

March 2005

MEDICARE PHYSICIAN FEES

Geographic Adjustment Indices Are Valid in Design, but Data and Methods Need Refinement



G A O

Accountability * Integrity * Reliability



Highlights of [GAO-05-119](#), a report to congressional committees

Why GAO Did This Study

The Medicare physician fee schedule adjusts physician fees for area differences in physicians' costs of operating a private medical practice. Three separate indices, known as geographic practice cost indices (GPCI), raise or lower Medicare fees in an area, depending on whether the area's physician practice costs are above or below the national average. The three GPCIs correspond to the three components of a Medicare fee: physician work, practice expense, and malpractice expense.

Advocates for rural physicians have criticized the GPCIs, which lower fees in areas where costs are below the national average. The Medicare Prescription Drug, Improvement, and Modernization Act of 2003 directed GAO to evaluate Medicare's method of geographic adjustment. This report examines the extent to which Medicare's GPCIs are valid in their design and appropriate in the data and methods used in their construction, and affect physician incomes, location, recruitment, and retention.

What GAO Recommends

GAO recommends that HHS improve the GPCIs by augmenting the data and refining the methods used to construct them. HHS characterized GAO's findings as important but disagreed with most of the recommendations, citing concerns about when they could be implemented. GAO holds that its recommendations account for these timing issues.

www.gao.gov/cgi-bin/getrpt?GAO-05-119.

To view the full product, including the scope and methodology, click on the link above. For more information, contact A. Bruce Steinwald at (202) 512-7119.

MEDICARE PHYSICIAN FEES

Geographic Adjustment Indices Are Valid in Design, but Data and Methods Need Refinement

What GAO Found

The physician work GPCI, the practice expense GPCI, and the malpractice expense GPCI are valid in their fundamental design as tools to account for geographic cost differences. The three GPCIs as implemented appropriately reflect broad patterns of geographic differences in the costs of running a medical practice. For example, nurses' wages, which constitute a substantial share of physicians' practice expenses, vary across the nation and contribute to differences in practice expenses. (See table.)

Geographic Differences in Hourly Wage for Registered Nurses, 2000

| Medicare payment locality | Median hourly wage for registered nurses |
|--|--|
| Oakland/Berkeley, California | \$29.16 |
| Massachusetts, excluding metropolitan Boston | 22.06 |
| Fort Worth, Texas | 21.26 |
| New Mexico | 19.83 |
| South Carolina | 19.60 |

Source: GAO analysis of data from CMS and U.S. Census Bureau.

In addition to adjusting for cost differences, the work GPCI is valid in that it also reflects a goal of protecting physician fees in low-cost areas from dropping to levels that could be considered unfair relative to fees in high-cost areas. The work GPCI does so by limiting downward cost adjustments. Despite the GPCIs' validity, however, data and methodology problems may detract from the GPCIs as measures of cost differences. For example, the wage data used in the work and practice expense GPCIs are not current, and the data used in the malpractice GPCI are incomplete. The Centers for Medicare & Medicaid Services (CMS) in the Department of Health and Human Services (HHS) has options to remedy some of these flaws.

GPCIs appear to have a negligible bearing on physicians' decisions to locate in rural areas. Because Medicare revenue constitutes only part of a physician's income—typically 25 percent—the secondary impact of the GPCIs on a physician's income is generally modest, raising or lowering income by no more than 2 to 3 percent in most localities. GAO's interviews with physician recruitment experts and GAO's review of the literature indicate that income is only one of several factors—such as a spouse's employment opportunities, the quality of local schools, and the availability of other physicians to share night and weekend calls—that drive physicians' decisions to locate in rural areas.

Contents

Letter

| | |
|---|----|
| Results in Brief | 1 |
| Background | 3 |
| GPCIs Are Generally Valid in Design, but CMS's Data and Methods Have Weaknesses | 4 |
| GPCIs Appear to Have Little Effect on Physicians' Incomes, Location, Recruitment, and Retention | 13 |
| Conclusions | 21 |
| Recommendations for Executive Action | 29 |
| Agency and Industry Comments and Our Evaluation | 30 |
| | 31 |

Appendixes

| | |
|--|----|
| Appendix I: Data and Methods | 37 |
| Appendix II: Rent Indexes and the Practice Expense GPCI | 41 |
| Appendix III: Comments from the Department of Health and Human Services | 42 |
| Appendix IV: GAO Contact and Staff Acknowledgments | 48 |
| GAO Contact | 48 |
| Acknowledgments | 48 |

Tables

| | |
|--|----|
| Table 1: The Physician Work, Practice Expense, and Malpractice GPCIs for Five Payment Localities, 2004 | 8 |
| Table 2: The Medicare Physician Fee for a Midlevel Office Visit in Five Payment Localities, 2004 | 9 |
| Table 3: Geographic Differences in Hourly Wage for Registered Nurses, 2000 | 17 |
| Table 4: Hypothetical Example of GPCIs' Effect on Income of Physicians with Identical Number and Types of Services Who Derive One-Quarter of Professional Income from Medicare, 2004 | 22 |
| Table 5: Data Sources Used in CMS's Construction of GPCIs | 37 |
| Table 6: Factors Explaining Variation in Physicians' Average Annual Income for 513 Geographic Areas | 40 |

Figures

| | |
|--|----|
| Figure 1: Effect of Different Policies Altering the Work GPCI on the Weighted Average of the Three GPCIs in an Urban Area (Oakland/Berkeley, California) and in a Relatively Rural Area (South Carolina) | 12 |
|--|----|

| | |
|--|----|
| Figure 2: Variation in Private Plans' Physician Fees and Average Medicare GPCI by Medicare Payment Locality, 2002 | 25 |
| Figure 3: Number of Retirements of Iowa Physicians and Standard & Poors Composite Index of Stock Prices, 1993-2003 | 29 |

Abbreviations

| | |
|--------|--|
| AAFD | American Academy of Family Physicians |
| ACS | American Community Survey |
| AMA | American Medical Association |
| CMS | Centers for Medicare & Medicaid Services |
| CMSA | consolidated metropolitan statistical area |
| CPI | Consumer Price Index |
| FMR | fair market rent |
| GAF | geographic adjustment factor |
| GPCI | geographic practice cost index |
| HCFA | Health Care Financing Administration |
| HHS | Department of Health and Human Services |
| HUD | Department of Housing and Urban Development |
| MedPAC | Medicare Payment Advisory Commission |
| MMA | Medicare Prescription Drug, Improvement, and Modernization Act of 2003 |
| MSA | metropolitan statistical area |
| NAIC | National Association of Insurance Commissioners |
| NECMA | New England county metropolitan area |
| RVU | relative value unit |
| USPS | United States Postal Service |

This is a work of the U.S. government and is not subject to copyright protection in the United States. It may be reproduced and distributed in its entirety without further permission from GAO. However, because this work may contain copyrighted images or other material, permission from the copyright holder may be necessary if you wish to reproduce this material separately.



United States Government Accountability Office
Washington, D.C. 20548

March 11, 2005

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

The Honorable Joe Barton
Chairman
The Honorable John D. Dingell
Ranking Minority Member
Committee on Energy and Commerce
House of Representatives

The Honorable William M. Thomas
Chairman
The Honorable Charles B. Rangel
Ranking Minority Member
Committee on Ways and Means
House of Representatives

Since 1992, when Medicare's physician fee schedule was put into place, physicians' fees have been adjusted for area differences in physicians' costs of operating a private medical practice. The purpose of this adjustment is to help ensure that Medicare's payment is appropriate and adequate in all areas. Three separate indices, known as geographic practice cost indices (GPCI), are used in making the geographic fee adjustments. These GPICs raise or lower Medicare fees in an area, depending on whether that area's costs of staff and other expenses—including office rent, malpractice premiums, and the cost of physicians' own time—are above or below the national average. The three GPICs correspond to the three main components of a Medicare fee: physician work, practice expense, and malpractice expense. As part of its responsibility to set and adjust Medicare fees, the Centers for Medicare & Medicaid Services (CMS) in the Department of Health and Human Services (HHS) determines the methodology used to develop the GPICs.

Since the implementation of the GPICs, physician groups have expressed concerns about the data and methods used to construct them. In 1991, the year before the GPICs' implementation, CMS (at the time called the Health

Care Financing Administration (HCFA))¹ noted that the cost would be prohibitive to collect the detailed locality-level data needed to measure every area's staff costs and other expenses compared to the national average. The agency therefore limited data sources to those that existed and were readily available, selecting data proxies for each GPCI. Physicians have viewed certain of these proxies as detracting from the GPCIs as measures of cost differences. For example, physician groups find fault with CMS's use of apartment rent as a proxy for physician office rent in constructing the practice expense GPCI.

Groups representing physicians practicing in rural areas have also questioned the GPCIs' fairness, as GPCIs adjust fees downward when an area's costs and expenses are lower than the national average. The contention is that setting Medicare fees higher in an urban area is unfair because an internist in rural Maine, for example, does the same work in providing care to a patient as an internist in Los Angeles. Advocates for rural physicians also argue that GPCI-related disparities in Medicare payment are jeopardizing the supply of physicians in rural areas.

In the Medicare Prescription Drug, Improvement, and Modernization Act of 2003 (MMA), Congress directed GAO to evaluate several issues related to physician compensation, among them Medicare's method of geographic adjustment and the potential for such adjustment to affect physician location, recruitment, and retention—matters related to physician supply.² In this report, we examine (1) the extent to which the GPCIs are valid in their fundamental design and appropriate in the data and methods used to measure cost differences and (2) whether GPCIs affect physician incomes, location, recruitment, and retention.

To assess the GPCIs' validity, we reviewed the design of each GPCI to determine if the design was appropriate for achieving the intended objectives in geographically adjusting physician fees.³ In addition, we reviewed the data and methods that CMS used to construct the GPCIs. These data included wage and malpractice premium data from CMS as well as fair market rent (FMR) data from the Department of Housing and Urban Development (HUD). We also reviewed an index of geographic differences

¹The Health Care Financing Administration (HCFA) was renamed CMS on July 1, 2001.

²Pub. L. No. 108-173, § 413(c), 117 Stat. 2066, 2277-78.

³The MMA directs us to examine the GPCIs' validity but does not define the term.

in commercial rents, using U.S. Postal Service (USPS) data, in order to assess the rent component of the practice expense GPCI.

To examine the impact of GPCIs and other factors on geographic differences in physicians' income, we examined data from the 2003 Area Resource File, which is maintained by the Health Resources and Services Administration; Medicare physician claims; and survey data from the *American Medical Association Physician Socioeconomic Statistics 2000-2002 Edition*. To assess the roles of market factors and GPCIs in explaining the geographic variation in physician income, we obtained an analysis commissioned by the Medicare Payment Advisory Commission (MedPAC) comparing private insurers' fees to geographically adjusted Medicare fees. To analyze the extent to which income, Medicare fees, and other factors affect physician location, recruitment, and retention, we reviewed relevant literature, including an analysis of the retention of physicians from the University of Iowa Carver College of Medicine. We also interviewed physician recruiters, physician groups, and other experts on GPCI-related topics. We did not review such non-GPCI factors as volume and type of service that may result in geographic variations in Medicare payments to physicians because these issues were outside our scope. For more details on our data and methods, see appendix I. We performed our work according to generally accepted government auditing standards from January 2003 through March 2005.⁴

Results in Brief

The work GPCI, the practice expense GPCI, and the malpractice GPCI are valid in their fundamental design as tools to account for geographic cost differences. The three GPCIs, as implemented, appropriately reflect broad patterns of geographic differences in the costs of running a medical practice. For example, nurses' median hourly wages across the United States range widely—for example, in 2000, from \$19.60 in South Carolina to \$29.16 in Oakland, California. Since nurses' wages vary across the nation and constitute a significant share of physicians' practice expenses, nurses' wages contribute to geographic differences in practice expenses. In addition to adjusting for cost differences, the work GPCI is valid in that it also reflects a goal of protecting physician fees in low-cost areas from dropping to levels that could be considered unfair relative to fees in high-cost areas. The work GPCI does so by limiting downward cost

⁴Our work began in response to a request from the Senate Finance Committee and continued pursuant to MMA.

adjustments. However, problems with data and methodology underlying the GPCIs may detract from the GPCIs as measures of cost differences. For example, the wage data used in the work and practice expense GPCIs are not current, and the data used in the malpractice GPCI are incomplete. CMS has options to remedy these and other problems.

GPCIs appear to have a negligible bearing on matters of physician supply—location, recruitment, and retention—in rural areas. Because Medicare revenue constitutes only part of a physician’s income—typically 25 percent—the impact of the adjustment factors on physicians’ income is generally modest, raising or lowering income by no more than 2 to 3 percent in most localities. Our interviews with physician recruitment experts and published studies indicate that income is only one of many factors affecting physicians’ decisions to locate in rural areas and in employers’ successful efforts to recruit and retain physicians. These factors include a spouse’s employment opportunities, the quality of local schools, and the availability of other physicians to share night and weekend calls. Given GPCIs’ limited effect on physician income and income’s secondary effect on physician supply, GPCIs are not important factors in physician location, recruitment, and retention.

We are making several recommendations to the Secretary of Health and Human Services to improve the data and methods used to construct the GPCIs. Among them, we recommend refining the practice expense GPCI by augmenting wage data and replacing the rent index; we also recommend refining the malpractice GPCI by making the input data more complete and representative and by standardizing data collection. In commenting on a draft of this report, HHS characterized our findings as important but disagreed with most of our recommendations to refine the GPCIs’ input data and methods because of concerns about the timing of their implementation. GAO contends that the steps recommended explicitly take account of these timing issues. Two national physicians’ associations also reviewed the draft report, stating that it provided a good description of the GPCIs and current GPCI issues. One of the associations agreed with our analysis of the GPCIs’ validity and of their effect on physician location, while the other disputed the GPCIs’ validity and maintained that the physician fee for a service should be the same, regardless of location.

Background

The Medicare physician fee schedule has distinct payment rates for over 7,000 services, from office visits to complex surgical and diagnostic

procedures. It has been in effect since 1992, and, although there have been some modifications, its basic structure has not changed.

Medicare Physician Payment

Each of the more than 7,000 services on the Medicare physician fee schedule has three relative value units (RVU), which correspond to the three components of physician payment:

- Physician work—the financial value of physicians’ time, skill, and effort that are associated with providing the service.
- Practice expense—the costs incurred by physicians in employing office staff, renting office space, and buying supplies and equipment.
- Malpractice expense—the premiums paid by physicians for professional liability insurance.

On average across all procedures, work represents 52.5 percent of total RVUs, practice expense represents 43.7 percent, and malpractice 3.9 percent.⁵

Each RVU measures the relative costliness of providing a particular service. For example, for a midlevel office visit for an established patient,⁶ the most common Medicare procedure, the RVU for the practice expense component is 0.71, meaning that this procedure is half as costly as a chemotherapy infusion procedure⁷ with a practice expense RVU of 1.42.

To calculate a fee for a service, each of the three RVUs for a service is adjusted for geographic differences in resource costs and converted into dollars. This process has several steps. First, each of the three RVUs is multiplied by its geographic adjuster. Second, these adjusted RVUs are added together. Third, that sum is converted into dollars using a

⁵These percentages do not total to 100 percent due to rounding. The percentages correspond to shares of the average cost of running a physician practice.

⁶A more complete description is “office or other outpatient visit for the evaluation and management of an established patient.” In the American Medical Association (AMA) coding system, it is CPT code 99213. In this report, a midlevel office visit refers to this CPT code.

⁷The full description is “infusion technique, initiation of prolonged infusion (more than 8 hours) requiring the use of a portable or implantable pump.” It is CPT code 96425.

conversion factor—a dollar amount calculated by CMS that translates each service’s RVUs into a payment amount. The sum of these adjusted RVUs for a particular service in a particular area, multiplied by the conversion factor, results in the Medicare fee for that service in that area.⁸ For example, in Cleveland, Ohio, in 2004, the adjusted RVUs for a midlevel office visit sum to 1.37; multiplied by the conversion factor (\$37.3374), the Medicare fee for this procedure in Cleveland is \$51.13. By contrast, in Little Rock, Arkansas, where practice costs are lower, the adjusted RVUs total 1.28, which the conversion factor translates into the Medicare fee for a midlevel office visit in Little Rock of \$47.73. Updates that change the GPCIs’ values effectively redistribute payments among Medicare payment localities but do not generally alter total Medicare outlays for physicians’ services.

The physician fee schedule was designed to increase payment rates for primary care services compared to rates for services typically performed by specialists. Rural physicians overall have benefited from the introduction of the physician fee schedule, since the proportion of physicians delivering mostly primary care—in particular, family and general practice physicians—is higher in rural areas than in urban areas.

GPCIs for Physician Work, Practice Expense, and Malpractice

GPCIs adjust payments for differences among 89 distinct Medicare payment localities (technically known as fee schedule areas) in physicians’ costs of providing Medicare services. Thirty-four of these localities are statewide and include both urban and rural areas.⁹ The remainder includes large metropolitan areas such as Manhattan, New York, and smaller, less populated metropolitan areas such as Santa Clara, California. These payment localities differ in size, population density, and the extent to which they are urban or rural. Practice costs tend to vary considerably within many payment localities, especially those that contain both urban and rural areas.

⁸The same fee would result from multiplying each of the three RVUs by the conversion factor, multiplying each product by the corresponding geographic adjuster, and adding the three components together.

⁹HCFA has stated that [it] “favors statewide localities because of their understandability, simplicity, and ease of administration, and because they reduce urban/rural payment differences.” *HCFA, Medicare Program: Revisions to Payment Policies and Five-Year Review of and Adjustments to the Relative Value Units Under the Physician Fee Schedule for Calendar Year 1997*, 61 Fed. Reg. 59,491, 59,497 (Nov. 22, 1996).

The three GPCIs—work, practice expense, and malpractice—are numerical factors expressed as the ratio of an area’s cost to the national average cost. For example, the practice expense GPCI for Cleveland, Ohio, is 0.944, which means that the practice expense component of the fee for a service is 5.6 percent below the national average. The work GPCI measures the relative cost to a practice in a particular locality of a physician’s time, skill, and effort, while the practice expense and malpractice GPCIs measure the relative costs of obtaining resources to operate a practice and acquiring malpractice insurance. CMS is required to review the GPCIs at least every 3 years and, based on that review, may revise them using the most recent available data.

Unlike the other two GPCIs, the work GPCI measures relative costs exclusively by an indirect measure: the relative wages of six categories of nonphysician professional occupations, including lawyers, architects, social workers, and teachers.¹⁰ Geographic differences in the wages of the six professions are used to capture the differences among geographic areas in living costs and the value of amenities.¹¹ These data are drawn from the decennial census; consequently, CMS updates the work GPCI only once every 10 years. By law, the work GPCI incorporates only one-quarter of the difference between localities in the six professions’ wages, meaning that a 20 percent difference in wages results in a 5 percent difference in the work GPCI.

The practice expense GPCI is designed to adjust for geographic differences in three types of costs incurred by a practice: nonphysician staff wages, office rent, and costs of supplies and equipment.

- In calculating the relative wages of nonphysician staff, CMS uses wage data from the decennial census for four occupations: registered nurses, licensed practical nurses, health technicians, and administrative staff.

¹⁰The six categories are architecture and engineering; computer, mathematical, and natural sciences; social scientists, social workers, and lawyers; education, training, and library; registered nurses and pharmacists; and writers, artists, and editors.

¹¹This refers to the value—as perceived by these professionals—of a locality’s attributes, such as schools, entertainment, and quality of professional colleagues.

- In measuring physician office rent, CMS uses a proxy—HUD’s FMR residential index of the average rent for a two-bedroom apartment.¹² CMS relies on the FMR residential index because measures of commercial office rent have not been available for nonmetropolitan areas and for some metropolitan areas.
- In regard to the costs of supplies and equipment, CMS treats these costs as uniform nationwide since it considers the market for these items to be national, not local or regional.

The malpractice GPCI is based on average malpractice premiums in a payment locality. CMS obtains premium data from state insurance departments and private insurers. In calculating the average premium for a payment locality, CMS weights the average malpractice premiums for a county within a payment locality by total RVUs for the county—a measure of the volume and complexity of Medicare services in the county.

Each GPCI varies by geographic area, as table 1 shows. The work and practice expense GPICs tend to be higher in large metropolitan areas and lower in predominantly rural payment localities.

Table 1: The Physician Work, Practice Expense, and Malpractice GPICs for Five Payment Localities, 2004

| Payment locality ^a | Physician work GPCI | Practice expense GPCI | Malpractice GPCI |
|---|---------------------|-----------------------|------------------|
| Oakland/Berkeley, California | 1.041 | 1.235 | 0.669 |
| Massachusetts, excluding metropolitan Boston area | 1.010 | 1.129 | 0.803 |
| Fort Worth, Texas | 1.000 ^b | 0.981 | 0.996 |
| New Mexico | 1.000 ^b | 0.900 | 0.898 |
| South Carolina | 1.000 ^b | 0.904 | 0.336 |

Source: CMS.

^aSelected localities represent the 90th, 75th, 50th, 25th, and 10th percentiles of the Medicare payment localities ranked by the weighted average of their GPICs. Localities above the 90th percentile include Manhattan, New York; San Francisco, California; Santa Clara, California; San Mateo, California; New

¹²The Secretary of Housing and Urban Development is required to publish the FMR index annually. The FMR index is used to determine payment amounts for the Housing Choice Voucher program (formerly known as the Section 8 housing program).

York City Suburbs/Long Island, New York; Queens, New York; metropolitan Boston; and Northern New Jersey. Those below the 10th percentile include Arkansas; Missouri, excluding St. Louis and Kansas City; Mississippi; South Dakota; Oklahoma; Nebraska; Idaho; and Iowa. Alaska was excluded from the analysis because the MMA set Alaska's GPCIs at 1.67.

^bMMA set a temporary floor of 1.00 for the physician work GPCI.

Applying the GPCIs to their respective RVUs for a single service, such as a midlevel office visit, results in a Medicare fee that varies geographically. (See table 2.) Since the work, practice expense, and malpractice RVUs for a single service are the same in every payment locality, this variation in the Medicare fee for that service mirrors the variation in the GPCIs across payment localities. For example, for Oakland the Medicare fee for a midlevel office visit is \$59.32. By contrast, for South Carolina the Medicare fee for the same office visit, \$49.14, is lower because the fee is calculated using different, lower values for the GPCIs, which reflect lower practice costs.

Table 2: The Medicare Physician Fee for a Midlevel Office Visit in Five Payment Localities, 2004

| Payment locality ^a | Medicare physician fee for a midlevel office visit ^b |
|---|---|
| Oakland/Berkeley, California | \$59.32 |
| Massachusetts, excluding metropolitan Boston area | 55.97 |
| Fort Worth, Texas | 52.14 |
| New Mexico | 49.88 |
| South Carolina | 49.14 |

Source: GAO calculation using CMS data.

^aSelected localities represent the 90th, 75th, 50th, 25th, and 10th percentiles of the Medicare payment localities ranked by the weighted average of their GPCIs. Localities above the 90th percentile include Manhattan, New York; San Francisco, California; Santa Clara, California; San Mateo, California; New York City Suburbs/Long Island, New York; Queens, New York; metropolitan Boston; and Northern New Jersey. Those below the 10th percentile include Arkansas; Missouri, excluding St. Louis and Kansas City; Mississippi; South Dakota; Oklahoma; Nebraska; Idaho; and Iowa. Alaska was excluded from the analysis because the MMA set Alaska's GPCIs at 1.67.

^bA midlevel office visit is technically known as "office or other outpatient visit for the evaluation and management of an established patient." It is CPT code 99213.

Evolution of GPCIs

In the Omnibus Budget Reconciliation Act of 1989,¹³ Congress required the establishment of a national Medicare physician fee schedule, which would allow for some variation in fees to reflect physician practice cost differences across the country. It required the use of the three GPCIs to measure these cost differences and adjust fees accordingly. Before the physician fee schedule was established, Medicare payments to physicians varied widely, not only between urban and rural areas, but also among metropolitan areas and among rural areas. In addition, variations in Medicare charges (the basis of Medicare payments prior to the fee schedule) were largely not explained by costs. When the physician fee schedule was established, there was consensus among experts that the practice expense and malpractice components of the Medicare physician fee be geographically adjusted in line with underlying costs. In contrast, little agreement existed on whether the work component should be adjusted, and a compromise was struck: only one-quarter of the variation in the proxy for physicians' earnings would constitute the work GPCI.¹⁴

Changes made to GPCIs since their implementation have further limited the extent of geographic adjustment and have tended to raise fees in rural areas above what they would have been without the changes.

- The payment localities were consolidated in 1997, reducing the number from 210 to 89.¹⁵ This consolidation generally resulted in slightly higher GPCIs for smaller, more rural areas that were merged into metropolitan or statewide areas. By contrast, urban areas that had previously had their own geographic adjustment and were merged into larger nonmetropolitan or statewide areas generally received a lower GPCI due to the consolidation.

¹³See Pub. L. No. 101-239, § 6102(a), 103 Stat. 2106, 2169-84 (adding section 1848 to the Social Security Act) (codified at 42 U.S.C. § 1395w-4 (2000)).

¹⁴Specifically, the law required that the work GPCI for a given payment locality was to be one-quarter of the relative cost of physicians' work, compared to the national average.

¹⁵There were 240 payment localities before the physician fee schedule was implemented; as of January 1, 1995, the number had been gradually reduced to 210.

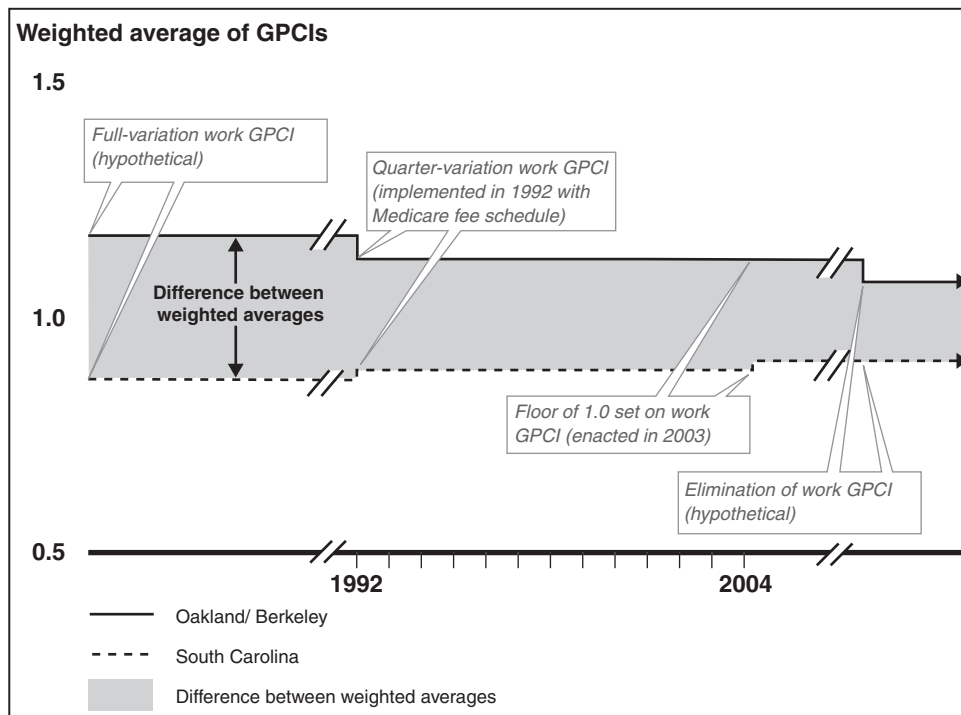
-
- In December 2003, Congress established a temporary floor for the work GPCI of 1.0 as part of a package of payment increases to Medicare providers in rural areas.¹⁶ This action further reduced geographic variation by raising the work GPCI to 1.0 (which had been the national average) in all payment localities where it would otherwise have been less than 1.0.

The effects of the quarter-variation work GPCI and the temporary floor for the work GPCI on the weighted average of the three GPICs are illustrated in figure 1.¹⁷ Figure 1 also shows the effect of a hypothetical 100 percent work adjustment to the work GPCI (instead of the current adjustment of 25 percent) and, alternatively, the effect of a hypothetical elimination of the work GPCI.

¹⁶MMA, § 412, 117 Stat. at 2274 (to be codified at 42 U.S.C. § 1395w-4(e) (1)). The floor applies to payment for services furnished from January 1, 2004, through December 31, 2006. The implementation of the floor did not reduce the payments in payment localities where the work GPCI was 1.0 or greater.

¹⁷This weighted average for a locality is a measure of that locality's Medicare fees relative to other localities' Medicare fees.

Figure 1: Effect of Different Policies Altering the Work GPCI on the Weighted Average of the Three GPICs in an Urban Area (Oakland/Berkeley, California) and in a Relatively Rural Area (South Carolina)



Source: GAO analysis of CMS data.

Geographic Distribution of Physicians and Federal Efforts to Augment Rural Supply

Differences in the geographic distribution of physicians are long-standing and predate GPICs and the Medicare physician fee schedule. Compared to larger metropolitan areas, smaller metropolitan areas and rural areas typically have had fewer physicians per capita. These differences are greater for specialists than for primary care physicians.¹⁸

Several federal programs are designed to encourage physicians to practice in areas with perceived shortages. Shortage areas are those areas in which the physician-to-population ratio is below a threshold. For example, the

¹⁸Council on Graduate Medical Education, Tenth Report, *Physician Distribution and Health Care Challenges in Rural and Inner-City Area* (Washington, D.C.: HHS, Public Health Service, Health Resources and Services Administration, February 1998), xiv.

Medicare Incentive Payment program pays physicians 10 percent more than the usual Medicare fee for services provided to beneficiaries in health professional shortage areas.¹⁹ For 2005 through 2007, MMA adds a 5 percent incentive to the Medicare fee for primary care and specialist physicians providing services in physician scarcity areas.²⁰

Other programs use different tools to address physician supply. For example, the National Health Service Corps focuses on debt burden—repaying the educational loans of physicians and other primary care professionals who agree to provide primary health care in a health professional shortage area for 2 years.

GPCIs Are Generally Valid in Design, but CMS's Data and Methods Have Weaknesses

In adjusting Medicare physician fees for geographic cost differences, the GPCIs are valid in their fundamental design, but data weaknesses detract from them as measures of cost differences. Specifically, the work GPCI is generally valid as a tool to both adjust for cost differences and bolster payments to physicians in low-cost areas by limiting downward adjustments. The data used to construct the work GPCI are not current, but new data sources will enable CMS to improve the currency of the data used. The practice expense and malpractice GPCIs are generally valid as tools to adjust for geographic differences in office expenses and malpractice insurance premiums. Data to construct the practice expense GPCI have been available only once each decade but can be updated through a newly available data source. In addition, the credibility of the practice expense GPCI could be enhanced with the use of a newly available commercial rent index. The data CMS uses to construct the malpractice

¹⁹The Health Resources and Services Administration designates areas having a shortage of primary care providers as health professional shortage areas. See 42 U.S.C. § 254e(a)(1) (2000). There are several types, but the only ones covered by the Medicare incentive payment program are areas with a shortage of primary care physicians or psychiatrists.

²⁰MMA, § 413(a), 117 Stat. at 2275-77. Physician scarcity areas, defined by MMA, are of two types: primary care scarcity areas, which are determined by the ratio of primary care physicians to Medicare beneficiaries, and specialist care scarcity areas, which are determined by the ratio of specialty care physicians to Medicare beneficiaries. For both types, counties are ranked according to the ratio of physicians to Medicare beneficiaries, and the counties with the lowest ratios that represent 20 percent of Medicare beneficiaries are designated as scarcity areas. A physician who practices in an area that is both a shortage area and a scarcity area will receive a total incremental incentive payment of 15 percent.

GPCI have several weaknesses, which the agency can remedy through increased methodological rigor.

Work GPCI Balances Two Objectives; New Data Source Will Make It More Current

Although critics of the work GPCI have disputed its validity, we found that the work GPCI is generally valid as a tool to adjust for cost differences and bolster payments to physicians in low-cost areas by limiting downward adjustments. However, the data used to construct the work GPCI are not current. A new data source that is expected to be available soon has the potential to improve the currency of the data used.

Validity of Work GPCI

The work GPCI, which adjusts the component of the fee that reflects the physician's time, is valid in its embodiment of two policy objectives. The first is to pay physicians who perform the same services in different areas the amount sufficient for them to supply these services, while the second is to narrow the difference in fees between rural and urban physicians. The work GPCI achieves each objective in part: it raises fees in areas with higher living costs and lowers fees in areas with lower costs—consistent with the concept of adjustment for geographic cost differences; it also narrows the disparities in fees between areas by limiting the full extent of downward adjustment that would occur without such limits.

Under the work GPCI, downward adjustments to the work component of physician fees are limited in three ways: the adjustment constitutes only one-quarter of the variation in the proxy for physicians' earnings, the temporary floor introduced in MMA prevents the work GPCI from falling below 1.0, and the consolidation of payment localities has resulted in higher GPCIs on average for the consolidated locality than for the low-cost areas within it. As a result of these limits, the work component of the 2004 fee for a midlevel office visit in Oakland/Berkeley, California, for example, is \$1.03 higher than in South Carolina. Without the work GPCI limitations, the difference in the work component of the fee would have been \$6.71.

Measurement of Work GPCI

The data used for the work GPCI are not sufficiently up-to-date. Since 1992, the source of wage data for the work GPCI has been the decennial census's long form,²¹ which was last administered in 2000.

²¹This form is given to a sample of about one in every six U.S. households and contains questions on income, housing, and other issues.

A new data source that is under development will make the work GPCI more current. The Census Bureau plans to replace the long form with the American Community Survey (ACS), an annual survey designed to produce more current data. The ACS is designed as a continuous survey. For larger communities (defined by Census as those with populations over 65,000), the ACS data are expected to yield usable estimates each year; for smaller communities, data must be accumulated over 3 to 5 years, depending upon community size.²² Beginning in 2010, CMS should be able to use the ACS to construct GPICs for all areas in the nation, contingent upon the resolution of several technical issues regarding the Census Bureau's implementation of the ACS. The Census Bureau is working with government agencies that have used data from the long form to transition to the ACS.²³

Compared to the decennial census, ACS data will be more up-to-date but are unlikely to change the work GPCI substantially. The work GPCI is based on relative wages—the average of the median hourly wages of six nonphysician professional categories in a geographic area relative to the national average. Relative wages are generally stable over time. If this stability continues, the newer ACS data may not make much difference quantitatively.

In constructing the work GPCI, CMS does not rely on direct measures of physicians' earnings, which are contained in the decennial census data, because of two drawbacks:

- Geographic differences in physician earnings are likely to be misleading as a measure of geographic differences in living costs and the value of amenities. Physicians' earnings by geographic area vary with the volume of services provided to patients and the complexity and costliness of these services.²⁴ If the work GPCI was based on physician earnings, these differences in the volume and intensity of services could increase the work GPCI in high-expenditure areas and lower it in low-

²²The ACS is a continuous sample. Communities with populations less than 20,000 will require 5 years of ACS data. Communities with populations between 20,000 and 65,000 will require 3 years of ACS data.

²³See GAO, *American Community Survey: Key Unresolved Issues*, [GAO-05-82](#) (Washington, D.C.: Oct. 8, 2004).

²⁴Elliott S. Fisher and others, "The Implications of Regional Variations in Medicare Spending. Part 1: The Content, Quality, and Accessibility of Care," *Annals of Internal Medicine*, vol. 138, issue 4 (2003), 273-287.

expenditure areas. Similarly, since physicians' earnings vary by specialty and the census data do not identify a physician's specialty, geographic differences in the mix of specialties could increase the work GPCI in areas with relatively large numbers of high-earning specialists and lower it in areas with relatively few.

- Using physicians' earnings would produce a circular measure: the work adjustment would depend on past payments to physicians, including past Medicare payments.²⁵

Practice Expense GPCI Generally Valid in Design, but Can Be Better Measured

The practice expense GPCI is generally valid in its fundamental design as a tool to geographically adjust physician office and other practice expenses. However, the data CMS used to measure practice expense have drawn criticism and may be improved by the availability of new data sources.

Validity of Practice Expense GPCI

In its fundamental design, the practice expense GPCI is generally valid for the physician payment localities. These localities differ—sometimes sharply—in rent for office space and wage rates for office staff and nurses.²⁶ For example, the median hourly wage for registered nurses in 2000 was \$29.16 in Oakland/Berkeley, California, compared to \$19.60 in South Carolina. (See table 3.) In taking account of systematic differences in rent and wage rates, the practice expense GPCI gives physicians who provide a particular Medicare service in different geographic areas the ability to obtain roughly equivalent amounts of office space, nurses' time, and other resources with their Medicare fee.

²⁵See W. Pete Welch, Stephen Zuckerman, and Gregory Pope, *The Geographic Medicare Economic Index: Alternative Approaches*, Final Report to the Health Care Financing Administration (Needham, Mass.: Health Economics Research, and Washington, D.C.: The Urban Institute, June 1989); and *Hearing on Medicare's Geographic Cost Adjustors Before the House Committee on Ways and Means, Subcommittee on Health*, 107th Cong. 99-103 (July 23, 2002) (Statement of Stephen Zuckerman, Ph.D., Principal Research Associate, Urban Institute.)

²⁶In creating its wage index for nonphysician employees, CMS includes four occupations: registered nurses, licensed practical nurses, health technicians, and administrative support staff. The wages of these occupations, taken together, account for almost 43 percent of the practice expense component.

Table 3: Geographic Differences in Hourly Wage for Registered Nurses, 2000

| Payment locality ^a | Median hourly wage for registered nurses |
|--|--|
| Oakland/Berkeley, California | \$29.16 |
| Massachusetts, excluding metropolitan Boston | 22.06 |
| Fort Worth, Texas | 21.26 |
| New Mexico | 19.83 |
| South Carolina | 19.60 |

Source: GAO analysis of data from CMS and U.S. Census Bureau.

^aSelected localities represent the 90th, 75th, 50th, 25th, and 10th percentile of the Medicare payment localities ranked by the weighted average of their GPCIs. Localities above the 90th percentile include Manhattan, New York; San Francisco, California; Santa Clara, California; San Mateo, California; New York City Suburbs/Long Island, New York; Queens, New York; metropolitan Boston; and Northern New Jersey. Those below the 10th percentile include Arkansas; Missouri, excluding St. Louis and Kansas City; Mississippi; South Dakota; Oklahoma; Nebraska; Idaho; and Iowa. Alaska was excluded from the analysis because the MMA set Alaska's GPCIs at 1.67.

Measurement of Practice Expense GPCI

In the future, new data sources will become available that could be used in updating the practice expense GPCI. As with the work GPCI, the shift from the decennial census long form to the ACS will produce wage data for the practice expense GPCI that are more current and make it possible to update this GPCI annually. The new ACS data may not alter the practice expense GPCI much, since relative wages by geographic area change little over time.

Nonetheless, opportunities exist to improve the data CMS uses to measure geographic differences in the practice expense GPCI. First, CMS does not use certain readily available data in constructing the wage component of the practice expense GPCI. For example, data on one type of nonphysician staff—physician assistants—are available from the decennial census and are expected to be available from the ACS. These data could be incorporated into the calculation of the practice expense GPCI. Doing so would enhance its credibility, but the effect of the inclusion of these data is likely to be slight.²⁷

²⁷We did not investigate whether wages of other types of staff, such as accountants, lawyers, or data technicians, should also be used in constructing the wage component of the practice expense GPCI. We know of no data source that would give the proportion of these types of staff used by physicians' practices.

Second, a new data source on commercial rent holds some promise for improving measurement of one component of the practice expense GPCI since the FMR index, which measures the rent of a two-bedroom apartment, has several weaknesses as a measure of physician office rent. This reliance on a residential rent index is a technical problem that reduces the practice expense GPCI's credibility, as physician offices are typically located in commercial buildings rather than in physicians' personal residences. Further disadvantages of the FMR include its focus on rents relevant to subsidized housing and HUD's practice of permitting local public housing authorities, in some cases, to affect an area's FMR by substituting other data. However, systematic, representative data on physician office rent throughout the country are not available, and data on commercial office rent have been available only for metropolitan areas.

Two alternatives to the current rent index are available or will be soon. First, in 2004, a potential measure of commercial office rent nationwide became available: A researcher sponsored by the USPS created an index of commercial rent for both urban and rural areas. (See app. II.) This commercial rent index, which is based on rents paid by USPS for post office space, is consistent with the pattern of higher rents in large metropolitan areas than in rural areas. Although this rent index is promising, before it could be incorporated into the practice expense GPCI, CMS would need to ensure that the index was better than the alternatives in terms of technical characteristics and credibility and that it would be available for CMS's use in the future.

If the commercial rent index proves infeasible for use in the practice expense GPCI, an apartment rent index constructed directly from ACS rent data could be used, assuming that outstanding technical issues regarding the Census Bureau's implementation of the ACS are resolved.²⁸ The ACS rent index would not have the disadvantages of the FMR and could rely on standard methods of index construction, rather than the distinctive methods used for the FMR.

Malpractice GPCI Valid in Design, but CMS's Data and Methods Remain a Concern

The malpractice GPCI is valid in its fundamental design, but issues regarding the data and methods used in constructing this GPCI reduce its

²⁸See [GAO-05-82](#).

credibility. The index can be improved by applying rigorous procedures throughout the data collection and aggregation process.

Validity of Malpractice GPCI

The malpractice GPCI's adjustment of Medicare physician fees for geographic differences in malpractice expense is valid in its design because it promotes a level playing field for physician practices in different geographic areas where malpractice premiums vary widely. That is, the malpractice GPCI permits Medicare fees to contribute Medicare's share toward physicians buying a standard amount of malpractice coverage, regardless of where physicians practice. Failure to take these differences into account would penalize physicians in areas where malpractice premiums are high. These average premium differences between areas reflect differences in state law, decisions of state and local courts, and the concentration of specialties—especially orthopedic surgery and other specialties that often experience lawsuits.

Measurement of Malpractice GPCI

CMS's methods for collecting malpractice premium data and aggregating them into the malpractice GPCI contain several flaws. The collective impact of these weaknesses on relative malpractice premiums is uncertain.

Two weaknesses pertain to CMS's 2004 update of this GPCI and are relatively broad in scope:

- CMS made two adjustments—once as required by law and once at its own initiative—to deal with a potential problem: sharp changes in physician fee schedule amounts due to the malpractice GPCI update. The law requires that changes in GPCIs be phased in, half in the first year and half in the second—when more than 1 year has elapsed since the date of the last adjustment. In addition, CMS introduced an adjustment, termed a "modulating factor," of 0.5, which further limited the change in the malpractice GPCI. The result was that in 2004, physicians' Medicare fees reflected only one-quarter of the change in the malpractice GPCI, compared to the 2003 malpractice GPCI.
- CMS's measure of average malpractice premiums may understate or overstate geographic differences in malpractice premiums, since CMS's measure does not adjust for geographic differences between insurers in the mix of specialties that they cover. For example, average malpractice premiums paid by all physicians covered by a specific insurer are likely to be overstated when that insurer has an above-average proportion of physicians who are neurosurgeons and orthopedic surgeons, whose premiums tend to be high. Likewise, average premiums are likely to be

understated when the proportion of such specialists covered by a specific insurer is low.

Two flaws in calculating the malpractice GPCI were rooted in CMS's process for updating premium data for 2002.

- One flaw—incomplete data—resulted from CMS's efforts to make the malpractice GPCI more current. Due to concerns that malpractice premium data were out-of-date, CMS's contractor collected malpractice premium data for 2002. On the basis of those data and previously collected data for 1999 through 2001, the contractor projected premiums by geographic area for 2003 and calculated the malpractice GPCI for each payment locality. However, the 2002 data were incomplete: CMS's contractor, which allotted 7 weeks for data collection, was able to collect premium data for only 33 states. The contractor imputed premiums for the other 17 states, the District of Columbia, and Puerto Rico. The imputation method was reasonable, but CMS did not report on any tests of this method's performance—for example, comparing actual 2001 data to imputed 2001 data. CMS also did not report testing the accuracy of its method of projecting 2003 premiums. For example, the 1999 through 2001 data could have been used to project 2002 premiums, which could have been compared to the actual 2002 premiums for the payment localities for which CMS has data. (See app. I.)
- The second flaw was that the 2002 data for the 33 states were potentially unrepresentative, as CMS's contractor collected data from only one insurer per state. Under its previous procedure, CMS collected data from insurers that accounted for at least half of the malpractice insurance business in a state.

Opportunities exist for CMS to improve the malpractice GPCI as a measure of geographic differences in malpractice expenses. More frequent data collection would likely enhance the credibility of the malpractice GPCI among physicians, since malpractice premiums often change each year—sometimes markedly—and the size of premium increases often differs widely among states. Annual data collection would best capture the year-to-year volatility of premium increases, but annual data collection entails a greater commitment of CMS's resources. Whatever the frequency of data collection, allowing more time to collect the needed premium data and increasing efforts to follow up with malpractice insurers and other sources of premium data could yield more complete data. Collecting data on

insurers that account for at least half of malpractice business in a state, as CMS has done in the past, would make CMS's malpractice data more representative. In addition, collecting data on each insurer's market share by physician specialty in each state would enable CMS to adjust average premiums for differences in specialty mix among insurers. Finally, further standardization of data and procedures for collecting data from insurers would improve comparability of premiums within a payment locality and between localities.

GPCIs Appear to Have Little Effect on Physicians' Incomes, Location, Recruitment, and Retention

The impact of GPCIs on physicians' incomes is generally modest and on physician supply—location, recruitment, and retention—in rural areas is negligible compared to other financial and nonfinancial factors. Medicare is typically the source of only one-quarter of physicians' income; consequently, GPCIs' effect on physicians' income is limited. Income is only one of several factors that affect physicians' location decisions. Nonfinancial factors, such as the quality of local schools or spouses' employment opportunities, and other financial factors, such as a community's average income level, are also major influences in physicians' decisions to locate or remain in a rural area.

GPCIs Less Important than Market Factors in Affecting Physicians' Incomes

The impact of GPCIs on physicians' incomes is generally modest, raising or lowering physicians' incomes by no more than 2 to 3 percent in most localities.²⁹ Physicians typically derive one-quarter of their practice income from Medicare.³⁰ Table 4, which shows examples of income before and after GPCIs' adjustment, demonstrates the GPCIs' effect on physicians'

²⁹In this analysis, income refers to earnings of physicians.

³⁰The Medicare proportion of practice income is based on 1999 data, the most recent year for which data are available, and is from the *American Medical Association Physician Socioeconomic Statistics 2000-2002 Edition*.

income by locality.³¹ For illustrative purposes, the table assumes that the physicians provide the same number and types of services in high-cost and low-cost areas. It further assumes that these physicians would have an average income of \$150,000 without any geographic adjustment.

Table 4: Hypothetical Example of GPCIs' Effect on Income of Physicians with Identical Number and Types of Services Who Derive One-Quarter of Professional Income from Medicare, 2004

| Payment locality ^a | Income from identical physician practices ^b | |
|---|--|---------------------------------------|
| | Hypothetical income not adjusted by GPCIs | Hypothetical income adjusted by GPCIs |
| Oakland/Berkeley, California | \$150,000 | \$154,212 |
| Massachusetts, excluding metropolitan Boston area | 150,000 | 152,060 |
| Fort Worth, Texas | 150,000 | 149,720 |
| New Mexico | 150,000 | 148,250 |
| South Carolina | 150,000 | 147,493 |

Source: GAO analysis of CMS and American Medical Association (AMA) data.

^aSelected localities represent the 90th, 75th, 50th, 25th, and 10th percentiles of the Medicare payment localities ranked by the weighted average of their GPCIs.

^bThe typical (median) physician derives one-quarter of professional income from Medicare. The Medicare proportion of practice income is based on 1999 data, the most recent year for which data are available, and is from the *American Medical Association Physician Socioeconomic Statistics 2000-2002 Edition*.

For example, a physician in Oakland/Berkeley would earn \$4,212 more than a comparable physician in a locality with average practice costs. By contrast, a physician in South Carolina would earn \$2,507 less than a comparable physician in a locality with average practice costs. These

³¹The examples in table 4 are relevant to most localities, since the table includes localities at the 90th percentile and at the 10th percentile, ranked by the weighted average of their GPCIs. Some localities have average GPCIs higher than the 90th percentile and others have average GPCIs lower than the 10th percentile. These outlier GPCIs have larger effects on Medicare fees and physician incomes than the effects shown in table 4. For example, for the New York City suburbs—the locality at the 95th percentile—the GPCIs raise physicians' income by 4.5 percent; for South Dakota—the locality at the 5th percentile—they lower physicians' income by 1.9 percent. (All comparisons are to a locality without any geographic adjustment.)

differences in income would reflect differences in Medicare's measures of the cost of running a medical practice.

Even when a sizable share of physicians' income comes from Medicare, the GPCIs' effect on physicians' incomes is relatively modest. This effect is illustrated by a hypothetical example of physicians in different payment localities who provide the same number and types of services, who would earn \$150,000 if there were no geographic adjustment of Medicare fees, and who derive 40 percent of their income from Medicare. Such physicians in Oakland/Berkeley would receive \$6,739 more income than comparable physicians in a locality with GPCIs averaging 1.0, while such physicians in South Carolina would receive \$4,011 less.

Unlike the GPCIs, market factors have a substantial and statistically significant impact on geographic differences in physicians' earnings. We analyzed the geographic variation in physicians' earnings in relation to the GPCIs and market factors and found that, controlling for market factors, the GPCIs' effect on physicians' earnings was not statistically significant. (For details of this analysis, see app. I.) By contrast, we found that market factors were important. Specifically, physician earnings were higher in areas where

- the average income of the population was relatively high, as higher income in a community is associated with higher demand for physicians' services;
- the number of nurses was large relative to the population;
- the percentage of physicians was large in particular specialties, such as cardiovascular surgeons, orthopedic surgeons, and ophthalmologists; and
- physicians experienced long working hours.

By contrast, physicians tended to have lower incomes in areas where managed care penetration was high and the overall number of physicians was large relative to the population.³²

Private plans' fees vary more than Medicare fees, suggesting that market forces are more important than the GPCIs in accounting for geographic differences in physicians' earnings. In a report for MedPAC, Dyckman & Associates analyzed fee data for 2002 and found greater variation in private plans' fees than in Medicare fees. The data on private plans' fees were drawn from 33 health plans that enrolled 45 million people and were distributed throughout the country.³³ Unlike Medicare, private health plans are able to adapt their fee schedules to market forces. For example, private plans may pay relatively lower fees in areas that experience high managed care penetration and higher fees in areas where physicians have greater market power. In contrast, Medicare fees by design do not vary geographically in response to factors other than cost. Consequently, Medicare's fees and private plans' fees would be expected to be effectively unrelated across localities—as our statistical analysis shows.³⁴ (See fig. 2.) Because the variation in private plans' fees across areas is greater than the variation in Medicare fees, market factors—which do not affect Medicare

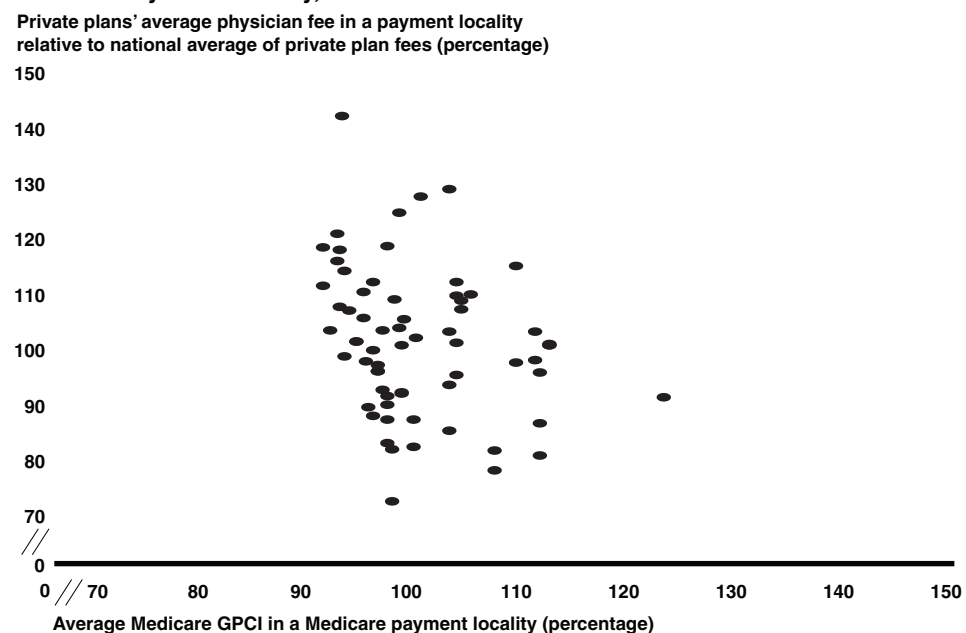
³²For example, according to one expert, the oversupply of physicians in some specialties, such as internal medicine and family practice, has halted increases in physician salaries and even led to small decreases of physician salaries in one state and in adjoining areas of neighboring states. Our analysis excluded federal physicians and nonpracticing physicians.

³³The data are described in Dyckman & Associates, *Survey of Health Plans Concerning Physician Fees and Payment Methodology: A Study Conducted by Dyckman & Associates for the Medicare Payment Advisory Commission*, No. 03-7 (Washington, D.C.: MedPAC, August 2003).

³⁴For the same service, the difference in Medicare fees in two areas reflects the two areas' Medicare GPCIs. The average Medicare GPCI—the weighted average of GPCIs in an area—summarizes the extent of Medicare's geographic adjustment to its fees in an area. To compute this summary measure, each GPCI is multiplied by the share of costs accounted for by its corresponding RVU. The weighted average of GPCIs is often referred to as the geographic adjustment factor (GAF).

fees—account for much more of the variation in physician incomes than do the GPCIs.³⁵

Figure 2: Variation in Private Plans' Physician Fees and Average Medicare GPCI by Medicare Payment Locality, 2002



Source: Dyckman & Associates.

Note: The average Medicare GPCI—the weighted average of the GPCIs for physician work, practice expense, and malpractice—summarizes the extent of Medicare’s geographic adjustment to its fees in a Medicare payment locality. Each observation represents the average fee paid by a private plan in a payment locality (relative to the national average of private plan fees) and the average Medicare GPCI in that locality.

³⁵If market forces affect fees, it might suggest that physicians in rural areas—where there are fewer physicians—would have higher incomes, because their private practice fees would be higher. A recent study may provide some support for this view. According to this study, physicians’ average income, adjusted for the cost of living, is significantly higher in rural areas than in urban areas. See James D. Reschovsky and Andrea B. Staiti, *Physician Incomes in Rural and Urban America*, No. 92 (Washington, D.C.: Center for Studying Health System Change, January 2005).

Effect of GPCIs on Physician Supply in Rural Areas Is Negligible

Income is only one of several financial and nonfinancial factors that affect physician supply—that is, location, recruitment, and retention. Our interviews with representatives of national and regional recruiting firms as well as several small surveys show that income, regardless of its source, is generally not the primary factor influencing location, recruitment, and retention in rural areas. Since Medicare GPCIs adjust only a fraction of income and income’s effect on physician location is generally secondary, we believe that the effect of GPCIs on physician location is negligible.

Location and Recruitment

Physicians’ decisions to locate and practice in a rural area are more strongly related to local amenities and personal preferences than to potential income. In our interviews with experienced recruiters from four national and regional physician search firms that place physicians in rural practices, all reported that income potential is important to physicians seeking new positions or relocating. However, they said that other factors—such as a spouse’s employment opportunities, the quality of the local schools, and the availability of other physicians to share night and weekend calls—are more likely than geographic differences in Medicare fees to drive physician location decisions. This information is consistent with studies of physicians’ location decisions. For example, a 1994 survey of third-year family practice residents asked the residents to rank the factors that were most important in choosing their first practice site.³⁶ Seven factors ranked higher than the initial income guarantee, with the significant other’s wishes ranking highest. Other factors that ranked above income included a medical community friendly to family physicians, recreation and culture, proximity to family and friends, significant other’s employment, schools for children, and the size of the community. Similarly, a study of family and general practice physicians in nonmetropolitan Nebraska counties found that a rural or small town lifestyle, sufficient personal time away from work, and a quality school system were influential in location decisions.³⁷ Practice characteristics that influenced location decisions included clinical autonomy, the

³⁶Anthony J. Costa and others, “To Stay or Not to Stay: Factors Influencing Family Practice Residents’ Choice of Initial Practice Location,” *Family Medicine*, vol. 28 (1996), 214-219.

³⁷Suzanne M. Minarick and John C. Allen, “Factors Influencing the Satisfaction and Retention of Nebraska’s Rural Physicians” (Lincoln, Neb.: University of Nebraska - Lincoln, June 2003), <http://cari.unl.edu/rural-physician.htm> (downloaded Aug. 27, 2004).

opportunity to treat a variety of medical conditions, and patient relationships.

According to recruiters we interviewed, efforts to attract physicians to rural areas are more likely to succeed when candidates have grown up in rural areas or have been trained at medical schools and residency programs that stress family practice and service to rural communities. This observation is consistent with the results of several studies identifying factors that draw physicians to rural areas.³⁸ Recognizing the importance of medical education specifically oriented to rural practice, several medical schools, including those at the University of Nebraska and the University of Iowa, have established programs aimed at training physicians to serve in their states' rural areas.³⁹

Physician recruiters also told us that certain business policies adopted by medical practices and hospitals in rural communities can increase or diminish the success of their recruitment efforts. For example, one expert in physician recruiting said that, in working with communities and medical practices that were having difficulty recruiting, he found two policies that discouraged recruiting: first, employment contracts often had strict "noncompete" stipulations, barring any physician who leaves the practice from working as a physician elsewhere within a broad geographic area—for example, a 90-mile radius; second, some practices required that physicians who resigned pay for malpractice insurance to cover claims that might arise from their work in the practice. He added that relaxing these restrictions led to easier recruiting.

Retention

As with physicians' decisions to locate in a rural area, physicians' decisions to remain in a rural area reflect nonfinancial as well as financial factors and are not typically driven by income alone. Several of the recruiters we interviewed stressed that retaining new physicians in rural practice depends on integrating them and their families into the community. The Nebraska study of physicians in nonmetropolitan counties found that, in

³⁸See Howard K. Rabinowitz and others, "Critical Factors for Designing Programs to Increase the Supply and Retention of Rural Primary Care Physicians," *Journal of the American Medical Association*, vol. 286, no. 9 (2001), 1041-1048.

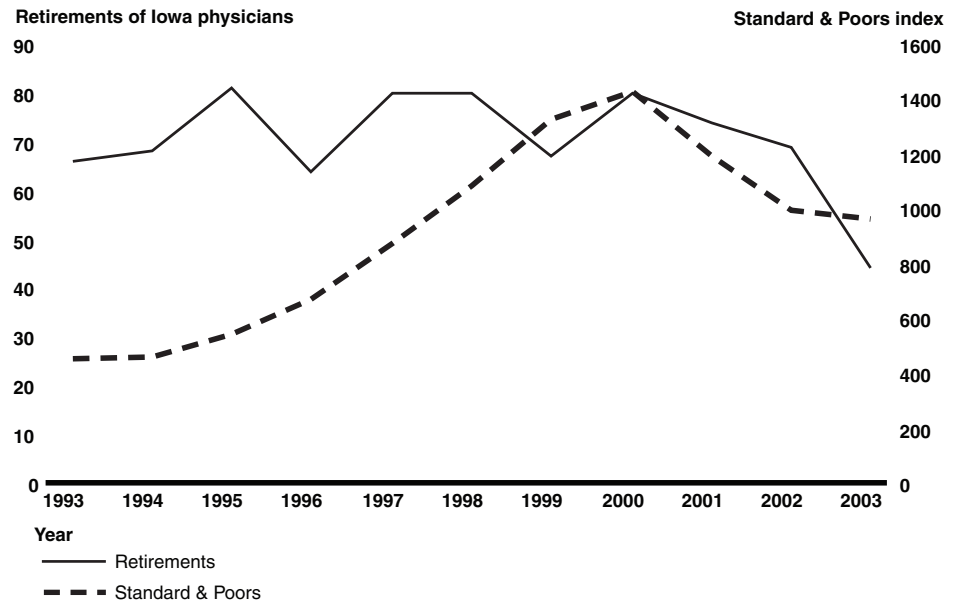
³⁹In addition, recruitment programs in several states seek to increase the number of physicians in rural areas to improve their residents' medical care. Historically, the federal government has supported the recruitment of international medical graduates to rural and underserved areas by waiving certain visa requirements.

general, the same factors that had caused physicians to locate in rural counties contributed to their satisfaction and, by extension, their willingness to remain in their rural practices.⁴⁰ The factors that had the least to do with a physician's satisfaction included on-call hours, income level, and opportunities for promotion.

Several financial issues distinct from Medicare fees—such as the size of the patient base, the proportion of privately insured patients in the base, and the size of medical malpractice premiums—can also influence physicians' decisions to remain in rural practice. Several programs, including the Medicare Incentive Payment Program, provide financial incentives to physicians to practice or continue practicing in underserved areas, many of which are rural. The broader economy may also influence practice decisions by individual physicians. The University of Iowa Carver College of Medicine maintains data on all physician retirements in Iowa. In recent years, Iowa physicians' decisions to retire—a factor in reducing the local physician supply—appeared to reflect trends in the stock market: when the stock market fell, retirements also fell. (See fig. 3.)

⁴⁰Minarick and Allen, "Factors Influencing the Satisfaction and Retention of Nebraska's Rural Physicians."

Figure 3: Number of Retirements of Iowa Physicians and Standard & Poors Composite Index of Stock Prices, 1993-2003



Source: GAO.

Conclusions

The geographic adjustment of Medicare’s physician fees is essential to achieving the program’s goal of ensuring that Medicare’s payments are adequate and appropriate in all areas. GPCIs adjust for known differences in the cost of practicing medicine in different areas so that physicians can procure approximately equivalent resources with their Medicare fee to treat Medicare patients, regardless of location. When Congress introduced the work GPCI’s temporary floor, it raised Medicare fees to physicians in low-cost areas, thereby narrowing urban-rural fee differences. Nevertheless, because of issues regarding data and methods, the credibility of GPCIs continues to be questioned. Our analysis shows that opportunities exist to refine the GPCIs by improving the currency of the data used to construct all three GPCIs, improving the data used in the practice expense and malpractice GPCIs, and improving the methods used in the malpractice GPCI. These improvements would likely have only a marginal impact on Medicare fees and physician incomes but may have a more significant effect on the GPCIs’ credibility with the physician community. Additional improvements may be possible. For example, it would be desirable to adjust CMS’s malpractice premium data for

differences in specialty mix among insurers, but to do so CMS would first need to assess the feasibility of collecting data on each insurer's market share by physician specialty in each state. Similarly, it would be desirable to collect malpractice premium data more frequently—annually or every 2 years—but CMS would need to weigh the costs and benefits of doing so.

GPCIs appear to have been a negligible factor in physician supply matters—location, recruitment, or retention. Our work shows that GPCIs generally have at most a minor effect on physician incomes, and income has a secondary effect (compared to nonfinancial factors) on where physicians choose to practice. Consequently, GPCIs generally have not played a material role in physicians' decisions to locate or remain in a rural area.

Recommendations for Executive Action

We recommend that the Secretary of Health and Human Services seek to improve the GPCIs' data and methods by taking the following six actions:

- develop a plan for transitioning from the Census Bureau's decennial census to the annual ACS for earnings and wage data, pending resolution by the Census Bureau of key outstanding issues regarding the implementation of the ACS;
- add data on physician assistants' wages to improve the measurement of the practice expense GPCI;
- consider the feasibility of replacing the practice expense GPCI's current rent index with a commercial rent index; if using a commercial rent index is not feasible, consider a residential rent index directly based on ACS data;
- collect malpractice premium data from all states;
- collect data from insurers that account for at least half of malpractice business in a state; and
- standardize collection of malpractice premium data.

Agency and Industry Comments and Our Evaluation

We received written comments on a draft of this report from HHS (see app. III) and oral comments from two national associations of physicians—the American Medical Association (AMA) and the American Academy of Family Physicians (AAFP).

HHS Comments and Our Evaluation

While characterizing our findings as important, HHS stated that the body of the report and the recommendations were phrased inconsistently, with the recommendations generally less cautious than the body of the report regarding the feasibility of refining the input data and methods used in constructing the GPCIs. In our view, the recommendations and the body of the report are consistent in characterizing the feasibility of options. For example, in discussing the rent index, we take account of feasibility in both the body of the report, where we suggest an alternative if the commercial rent index is not feasible, and in the recommendation. HHS disagreed with most of our recommendations. HHS's disagreements with specific recommendations are as follows:

- *American Community Survey.* Regarding our recommendation that HHS develop a plan for transitioning to the ACS for earnings and wage data, HHS stated that such a plan seems premature, because the ACS data will not be available until 2010. In our view, HHS should begin considering how it will use ACS data because the Census Bureau's long form—the current source of data for the work GPCI and the wage component of the practice expense GPCI—will not be available in the future. We know of no other source of wage and earnings data at the geographic level needed for the GPCIs. Although sufficient ACS data for the smallest communities (those with populations that are less than 20,000) will not be available until 2010, annual data for communities with populations of more than 65,000 will be available beginning with 2006.⁴¹ The Census Bureau is working with federal agencies to achieve a smooth transition to the ACS. In particular, the Census Bureau and HUD are working together to transition to the use of the ACS in the calculation of the FMRs beginning with 2006. We believe that it would

⁴¹Funding for the ACS (for all persons except those living in group quarters) was approved beginning with 2005.

be prudent for the CMS component of HHS to also begin planning the GPCI transition to the ACS.⁴²

- *Physician assistants' wages.* Regarding our recommendation that adding data on physician assistants' wages would improve the measurement of the practice expense GPCI, HHS has said it believes that the current wage categories are representative of the typical private physician practice. Nonetheless, HHS said that it will examine these categories and the possible inclusion of physician assistants' wages.

Rent Index. Regarding our recommendation that HHS should, if feasible, replace the practice expense GPCI's current apartment rent index with a commercial rent index, HHS noted that it had investigated alternative sources of rent data, including data supplied by the USPS, and none of them was adequate. We are aware that, over a decade ago, HCFA sponsored research on possible sources of rent data. In a 1994 report, HCFA compared the GPCI rent index to commercial office rents from three sources: USPS, General Services Administration, and the Building Owners and Managers Association.⁴³ The report concluded that the HUD FMR, although imperfect, was preferable to any of the alternatives. However, in our view, HHS should assess the rent index that a USPS-sponsored researcher created recently based on post office data. HHS should determine whether his rent index is preferable to the GPCI rent index (the HUD FMR), since his index has national coverage and methodological advantages over the postal data reviewed over 10 years ago. We also recommended that, if a commercial rent index proves infeasible, HHS should use the ACS. HHS said that it would investigate the ACS as a source of rent data when it becomes available. In our view, the ACS should be a fallback source if a commercial rent index is not feasible, rather than the sole source considered.

- *Completeness of malpractice premium data.* Regarding our recommendation that HHS should collect malpractice premium data from all states, HHS noted that it had previously collected data from all states but did not in 2002, because the attempt to make the data more

⁴²The Census Bureau told us that some parts of HHS have begun working with Census to achieve a smooth transition.

⁴³Debra A. Dayhoff and Gregory C. Pope, *Comparison of GPCI Rental Index to Three Sources of Commercial Office Rents: Final Report* (Waltham, Mass.: Health Economics Research, Inc., Sept. 14, 1994).

current imposed a short time frame. We agree that timeliness is important but believe that completeness should not be compromised—particularly in planning future updates. HHS further noted that it imputed data for 17 states and did not agree with our concern in the body of the report that the performance of the imputation method had not been tested. In our view, the failure to collect data from 17 states is a methodological flaw, although our draft report recognized that the incomplete premium data resulted from HHS's efforts to use more current data—a desirable objective. The draft report did not disagree with the imputation method, which it explicitly stated was reasonable. However, we continue to believe that, given the importance of the imputation, its performance should have been tested. Moreover, if premium data used in the future are incomplete, the imputation method would need to be tested.

- *Representativeness of premium data collection.* Regarding our recommendation that HHS collect data from insurers that account for at least half of malpractice insurance business in a state, HHS noted that it had done so in its original data collection for 1999 to 2001. However, in the 2002 supplemental collection, data were collected only from a state's largest insurer, even if its market share was less than half. In our view, to enhance the representativeness and credibility of CMS's premium data, it is important that these data always represent at least half of the malpractice insurance in a state.
- *Standardization of malpractice premium data.* Regarding our recommendation that HHS standardize the collection of malpractice premium data, HHS stated that it has done a more than adequate job of standardizing the survey instrument for the collection of malpractice premium data. However, we found that HHS has not demonstrated that it has a standard protocol—procedures and survey instruments—for collecting these data. In particular, neither CMS's regulation nor the contractor's most recent report that updated the GPCIs contains a protocol or a detailed description of premium data collection. Publication of the protocol might help to make the malpractice GPCI more transparent.

Industry Association Comments

The two industry associations that commented varied in their observations on the draft report. AMA stated that the draft report provided a good description of the background and evolution of the GPCIs. AMA agreed with our analysis of the GPCIs' validity and with our finding that the GPCIs'

role in influencing physician location is negligible. However, AMA disagreed with our estimate of the GPCIs' effect on physician income and suggested that our concerns about using physicians' earnings for the work GPCI could be overcome by using alternative earnings data. AAFP differed with our discussion of the validity of the work GPCI. The associations also provided us with technical comments, which we incorporated as appropriate. The associations' major comments and our evaluation of those comments are summarized below.

AMA's main concern was that we understated the GPCIs' effect on physician income. AMA cited three reasons that the range of the GPCIs' effect was greater than we estimated. Their reasons and our responses are as follows:

1. According to AMA, in general the GPCIs' effect on physician income is closer to 5 percent than to the 2 to 3 percent we reported, because the GPCIs should be applied only to gross revenue, not net income. Since physicians' gross revenue is about twice net income on average, according to AMA, the GPCIs' true effect is about twice our estimate. We agree that Medicare's geographic fee adjustments directly affect a physician practice's gross revenue. However, in assessing the effect of GPCIs on physician net income, we took account of geographic differences in both physician revenue and physician expenses, whereas AMA's approach assumes physician expenses are the same in all localities. Not to account for geographic differences in expenses (using the GPCIs) would ignore the fact that the GPCIs track significant differences across localities in physicians' expenses, such as nurses' wages and rent.
2. AMA stated, as did AAFP, that the GPCIs' effect on fees is amplified beyond their effect on Medicare fees because some private plans and state Medicaid programs base their physician fees on Medicare fees. In AMA's view, the draft report should address the tendency of other payers to follow Medicare's lead and therefore the draft report understated the GPCIs' effect. Our analysis of private plan fees, however, found effectively no relationship between private plans' fees and Medicare fees in different localities. While some private plans have adopted Medicare's RVU scale or a variant, fewer have adopted the GPCIs. This is consistent with the data on private plan fees that we reviewed, showing that Medicare fees and private plan fees are effectively unrelated across localities. (See fig. 2.) Similarly, a study published in 2000 found that Medicaid fees did not track Medicare fees:

for the same services, Medicaid fees as a proportion of Medicare fees varied widely across states, ranging in 1998 from 34 percent in New Jersey to 126 percent in Alaska.⁴⁴

3. AMA maintained that rural physicians and certain specialists, such as internists and cardiologists, derive more of their income from Medicare than the 25 percent average we cited. We agree that various specialties have had an average Medicare share of practice income of more than 40 percent, including ophthalmology, cardiovascular disease, urological surgery, and general internal medicine.⁴⁵ Our analysis showed that the GPCIs' effect on the income of physicians who derive 40 percent of their income from Medicare was still relatively modest.

AMA also disagreed with our finding that basing the work GPCI on measures of earnings of nonphysicians has advantages, compared to relying on direct measures of physician earnings from the decennial census. AMA suggested three alternative measures on which to base the work GPCI: (1) salaries of employed physicians, which in AMA's view would permit CMS to bypass the circularity issue associated with the direct use of physician earnings; (2) surveys of physician income conducted by physician recruitment firms; and (3) salary data from the Medical Group Management Association's Physician Compensation and Production Survey. We do not consider any of these alternatives to be preferable to nonphysician earnings as a basis for the work GPCI. In the case of employed physicians' salaries, circularity is obscured but not avoided. Neither the MGMA survey nor physician recruitment firm surveys are statistically representative and therefore are not adequate as data sources for the work GPCI.

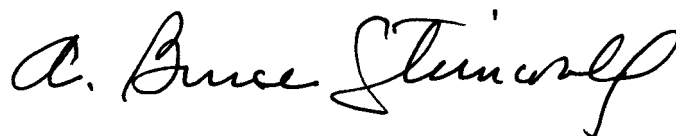
⁴⁴Stephen Norton and Stephen Zuckerman, "Trends in Medicaid Physician Fees, 1993 to 1998," *Health Affairs*, vol. 19, no. 4 (2000), 222-232.

⁴⁵The Medicare proportion of practice income is based on 1999 data, the most recent year for which data are available, and is from the *American Medical Association Physician Socioeconomic Statistics 2000-2002 Edition*. Specialist groups that derive more than 40 percent of their revenue from Medicare include ophthalmologists (49 percent), cardiovascular disease (46.6 percent), and urological surgeons (44.2 percent). Groups of internists with Medicare shares between 37 percent and 47 percent include general internists and internists in the cardiovascular and gastroenterology subspecialties. Florida is the only area where revenue from Medicare averages more than 40 percent (40.3 percent) for all physicians, regardless of specialty.

AAFP commented on the draft report's discussion of the work GPCI and its validity. AAFP's policy is that identical physician services should be reimbursed the same, regardless of location. AAFP stated that no geographic adjustment should be applied unless it addresses a specific policy concern, such as physician shortages. Consistent with the MMA's mandate to us, we examined the GPCIs to determine whether they were valid in their fundamental design and appropriate in the data and methods used to measure cost differences. Our research on this issue led us to conclude that adjusting Medicare physician fees for geographic cost differences is essential to achieving Medicare's goal of ensuring that fees are adequate and appropriate in all areas.

We are sending copies of this report to the Secretary of Health and Human Services, the Administrator of CMS, and appropriate congressional committees. We will also make copies available to others upon request. The report is available at no charge on the GAO Web site at <http://www.gao.gov>.

If you or your staffs have questions about this report, please call me at (202) 512-7119. Another contact and staff acknowledgments are listed in appendix IV.



A. Bruce Steinwald
Director, Health Care—Economic
and Payment Issues

Data and Methods

This appendix describes the data and methods we used to assess the GPCIs' data and methods, to compare fees paid by private insurers to geographically adjusted Medicare physician fees, and to assess the effect of GPCIs on physicians' incomes.

Construction of the GPCIs

We reviewed the data and methods used by CMS to construct the GPCIs. To analyze the GPCI methodology, we examined reports of the Health Care Financing Administration (HCFA) and the HCFA and CMS contractors that had produced and updated the GPCIs. We relied most on information in the report on the fourth GPCI update, which CMS used to develop the 2005 indexes.¹ The data described in that report are drawn from government sources (see table 5). We did not independently establish the reliability of data used in the GPCIs.

Table 5: Data Sources Used in CMS's Construction of GPCIs

| Index | Purpose | Data |
|-----------|---|--|
| All GPCIs | Weight variables used in constructing GPCI by county total of RVUs for each component (work, practice expense, malpractice) | 2002 work, practice expense, and malpractice components of RVUs by county |
| | Crosswalk counties to Medicare payment localities | List of U.S. counties, list of payment localities |
| | Crosswalk Census Bureau's 545 work areas—consolidated metropolitan statistical areas (CMSA), metropolitan statistical areas (MSA), New England county metropolitan areas (NECMA), and rural balances—to U.S. counties | List of CMSAs, MSAs, and rural state balances; list of U.S. counties |
| Work GPCI | Construct index of 6 professions' earnings | 2000 decennial census data on earnings of 6 professional categories for 545 work areas |
| | Weight earnings of each professional category by its share of employees | Share of employees in each of 6 professional categories |

¹Shannon Slawter, Jim Moser, and Shihki Barcheck, *Fourth Update to the Geographic Practice Cost Index: Final Report* (McLean, Va.: BearingPoint, Jan. 15, 2004).

**Appendix I
Data and Methods**

(Continued From Previous Page)

| Index | Purpose | Data |
|-----------------------|---|---|
| Practice expense GPCI | Construct employee wage index of 4 nonphysician occupations | Decennial census data on wages of 4 occupations for 545 work areas |
| | Weight earnings of each of 4 nonphysician occupations by its share of employees | 2000 decennial census data on share of employees in each of 4 nonphysician categories |
| | Obtain rent index | 2004 HUD fair market rent (FMR) Index for two-bedroom apartments for all counties in the United States |
| | Combine components of practice expense into the practice expense index, using the cost shares of these components | Cost shares of these components |
| Malpractice GPCI | Construct malpractice premium price index | Malpractice premiums and premiums as adjusted by CMS contractor for 20 specialty groups for at least 2 carriers per state for 1999-2001 and 1 carrier per state for 2002 |
| | Crosswalk insurers' rate area to counties | List of each insurer's rating territories, list of U.S. counties |
| | Weight each insurer's premiums by market share | Market share for each insurer for which 2001 premiums were obtained, except 14 states where 2001 market share was unavailable—8 states provided BearingPoint their 2000 market shares as the most current market shares data available, and BearingPoint used National Association of Insurance Commissioners (NAIC) 2000 market share data to identify insurers for the remaining 6 states |

Source: GAO analysis of CMS documents.

Comparing Geographically Adjusted Medicare and Private Insurance Physician Fees

To compare the geographic variation in Medicare physician fees with the geographic variation in fees paid by private insurers, we obtained analyses of a sample of private plans' physician fee schedules obtained in 2002.² These analyses were commissioned by MedPAC and carried out by Dyckman & Associates—referred to here as Dyckman. For this analysis, Dyckman

- mapped fee schedules from private plans in its sample to Medicare fee schedules for the same localities and determined that its sample had 68 usable fee schedules for 36 Medicare payment localities,³

²These fee schedules had been collected for a study commissioned by MedPAC in 2003. Details of the sample can be found in Zachary Dyckman and Peggy Hess, *Survey of Health Plans Concerning Physician Fees and Payment Methodology* (Washington, D.C.: Dyckman & Associates, August 2003).

³Based on the Fisher's exact test—a statistical test that is used to determine if there is a nonrandom association between two categorical variables—we concluded that the distribution of the GPCIs in the 36 payment localities for which we had fee schedules did not differ significantly from the distribution of the GPCIs in the other localities. Dyckman subsequently eliminated one plan's fee schedule from the analysis because it was an outlier.

- calculated for each fee schedule a private fee index—the ratio of the average private fee to the national average, and
- compared the private fee index to the weighted average of the three GPCIs in that Medicare payment locality.

In calculating the average private fee, Dyckman

- classified 89 commonly used Medicare procedures into 6 types of services;
- calculated the mean of private plans' fees that operate in each one of the 36 Medicare payment localities;⁴ and
- calculated the national mean of private plans' fees, weighting the mean of private plans' fees in each Medicare payment locality by its total RVUs.

Factors Affecting Geographic Difference in Physicians' Income

To determine the effect of GPCIs and other factors on physicians' income, we estimated a model of average physician income in 513 geographic areas.⁵ We controlled for factors that affect physicians' income, such as physicians' location, their hours of work, their specialties,⁶ the extent of their competition, as measured by the relative number of physicians to the population in an area, and the availability of nurses.⁷ Table 6 presents our

⁴For each type of five services—surgery, laboratory and pathology, radiology, assorted medical and diagnostic services, and other evaluation and management—Dyckman calculated the unweighted average private fee for services in that category. For the sixth type—office visits—Dyckman calculated a weighted average, using frequency of each individual service (such as a specific type of office visit) as the weight. The six type-of-service categories were then weighted by each category's total service use.

⁵The 513 geographic areas are a subset of the 545 work areas (consolidated metropolitan statistical areas (CMSA), metropolitan statistical areas (MSA), New England county metropolitan areas (NECMA), and rural state balances in a state) for which complete data were available.

⁶The specialties are cardiovascular surgery, orthopedic surgery, dermatology, ophthalmology, neurosurgery, neurology, pulmonary disease, plastic surgery, gastroenterology, obstetrics/gynecology, and colon/rectal surgery.

⁷These factors had a significant effect on geographic difference in physicians' income. Data on these factors were obtained from the 2002 Area Resource File and the 2000 decennial census. Information on physician income was also taken from the 2000 decennial census.

analysis showing that most factors, but not GPCIs, are statistically significant.

Table 6: Factors Explaining Variation in Physicians' Average Annual Income for 513 Geographic Areas

| Factors | Coefficient | p < t |
|---|--------------------|-------------------|
| GPIC—weighted average of work, practice expense, and malpractice GPCIs ^a | -3,414.99 | 0.92 |
| Average Medicare payment for physicians' services per beneficiary (2002) ^a | 7.26 | 0.19 |
| Located in metropolitan statistical area (MSA) | 17,471.71 | 0.00 |
| Average weekly work hours for physicians in the area | 1,521.77 | 0.00 |
| Percentage of physicians who belong to selected specialty categories ^b | 2,032.36 | 0.00 |
| Average managed care penetration ^c (%) | -505.42 | 0.00 |
| Number of patient-care physicians per 1,000 population ^d | -4,625.12 | 0.00 |
| Percentage of physicians who are non-patient-care physicians ^e | -1,580.44 | 0.00 |
| Number of nurses ^f per 1,000 population | 2,239.46 | 0.00 |
| Average annual income for all civilians in the area | 1.81 | 0.00 |
| Constant ^a | 4,299.85 | 0.89 |

Source: GAO analysis of the 2002 Area Resource File, the 2000 decennial census, and the 5 percent sample of 2002 Medicare physician claims.

Note: The 513 areas are a subset of the 545 work areas (consolidated metropolitan statistical areas (CMSA), metropolitan statistical areas (MSA), New England county metropolitan areas (NECMA), and rural state balances in a state) for which complete data were available. The adjusted R² for the estimated model is .41.

^aFactor is not statistically significant: p-value greater than .05.

^bThese specialties are cardiovascular surgery, orthopedic surgery, dermatology, ophthalmology, neurosurgery, neurology, pulmonary disease, plastic surgery, gastroenterology, obstetrics/gynecology, and colon/rectal surgery.

^cThe proportion of an area's population enrolled in a managed care organization.

^dPatient-care physicians include office-based physicians, hospital residents, and hospital full-time staff physicians.

^eNon-patient-care physicians include those whose major professional activity is research, medical education, or administration.

^fNurses include registered nurses, licensed practical nurses, and nurse practitioners.

Rent Indexes and the Practice Expense GPCI

We reviewed the FMR, the rent index used in the 2004 practice expense GPCI. The FMR was developed to serve a specific purpose in the HUD Housing Choice Voucher program: setting the amounts in different parts of the country of rent vouchers that aid lower income families in renting housing. The use of different sources in different areas for developing and updating this special purpose index, as well as the process for requesting changes to it, raises questions about its suitability as a component of the practice expense GPCI. Specifically, the FMR uses decennial census data, supplemented with data from the American Housing Surveys for the largest metropolitan areas and from telephone surveys (conducted using random digit dialing) for other areas to establish base-year estimates. Changes may be made to the proposed rates if localities are dissatisfied with these rates and submit supporting data. The FMR is updated from two sources: regional random digit dialing surveys in some areas and the Consumer Price Index (CPI) for rents and utilities data where available.

We wanted to identify a commercial rent index—on its face, a more appropriate proxy for physician office rent. We found only one source of commercial rent that was available nationally for both urban and rural areas. The USPS has data on rent of post offices throughout the country and has sponsored work by Anthony M. Yezer, Professor of Economics at George Washington University, to create a rent index with national coverage.¹ To construct a county-level rent index for a property with standardized characteristics, Professor Yezer estimated a statistical model. The model controlled for differences in physical characteristics of the property such as interior space, setting of the building, parking provision, and provisions of the lease, including length and terms. The model's predicted level of rent for property used as post office space, holding constant these physical characteristics and lease terms, was used to calculate an index of rent in a county or group of counties relative to the average. Our preliminary exploration of this commercial rent index suggests that, potentially, it could be an improvement on the residential rent index used currently for the practice expense GPCI. In order to use these data, CMS would have to assure itself of the data's credibility and technical merits and their availability to CMS on a periodic basis.

¹See *Direct Testimony of Anthony M. Yezer Before the Postal Rate Commission: Postal Rate and Fee Changes*, Docket No. R2000-1 (Washington, D.C.: Jan. 12, 2000). The USPS agreed to permit Professor Yezer to use these data to develop an index designed to meet the requirements of the practice expense GPCI.

Comments from the Department of Health and Human Services



DEPARTMENT OF HEALTH & HUMAN SERVICES

Office of Inspector General

Washington, D.C. 20201

JAN 12 2005

Mr. A. Bruce Steinwald
Director, Health Care—Economic and Payment Issues
U.S. Government Accountability Office
Washington, DC 20548

Dear Mr. Steinwald:

Enclosed are the Department's comments on your draft report entitled, "Medicare Physician Fees—Geographic Adjustment Indices Are Valid in Design but Data and Methods Need Refinement" (GAO-05-119). The comments represent the tentative position of the Department and are subject to reevaluation when the final version of this report is received.

The Department provided several technical comments directly to your staff.

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

Sincerely,

A handwritten signature in cursive script that reads "Daniel R. Levinson".

Daniel R. Levinson
Acting Inspector General

Enclosure

The Office of Inspector General (OIG) is transmitting the Department's response to this draft report in our capacity as the Department's designated focal point and coordinator for Government Accountability Office reports. OIG has not conducted an independent assessment of these comments and therefore expresses no opinion on them.

**COMMENTS OF THE DEPARTMENT OF HEALTH AND HUMAN SERVICES ON
THE U.S. GOVERNMENT ACCOUNTABILITY OFFICE'S DRAFT REPORT:
"MEDICARE PHYSICIAN FEES—GEOGRAPHIC ADJUSTMENTS INDICES ARE
VALID IN DESIGN BUT DATA AND METHODS NEED REFINEMENT" (GAO-05-119)**

The Department of Health and Human Services (HHS) appreciates the opportunity to comment on this U.S. Government Accountability Office's (GAO's) draft report.

This report makes several important findings. One key finding is that the geographic adjustments to the physician fee schedule, required by the Medicare Prescription Drug, Improvement, and Modernization Act of 2003 (MMA) statute, are not important factors in physician location, recruitment, and retention. The report points out that since Medicare revenues constitute only about 25 percent of a physician's income, changes in the geographic practice costs indices (GPCIs) generally have only modest impact on physicians' incomes. The report indicates that GAO's interviews with physician recruitment experts and review of published studies indicate that income is only one of numerous factors that affect physician decisions to locate in rural areas. Other factors that do affect physician location decisions include: a spouse's employment opportunities; the quality of local schools; and the availability of other physicians to share night and weekend calls.

A second key GAO finding is that the geographic adjustment indices used by Medicare are valid. The MMA statute requires use of three different indices to adjust for differences in costs among geographic areas under the physician fee schedule: (1) for physician work (a physician's time and effort); (2) for practice costs other than malpractice; and (3) for malpractice. The report indicates: "The three GPCIs as implemented appropriately reflect broad patterns of geographic differences in the costs of running a practice."

The report also recommends certain refinements to the data and methods used to construct the GPCIs. Since their inception, HHS, Centers for Medicare & Medicaid Services (CMS) has consistently sought alternative data sources that could improve the GPCIs. HHS looks forward to exploring the alternatives suggested by GAO but we note that the suggestion that might have the biggest impact is to use a survey that has not yet been conducted and won't be available until 2010. We agree with the GAO's assessment that their recommendations would unlikely change the GPCIs significantly.

GAO Recommendation

We recommend that the Secretary of HHS seek to improve the GPCIs' data and methods by taking the following six actions:

- **Develop a plan for transitioning from the Census Bureau's decennial census to the annual American Community Survey (ACS) for earnings and wage data, pending resolution by the Census bureau of key outstanding issues regarding the implementation of the ACS.**

**Appendix III
Comments from the Department of Health
and Human Services**

HHS Response

CMS has consistently sought valid, representative data sources that are more current than the decennial census in past GPCI updates. This was stated in our final rule, published on November 15, 2004, (page 66262). As the report indicates, the ACS is still under development. The earliest the ACS data would be available to CMS is 2010, and we plan to review the ACS as a potential data source at that time. While the ACS is a very interesting possibility to consider for future use, such use would be years away. Without any analysis of survey results, the recommendation for “developing a plan for transitioning” to ACS seems premature. It would not be prudent for CMS to commit to using ACS at this point.

GAO Recommendation

- **Add data on physician assistants’ wages to improve the measurement of the practice expense GPCI.**

HHS Response

We include employee categories in the wage index component of the practice expense GPCI that have been determined to be most typically present in a physician’s private practice. GAO does not discuss whether physician assistants constitute a “typical” staff available in a private physician practice.

Although we believe the current wage categories are representative of the typical private physician practice, we will examine the current occupational wage categories utilized in the construction of the practice expense GPCI and the possible inclusion of physician assistants’ wages.

GAO Recommendation

- **Replace the practice expense GPCI’s current rent index with a commercial rent index, if feasible, or if that is not feasible, a residential rent index using ACS data.**

HHS Response

As we have discussed previously in the Federal Register with regard to updating the GPICs, for constructing the rental portion of the practice expense GPICs, we need and have searched for commercial rental data that are widely and consistently available across all fee schedule areas. To date, we have explored numerous alternative rental data sources including: the U.S. Postal Service, General Services Administration, Internal Revenue Service, etc. None of these sources contained sufficient data for nonmetropolitan areas, nor did any contain data for all metropolitan areas.

The alternative commercial rent data sources we have examined to date are not reflective of the average commercial space in the area, but rather the particular type of space most relevant to the

**Appendix III
Comments from the Department of Health
and Human Services**

needs of the particular source's clients. Additionally, none of the data sources contained sufficient sample sizes at the county level.

While we recognize that apartment rents are not a perfect proxy for physician office rents, there are no existing national studies that present reliable retail and business rental data. Additionally, the GPCIs measure relative differences among areas. We believe that commercial rents will generally vary among areas as residential rates vary. As noted previously, we intend to analyze the ACS data when they become available.

GAO Recommendation

- **Collect malpractice premium data from all States.**

HHS Response

The GAO report focuses on the severe time limit imposed on the collection of malpractice premium data. According to the GAO report, the contractor had only 7 weeks to collect the premium data. This short timeframe led to a truncated data collection and limited the database to only 33 States.

This short timeframe was not associated with our original data collection, but was instead associated with a supplementary data collection. Originally, the premium data to be utilized in the updated malpractice GPCIs was for the years 1999 through 2001. This original survey was conducted over the period of 1 year and premium data were collected from all States and territories with the exception of Kentucky, New Hampshire, New Mexico, and the District of Columbia (which did not respond).

At the urging of the medical community and numerous congressional representatives, CMS re-surveyed the 52 States and territories in an attempt to collect more current, 2002, premium data. Over this 7-week period we were able to collect 2002 premium data from 33 States. As stated previously, this supplemental data collection effort was at the urging of the medical community and various congressional representatives in an attempt to capture the escalating premiums which were occurring nationwide.

For the remaining 17 States and the District of Columbia, and Puerto Rico, for which we were unable to collect premium data, the 2002 data were imputed. GAO expressed concerns that the imputation methodology was not tested and described possible tests that could be carried out. As described in our March 12, 2004, "Fourth Update to the Geographic Practice Cost Indices Report," which we shared with GAO, we chose the imputation technique that we believed most accurately portrayed the actual 2002 premiums. It is not clear from the report that the techniques proposed by GAO would provide a more accurate tool in estimating the premiums for the States that failed to respond to our survey requests. Also, use of more recent data that includes some trend projection also needs to be weighed against using complete but outdated data (e.g., should one use more recent data even if some such data are reasonably imputed or should one use only unimputed data if such data are more outdated). We recommend that the report characterize this as a choice rather than as a flaw.

**Appendix III
Comments from the Department of Health
and Human Services**

Also, the report suggests collecting data on each insurer's market share by physician specialty in each State, as well as collecting data more frequently. It is not clear that insurers would readily divulge their market share by physician specialty in each State. Moreover, the burden on insurers to furnish this information is not identified. Insurers voluntarily provide this information now. More frequent data collection requests as well as more detailed information on their business might make insurers reluctant to respond. The report does not present these downsides to the recommendations.

GAO Recommendation

- **Collect data from insurers that account for at least half of malpractice business in a State.**

HHS Response

The original data collection effort did adhere to the 51 percent market-share criteria. The supplementary premium data collection which was to capture more recent premiums did not obtain 51 percent market share in all instances. CMS did ensure that the 2002 premium data collected were from the dominant insurer in each respective State.

GAO Recommendation

- **Standardize collection of malpractice premium data.**

HHS Response

We currently operate under a stringent approach that begins with the State Departments of Insurance (DOI). The State DOI is contacted and a short telephone survey is administered to identify who the contact persons are and if the State DOI has available the premium information that CMS is requesting. In the event that the State DOI does have the information available, this telephone survey is immediately followed up with a mail survey that outlines the scope of the data collection effort, the reasons we are requesting such data, and the ensured confidentiality of all premium data. In the event that the State DOI does not have the information available, the preceding steps are duplicated at the private insurer level. CMS believes that we have done a more than adequate job of standardizing our survey instrument for the collection of malpractice premium data.

HHS General Comments

The report recommends certain refinements to the data and methods used to construct the GPCIs. We would note, however, that while the summary, conclusions, and recommendations of the report suggest "data and methodology problems" and that the Secretary "has options to remedy some of these flaws," the body of the report is more cautious and caveated about the feasibility of some of the suggested options. Also, the report characterizes the GPCIs as having weaknesses and implies that fixes are available. However, when one looks at the "fixes" suggested, the ones

Appendix III
Comments from the Department of Health
and Human Services

that would impact the biggest components of the GPCIs are too far away and/or exploratory to be considered fixes. We recommend more consistency in characterization.

GAO Contact and Staff Acknowledgments

GAO Contact

Jonathan Ratner, (202) 512-7107

Acknowledgments

In addition to the person named above, key contributors to this report were Dae Park, Phyllis Thorburn, Bobbi Buckner Bentz, Hannah Fein, Ba Lin, and Mary Reich.

GAO's Mission

The Government Accountability Office, the audit, evaluation and investigative arm of Congress, exists to support Congress in meeting its constitutional responsibilities and to help improve the performance and accountability of the federal government for the American people. GAO examines the use of public funds; evaluates federal programs and policies; and provides analyses, recommendations, and other assistance to help Congress make informed oversight, policy, and funding decisions. GAO's commitment to good government is reflected in its core values of accountability, integrity, and reliability.

Obtaining Copies of GAO Reports and Testimony

The fastest and easiest way to obtain copies of GAO documents at no cost is through GAO's Web site (www.gao.gov). Each weekday, GAO posts newly released reports, testimony, and correspondence on its Web site. To have GAO e-mail you a list of newly posted products every afternoon, go to www.gao.gov and select "Subscribe to Updates."

Order by Mail or Phone

The first copy of each printed report is free. Additional copies are \$2 each. A check or money order should be made out to the Superintendent of Documents. GAO also accepts VISA and Mastercard. Orders for 100 or more copies mailed to a single address are discounted 25 percent. Orders should be sent to:

U.S. Government Accountability Office
441 G Street NW, Room LM
Washington, D.C. 20548

To order by Phone: Voice: (202) 512-6000
TDD: (202) 512-2537
Fax: (202) 512-6061

To Report Fraud, Waste, and Abuse in Federal Programs

Contact:

Web site: www.gao.gov/fraudnet/fraudnet.htm

E-mail: fraudnet@gao.gov

Automated answering system: (800) 424-5454 or (202) 512-7470

Congressional Relations

Gloria Jarmon, Managing Director, JarmonG@gao.gov (202) 512-4400
U.S. Government Accountability Office, 441 G Street NW, Room 7125
Washington, D.C. 20548

Public Affairs

Paul Anderson, Managing Director, AndersonP1@gao.gov (202) 512-4800
U.S. Government Accountability Office, 441 G Street NW, Room 7149
Washington, D.C. 20548

**United States
Government Accountability Office
Washington, D.C. 20548-0001**

**Presorted Standard
Postage & Fees Paid
GAO
Permit No. GI00**

**Official Business
Penalty for Private Use \$300**

Address Service Requested

