Under the new fee schedule, Medicare physician fees are 76 percent of private fees. Consistent with the intent of payment reform, Medicare physician fees more closely approximate private fees for visits (93 percent) than for surgery (51 percent) and in rural areas as compared with large metropolitan areas. Variation in private fees across the country is considerably greater than it is for Medicare fees. Consequently, Medicare fees are most generous in areas that compare least favorably with the private market because private fees in these areas are well above average. These results shed light on the impact of the fee schedule and on the implications of using Medicare payment methods as part of a broad-based health reform.

INTRODUCTION

To address the problem of rising Medicare physician expenditures, Congress reform ed Medicare physician payments as part of the Omnibus Budget Reconciliation Act (OBRA) of 1989 (Public Law 101-293). The reform has three parts: a fee schedule based on relative values, volume performance standards, and limits on the amount physicians can bill patients above the Medicare fee schedule (MFS). The MFS, the focus of this article, is a major departure from the customary, prevailing, and reasonable (CPR) reimbursement methodology it replaced. Most importantly, the MFS is intended to reduce the difference in reimbursement for cognitive services relative to procedural services that recent research efforts have found to be unjustified (Hsiao et al., 1992), by granting greater weight to the former in the fee schedule. The MFS is also designed to correct geographic distortions in charging practices thought to be fueled by the CPR methodology.¹

The regulatory impact analysis estimated a 6-percent reduction in Medicare payments per service nationally relative to the CPR reimbursement methods by 1996 when the MFS is fully implemented with varying effects by specialty and State (Federal Register, 1991). The regulatory impact analysis focused only on the Medicare program (i.e., the impact of the MFS relative to CPR), and left the question of how physician payments under the MFS compare with private insurance physician fees unanswered.

This question has two important policy implications. Assuming the MFS is used only for Medicare, there is widespread

¹To this end, the MFS includes a Geographic Practice Cost Index (GPCI) to adjust for differences in practice costs across localities. Additionally, Congress chose to recognize only one-fourth of the physician work GPCI, which has the effect of reducing the difference in payments between urban and rural areas.

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consensus that publicly insured beneficiaries' access can be curtailed when payment rates fall well below those in the private sector. This has been particularly well documented for the Medicaid program (Sloan, Mitchell, and Cromwell, 1978; Mitchell and Schuman, 1984; Held and Holahan, 1985; Long, Settle, and Stuart, 1986). In addition, higher Medicare fees, holding private rates constant, have been found to be positively related to decisions to formally participate and accept assignment (Mitchell, Rosenbach, and Cromwell, 1988; Mitchell and Cromwell, 1982; Paringer, 1980; Rice, 1984; Rice and McCall, 1982; Rodgers and Musacchio, 1983). Private fees, on the other hand, are negatively related to decisions to participate and accept assignment. Of course, physicians' ability to leave the Medicare program altogether is presumably more limited than their ability to leave Medicaid—Medicare beneficiaries are high utilizers of physician services, and the program represents approximately 24 percent of physician revenues.

Another reason for analyzing the relationship between Medicare fees and private fees relates to the growing interest in replacing the current payment methodologies used by private payers thought to result in inappropriate pricing patterns with a more rational approach. One possible approach is the adoption of Medicare payment rules by private payers as part of a broad-based health financing reform. For example, if private payers adopted the MFS, including the conversion factor and geographic adjusters, to set their reasonable charge screens, then the difference between the private and Medicare levels of payments would provide some guide as to how physicians' revenues might be affected. If earlier studies that show the MFS has fees below those in the private sector are correct (Pope et al., 1991), then adoption of the MFS by private payers would suggest that physician revenues could fall. This would mean that payments by private payers would fall and, at the same time, copayments by private patients would be lower. Depending on private sector arrangements, balance billing could offset all or part of this reduction in copayments.

The purpose of this article is to examine the relationship between physician fees under the MFS and private physician fees. This relationship will be examined by type of service (e.g., do fees for visits compare more favorably than fees for imaging?) and by Medicare payment locality. Although the MFS establishes fee levels designed to address the service type and geographic distortions noted earlier, significant variations in this relationship between Medicare and private fees can still exist by type of service and across localities. Analyzing the relationship between Medicare and private fees by type of service and by locality provides insight into those services and areas of the

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2Participation refers to a signed agreement between the physician and the program whereby the physician agrees to accept assignment on all Medicare claims. In accepting assignment, the physician agrees to collect from the patient only applicable deductibles and coinsurance (i.e., Medicare payment is accepted as payment in full). Non-participating physicians can accept assignment on a claim-by-claim basis.

3One additional issue complicates the picture: the physicians' potential ability to induce demand in response to reduced fees. Physicians could respond to lower Medicare fees by inducing more demand among Medicare patients although a more traditional supply response would be for the physician to reduce output to their Medicare patients. The relationship between the MFS and private fees will affect physicians' supply response in both markets.

4The MFS includes a 5-year transition period. Because we will examine the relationship between a fully implemented MFS and private fees, we are implicitly examining the relationship as it will exist in 1996. It is useful to understand these relationships now before they become fully implemented.

Health Care Financing Review/Spring 1993/Volume 14, Number 3
country that might be most affected by the move to the MFS and by the use of Medicare payment methodologies to establish private fees. A second step in the analysis will explore the underlying variation in Medicare and private fees—i.e., is the variation in Medicare and private fees across the United States comparable?

The next section of this article contains our methods for constructing the fee indexes. In the Results section, we analyze the relationship of Medicare fees to private fees overall and by type of service. Comparison between Medicare and private fees are made nationally and for groups of localities (i.e., classified into quartiles based on the ratio of Medicare to private fees). We also analyze the underlying variation driving the relationship between Medicare and private fees. The Discussion section discusses implications of the analysis.

METHODS

Medicare fees are computed by applying the Medicare fee schedule payment methodology (i.e., relative value units, GPCI, and conversion factor) to data obtained from the Health Care Financing Administration’s (HCFA) Public Use File (PUF) of Physician Services. The data source for private fees is the Health Insurance Association of America’s (HIAA) Medical and Surgical Prevailing Healthcare Charges System (PHCS) for 1990. The PHCS is a major source of billed charge data used in the administration of private health benefit programs. The information is derived from more than 150 major commercial health insurers, Blue Cross and Blue Shield Plans, third-party administrators, and self-insured groups. Areas in all 50 States and the District of Columbia are represented. HIAA defines areas based on 3-digit ZIP Codes. These areas are defined so that each contains adequate numbers of claims so as to allow reliable estimates of mean and median charges to be derived for individual health care services. The annual fee estimates for 1990 in the PHCS are based on more than 400 million individual charges for medical and surgical physician services. Average fees for the 84 procedures we selected for this study are based on approximately 84 million individual charges.

To measure relative fees, a series of indexes measuring the ratio of MFS fees to private fees were constructed for five types of service—visits, imaging (X-rays, magnetic resonance imaging), ambulatory procedures (hernia repair, endoscopy), major procedures (coronary artery bypass graft [CABG], arthroplasty), and diagnostic tests (cardiovascular stress test), as well as a summary index. The type of service categories for the separate indexes are defined using the recently developed Berenson and Holahan (1992) classification scheme. These indexes are based on a selected set of physician services (i.e., HCPCS codes) that account for a significant proportion of Medicare physician charges, are representative of the spectrum of physician services (e.g., visits, surgery, and diagnostic tests), and are likely to be provided to a non-Medicare population.

The 84 physician services selected for the indexes are shown in Table 1; these services account for 63 percent of Medicare physician services under the MFS. The underlying purpose of this analysis is...
| HCPCS Code | Description                                      | Percent of Total MFS Payments |
|------------|--------------------------------------------------|------------------------------|
|            | All Services                                      | 63.124                       |
|            | Imaging Procedures                                |                              |
|            | Total Payments                                    | 7.950                        |
| 71010 26   | Chest X-ray                                      | 0.469                        |
| 71020 26   | Chest X-ray, 2 views                              | 0.688                        |
| 74270 26   | Colon X-ray                                      | 0.113                        |
| 76091 26   | Mammography                                      | 0.203                        |
| 17306 26   | Bone Imaging                                      | 0.142                        |
| 70470 26   | Computerized-assisted tomography, head            | 0.182                        |
| 70551 26   | Magnetic resonance imaging, brain                 | 0.090                        |
| 74160 26   | Computerized-assisted tomography, abdomen         | 0.172                        |
| 76700 26   | Echography, abdomen                               | 0.162                        |
| 93307      | Echocardiography                                  | 0.464                        |
| 93320      | Doppler echocardiography                          | 0.151                        |
| 93347      | Combined left heart catheter                      | 0.476                        |
| 93349      | Combined right and left heart catheter            | 0.331                        |
|            | Visit Services                                    | 44.367                       |
|            | Total Payments                                    |                              |
| 99203      | New visit                                         | 0.606                        |
| 99204      | Office visit, new patient                         | 1.119                        |
| 99212      | Office visit, established patient                 | 1.088                        |
| 99213      | Office visit, established patient                 | 12.230                       |
| 99214      | Office visit, established patient                 | 1.915                        |
| 99215      | Office visit, established patient                 | 1.335                        |
| 99222      | Initial hospital visit                            | 1.870                        |
| 99223      | Initial hospital visit                            | 1.434                        |
| 99231      | Subsequent hospital visit                         | 5.713                        |
| 99232      | Subsequent hospital visit                         | 5.406                        |
| 99233      | Subsequent hospital visit                         | 0.749                        |
| 99238      | Hospital discharge day                            | 0.803                        |
| 99291      | Critical care first hour                          | 0.534                        |
| 99283      | Emergency department visit                        | 0.522                        |
| 99284      | Emergency department visit                        | 0.592                        |
| 99285      | Emergency department visit                        | 1.161                        |
| 99312      | Nursing facility visit, new or established patient| 0.499                        |
| 99332      | Resthome visit, established patient               | 0.515                        |
| 99304      | Eye exam, new patient                             | 0.540                        |
| 99212      | Eye exam, established patient                     | 0.877                        |
| 99214      | Eye exam, established patient                     | 1.158                        |
| 99244      | Office consultation                               | 0.770                        |
| 99254      | Initial Inpatient consultation                     | 1.992                        |
| 99255      | Initial inpatient consultation                     | 0.639                        |
|            | Major Procedures                                  | 4.870                        |
|            | Total Payments                                    |                              |
| 19240      | Mastectomy                                        | 0.157                        |
| 44140      | Colectomy                                         | 0.246                        |
| 47605      | Cholecystectomy                                   | 0.163                        |
| 52601      | Prostatectomy                                     | 0.729                        |
| 33207      | Insert pacemaker                                  | 0.104                        |
| 33511      | Coronary artery bypass graft                      | 0.161                        |

See footnotes at end of table.
| HCPCS Code | Description                                      | Percent of Total MFS Payments |
|------------|--------------------------------------------------|-------------------------------|
| 33512      | Coronary artery bypass graft                     | 0.372                         |
| 33513      | Coronary artery bypass graft                     | 0.328                         |
| 33514      | Coronary artery bypass graft                     | 0.129                         |
| 35081      | Direct repair of aneurysm                        | 0.112                         |
| 36489      | Placement of venous catheter                     | 0.107                         |
| 92892      | Coronary artery dilation                         | 0.286                         |
| 93503      | Right heart catheter                             | 0.170                         |
| 27125      | Repair of complete shoulder                      | 0.118                         |
| 27130      | Arthroplasty                                     | 0.415                         |
| 27236      | Repair of thigh fracture                         | 0.270                         |
| 27244      | Repair of thigh fracture                         | 0.422                         |
| 27447      | Arthroplasty knee                                | 0.561                         |

### Ambulatory Procedures

| HCPCS Code | Description                                      | Percent of Total MFS Payments |
|------------|--------------------------------------------------|-------------------------------|
| 65855      | Laser surgery of eye                             | 0.224                         |
| 66821      | Discission of secondary membraneous cataract     | 0.626                         |
| 66984      | Cataract removal with lens insertion             | 3.069                         |
| 11642      | Excision, lesion—face, eye                       | 0.105                         |
| 11750      | Excision of nail                                 | 0.102                         |
| 19120      | Excision of cyst                                 | 0.114                         |
| 49505      | Repair of hernia                                 | 0.139                         |
| 10090      | Incision and drain of abscess                    | 0.204                         |
| 11730      | Avulsion of nail plate                           | 0.203                         |
| 17000      | Destruction of facial lesion                     | 0.215                         |
| 20210      | Arthrocentesis                                   | 0.236                         |
| 43238      | Upper gastrointestinal endoscope                | 0.453                         |
| 43239      | Upper gastrointestinal endoscope                | 0.336                         |
| 45330      | Sigmoidoscopy                                    | 0.225                         |
| 45378      | Colonoscopy                                      | 0.514                         |
| 45380      | Colonoscopy                                      | 0.210                         |
| 45385      | Colonoscopy                                      | 0.400                         |
| 52000      | Cystourethroscopy                                | 0.249                         |
| 90935      | Hemodialysis                                     | 0.179                         |
| 90937      | Hemodialysis                                     | 0.129                         |

### Diagnostic Tests

| HCPCS Code | Description                                      | Percent of Total MFS Payments |
|------------|--------------------------------------------------|-------------------------------|
| 80500      | Clinical pathology consultation                   | 0.066                         |
| 92567      | Basic comprehensive audiometry                   | 0.080                         |
| 93005      | Routine electrocardiogram                        | 0.654                         |
| 93017      | Cardiovascular stress test                       | 0.144                         |
| 93018      | Cardiovascular stress test                       | 0.197                         |
| 93225      | Electrocardiogram monitor or review 24 hours     | 0.080                         |
| 93227      | Electrocardiogram monitor or review 24 hours     | 0.167                         |
| 94060      | Bronchosperm evaluation                          | 0.046                         |
| 95800      | Nerve conduction test                            | 0.033                         |

**NOTES:** HCPCS is HCFA Common Procedure Coding System. MFS is Medicare fee schedule.

**SOURCE:** The Urban Institute analysis of the Health Care Financing Administration (HCFA) Physician Service Public Use File.
to compare Medicare fees with private fees. Although services were selected to account for a significant proportion of Medicare physicians services, these services also yield an index representative of services received by both elderly and non-elderly patients. For example, among the visit services, only the two nursing visit services are likely to pertain primarily to the elderly; all of the remaining visit codes pertain to both the elderly and non-elderly populations. Certain cardiovascular-related imaging procedures (left heart catheter), major procedures (insert pacemaker, CABG), and diagnostic tests (cardiovascular stress test) are more likely to pertain to the elderly (particularly males), but they are frequently provided to those under 65 years of age. In summary, the majority of procedures selected for the indexes are applicable to both the elderly and non-elderly populations, and those provided almost exclusively in the elderly population do not account for large proportions of MFS payments (and, consequently, will carry less weight in the calculation of the indexes).

As mentioned earlier, the MFS methodology was used to calculate Medicare physicians fees. Although the MFS includes a 5-year transition from historical payment levels to MFS payment levels, we focus on how the MFS will relate to private fees when it is the sole determinant of Medicare’s rates. Therefore, Medicare fees for each procedure in each locality were calculated assuming a fully implemented MFS (i.e., no transition rules are reflected). However, because the MFS fee is compared with private fees for 1990, the 1992 conversion factor was deflated to the 1990 factor using the Medicare Economic Index for primary care and other services.

Mapping Data to the Locality

Private insurance fees for the 84 selected physician services were obtained from the PHCS 1990 national data base that, as noted, reports fees for 3-digit ZIP Code areas. These ZIP Code-level data have been mapped to localities. This is accomplished by first mapping fee data for 3-digit ZIP Codes to counties and then aggregating the data for counties to the locality level. Three-digit ZIP Code areas were mapped to counties using the U.S. Postal Service’s National Five-Digit ZIP Code and Post Office Directory. PHCS fees were assigned to each county within a 3-digit ZIP Code. Using the proportion of the locality population accounted for by the county as a weight, these private fees were averaged across all counties within a locality to produce a weighted average private fee for each locality and service. The county-to-locality mapping draws on the methods used to develop GPCI. For the GPCI, counties were initially mapped to localities using the Medicare Directory of Prevailing Charges, 1984 and then revised to make the definitions current based on comments from HCFA.  

Fee Indexes

The PHCS fee data are mean submitted charges—the data base does not contain what insurers actually pay. What insurers

6In situations where a given county falls in two localities, population counts are assigned to portions of the county contained in each locality using postal ZIP Code areas. Thus, the proportion of the county’s population located in a given locality can be used to assign values to the locality. Counties that are entirely located within a single locality (the vast majority) will have population proportions equal to 1.0. However, a county with, for example, one-half of its population in one locality and one-half in another will have two population proportions (e.g., .50 and .50)—one associated with each of the respective localities. Assigning private fee means to the locality is accomplished by taking a weighted mean across the complete or partial counties that make up the locality.
Table 2
National Weights Used for Medicare and Private Fee Index, by Type of Service

| Type of Service       | Weight |
|-----------------------|--------|
| Total                 | 1.00   |
| Imaging               | 0.12   |
| Visits                | 0.54   |
| Major Procedures      | 0.12   |
| Ambulatory Procedures | 0.20   |
| Diagnostic Tests      | 0.03   |

NOTE: Type of service values may not sum to 1.00 because of rounding.

SOURCE: The Urban Institute analysis of the Health Care Financing Administration Physician Service Public Use File.

As noted earlier, five service-specific indexes were created—visits, imaging, ambulatory procedures, major procedures, and diagnostic tests—that summarize the ratio of Medicare fees to private fees within the locality. A summary index was also created as a weighted average of the five service-specific indexes.

To create this summary index, national weights for each type of service were developed using all physician services subject to MFS. We chose to use physician services subject to MFS because our indexes pertain only to these services. Table 2 reports the national weights for each type of service category. These national type-of-service weights are affected by the definition of physician services and the use of payments (rather than charges or service volume, for instance). By focusing on physician services paid under MFS, for example, the professional component of many laboratory services (which are reimbursed under a separate fee schedule) are not relevant in the computation of the summary index. Similarly, if the national weights had been calculated using allowed charges for all services in the 1989 Part B Medicare Annual Data, the national weights would have been skewed more toward surgery and diagnostic tests and away from visits. This is because the intended effect of MFS...
shifts payments to cognitive from procedural services.

Before moving to the results, one caveat should be noted. The Medicare payment locality is the unit of analysis for this study (Federal Register, 1991). (Five California localities served by two different carriers were combined.) Localities are defined by Medicare carriers strictly for Medicare physician payment purposes and locality definitions vary widely (e.g., the entire State, individual cities, groups of cities, contiguous counties, and non-contiguous counties). Locality must serve as the unit of analysis for this study because localities are the basis of the geographic practice cost (work, overhead, and malpractice) adjustments in the Medicare payment amount, and because the locality is the unit that will be affected by the move to MFS. However, since private fees are not generally defined by Medicare localities, our comparison of the MFS rate with the locality level weighted average private fee may not precisely reflect fee differentials faced by many physicians and patients.

RESULTS

As shown in the first column of Table 3, nationally, MFS fees for all physician services are 76 percent of private fees. This is consistent with previous research. Using a nine-State data base, Pope et al. (1991) compared fees under the model-fee schedule with private fees using PHCS data and found that Medicare fees ranged from 76 percent of private fees in large metropolitan areas to 79 percent in rural areas.

Not surprisingly, we found that the relationship of MFS fees to private fees varies by type of service. MFS visit fees are 93 percent of private-visit fees, and MFS fees for imaging services are 71 percent of comparable private fees. However, MFS fees for major procedures (51 percent), ambulatory procedures (52 percent), and diagnostic tests (49 percent). 

Table 3

| Type of Service         | National Mean | Bottom Quartile | Middle Quartiles | Top Quartile |
|-------------------------|---------------|-----------------|------------------|--------------|
| All Services            |               |                 |                  |              |
|                         | 0.7580 (.0764) | 0.6631 (.0350) | 0.7643 (.0310) | 0.8705 (.0320) |
| Visit Services          | 0.9251 (.1157) | 0.7872 (.0553) | 0.9331 (.0550) | 1.0914 (.0594) |
| Imaging Procedures      | 0.7070 (.0783) | 0.6533 (.0428) | 0.7177 (.0740) | 0.7748 (.0436) |
| Major Procedures        | 0.5134 (.0569) | 0.4772 (.0431) | 0.5081 (.0388) | 0.5787 (.0632) |
| Ambulatory Procedures   | 0.5198 (.0406) | 0.4833 (.0381) | 0.5286 (.0318) | 0.5598 (.0302) |
| Diagnostic Tests        | 0.4577 (.0628) | 0.4829 (.0558) | 0.4571 (.0647) | 0.4835 (.0465) |

1Classification into quartiles based on Medicare-to-private-fee ratio for all physician services.

NOTE: Numbers in parentheses are the standard deviations of the mean.

SOURCES: The Urban Institute analysis of the Health Care Financing Administration Physician Service Public Use File and the Health Insurance Association of America Medical and Surgical Prevailing Healthcare Charges System File for 1990.
diagnostic tests (46 percent) are only about one-half of those allowed by private insurers.

Although Medicare fees appear to compare unfavorably with private fees overall, it is important to bear in mind that there are several reasons to believe that private-fee data are higher than what physicians actually receive. As noted, private-fee data are based on submitted charges and private insurers employ fee screens to reduce submitted charges for payment purposes. Since private-fee screens are usually based on submitted charges, the physician has a strong incentive to submit high charges in the hopes of raising future fees (Lee and Hadley, 1981). In addition, there is increasing use of non-traditional reimbursement methods (e.g., preferred provider organizations). Furthermore, physicians face bad debt as well as administrative costs in pursuing uncollected charges such that the submitted charge does not reflect what is actually received (Cromwell and Burnstein, 1985).

To examine the relationship between Medicare and private fees in greater detail, we classified localities into quartiles based on the ratio of Medicare-to-private fees for all physician services (i.e., using the summary index). Localities where Medicare fees compare less favorably (lowest quartile) with private fees tend to be large and medium metropolitan areas. Localities where Medicare fees compare more favorably (highest quartile) tend to be rural areas and small metropolitan areas. Note that counter-examples can also be found in both the highest and lowest quartiles. (Table 4 reports the localities found in the upper and lower quartiles.)

Table 3 also reports the mean ratio for localities (in quartile groups, middle two quartiles are combined) by type of service. Across all physician services, MFS fees in the bottom quartile localities are 66 percent of private fees as compared with 87 percent in the top quartile localities. This pattern is true for each type of service category, except that the differences between the bottom and top quartiles vary. The largest differences between the lowest and highest quartiles are for visit services (79 versus 109 percent, respectively) and imaging services (64 versus 77 percent, respectively). The differences between the lowest and highest quartiles for major procedures, ambulatory procedures, and diagnostic tests, on the other hand, are smaller; for example, Medicare fees for major procedures are 48 percent of private fees in the bottom quartile versus 58 percent in the top quartile. Probably the greater concern for these latter three service types is that MFS fees do not compare well with private fees across all localities.

The actual range in relative visit fees ratios among localities is remarkable—from about 65 percent in Manhattan and Miami to about 125 percent in Normal and Peoria, Illinois, a 60-percentage point difference (data not shown). With very few exceptions, the 57 highest quartile localities have visit-fee ratios at or above 100 percent. Although substantial, variation in the remaining fee ratios is not as great as that for visit services. Imaging fee ratios range from 52 percent (Flagstaff) to 89 percent (Peoria); major procedure fee ratios range from 36 percent (Manhattan) to 73 percent (Detroit); ambulatory procedure fee ratios range from 40 percent (Manhattan) to 63 percent (Spokane and Richland, Washington); and diagnostic test service fee ratios range from 30 per-
### Localities in the Highest and Lowest Quartiles Based on Fee Ratio for All Physician Services

| Highest Quartile | Physician Service-Fee Ratio | Lowest Quartile | Physician Service-Fee Ratio |
|------------------|-----------------------------|----------------|-----------------------------|
| Peoria, Illinois | 0.99                        | Manhattan, New York | 0.55                        |
| Normal, Illinois | 0.97                        | Miami, Florida     | 0.66                        |
| East St. Louis, Illinois | 0.97 | Los Angeles, California (1st of 8) | 0.62 |
| Quincy, Illinois | 0.94                        | Los Angeles, California (2nd of 8) | 0.62 |
| Decatur, Illinois | 0.94                        | Los Angeles, California (3rd of 8) | 0.62 |
| Rock Island, Illinois | 0.93 | Los Angeles, California (4th of 8) | 0.62 |
| Springfield, Ohio | 0.93                        | Los Angeles (5th of 8) | 0.62 |
| Nebraska | 0.93                        | Los Angeles, California (6th of 8) | 0.62 |
| Southeast Illinois | 0.92 | Los Angeles, California (7th of 8) | 0.62 |
| Southern Illinois | 0.92                        | Los Angeles, California (8th of 8) | 0.62 |
| Kankakee, Illinois | 0.91 | Hawaii | 0.64 |
| Northwest Iowa | 0.91                        | Queens, New York | 0.64 |
| Small eastern cities, Missouri | 0.90 | Anaheim-Santa Ana, California | 0.65 |
| Southwest Iowa | 0.89                        | Las Vegas, and all Nevada cities | 0.65 |
| Northwest (Lima) Ohio | 0.89 | New York City suburbs and Long Island, New York | 0.66 |
| Rest of Indiana | 0.89                        | Baltimore and surrounding counties, Maryland | 0.66 |
| Northwest, Illinois | 0.89 | Houston, Texas | 0.66 |
| Urban Indiana | 0.89                        | South Central Connecticut | 0.66 |
| Rest of Mississippi | 0.89 | Grayson, Texas | 0.66 |
| Rural northwest counties, Missouri | 0.86 | Dallas, Texas | 0.66 |
| West Central (Lake Plains), Ohio | 0.88 | San Diego and Imperial, California | 0.66 |
| Urban Mississippi (city limits) | 0.88 | Fort Lauderdale, Florida | 0.67 |
| East Central (Steubenville), Ohio | 0.88 | Santa Barbara, California | 0.67 |
| South Central (excluding Des Moines), Iowa | 0.88 | Philadelphia and Pittsburgh medical schools and hospitals, Pennsylvania | 0.67 |
| North Kansas City (Clay and Platte), Missouri | 0.88 | Wichita Falls, Texas | 0.67 |
| Mansfield, Ohio | 0.87                        | San Bernardino and East Central California | 0.67 |
| Green Bay (Northeast) Wisconsin | 0.87 | Yuma (City), Arizona | 0.67 |
| Baton Rouge, Louisiana | 0.87 | Texarkana, Texas | 0.67 |
| Dayton, Ohio | 0.87                        | Rhode Island | 0.66 |
| Rest of Missouri | 0.87                        | Rest of Nevada | 0.66 |
| Springfield, Illinois | 0.87 | Maricopa, Texas | 0.66 |
| Michigan, excluding Detroit | 0.87 | Monterey and Santa Cruz, California | 0.68 |
| Detroit, Michigan | 0.86                        | Washington, DC and Maryland and Virginia suburbs | 0.68 |
| Small cities (city limits), Kentucky | 0.86 | Urban Massachusetts | 0.68 |
| Scioto Valley, Ohio | 0.86 | Riverside, California | 0.68 |
| Wyoming | 0.86                        | Fort Worth, Texas | 0.69 |
| Marion and surrounding counties, Ohio | 0.86 | Ventura, California | 0.69 |
| Utah | 0.86                        | Laredo, Texas | 0.69 |
| Southeast (including Iowa City), Iowa | 0.86 | San Francisco, California | 0.69 |
| St. Joseph, Missouri | 0.85 | Bakersfield, California | 0.69 |
| North Central Iowa | 0.85 | Urban (city limits), North Carolina | 0.69 |
| Cincinnati, Ohio | 0.85                        | Temple, Texas | 0.69 |
| St. Louis and large eastern cities, Missouri | 0.85 | Delaware | 0.70 |
| Rest of Kentucky | 0.85                        | Rest of Arizona | 0.70 |
| Southeast (Ohio Valley), Ohio | 0.84 | Brownsville, Texas | 0.70 |
| De Kalb, Illinois | 0.84                        | Tucson (City), Arizona | 0.70 |
| Spokane and Richland (cities), Washington | 0.84 | San Mateo, California | 0.70 |
| Lafayette, Louisiana | 0.83 | South and Eastern Shore, Maryland | 0.70 |
| South Idaho | 0.83                        | Southwest Connecticut | 0.70 |
| Akron, Ohio | 0.83                        | Marin, Napa, Solano, California | 0.70 |
| Toledo, Lucas, Wood, Ohio | 0.83 | Corpus Christi, Texas | 0.70 |
| Buffalo and surrounding counties, New York | 0.83 | | |
Table 4—Continued
Localities in the Highest and Lowest Quartiles Based on Fee Ratio for All Physician Services

| Highest Quartile Localities | Physician Service-Fee Ratio | Lowest Quartile Localities | Physician Service-Fee Ratio |
|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
| Victoria, Texas              | 0.83                        | Flagstaff (city), Arizona   | 0.71                        |
| East Central and Northeast (excluding Spokane), Washington | 0.83                        | Phoenix, Arizona            | 0.71                        |
| Suburban Kansas City, Kansas City | 0.83                        | Northeast Rural Texas       | 0.71                        |
| North Idaho                  | 0.83                        | Poughkeepsie and North New York City suburbs, New York | 0.71                        |
| Montana                      | 0.82                        | North Dakota                | 0.71                        |

SOURCES: The Urban Institute analysis of the Health Care Financing Administration Physician Service Public Use File and the Health Insurance Association of America Medical and Surgical Prevailing Healthcare Charges System File for 1990.

percent (Philadelphia) to 67 percent (Spokane and Richland, Washington).

The findings that Medicare fees more closely approximate private fees in rural and small metropolitan areas and that Medicare fees more closely approximate private fees for visits as compared with surgery underscore the intended impacts of MFS. The recognition of only one-fourth of the physician work component GPCI was intended to reduce payment differences between urban and rural areas, thereby encouraging physician practices in rural areas. The resource-based relative value scale was intended to reduce the differences between cognitive and procedural services.

Our next step was to explore the variation underlying the observed relationship between Medicare and private fees. For example, we found that Medicare visit fees are 93 percent of private-visit fees but that the mean varies from 79 percent to 109 percent for localities in the lowest and highest quartiles, respectively. Is the variation in the Medicare-to-private-fee ratios driven by variation in Medicare fees or by variation in private fees? Table 5 addresses this question by presenting the ratio of the Medicare fee to the national mean Medicare fee for each quartile. Similarly, the ratio of the private fee relative to the national mean private fee is presented for each quartile. (Again, the middle two quartiles are combined for presentation in Table 5.)

The first point that is apparent from Table 5 is that private-fee variation is substantially greater than that for Medicare fees. For all physician services, private fees range from 121 percent of the national mean to 83 percent of the national mean in the lowest and highest quartiles, respectively. (Recall, that localities are classified into quartiles based on the ratio of Medicare to private fees for all physician services.) In contrast, overall Medicare fees range from 107 percent of the National mean in the lowest quartile to 97 percent of the national mean in the highest quartile. In summary, the observed variation in the ratio of Medicare-to-private fees for all physician services is not primarily attributable to geographic variations in Medicare fees. Rather, private fees appear to vary dramatically; and it is this variation that accounts for differences in the Medicare-to-private-fee ratios between the lowest and highest quartiles.

This is seen more clearly by examining, for example, the Washington, DC and Detroit payment localities. In both areas, Medicare's physician fees are about 10
percent above the national average of MFS (data not shown). However, private fees are 21 percent above the national private mean in Washington, DC, whereas in Detroit private fees are 5 percent below the national average. This causes MFS to appear to be much less generous in Washington, DC, than in Detroit when, in fact, its payment rates are almost identical. Moreover, areas like Manhattan, Miami, and Los Angeles—where Medicare fees are between 5 and 15 percent above the MFS average—have been identified as potential access trouble spots (Sullivan, 1992). This appears to be due to the fact that private fees in these areas are 64, 41, and 37 percent, respectively, above the national mean private fees.

The same patterns appear to be true across the individual types of service, except that the differences between the lowest and highest quartiles for private fees vary to a greater extent. The largest difference in private fees between the lowest and highest quartiles are for visit services (123 and 81 percent, respectively, of the national private fee mean) and imaging services (120 and 86 percent, respectively, of the national private fee mean). The private-fee differences between the lowest and highest quartiles for major procedures, ambulatory procedures, and laboratory tests are almost as large.

In summary, this analysis of variation suggests three points. As mentioned, it is variation in private fees that appears to drive the relationship between Medicare and private fees. In the lowest quartile localities, where Medicare fees compare

### Table 5

| Type of Service         | National Mean | Bottom Quartile | Middle Quartiles | Top Quartile |
|-------------------------|---------------|-----------------|------------------|--------------|
| All Services            |               |                 |                  |              |
| Medicare                | 1.0000        | 1.0255          | 0.9782           | 0.9700       |
| Private                 | 1.0000        | 1.2129          | 0.9576           | 0.8295       |
| Visit Services          |               |                 |                  |              |
| Medicare                | 1.0000        | 1.0514          | 0.9811           | 0.9729       |
| Private                 | 1.0000        | 1.2314          | 0.9563           | 0.8078       |
| Imaging Procedures      |               |                 |                  |              |
| Medicare                | 1.0000        | 1.0750          | 0.9762           | 0.9657       |
| Private                 | 1.0000        | 1.2029          | 0.9515           | 0.8608       |
| Major Procedures        |               |                 |                  |              |
| Medicare                | 1.0000        | 1.0816          | 0.9731           | 0.9652       |
| Private                 | 1.0000        | 1.1642          | 0.9732           | 0.9052       |
| Ambulatory Procedures   |               |                 |                  |              |
| Medicare                | 1.0000        | 1.0776          | 0.9758           | 0.9630       |
| Private                 | 1.0000        | 1.1585          | 0.9572           | 0.9301       |
| Diagnostic Tests        |               |                 |                  |              |
| Medicare                | 1.0000        | 1.1000          | 0.9891           | 0.9514       |
| Private                 | 1.0000        | 1.1718          | 0.9503           | 0.8781       |

1 Classification into quartiles based on Medicare-to-private-fee ratio for all physician services. SOURCES: The Urban Institute analysis of the Health Care Financing Administration Physician Service Public Use File and the Health Insurance Association of America Medical and Surgical Prevailing Healthcare Charges System File for 1990.
least favorably with private fees, Medicare fees are the most generous—above the national mean for each type of service. At the same time, for the services that Medicare fees compare most favorably with (i.e., visits and imaging), on average, private fees demonstrate the greatest degree of geographic variation.

DISCUSSION

We find that overall Medicare physician fees are about 76 percent of private physician fees and that Medicare fees for visit and imaging service compare more closely with private fees than do Medicare fees for major procedures, ambulatory procedures, and tests. At the same time, we found that the geographic variation in private fees is considerably greater than that for Medicare fees. In terms of its potential impact on future payment policies, this study’s most important finding may relate to areas in which Medicare’s rates are low relative to the private market. In these areas, both Medicare and private fees are above their respective national averages. However, the extent of the differential between the area and the national average is much greater for private fees than for Medicare, causing Medicare’s payment rates to seem low in comparison with the private sector.

These findings raise an important question that will need to be addressed as MFS is implemented and revised for Medicare and considered for use by other payers: For services or areas with private fees that are well above their national average, are these private rates “too high” or have Medicare’s rates been set “too low?” A useful perspective on the level of private fees is provided in Welch, Katz, and Zuckerman (1993). Although our results show that Medicare fees are well below private fees, Welch et al. show that Medicare payment rates are approximately 67 percent above those paid to Canadian physicians.

Some might argue that private fee levels represent market conditions which would suggest that Medicare fees are low, particularly in certain areas and for certain services. However, given consumers’ weak incentives to seek out low-cost providers and their inadequate information regarding the appropriateness of most medical services, it is hard to defend the present set of private fees as the result of a competitive market process. Furthermore, recall that private fee screens are usually based on submitted charges giving physicians strong incentives to submit high charges in the hopes of raising future fees (Lee and Hadley, 1981). The MFS was developed to correct perceived inequities in the fee differentials across both services and geographic areas. The resource-based relative value scale (Hsiao et al., 1992) focuses on historically undervalued fees for cognitive services relative to procedural services. The GPCIs (Welch, Zuckerman, and Pope, 1993) provide a mechanism for adjusting fees so that they reflect only justifiable geographic differences in practice costs. Thus, to the extent that usual, customary, and reasonable reimbursement methods still drive variations in mean private fees, these fees still reflect the distortions MFS is intended to remove. If MFS were used for all physician services, certainly some of the variation in private physician fees across services and areas would be dampened.

These results can be used to roughly assess the impact on physician revenues of a decision by private insurers to pay at
MFS levels of payments. Based on data from the National health expenditure accounts, about 46 percent of physician revenues are derived from private insurers' payments (Levit et al., 1991). If these payment rates were to fall to MFS levels (a reduction of 24 percent, on average) and if there were no offsetting volume responses, the physician revenues (and private insurer payments) would decline by about 11 percent (46 percent of 24 percent). The effects of this potential change in private payers' policies would vary substantially across both specialties and geographic areas. These reductions would even be larger if patients' copayments were taken into account and if physicians were unable to make up any shortfalls through increased balance billing.

With respect to the impact of MFS on Medicare alone, although we found that Medicare fees are higher in areas with higher private fees, Medicare fees compare least favorably with private fees in these same areas. In the interest of maintaining participation rates and access and limiting induced demand in these areas, these results might suggest that MFS should reflect, at least in part, private market fees. However, if a major goal of MFS is to correct geographic inequities in physician charging patterns, then it is contradictory for the level of private fees to be reflected in a geographic adjustment for Medicare's payment to physicians. Finally, relying on the private market to set Medicare fees would forsake Medicare's significant market share and its ability to act as a price setter.

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