2000	Services per beneficiary served, 2008	Percentage change in services per beneficiary served, 2000 to 2008
NYC suburbs/Long Island, NY	Potentially overserved payment locality	3.93	4.94	25.5
Poughkeepsie/ Northern NYC suburbs, NY	Potentially overserved payment locality	3.37	4.09	21.5
Queens, NY	Potentially overserved payment locality	3.82	5.08	33.2
Rest of New York	Other payment locality	3.16	3.56	12.9
Ohio	Other payment locality	3.32	3.91	17.8
Oklahoma	Other payment locality	3.27	3.53	7.9
Portland, OR	Other payment locality	2.96	3.37	13.7
Rest of Oregon	Other payment locality	2.89	3.22	11.5
Metropolitan Philadelphia, PA	Potentially overserved payment locality	3.77	4.34	15.2
Rest of Pennsylvania	Other payment locality	3.43	3.88	13.2
Rhode Island	Other payment locality	3.28	3.73	13.6
South Carolina	Other payment locality	3.23	3.66	13.5
South Dakota	Other payment locality	3.16	3.39	7.3
Tennessee	Potentially overserved payment locality	3.37	3.83	13.5
Austin, TX	Other payment locality	3.53	3.94	11.6
Beaumont, TX	Potentially overserved payment locality	3.74	4.25	13.4
Brazoria, TX	Potentially overserved payment locality	3.82	4.36	14.0
Dallas, TX	Other payment locality	3.80	4.13	8.7
Fort Worth, TX	Potentially overserved payment locality	3.46	3.99	15.4
Galveston, TX	Other payment locality	4.12	4.57	10.8
Houston, TX	Other payment locality	5.12	4.91	-4.1
Rest of Texas	Other payment locality	3.67	4.10	11.5
Utah	Other payment locality	2.86	3.25	13.8
Virginia	Other payment locality	3.16	3.53	11.8
Vermont	Other payment locality	2.91	3.13	7.7
Rest of Washington	Other payment locality	3.00	3.40	13.3
Seattle (King County), WA	Other payment locality	3.13	3.41	8.8
Wisconsin	Other payment locality	3.09	3.57	15.5
West Virginia	Other payment locality	3.37	3.75	11.1

**Appendix V: Utilization Status of Medicare
Physician Payment Localities**

Locality name	Status	Services per beneficiary served, 2000	Services per beneficiary served, 2008	Percentage change in services per beneficiary served, 2000 to 2008
Wyoming	Other payment locality	3.00	3.34	11.1

Source: GAO analysis of Medicare Part B claims data, enrollment data, and physician payment locality data from CMS.

Notes: Potentially overserved Medicare physician payment localities are localities that were in the top half of localities in both utilization of physician services in 2000 and growth in utilization of physician services from 2000 to 2008. The rest of the Medicare physician localities were designated as other payment localities. We combined certain Medicare physician payment localities in California, Kansas, and Missouri. We excluded data from the Puerto Rico and U.S. Virgin Islands Medicare physician payment localities.

Appendix VI: Selected Physician Services in Potentially Overserved and Other Medicare Physician Payment Localities

Using the BETOS code to which each procedure code in our claims data was assigned, we reviewed specific categories of physician services.¹ We collapsed data on other services and procedures into summary categories. We classified Medicare physician payment localities by utilization status. Our measure of utilization—services per beneficiary served—is based on Medicare claims data for services performed in the first 28 days of April 2000 and April 2008.² A Medicare physician payment locality was designated as potentially overserved if it was in both the top half of all areas in number of services per beneficiary served in 2000 and in the top half of the growth rate in services per beneficiary served from 2000 to 2008. Table 15 shows the specific service categories we reviewed, the change in the number of services provided per 1,000 FFS beneficiaries from April 2000 to April 2008, and the number of and difference in services provided in potentially overserved and other Medicare physician payment localities.

¹According to CMS, the BETOS coding system consists of readily understood clinical categories, is stable over time, and is relatively immune to minor changes in technology or practice patterns.

²Physician payment localities are the 87 distinct geographic regions designated by Medicare among which physician payments are adjusted for the costs of operating a private medical practice in each locality.

Appendix VI: Selected Physician Services in Potentially Overserved and Other Medicare Physician Payment Localities

Table 15: Selected Physician Services Provided per 1,000 Medicare FFS Beneficiaries in Potentially Overserved and Other Medicare Physician Payment Localities

Service category	Percentage change from 2000 to 2008 in services per 1,000 Medicare FFS beneficiaries	Services per 1,000 Medicare FFS beneficiaries in potentially overserved payment localities, 2008	Services per 1,000 Medicare FFS beneficiaries in other payment localities, 2008	Percentage difference in services per 1,000 Medicare FFS beneficiaries in potentially overserved and other payment localities, 2008
All evaluation and management	15.1	1,243.4	961.2	29.4
Office visits-new patients	6.4	35.6	28.6	24.5
Office visits-established patients	14.1	579.1	475.6	21.8
Hospital visits	28.7	295.6	218.3	35.4
Emergency room visits	14.1	40.0	39.0	2.6
All imaging	41.4	458.0	391.0	17.1
CT scans	94.2	58.0	50.1	15.8
MRIs	116.4	17.3	14.7	17.6
Endoscopy	20.8	26.4	22.4	17.9
Lab tests	548.2	43.6	35.8	21.8
Other tests	26.7	168.6	123.4	36.6
All major procedures	-9.5	24.0	22.7	5.7
Major cardiac procedures	-22.9	12.0	10.7	12.5
Major orthopedic procedures	25.7	3.9	4.1	-5.3
Minor procedures	37.3	212.8	134.3	58.4
Ambulatory procedures	73.7	69.3	51.9	33.6
Eye procedures	28.5	13.6	12.0	12.9
Anesthesia	16.8	22.2	17.1	29.9
Oncology	10.2	34.1	27.0	26.5
All services	25.7	2,337.0	1,815.0	28.8

Source: GAO analysis of Medicare Part B claims data, enrollment data, and physician payment locality data from CMS.

Notes: Potentially overserved Medicare physician payment localities are localities that were in the top half of localities in both utilization of physician services in 2000 and growth in utilization of physician services from 2000 to 2008. The rest of the localities were designated as other Medicare physician payment localities. We combined certain Medicare physician payment localities in California, Kansas, and Missouri. We excluded data from the Puerto Rico and U.S. Virgin Islands Medicare physician payment localities.

Appendix VII: Utilization Status of Hospital Referral Regions

Hospital referral regions (HRR) are the 306 distinct geographic regions designated by Dartmouth researchers to represent regional health care markets for tertiary medical care. Each HRR contains at least one hospital that performs major cardiovascular procedures and neurosurgery. We measured utilization in each of the HRRs by examining the number of services per beneficiary who received services in April 2000 and April 2008, and ranked each HRR by level of utilization in 2000 and change in utilization from 2000 to 2008. To determine an HRR's utilization status, we designated HRRs in the top half of both measures as potentially overserved HRRs and designated the rest as other HRRs. Across all HRRs, the median number of services per beneficiary served was 3.26 in 2000 and 3.72 in 2008. The median percentage change in services per beneficiary served from 2000 to 2008 was 13.7 percent. (See table 16.)

Appendix VII: Utilization Status of Hospital Referral Regions

Table 16: Utilization Status of Hospital Referral Regions

HRR name	Status	Services per beneficiary served, 2000	Services per beneficiary served, 2008	Percentage change in services per beneficiary served, 2000 to 2008
Birmingham, AL ^a	Potentially overserved HRR	3.37	3.85	14.3
Dothan, AL ^a	Other HRR	3.28	3.69	12.6
Huntsville, AL ^a	Other HRR	3.24	3.81	17.4
Mobile, AL ^a	Other HRR	3.58	4.00	11.9
Montgomery, AL	Other HRR	3.26	3.69	13.1
Tuscaloosa, AL	Other HRR	3.55	4.03	13.6
Anchorage, AK	Other HRR	3.30	3.43	3.9
Mesa, AZ	Potentially overserved HRR	3.48	4.06	16.8
Phoenix, AZ ^a	Potentially overserved HRR	3.50	4.06	16.1
Sun City, AZ	Potentially overserved HRR	3.65	4.29	17.5
Tucson, AZ	Other HRR	3.25	3.86	18.6
Fort Smith, AR ^a	Other HRR	3.36	3.60	7.2
Jonesboro, AR ^a	Other HRR	3.28	3.72	13.3
Little Rock, AR	Other HRR	3.38	3.78	11.7
Springdale, AR ^a	Other HRR	3.21	3.53	10.0
Texarkana, AR ^a	Other HRR	3.32	3.58	7.8
Orange County, CA	Other HRR	3.98	4.36	9.5
Bakersfield, CA	Potentially overserved HRR	3.35	3.95	17.7
Chico, CA	Other HRR	3.08	3.44	11.9
Contra Costa County, CA	Other HRR	3.21	3.99	24.2
Fresno, CA	Other HRR	3.11	3.65	17.4
Los Angeles, CA	Other HRR	4.48	4.64	3.5
Modesto, CA	Other HRR	3.13	3.56	13.7
Napa, CA	Other HRR	3.24	3.54	9.3
Alameda County, CA	Other HRR	3.23	3.59	11.2
Palm Springs/Rancho Mira, CA	Other HRR	3.77	4.07	7.8
Redding, CA	Other HRR	3.32	3.43	3.3
Sacramento, CA ^a	Other HRR	3.17	3.48	9.8
Salinas, CA	Other HRR	3.29	3.54	7.5
San Bernardino, CA	Other HRR	3.73	4.07	9.2
San Diego, CA	Other HRR	3.59	3.97	10.7
San Francisco, CA	Other HRR	3.16	3.59	13.8
San Jose, CA	Other HRR	3.02	3.53	17.1
San Luis Obispo, CA	Other HRR	3.08	3.47	12.7

Appendix VII: Utilization Status of Hospital Referral Regions

HRR name	Status	Services per beneficiary served, 2000	Services per beneficiary served, 2008	Percentage change in services per beneficiary served, 2000 to 2008
San Mateo County, CA	Other HRR	3.13	3.71	18.3
Santa Barbara, CA	Other HRR	3.42	3.64	6.4
Santa Cruz, CA	Other HRR	3.21	3.59	11.9
Santa Rosa, CA	Other HRR	3.10	3.55	14.7
Stockton, CA	Other HRR	3.18	3.48	9.4
Ventura, CA	Other HRR	3.76	4.08	8.4
Boulder, CO	Potentially overserved HRR	3.50	4.07	16.3
Colorado Springs, CO ^a	Other HRR	3.02	3.56	17.8
Denver, CO ^a	Other HRR	3.21	3.69	14.9
Fort Collins, CO ^a	Other HRR	2.98	3.44	15.5
Grand Junction, CO ^a	Other HRR	2.71	3.11	15.1
Greeley, CO ^a	Other HRR	3.00	3.34	11.4
Pueblo, CO	Other HRR	3.08	3.40	10.2
Bridgeport, CT	Potentially overserved HRR	3.41	4.18	22.5
Hartford, CT ^a	Other HRR	3.00	3.62	20.7
New Haven, CT ^a	Other HRR	3.24	3.89	20.2
Wilmington, DE ^a	Potentially overserved HRR	3.34	3.97	19.0
Washington, DC ^a	Other HRR	3.62	3.95	9.2
Bradenton, FL	Potentially overserved HRR	3.61	4.54	25.7
Clearwater, FL	Potentially overserved HRR	3.70	4.42	19.5
Fort Lauderdale, FL	Potentially overserved HRR	4.18	5.05	20.7
Fort Myers, FL	Potentially overserved HRR	3.74	4.57	22.1
Gainesville, FL	Potentially overserved HRR	3.52	4.02	14.4
Hudson, FL	Potentially overserved HRR	3.87	4.60	18.9
Jacksonville, FL ^a	Potentially overserved HRR	3.73	4.46	19.4
Lakeland, FL	Potentially overserved HRR	3.46	4.12	19.1
Miami, FL	Potentially overserved HRR	4.43	5.09	14.8
Ocala, FL	Potentially overserved HRR	3.49	4.01	14.9
Orlando, FL	Potentially overserved HRR	3.65	4.38	20.1
Ormond Beach, FL	Other HRR	3.23	4.06	25.5
Panama City, FL	Potentially overserved HRR	3.53	4.16	17.9
Pensacola, FL ^a	Potentially overserved HRR	3.32	3.83	15.6
Sarasota, FL	Potentially overserved HRR	3.61	4.26	18.1
St. Petersburg, FL	Potentially overserved HRR	3.71	4.55	22.8
Tallahassee, FL ^a	Other HRR	3.19	3.57	11.9
Tampa, FL	Potentially overserved HRR	3.72	4.38	17.7

Appendix VII: Utilization Status of Hospital Referral Regions

HRR name	Status	Services per beneficiary served, 2000	Services per beneficiary served, 2008	Percentage change in services per beneficiary served, 2000 to 2008
Albany, GA	Other HRR	3.24	3.41	5.2
Atlanta, GA ^a	Other HRR	3.24	3.78	16.5
Augusta, GA ^a	Other HRR	3.21	3.48	8.6
Columbus, GA ^a	Other HRR	3.05	3.53	15.9
Macon, GA	Other HRR	3.20	3.78	18.1
Rome, GA ^a	Other HRR	3.10	3.66	17.9
Savannah, GA ^a	Other HRR	3.42	3.79	10.7
Honolulu, HI	Other HRR	3.01	3.25	8.0
Boise, ID ^a	Other HRR	2.90	3.15	8.7
Idaho Falls, ID	Other HRR	2.94	3.19	8.5
Aurora, IL	Potentially overserved HRR	3.29	3.96	20.4
Blue Island, IL	Potentially overserved HRR	3.70	4.56	23.0
Chicago, IL	Potentially overserved HRR	4.05	4.75	17.2
Elgin, IL	Potentially overserved HRR	3.47	4.42	27.6
Evanston, IL	Potentially overserved HRR	3.48	4.27	22.7
Hinsdale, IL	Potentially overserved HRR	3.51	4.22	20.3
Joliet, IL	Potentially overserved HRR	3.73	4.48	20.1
Melrose Park, IL	Potentially overserved HRR	3.52	4.26	20.9
Peoria, IL	Other HRR	3.16	3.68	16.6
Rockford, IL	Other HRR	3.13	3.82	21.9
Springfield, IL ^a	Other HRR	3.41	3.86	13.4
Urbana, IL ^a	Other HRR	3.33	3.72	11.8
Bloomington, IL	Other HRR	3.19	3.72	16.4
Evansville, IN ^a	Other HRR	3.14	3.63	15.5
Fort Wayne, IN ^a	Other HRR	2.96	3.57	20.4
Gary, IN ^a	Potentially overserved HRR	3.51	4.24	20.8
Indianapolis, IN ^a	Other HRR	3.13	3.57	14.2
Lafayette, IN	Other HRR	2.98	3.65	22.4
Muncie, IN ^a	Other HRR	3.18	3.61	13.8
Munster, IN ^a	Potentially overserved HRR	3.61	4.65	28.7
South Bend, IN ^a	Other HRR	2.99	3.52	17.8
Terre Haute, IN ^a	Potentially overserved HRR	3.32	3.87	16.4
Cedar Rapids, IA	Other HRR	3.08	3.38	9.5
Davenport, IA ^a	Other HRR	3.22	3.73	15.8
Des Moines, IA ^a	Other HRR	3.22	3.52	9.3
Dubuque, IA ^a	Other HRR	2.97	3.22	8.4

Appendix VII: Utilization Status of Hospital Referral Regions

HRR name	Status	Services per beneficiary served, 2000	Services per beneficiary served, 2008	Percentage change in services per beneficiary served, 2000 to 2008
Iowa City, IA ^a	Other HRR	2.95	3.26	10.3
Mason City, IA	Other HRR	3.03	3.24	7.1
Sioux City, IA ^a	Other HRR	3.18	3.36	5.6
Waterloo, IA	Other HRR	3.22	3.64	13.2
Topeka, KS	Other HRR	2.93	3.44	17.5
Wichita, KS ^a	Other HRR	3.23	3.58	10.9
Covington, KY ^a	Other HRR	3.25	4.13	27.1
Lexington, KY ^a	Other HRR	3.19	3.78	18.5
Louisville, KY ^a	Other HRR	3.48	3.94	13.0
Owensboro, KY ^a	Other HRR	3.46	3.64	5.3
Paducah, KY ^a	Other HRR	3.21	3.68	14.9
Alexandria, LA	Other HRR	3.37	3.82	13.4
Baton Rouge, LA ^a	Other HRR	3.68	4.08	10.8
Houma, LA	Potentially overserved HRR	3.40	3.92	15.2
Lafayette, LA	Other HRR	3.50	3.88	10.9
Lake Charles, LA ^a	Other HRR	3.56	3.62	1.6
Metairie, LA	Potentially overserved HRR	3.68	4.29	16.7
Monroe, LA	Other HRR	3.85	4.19	8.9
New Orleans, LA	Other HRR	3.83	4.16	8.8
Shreveport, LA ^a	Other HRR	3.54	3.98	12.4
Slidell, LA ^a	Other HRR	3.72	4.04	8.7
Bangor, ME	Other HRR	3.10	3.23	4.2
Portland, ME ^a	Other HRR	3.03	3.30	8.9
Baltimore, MD	Other HRR	3.47	3.90	12.3
Salisbury, MD ^a	Other HRR	3.36	3.81	13.4
Takoma Park, MD	Other HRR	3.72	4.15	11.5
Boston, MA ^a	Other HRR	3.42	3.79	10.9
Springfield, MA ^a	Other HRR	3.10	3.47	11.8
Worcester, MA	Other HRR	3.22	3.62	12.5
Ann Arbor, MI	Potentially overserved HRR	3.50	4.11	17.3
Dearborn, MI	Potentially overserved HRR	3.78	4.73	25.1
Detroit, MI	Potentially overserved HRR	3.94	4.85	23.2
Flint, MI	Potentially overserved HRR	3.64	4.43	21.7
Grand Rapids, MI	Other HRR	2.97	3.59	20.9
Kalamazoo, MI	Other HRR	3.01	3.52	16.8
Lansing, MI	Potentially overserved HRR	3.28	3.88	18.4

Appendix VII: Utilization Status of Hospital Referral Regions

HRR name	Status	Services per beneficiary served, 2000	Services per beneficiary served, 2008	Percentage change in services per beneficiary served, 2000 to 2008
Marquette, MI ^a	Other HRR	3.03	3.35	10.5
Muskegon, MI	Other HRR	2.98	3.38	13.2
Petoskey, MI	Other HRR	3.07	3.89	26.9
Pontiac, MI	Potentially overserved HRR	3.76	4.69	24.6
Royal Oak, MI	Potentially overserved HRR	3.86	4.83	25.4
Saginaw, MI	Potentially overserved HRR	3.40	3.98	17.0
St. Joseph, MI	Other HRR	2.98	3.63	21.8
Traverse City, MI	Other HRR	3.21	3.59	12.1
Duluth, MN ^a	Other HRR	2.96	3.34	12.8
Minneapolis, MN ^a	Other HRR	3.02	3.52	16.7
Rochester, MN ^a	Other HRR	3.34	3.56	6.5
St. Cloud, MN	Other HRR	3.04	3.48	14.5
St. Paul, MN ^a	Other HRR	3.09	3.53	14.5
Gulfport, MS	Other HRR	3.80	3.88	2.0
Hattiesburg, MS	Other HRR	3.50	3.79	8.3
Jackson, MS ^a	Other HRR	3.27	3.65	11.6
Meridian, MS ^a	Other HRR	3.46	3.74	8.0
Oxford, MS	Other HRR	3.34	3.59	7.4
Tupelo, MS ^a	Other HRR	3.06	3.45	12.7
Cape Girardeau, MO ^a	Other HRR	3.21	3.74	16.4
Columbia, MO ^a	Potentially overserved HRR	3.27	3.76	14.9
Joplin, MO ^a	Other HRR	3.17	3.58	13.0
Kansas City, MO ^a	Other HRR	3.47	3.86	11.1
Springfield, MO ^a	Other HRR	3.02	3.46	14.4
St. Louis, MO ^a	Potentially overserved HRR	3.36	3.89	15.9
Billings, MT ^a	Other HRR	3.01	3.21	6.5
Great Falls, MT	Other HRR	3.18	3.66	15.2
Missoula, MT ^a	Other HRR	3.04	3.30	8.5
Lincoln, NE ^a	Other HRR	3.06	3.55	16.0
Omaha, NE ^a	Other HRR	3.24	3.75	15.6
Las Vegas, NV ^a	Other HRR	4.06	4.56	12.2
Reno, NV ^a	Other HRR	3.14	3.50	11.3
Lebanon, NH ^a	Other HRR	2.84	3.12	9.9
Manchester, NH	Other HRR	3.01	3.45	14.6
Camden, NJ	Potentially overserved HRR	3.66	4.31	17.6
Hackensack, NJ ^a	Potentially overserved HRR	3.80	4.60	21.0

Appendix VII: Utilization Status of Hospital Referral Regions

HRR name	Status	Services per beneficiary served, 2000	Services per beneficiary served, 2008	Percentage change in services per beneficiary served, 2000 to 2008
Morristown, NJ ^a	Potentially overserved HRR	3.54	4.24	19.6
New Brunswick, NJ	Potentially overserved HRR	3.85	4.54	17.7
Newark, NJ	Potentially overserved HRR	3.92	4.77	21.7
Paterson, NJ	Potentially overserved HRR	3.65	4.40	20.5
Ridgewood, NJ ^a	Potentially overserved HRR	3.77	4.51	19.6
Albuquerque, NM ^a	Other HRR	3.01	3.18	5.9
Albany, NY ^a	Potentially overserved HRR	3.29	3.88	17.9
Binghamton, NY ^a	Other HRR	3.09	3.40	9.8
Bronx, NY	Potentially overserved HRR	3.90	4.70	20.6
Buffalo, NY ^a	Other HRR	3.13	3.57	14.2
Elmira, NY ^a	Other HRR	3.17	3.63	14.3
East Long Island, NY	Potentially overserved HRR	3.84	4.86	26.3
Manhattan, NY	Potentially overserved HRR	4.00	5.13	28.5
Rochester, NY	Other HRR	2.88	3.29	14.3
Syracuse, NY	Other HRR	3.23	3.57	10.5
White Plains, NY	Potentially overserved HRR	3.77	4.44	17.8
Asheville, NC	Other HRR	3.06	3.29	7.5
Charlotte, NC ^a	Other HRR	3.16	3.65	15.3
Durham, NC ^a	Other HRR	3.06	3.56	16.4
Greensboro, NC	Other HRR	3.12	3.47	11.5
Greenville, NC	Other HRR	3.23	3.59	11.3
Hickory, NC	Other HRR	3.07	3.45	12.1
Raleigh, NC	Other HRR	3.12	3.64	16.6
Wilmington, NC	Other HRR	3.32	3.57	7.6
Winston-Salem, NC ^a	Other HRR	3.10	3.60	16.1
Bismarck, ND ^a	Other HRR	3.18	3.36	5.8
Fargo, ND ^a	Other HRR	2.91	3.26	12.0
Grand Forks, ND ^a	Other HRR	3.00	3.49	16.1
Minot, ND ^a	Other HRR	2.94	3.28	11.7
Akron, OH	Potentially overserved HRR	3.39	3.88	14.6
Canton, OH	Potentially overserved HRR	3.29	3.77	14.8
Cincinnati, OH ^a	Other HRR	3.16	3.79	20.0
Cleveland, OH	Potentially overserved HRR	3.41	4.11	20.6
Columbus, OH ^a	Other HRR	3.25	3.72	14.5
Dayton, OH	Potentially overserved HRR	3.26	3.95	21.1
Elyria, OH	Potentially overserved HRR	3.43	4.16	21.1

Appendix VII: Utilization Status of Hospital Referral Regions

HRR name	Status	Services per beneficiary served, 2000	Services per beneficiary served, 2008	Percentage change in services per beneficiary served, 2000 to 2008
Kettering, OH	Other HRR	3.08	3.85	25.2
Toledo, OH ^a	Potentially overserved HRR	3.46	3.97	14.7
Youngstown, OH ^a	Potentially overserved HRR	3.53	4.19	18.7
Lawton, OK	Other HRR	3.18	3.57	12.1
Oklahoma City, OK ^a	Other HRR	3.26	3.56	9.2
Tulsa, OK ^a	Other HRR	3.25	3.44	5.8
Bend, OR	Other HRR	2.92	3.40	16.8
Eugene, OR	Other HRR	2.89	3.20	10.5
Medford, OR ^a	Other HRR	2.89	3.21	11.1
Portland, OR ^a	Other HRR	2.94	3.32	13.0
Salem, OR	Other HRR	2.91	3.32	14.2
Allentown, PA ^a	Potentially overserved HRR	3.49	3.98	14.3
Altoona, PA	Other HRR	3.33	3.78	13.3
Danville, PA	Other HRR	3.08	3.42	10.8
Erie, PA ^a	Other HRR	3.25	3.72	14.7
Harrisburg, PA ^a	Other HRR	3.24	3.68	13.4
Johnstown, PA	Potentially overserved HRR	3.31	3.96	19.9
Lancaster, PA	Potentially overserved HRR	3.33	3.82	14.9
Philadelphia, PA ^a	Potentially overserved HRR	3.76	4.35	15.6
Pittsburgh, PA ^a	Potentially overserved HRR	3.72	4.30	15.7
Reading, PA	Potentially overserved HRR	3.27	3.86	17.9
Sayre, PA ^a	Other HRR	3.14	3.60	14.6
Scranton, PA ^a	Other HRR	3.46	3.86	11.3
Wilkes-Barre, PA	Other HRR	3.47	3.94	13.4
York, PA	Other HRR	3.03	3.51	15.9
Providence, RI ^a	Other HRR	3.26	3.72	13.9
Charleston, SC ^a	Other HRR	3.32	3.69	11.3
Columbia, SC	Other HRR	3.22	3.74	15.9
Florence, SC ^a	Other HRR	3.45	3.77	9.3
Greenville, SC	Other HRR	3.12	3.55	13.9
Spartanburg, SC ^a	Other HRR	3.07	3.44	12.1
Rapid City, SD ^a	Other HRR	3.12	3.16	1.2
Sioux Falls, SD ^a	Other HRR	3.08	3.37	9.2
Chattanooga, TN ^a	Other HRR	3.40	3.80	11.8
Jackson, TN	Other HRR	3.26	3.80	16.7
Johnson City, TN ^a	Other HRR	3.28	3.66	11.8

Appendix VII: Utilization Status of Hospital Referral Regions

HRR name	Status	Services per beneficiary served, 2000	Services per beneficiary served, 2008	Percentage change in services per beneficiary served, 2000 to 2008
Kingsport, TN ^a	Other HRR	3.05	3.39	11.0
Knoxville, TN ^a	Other HRR	3.30	3.71	12.4
Memphis, TN ^a	Potentially overserved HRR	3.71	4.23	14.2
Nashville, TN ^a	Other HRR	3.28	3.71	13.1
Abilene, TX	Other HRR	3.62	3.86	6.7
Amarillo, TX ^a	Other HRR	3.50	3.83	9.3
Austin, TX	Other HRR	3.52	3.88	10.2
Beaumont, TX	Other HRR	3.79	4.20	10.9
Bryan, TX	Other HRR	3.49	3.80	9.0
Corpus Christi, TX	Other HRR	3.81	4.28	12.4
Dallas, TX ^a	Other HRR	3.68	4.11	11.7
El Paso, TX ^a	Other HRR	3.50	3.78	7.9
Fort Worth, TX	Potentially overserved HRR	3.41	3.93	15.2
Harlingen, TX	Potentially overserved HRR	4.12	4.74	15.1
Houston, TX	Other HRR	4.55	4.67	2.6
Longview, TX	Other HRR	3.60	3.83	6.4
Lubbock, TX ^a	Other HRR	3.69	3.98	7.8
McAllen, TX	Potentially overserved HRR	4.45	5.11	15.0
Odessa, TX	Other HRR	3.65	3.40	-6.9
San Angelo, TX	Other HRR	3.17	3.76	18.5
San Antonio, TX	Other HRR	3.70	4.20	13.6
Temple, TX	Other HRR	3.38	3.47	2.5
Tyler, TX	Other HRR	3.70	3.96	6.9
Victoria, TX	Other HRR	3.69	4.07	10.1
Waco, TX	Other HRR	3.26	3.58	9.9
Wichita Falls, TX ^a	Other HRR	3.69	3.99	8.1
Ogden, UT	Other HRR	2.77	3.31	19.5
Provo, UT	Other HRR	2.80	3.29	17.3
Salt Lake City, UT ^a	Other HRR	2.89	3.20	10.8
Burlington, VT ^a	Other HRR	3.05	3.29	8.0
Arlington, VA ^a	Other HRR	3.50	3.91	11.7
Charlottesville, VA ^a	Other HRR	2.84	3.20	12.4
Lynchburg, VA	Other HRR	2.81	3.33	18.4
Newport News, VA	Other HRR	3.18	3.52	10.9
Norfolk, VA ^a	Other HRR	3.34	3.75	12.5
Richmond, VA	Other HRR	3.30	3.61	9.1

Appendix VII: Utilization Status of Hospital Referral Regions

HRR name	Status	Services per beneficiary served, 2000	Services per beneficiary served, 2008	Percentage change in services per beneficiary served, 2000 to 2008
Roanoke, VA ^a	Other HRR	3.18	3.43	7.6
Winchester, VA ^a	Other HRR	3.10	3.41	9.9
Everett, WA	Other HRR	2.95	3.33	12.9
Olympia, WA	Other HRR	2.85	3.30	15.7
Seattle, WA	Other HRR	3.08	3.42	10.9
Spokane, WA ^a	Other HRR	3.04	3.40	11.9
Tacoma, WA	Other HRR	3.04	3.43	12.6
Yakima, WA	Other HRR	2.87	3.23	12.5
Charleston, WV ^a	Other HRR	3.38	3.76	11.3
Huntington, WV ^a	Potentially overserved HRR	3.36	3.87	15.2
Morgantown, WV ^a	Other HRR	3.41	3.81	11.5
Appleton, WI	Other HRR	2.88	3.29	14.5
Green Bay, WI ^a	Other HRR	3.02	3.52	16.6
La Crosse, WI ^a	Other HRR	2.89	3.19	10.6
Madison, WI ^a	Other HRR	2.94	3.34	13.6
Marshfield, WI	Other HRR	3.15	3.52	11.8
Milwaukee, WI ^a	Potentially overserved HRR	3.28	3.87	18.0
Neenah, WI	Other HRR	2.97	3.37	13.7
Wausau, WI ^a	Other HRR	3.06	3.65	19.4
Casper, WY	Other HRR	3.07	3.47	13.1

Source: GAO analysis of Medicare Part B claims and enrollment data from CMS and HRR data from Dartmouth.

Notes: Potentially overserved HRRs are areas that were in the top half of HRRs in both utilization of physician services in 2000 and growth in utilization of physician services from 2000 to 2008. The rest of the areas were designated as other HRRs. Some HRRs cross state lines.

^aHRR that crosses state lines.

Appendix VIII: Selected Physician Services in Potentially Overserved and Other HRRs

Using BETOS code to which each procedure code in our claims data was assigned, we reviewed specific categories of physician services.¹ We collapsed data on other services and procedures into summary categories. We classified HRRs by utilization status.² Our measure of utilization—services per beneficiary served—is based on Medicare claims data for services performed in the first 28 days of April 2000 and April 2008. An HRR was designated as potentially overserved if it was in both the top half of all areas in number of services per beneficiary served in 2000 and in the top half of the growth rate in services per beneficiary served from 2000 to 2008. Table 17 shows the specific service categories we reviewed, the change in the number of services provided per 1,000 FFS beneficiaries from April 2000 to April 2008, and the number of and difference in services provided in potentially overserved and other HRRs.

¹According to CMS, the BETOS coding system consists of readily understood clinical categories, is stable over time, and is relatively immune to minor changes in technology or practice patterns.

²HRRs are the 306 distinct geographic regions designated by Dartmouth researchers to represent regional health care markets for tertiary medical care. Each HRR contains at least one hospital that performs major cardiovascular procedures and neurosurgery.

Appendix VIII: Selected Physician Services in Potentially Overserved and Other HRRs

Table 17: Selected Physician Services Provided per 1,000 Medicare FFS Beneficiaries in Potentially Overserved and Other Hospital Referral Regions

Service category	Percentage change from 2000 to 2008 in services per 1,000 Medicare FFS beneficiaries	Services per 1,000 Medicare FFS beneficiaries in potentially overserved HRRs, 2008	Services per 1,000 Medicare FFS beneficiaries in other HRRs, 2008	Percentage difference in services per 1,000 Medicare FFS beneficiaries in potentially overserved and other HRRs, 2008
All evaluation and management	15.2	1,243.0	944.7	31.6
Office visits-new patients	6.4	35.0	28.4	23.0
Office visits-established patients	14.2	572.4	472.8	21.1
Hospital visits	28.8	301.5	210.9	42.9
Emergency room visits	14.1	40.3	38.8	3.8
All imaging	41.5	461.5	385.5	19.7
CT scans	94.3	58.4	49.4	18.0
MRIs	116.5	17.0	14.8	14.8
Endoscopy	20.9	26.4	22.2	18.8
Lab tests	548.6	45.6	34.4	32.4
Other tests	26.7	170.1	120.0	41.8
All major procedures	-9.4	24.3	22.5	8.0
Major cardiac procedures	-22.9	12.3	10.5	16.9
Major orthopedic procedures	25.8	3.9	4.1	-6.0
Minor procedures	37.4	211.4	130.2	62.4
Ambulatory procedures	73.8	68.5	51.2	33.7
Eye procedures	28.5	13.4	12.0	11.4
Anesthesia	16.8	22.4	16.6	35.0
Oncology	10.3	33.9	26.7	27.2
All services	25.8	2,340.8	1,782.4	31.3

Source: GAO analysis of Medicare Part B claims and enrollment data from CMS and HRR data from Dartmouth.

Notes: Potentially overserved HRRs are areas that were in the top half of HRRs in both utilization of physician services in 2000 and growth in utilization of physician services from 2000 to 2008. The rest of the HRRs were designated as other HRRs. Some HRRs cross state lines.

Appendix IX: Comments from the Centers for Medicare & Medicaid Services



DEPARTMENT OF HEALTH & HUMAN SERVICES

OFFICE OF THE SECRETARY

Assistant Secretary for Legislation
Washington, DC 20201

AUG 06 2009

A. Bruce Steinwald
Director, Health Care
Government Accountability Office
441 G Street NW
Washington, DC 20548

Dear Mr. Steinwald:

Enclosed are the Department's comments on the U.S. Government Accountability Office's (GAO) draft report entitled: "MEDICARE PHYSICIAN SERVICES: Utilization Trends Indicate Sustained Beneficiary Access with High and Growing Levels of Service in Some Areas of the Nation (GAO-09-559).

The Department appreciates the opportunity to review and comment on this report before its publication.

Sincerely,

A handwritten signature in cursive script that reads "Barbara Pisaro Clark".

Barbara Pisaro Clark
Acting Assistant Secretary for Legislation

Attachment

Appendix IX: Comments from the Centers for Medicare & Medicaid Services



DEPARTMENT OF HEALTH & HUMAN SERVICES

Centers for Medicare & Medicaid Services

Administrator
Washington, DC 20201

DATE: AUG 06 2009

TO: Barbara Pisaro Clark
Assistant Secretary of Legislation

FROM: *Charlene Frizzera*
Charlene Frizzera
Acting Administrator

SUBJECT: Government Accountability Office's Draft Report: "MEDICARE PHYSICIAN SERVICES: Utilization Trends Indicate Sustained Beneficiary Access with High and Growing Levels of Service in Some Areas of the Nation" (GAO-09-559)

The Centers for Medicare & Medicaid Services (CMS) appreciates the opportunity to review and comment on the Government Accountability Office's (GAO) draft report entitled "MEDICARE PHYSICIAN SERVICES: Utilization Trends Indicate Sustained Beneficiary Access with High and Growing Levels of Service in Some Areas of the Nation."

The CMS has a longstanding practice of monitoring the effect of policy changes on beneficiary access to Medicare services. The subject report will help in this effort.

This GAO study found that Medicare beneficiaries continue to experience few problems accessing physicians' services during their period of study. Less than 3 percent reported any major difficulties in accessing medical care in 2007 and 2008. This finding is consistent with findings in previous GAO studies released in 2005 and 2006, as well as the findings contained in Medicare Payment Advisory Commission's February 2009 Report to Congress. Moreover, the data from the GAO studies consistently show that beneficiary utilization of physicians' services and physicians' willingness to serve the Medicare population and to accept Medicare payment rates as payment in full for their services has risen steadily from 2000 to 2008.

The GAO also found significant geographic variations in beneficiary use of physicians' services and that the rate of spending growth for physicians' services also varies geographically. The potentially overserved areas tended to be the more densely populated urban areas and areas east of the Mississippi. Beneficiaries in these potentially overserved areas are similar in demographic characteristics to those in other areas, which suggests that physicians employ different practice patterns in different areas of the country.

The GAO notes that the Medicare sustainable growth rate (SGR), which is used to help control spending on physicians' services, does not account for these geographic differences in utilization rates. The report suggests that as Congress continues to consider options for revising the SGR

Page 2 – Barbara Pisaro Clark

and other payment reforms that these geographic differences in utilization and practice patterns will likely continue to be part of the discussion. The CMS appreciates GAO's analysis on beneficiary access to physicians' services.

Appendix X: GAO Contact and Staff Acknowledgments

GAO Contact

A. Bruce Steinwald, (202) 512-7114 or steinwalda@gao.gov

Acknowledgments

In addition to the contact named above, Jessica Farb, Assistant Director; Todd Anderson; Krister Friday; Jenny Grover; Jessica T. Lee; Richard Lipinski; and Sarabeth Zemel made major contributions to this report.

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