

# Observations on state-level variation in Medicare spending

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Differences in Medicare spending by state have raised concerns. However, if the measure of spending used is misleading, such concerns may not be justified. The first part of this paper looks at different measures of Medicare spending and use and shows that one of the common measures of spending is misleading and that better measures are possible.

The latter two sections present possible Medicare policy changes addressing concerns about variations in spending. First, we present prior MedPAC recommendations aimed at improving the geographic equity of Medicare payments, particularly for providers in rural areas. Second, we briefly illustrate another possible policy change that has been proposed to promote equity—varying the Part B premium and inpatient deductible to reflect state-level differences in the use of Medicare services and provider payments. MedPAC has not taken a position on the latter option.

## Compilation of state-level Medicare payment and use data

Much controversy surrounds the issue of geographic variation in Medicare spending. In particular, some data point to major differences among states, even among similarly situated states. We have done some state level analysis and found:

- Data showing the sum of spending sent to providers in a state divided by the number of beneficiaries in the state are frequently cited in debate about the equity of the program, but are misleading if one is concerned with resource use per beneficiary. These data do not account for services in-state beneficiaries receive out of state, but they do count services beneficiaries from other states use within the state.<sup>1</sup>
- A better measure corrects for in and out of state service use by tracking service use to a state's beneficiaries, regardless of the location of the provider, thereby reducing the variance and the perceived inequity of the program.
- Measuring service use by beneficiary, after removing special payments and geographic payment adjustments, and adjusting for health status presents a much different picture

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<sup>1</sup> For example, such data are shown in the table titled *Medicare estimated benefit payments, enrollment, and payments per enrollee, by jurisdiction* in the Green Book published by the Ways and Means Committee of the U.S. House of Representatives.

showing some high payment states not to have high use and some low payment states to have average use.

In the following figures and table we present the data discussed above, how they differ from one another, why they differ, and what is their source.

### **State-level provider revenue**

The initial data considered are shown in Figure 1. These data show provider Medicare revenue per beneficiary by state for FY2000. They are the sum of all the revenues received by providers in a state (including managed care plans) divided by the number of beneficiaries (Part A and/or Part B enrollment). Because they do not account for services in-state beneficiaries received out of state, but do count services beneficiaries from other states use within the state, they are misleading in terms of resource use per beneficiary. For example, in some states, such as Iowa, residents may use out-of-state health care providers more than residents of other states use Iowa providers. The opposite is true in the District of Columbia (D.C.), where there is extensive use of providers by residents of Maryland and Virginia. By this measure, Medicare spending per beneficiary in Iowa is less than 60 percent of the national average of \$5,490 while D.C. is almost 190 percent, more than three times as much as Iowa. (We have shown values in this and following charts relative to the national average so that the different measures can be compared more readily. Dollar values are shown Table 1.) But in fact, D.C. Medicare beneficiaries do not use three times as much health care services as we shall show in the following charts, and this difference is an artifact of the peculiar measure used, not an indicator of health care use.

The source for the data in Figure 1 is CMS, Office of Information Services, as reported on the Kaiser Family Foundation state health facts online website. (KFF pulled the data from the CMS website but it is no longer available there.)<sup>2</sup>

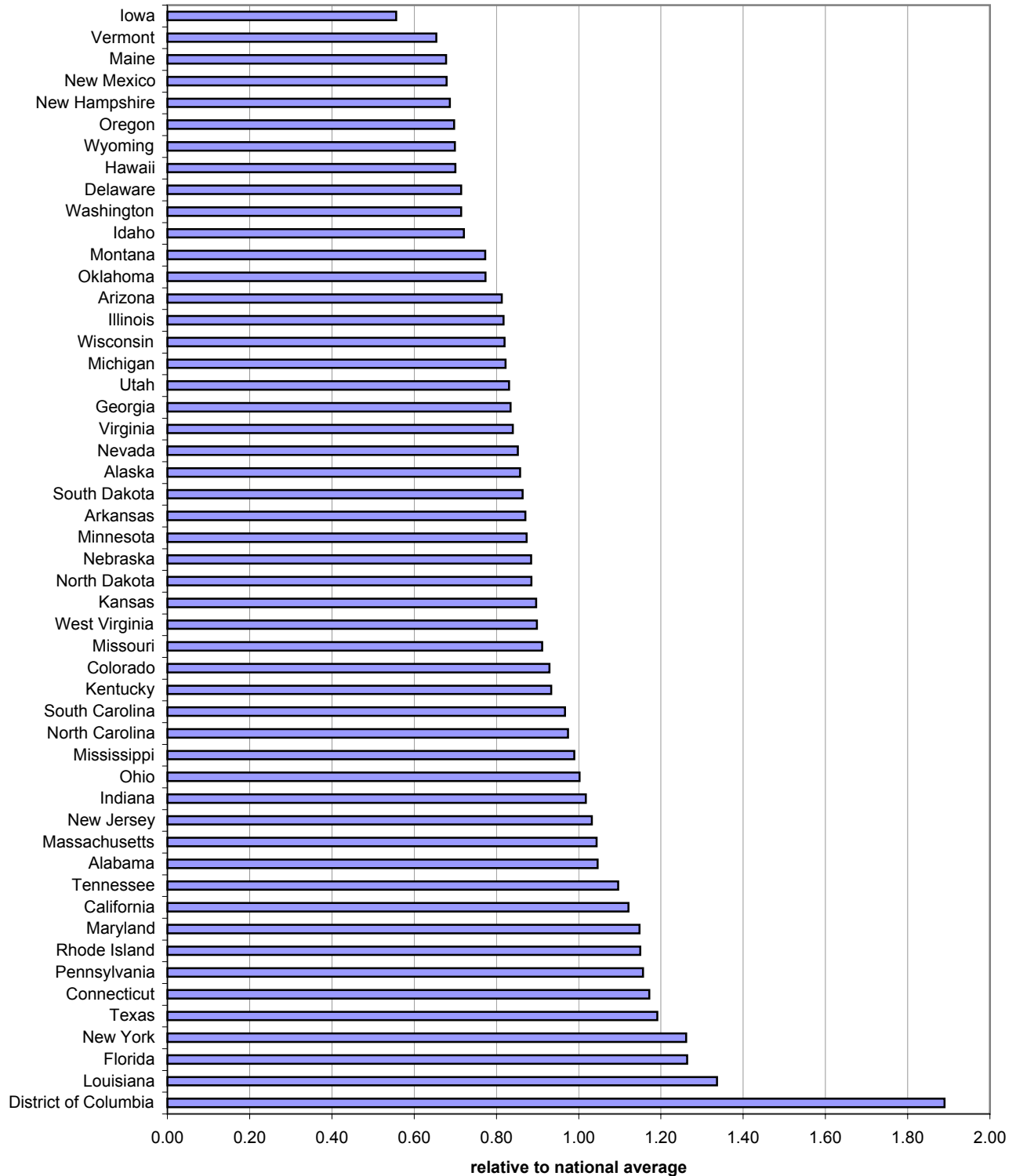
### **Payments corrected for migration**

We have corrected for the use of out-of-state health care providers in Figure 2, which shows spending on behalf of Medicare beneficiaries in the traditional Medicare fee-for-service program by state for calendar year 1999. Spending in this case is linked to the beneficiary regardless of what state the health care service is provided in. It is a better measure of health care spending for beneficiaries than that shown in Figure 1. The order of the states has changed, Iowa, which was lowest is now fifth lowest for example, and New Jersey has moved from 14<sup>th</sup> to third highest. It would not be surprising if New Jersey residents get services out of state in New York City or Philadelphia. In addition, the variation has lessened. Before the lowest value was less than .60

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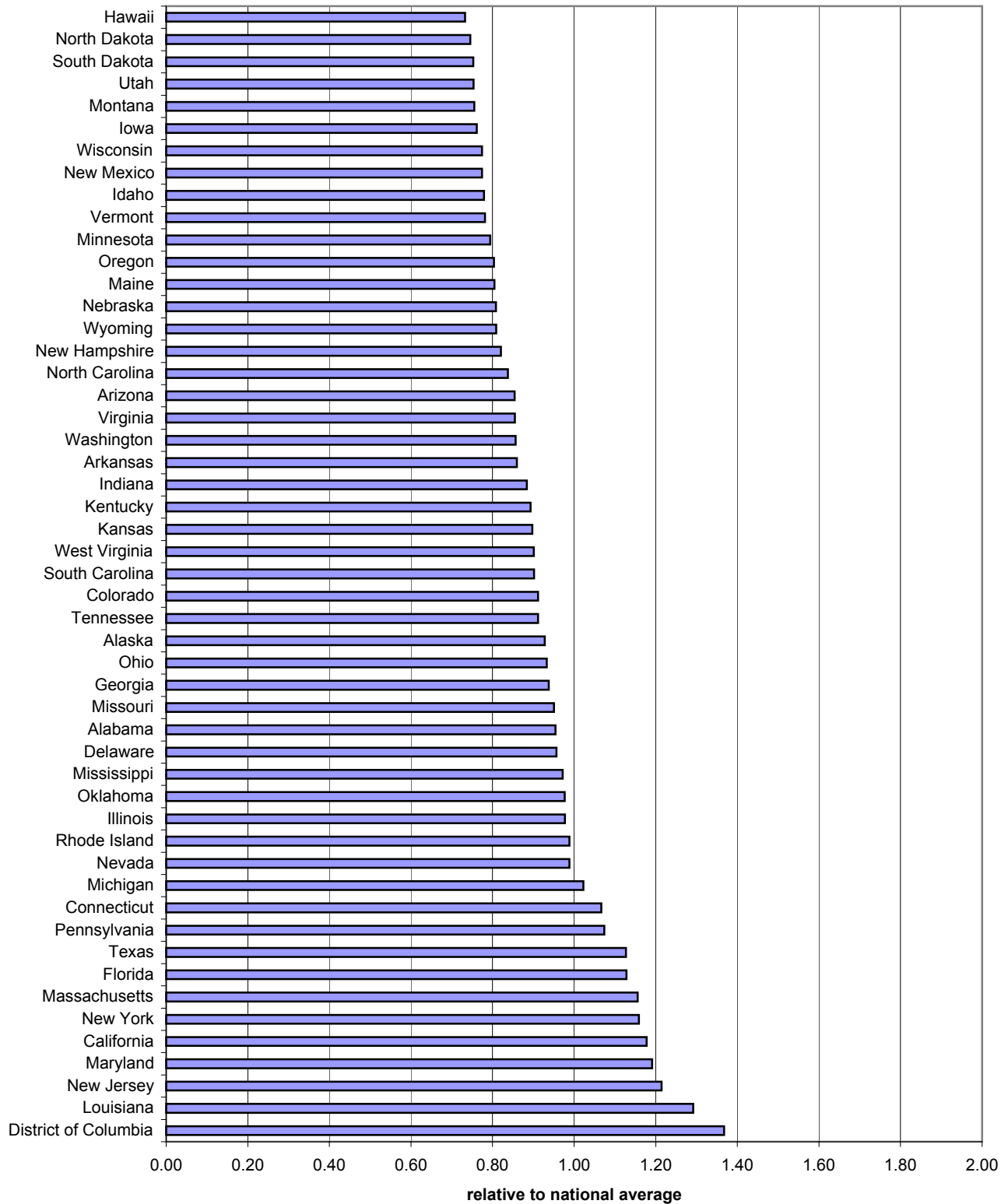
<sup>2</sup><http://www.statehealthfacts.kff.org/cgi-bin/healthfacts.cgi?action=compare&category=Medicare&subcategory=Medicare+Spending&topic=Spending+per+Beneficiary>

**Figure 1. A peculiar measure: Provider Medicare revenues per beneficiary by state, FY2000**



Source: CMS data reported on Kaiser Family Foundation state health facts online: Medicare spending

**Figure 2. A better measure: spending on behalf of FFS beneficiaries 1999**



Source: MedPAC analysis of CMS data.

and the greatest almost 1.90. By the better measure, the lowest value is over .70 and the highest value under 1.40, two times rather than over three times as much.

These data are based on CMS data that present spending for Medicare beneficiaries in the traditional Medicare fee-for-service program by county of residence. (CMS website <http://www.hcfa.gov/stats/hmorates/aapccpg.htm#ffs>) We have summed those data by state, weighting for the Medicare Part A FFS enrollment per county reported by CMS.

### **Service use per beneficiary**

Medicare makes two kinds of adjustments to its base payments that affect the geographic variation in spending. First, the program increases payments to teaching hospitals and to hospitals that treat a disproportionate share of low-income patients. Second, Medicare varies payment to account for the differing cost of producing medical care across the country. In Figure 3 we remove this deliberate variation by removing the hospital payment adjustments and adjustments for local market conditions, usually called input price adjustments.<sup>3</sup> The result is what spending would look like if all providers were paid a uniform national rate. Because variation due to differing payment rates is excluded, the measure reflects differences in service use only.

This measure changes the ordering of states appreciably. With the exception of Hawaii the range narrows again with most states moving toward the national average. This is particularly dramatic for the high cost-of-living states. D.C. moves out of the highest spot and isn't even in the top ten. California and New York no longer make the top twenty. Iowa edges up toward 90 percent of the national average.

The data in Figure 3 are based on our analysis of the 5 percent standard analytic file of Medicare claims for 1999. Claims are recalculated as if they were paid at the national average rate with no adjustments. The method is described in detail on page 15 of our June 2001 report.

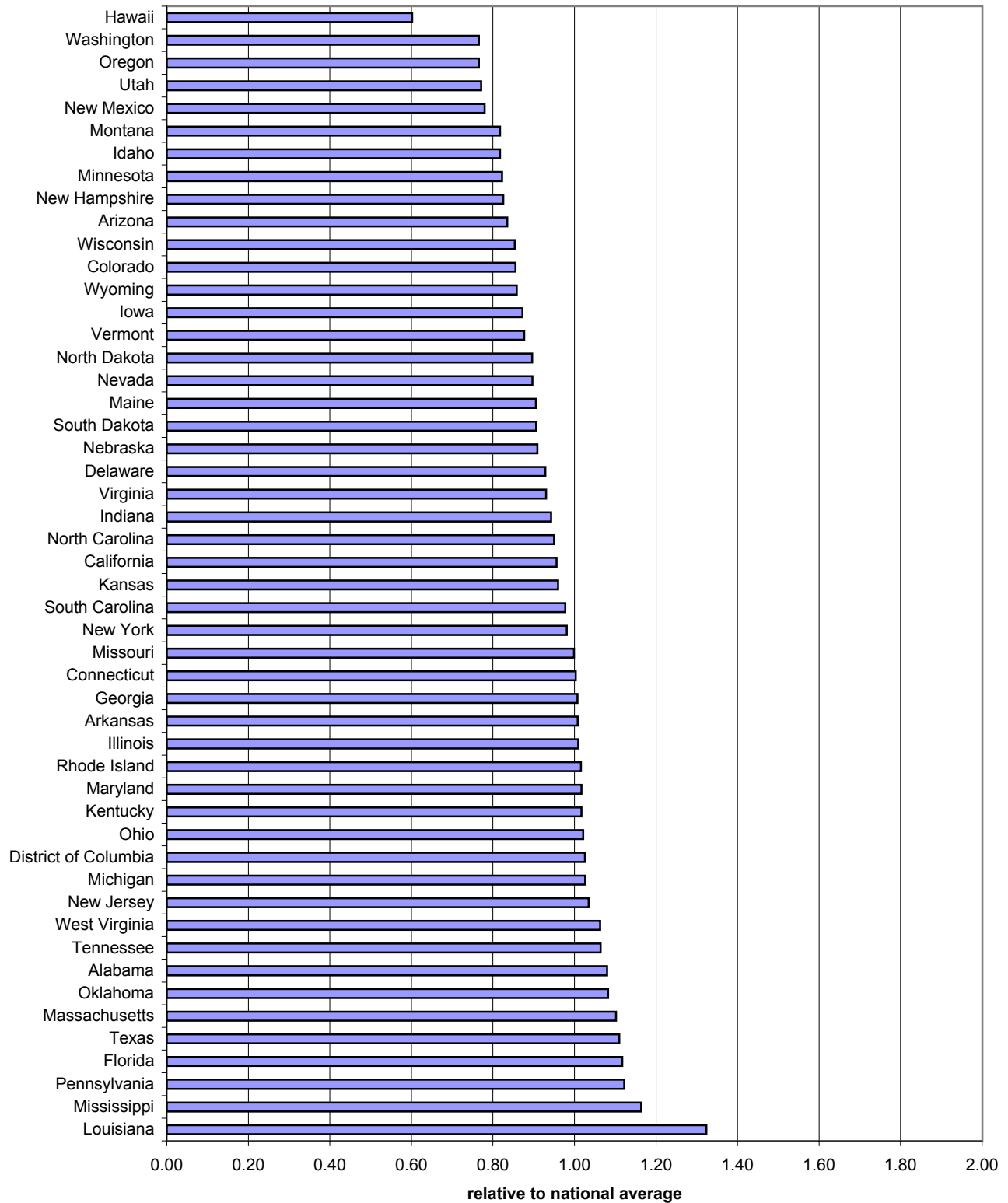
### **Service use per beneficiary, adjusted for health status**

Our final measure is presented in Figure 4, service use per beneficiary adjusted for health status. This measure adjusts the flat rate data in Figure 3 by the health status of the individual beneficiaries in the Medicare claims data used to construct Figure 3. Essentially, beneficiaries who are ill would be expected to use more services. To put the states on an even footing, states with sicker than average beneficiaries have their use adjusted to take that into account. A state with sicker than average beneficiaries would have its use rate adjusted down so that the measure reflects the use of beneficiaries whose health status is at the national average.

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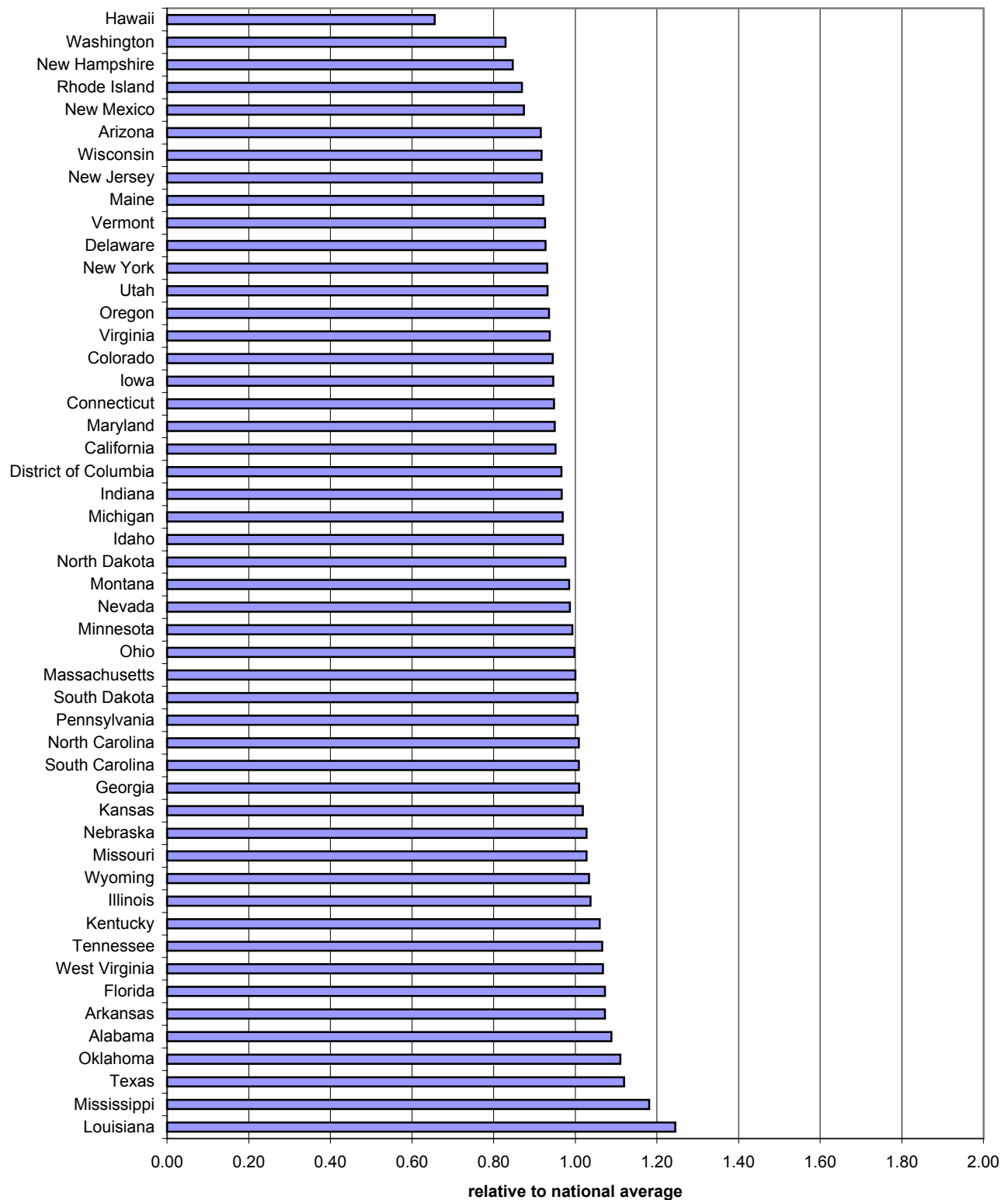
<sup>3</sup> In physician services these are the three geographic practice cost indices, and for most other services the hospital wage index. MedPAC's March 2002 report to the Congress summarizes adjustments for local market conditions for each payment setting.

**Figure 3. A measure of service use per beneficiary 1999**



Source: MedPAC analysis of Medicare claims.

**Figure 4. Service use per beneficiary adjusted for health status, 1999**



Source: MedPAC analysis of Medicare claims.



For example, Pennsylvania has a less healthy than average Medicare population and its measure is thus adjusted down from 1.12 in Figure 3 to about 1.00 in Figure 4. Taking health status into account, Pennsylvania beneficiaries use health care services at the national average. Minnesota, on the other extreme, had healthier than average beneficiaries. Its measure of .82 in Figure 3 is thus adjusted up to about 1.00 in Figure 4. Beneficiaries in Minnesota also use health services at about the national average considering their health status. Thus, while the two states would appear to use services differently from Figure 3, adjusting for the relative healthiness of their beneficiaries brings them close to equal (and coincidentally close to the national average) in our measure of health status adjusted service use. Iowa, which has about average health status, thus remains virtually unchanged at just under the national average.

The range in this measure is reduced to a low of .66 for Hawaii to a maximum of 1.25 for Louisiana. Hawaii is in a class by itself with most states much closer to the average. On the upper end Louisiana is joined by several southern Gulf states and by states in Appalachia. This could imply that the risk adjustment method does not account for some other perhaps poverty-related effects.

The source of data for this measure is the same as in Figure 3. In this case, we used the “hierarchical condition category” risk adjustment model developed by Health Economics Research, Incorporated to compute a health care status index for each beneficiary in the sample and then adjusted the use rate data to take this into account. We then averaged by county and then by state.

## **MedPAC recommendations relating to Medicare payment equity**

For our June 2001 report to the Congress, MedPAC developed a number of recommendations designed to improve the equity of Medicare’s fee-for-service payments for rural providers, and some of the recommendations in our March reports on payment policy have also addressed the distribution of payments. These include seven recommendations for inpatient hospital services and recommendations for outpatient and home health services.

### **Structure of the hospital wage index**

All of Medicare’s fee-for-service payments are adjusted to reflect the hourly wages of health care workers in each labor market. Because wage levels are known to vary substantially by geographic area and facility administrators have little control over them, we believe that application of a wage index is essential. However, the current wage index is flawed in a way that, on average, overestimates wage levels in urban areas and understates them in rural areas. This bias occurs because the index reflects differences in the occupational mix of health care workers along with differences in wage levels. Thus, teaching hospitals that provide a sophisticated array of services and thus need to employ an expensive mix of workers tend to

artificially inflate the wage index values of their markets. With only one major teaching hospital, Iowa's wage index values are most assuredly too low.

MedPAC has made three recommendations to improve the wage index:

**Adjusting for occupational-mix in the wage index.** We recommended that CMS neutralize the effect of occupation mix by calculating an average wage for each of several categories of personnel and then aggregating the category values to arrive at a single value for each market area. The Congress implemented this recommendation in the Medicare, Medicaid, and SCHIP Benefits Improvement and Protection Act of 2000 (BIPA), but unfortunately collecting and processing the occupation-specific data that would be required to implement the revised system will take several years.

An analysis conducted by one of our predecessor commissions using California data estimated that adjusting for occupational mix would raise the wage index values of hospitals at the low end of the distribution by about 2 percent. However, because Iowa (and numerous other states) have a greater concentration of small hospitals offering limited services than California, the impact will probably be larger in many areas.

**Omitting select personnel categories from the wage index.** CMS decided to omit data for teaching physicians, residents, and certified registered nurse anesthetists in calculating the hospital wage index because the services of these practitioners are paid for outside of the inpatient PPS. CMS planned to phase in the change over five years, but we recommended that it be fully implemented immediately. Because these personnel are more frequently employed by teaching hospitals, however, the change on average will raise payments in rural areas where most hospitals are not involved in teaching, thus providing an advance on the impact of adjusting the wage index for occupational mix. We estimate that completing the phase in will increase rural hospitals' payments by 0.3 percent, with a slightly smaller impact in Iowa.

**Reviewing the labor share to which the wage index is applied.** The wage index is applied to the labor portion of the national base payment rate, which currently is set at 71.1 percent. While accurate application of the wage index demands that the same labor share be used for all hospitals, we suspect that the 71.1 percent share is too high. This is because some of the inputs CMS considers labor-related, like accounting services and postage, are frequently purchased in national markets such that the prices paid by health care providers do not vary much geographically. We recommended that CMS conduct a study to determine the proportions of providers' costs that reflect inputs purchased in national and local markets.

While the optimal labor share will be determined by CMS, we conducted a sample simulation of the effects of reducing the share to 67 percent. This change would increase rural hospitals' payments by 0.4 percent, with a slightly larger impact for Iowa.

## **Allocation of hospital disproportionate share payments**

We believe that Medicare’s disproportionate share (DSH) payment system is flawed in two fundamental ways:

- the current low-income share does not include all care to the poor, most notably omitting uncompensated care, and
- smaller DSH adjustments are given to most rural hospitals and urban facilities with fewer than 100 beds.

We recommended reforming the DSH payment system to eliminate both of these problems, and the Congress partially implemented our recommendation in BIPA by:

- extending the eligibility criteria that had been available only to large urban facilities to all hospitals, and
- raising the cap on the DSH add-on applied to most rural hospitals from 4 percent to 5.25 percent.

In our recent rural report, we recommended a second interim change—raising the cap on the DSH add-on to 10 percent—until the uncompensated care data needed to finalize the system we envision become available. We estimate that the BIPA change made an additional 840 hospitals eligible for DSH—including 19 in Iowa—and increased rural hospitals’ payments by 1.7 percent. The “second step” change would provide another 1.4 percent increase. While this last change would not help hospitals in Iowa or other plains states much, since they have relatively small low-income populations, it would provide a substantial payment boost across the South and Appalachian region.

## **Low volume adjustment for inpatient payments**

Our analysis showed that small hospitals have higher than average unit costs, after accounting for the effects of factors that are already recognized in the inpatient PPS. Consequently, we recommended that CMS adjust payments for low-volume. Although CMS would finalize the design of the adjustment, we simulated one that would be available to any hospital with 500 or fewer discharges that is located 15 miles or more from another hospital. Although the aggregate impact on payments would be small, the adjustment would raise the payments of those that qualify by an average of 5 percent.

We estimated last year that 437 hospitals would qualify for the low volume adjustment we simulated, although a number of these have since become critical access hospitals. The estimate for Iowa was 33 hospitals. Only three other states—Nebraska, Minnesota, and Texas—would

qualify a greater number of hospitals, and a larger proportion would qualify in Iowa than in any other state.

### **Unified base rate for inpatient payments**

Medicare's inpatient PPS has separate base payment rates for hospitals in large urban areas (population over one million) and those in other urban and rural areas. In our March 2002 report, we recommended that this differential be phased out, with other urban and rural hospitals given a full market basket update this year as a first step. (All hospitals are scheduled to receive an update of market basket minus 0.55 percent under current law.) We based this recommendation on analyses showing that while hospitals in large urban areas have higher Medicare margins, there is no difference in costs between the two groups after controlling for factors that are already accounted for in the PPS.

Although the large urban base rate is currently 1.6 percent higher, this recommendation (when fully implemented) would raise rural hospital payments by 1.1 percent. The difference is attributable to the fact that many hospitals are paid under special rural payment provisions that would be unaffected by this change. Iowa hospitals would benefit more than those in other states because a below-average proportion of its hospitals are in these special programs.

### **Differentiated cap on payments for psychiatric facilities**

Psychiatric facilities are not covered by Medicare's inpatient PPS; rather, they are paid a facility-specific amount per patient day that is subject to a national cap. The cap is based on the 70<sup>th</sup> percentile of values for both independent and hospital-based facilities. Our analysis showed that rural and government-owned facilities have above-average costs per day, and thus are unfairly constrained by the national cap. We recommended that CMS develop a set of caps that recognizes these cost differences, until a PPS for inpatient psychiatric care can be developed. Because the actual construct of the revised system would be determined by CMS, we cannot gauge the impact of the change.

### **Treatment of rural facilities in the home health PPS**

Rural home health agencies are likely to have higher than average unit costs for at least three reasons: the effects of low volume, additional travel costs, and differences in the use of therapy services. The Congress provided an additional 10 percent payment for home health services provided to Medicare beneficiaries residing in rural areas. Our ability to analyze rural home health is hampered by the lack of cost and payment data for the period since Medicare's PPS was implemented. Consequently, we recommended that the 10 percent add-on be extended for two more years, until the data needed for a thorough evaluation—and possibly development of a more sophisticated way to adjust payments for care in rural areas—becomes available.

## **Treatment of rural hospitals in the outpatient PPS**

Our analysis showed that small hospitals have higher per unit costs in their outpatient departments, just as they do for inpatient care. In addition, limited administrative capacity and financial reserves affect rural hospitals' ability to adapt to the outpatient PPS. We stressed that the transitional corridors designed to lessen the impact the PPS in the short term were critical for rural facilities. We recommended that once payment and cost data become available for the period since the PPS was implemented, CMS should consider alternative mechanisms for improving the payments made to rural facilities on an ongoing basis. Leading options include a low volume adjustment and a higher base rate for rural facilities.

## **State-level adjustment of Part B premium and inpatient deductible**

Medicare beneficiaries residing anywhere in the United States currently pay a premium of \$54 per month for Part B coverage (including such services as physician, outpatient hospital, and laboratory). Similarly, all beneficiaries pay the same deductible for inpatient hospital care (\$812) and for Part B services (\$100).

By law, the Part B premium is set at the level needed to cover 25 percent of Part B spending for aged beneficiaries. Some observers have suggested that it would be fairer for beneficiaries to pay a premium that covers 25 percent of the spending for the services provided in their state. In the first column of Table 2, we provide estimates of the state-level premiums that would result from such a policy. The highest premiums—in Louisiana, Florida, New York, New Jersey and California—reflect high use of services by the state's beneficiaries and relatively high payment rates paid to the state's providers. The lowest premiums—in Minnesota, Hawaii, South Dakota, North Dakota, Wisconsin and Iowa—reflect low service use and relatively low payment rates.

A similar approach could be used for the Part A and B deductibles. In this case, however, the most appropriate way to adjust to the state level would be to use a measure of how payment rates vary geographically. Since hospital payments under Medicare's PPS are adjusted using the hospital wage index, we aggregated the wage index values for the metropolitan areas and statewide rural area in each state and applied these values to the national inpatient deductible. The highest values were found for Alaska, Connecticut, New York, California, and New Jersey. The lowest values were found in Mississippi, Alabama, Arkansas, Louisiana, North Dakota, Oklahoma, and Iowa.

*Medicare Payment Advisory Commission*

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**Table 1. Medicare payment and use data, by state**

State	Index values				Amounts			
	CMS spending 2000	Actual spending 1999	Implied service use 1999	Implied service use adjusted for health status	CMS spending 2000	Actual spending 1999	Implied service use 1999	Implied service use adjusted for health status
Alabama	1.05	0.95	1.08	1.09	\$5,742	\$5,325	\$5,248	\$5,297
Alaska	0.86	0.93	*	*	4,708	5,178	*	*
Arizona	0.81	0.85	0.83	0.92	4,464	4,794	4,056	4,455
Arkansas	0.87	0.86	1.01	1.07	4,778	4,796	4,898	5,220
California	1.12	1.18	0.96	0.95	6,156	6,570	4,645	4,628
Colorado	0.93	0.91	0.85	0.94	5,100	5,084	4,155	4,595
Connecticut	1.17	1.07	1.00	0.95	6,433	5,951	4,874	4,611
Delaware	0.71	0.96	0.93	0.93	3,920	5,338	4,511	4,509
District of Columbia	1.89	1.37	1.02	0.97	10,373	7,631	4,983	4,701
Florida	1.26	1.13	1.12	1.07	6,937	6,293	5,428	5,219
Georgia	0.83	0.94	1.01	1.01	4,580	5,232	4,895	4,911
Hawaii	0.70	0.73	0.60	0.66	3,843	4,087	2,924	3,190
Idaho	0.72	0.78	0.82	0.97	3,959	4,347	3,973	4,718
Illinois	0.82	0.98	1.01	1.04	4,487	5,454	4,903	5,047
Indiana	1.02	0.88	0.94	0.97	5,587	4,933	4,579	4,704
Iowa	0.56	0.76	0.87	0.95	3,053	4,248	4,239	4,602
Kansas	0.90	0.90	0.96	1.02	4,921	5,006	4,662	4,954
Kentucky	0.93	0.89	1.02	1.06	5,124	4,982	4,942	5,156
Louisiana	1.34	1.29	1.32	1.24	7,336	7,209	6,433	6,059
Maine	0.68	0.80	0.91	0.92	3,720	4,489	4,400	4,484
Maryland	1.15	1.19	1.02	0.95	6,301	6,646	4,941	4,620
Massachusetts	1.04	1.16	1.10	1.00	5,728	6,446	5,354	4,865
Michigan	0.82	1.02	1.03	0.97	4,513	5,706	4,986	4,714
Minnesota	0.87	0.79	0.82	0.99	4,796	4,433	3,997	4,831
Mississippi	0.99	0.97	1.16	1.18	5,431	5,423	5,655	5,747
Missouri	0.91	0.95	1.00	1.03	5,002	5,302	4,852	5,000
Montana	0.77	0.76	0.82	0.98	4,243	4,212	3,971	4,792
Nebraska	0.88	0.81	0.91	1.03	4,856	4,510	4,417	4,999
Nevada	0.85	0.99	0.90	0.99	4,677	5,516	4,356	4,800
New Hampshire	0.69	0.82	0.82	0.85	3,771	4,579	4,010	4,120
New York	1.26	1.16	0.98	0.93	6,924	6,464	4,768	4,532
New Jersey	1.03	1.21	1.03	0.92	5,665	6,774	5,030	4,470
New Mexico	0.68	0.77	0.78	0.87	3,726	4,320	3,787	4,252
New York	1.26	1.16	0.98	0.93	6,924	6,464	4,768	4,532
North Carolina	0.97	0.84	0.95	1.01	5,347	4,673	4,616	4,908
North Dakota	0.88	0.75	0.90	0.98	4,858	4,158	4,353	4,746
Ohio	1.00	0.93	1.02	1.00	5,502	5,204	4,964	4,854
Oklahoma	0.77	0.98	1.08	1.11	4,245	5,450	5,260	5,403
Oregon	0.70	0.80	0.77	0.94	3,829	4,483	3,720	4,553
Pennsylvania	1.16	1.07	1.12	1.01	6,349	5,993	5,454	4,896
Rhode Island	1.15	0.99	1.02	0.87	6,312	5,514	4,936	4,230
South Carolina	0.97	0.90	0.98	1.01	5,309	5,032	4,748	4,908
South Dakota	0.86	0.75	0.91	1.01	4,740	4,201	4,402	4,893
Tennessee	1.10	0.91	1.06	1.07	6,019	5,086	5,172	5,185
Texas	1.19	1.13	1.11	1.12	6,539	6,286	5,393	5,447
Utah	0.83	0.75	0.77	0.93	4,561	4,203	3,745	4,534
Vermont	0.65	0.78	0.88	0.93	3,589	4,361	4,259	4,506
Virginia	0.84	0.85	0.93	0.94	4,611	4,769	4,521	4,562
Washington	0.71	0.86	0.76	0.83	3,921	4,779	3,719	4,032
West Virginia	0.90	0.90	1.06	1.07	4,934	5,029	5,164	5,194
Wisconsin	0.82	0.77	0.85	0.92	4,500	4,318	4,147	4,463
Wyoming	0.70	0.81	0.86	1.03	3,838	4,512	4,172	5,030
U.S. average	1.00	1.00	1.00	1.00	5,490	5,579	4,862	4,868

\* Data not computed for Alaska.

Sources: CMS data reported by Kaiser Family Foundation (see Figure 1), and MedPAC analysis of data from CMS.

**Table 2. Illustrative effects of recognizing state-level differences in the Part B premium and inpatient deductible, 2002**

State	Amounts	
	Part B premium	Inpatient deductible
Alabama	\$52	\$668
Alaska	46	1,083
Arizona	48	781
Arkansas	47	682
California	63	972
Colorado	51	803
Connecticut	58	1,013
Delaware	52	868
District of Columbia	64	890
Florida	68	775
Georgia	51	770
Hawaii	39	929
Idaho	42	757
Illinois	51	820
Indiana	45	777
Iowa	41	707
Kansas	48	724
Kentucky	48	719
Louisiana	69	687
Maine	46	751
Maryland	60	808
Massachusetts	61	941
Michigan	58	830
Minnesota	38	847
Mississippi	55	663
Missouri	47	715
Montana	42	746
Nebraska	42	767
Nevada	55	886
New Hampshire	45	899
New Jersey	64	946
New Mexico	44	783
New York	64	991
North Carolina	45	756
North Dakota	40	695
Ohio	49	769
Oklahoma	53	695
Oregon	43	875
Pennsylvania	55	795
Rhode Island	57	881
South Carolina	47	738
South Dakota	39	721
Tennessee	51	729
Texas	61	730
Utah	45	802
Vermont	45	844
Virginia	45	756
Washington	47	901
West Virginia	47	719
Wisconsin	40	785
Wyoming	43	731

Note: Part B premium (\$54 nationally) adjusted to 25 percent of spending per beneficiary in each state. Inpatient deductible (\$812 nationally) adjusted by applying the average hospital wage index (case weighted) to each state's value.

Source: MedPAC analysis using data from CMS.