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- Miscellaneous ... **Misc**

* Contents organized for archiving by: Stefanie Rose (LRB) (August 2012)

**Table 12: Results for Hospital Price Regression—Estimated Effects of Selected Factors on Hospital Prices in Metropolitan Areas, 2001**

| Dependent variable is the logarithm of adjusted hospital stay price[a] | | | |
|---|---|---|---|
| **Factor** | **Variable used to measure factor** | **Parameter estimate** | **t-value** |
| Competition | Percent hospital beds of the two largest hospitals or hospital networks | 0.1337 | 2.11** |
| HMO capitation | Percent of primary care physicians' compensation from capitation | -0.3213 | -2.22** |
| Cost-shifting | Percent of population uninsured | -0.3621 | -0.68 |
| | Average Medicaid payment | 0.0026 | 1.58 |
| | Percent of population enrolled in Medicaid | -0.0538 | -0.20 |
| | Percent of population enrolled in Medicare | -0.5267 | -1.14 |
| Supply of providers | Hospital beds per capita | 21.5968 | 0.50 |
| Per capita income | Population's real per capita income | 0.0000 | -0.52 |
| Hospital ownership status | Percent of beds in for profit hospitals | 0.0767 | 0.86 |
| Dummy variable indicator showing the Census Division in which the metropolitan area was located | Census Division 1 – New England | 0.0625 | 0.78 |
| | Census Division 2 – Middle Atlantic | -0.1158 | -1.43 |
| | Census Division 3 – East North Central | -0.0572 | -0.73 |
| | Census Division 4 – West North Central | 0.0418 | 0.33 |
| | Census Division 5 – South Atlantic | -0.0258 | -0.35 |
| | Census Division 6 – East South Central | -0.1845 | -1.80* |
| | Census Division 7 – West South Central | -0.1077 | -1.14 |
| | Census Division 8 – Mountain | -0.0428 | -0.63 |
| | Census Division 9 – Pacific[b] | | |
| | Intercept | 8.8972 | 45.67*** |
| | R-squared | 0.25 | |
| | Observations | 228 | |
| | *** significant at the 1% level | | |
| | ** significant at the 5% level | | |
| | * significant at the 10% level | | |

Source: GAO analysis.

[a]We adjusted hospital prices to remove the effect of geographic differences in the costs of doing business (wages, rents, etc.) and differences in the severity of illnesses and mix of diagnoses among metropolitan areas.

[b]The Pacific Census Division was the excluded category. In order for the regression model's parameters to be estimated, we needed to exclude one of the Census Divisions.

**Table 13: Results for Physician Price Regression—Estimated Effects of Selected Factors on Physician Prices in Metropolitan Areas, 2001**

| Dependent variable is the logarithm of adjusted physician services price[a] | | | |
|---|---|---|---|
| **Factor** | **Variable used to measure factor** | **Parameter estimate** | **t-value** |
| Competition | Percent hospital beds of the two largest hospitals or hospital networks | 0.1234 | 4.36*** |
| HMO capitation | Percent of primary care physicians' compensation from capitation | -0.1393 | -2.24** |
| Cost-shifting | Percent of population uninsured | -0.5328 | -2.22** |
| | Average Medicaid payment | 0.0041 | 5.24*** |
| | Percent of population enrolled in Medicaid | 0.1081 | 0.91 |
| | Percent of population enrolled in Medicare | 0.0217 | 0.10 |
| Hospital ownership status | Percent of beds in for profit hospitals | -0.0536 | -1.34 |
| Per capita income | Population's real per capita income | 0.0000 | 0.00 |
| Supply of providers | Physicians per capita (physicians per 1000 population) | -0.0002 | -0.91 |
| Dummy variable indicator showing the Census Division in which the metropolitan area was located | Census Division 1 – New England | -0.1112 | -2.79*** |
| | Census Division 2 – Middle Atlantic | -0.0346 | -1.01 |
| | Census Division 3 – East North Central | 0.0041 | 0.14 |
| | Census Division 4 – West North Central | 0.0120 | 0.32 |
| | Census Division 5 – South Atlantic | -0.0470 | -1.58 |
| | Census Division 6 – East South Central | -0.0558 | -1.61 |
| | Census Division 7 – West South Central | 0.0947 | 3.24*** |
| | Census Division 8 – Mountain | -0.0240 | -0.77 |
| | Census Division 9 – Pacific[b] | | |
| | Intercept | 3.7808 | 35.48*** |
| | R-squared | 0.46 | |
| | Observations | 315 | |
| | *** significant at the 1% level | | |
| | ** significant at the 5% level | | |
| | * significant at the 10% level | | |

Source: GAO analysis.

[a]We adjusted physician prices to remove the effect of geographic differences in the costs of doing business (wages, rents, etc.) and differences in the mix of services among metropolitan areas.

[b]The Pacific Census Division was the excluded category. In order for the regression model's parameters to be estimated, we needed to exclude one of the Census Divisions.

Our measures of cost-shifting effects were mostly not significant and none of the results supported the claim that more Medicaid enrollees, lower Medicaid payments, more Medicare enrollees, or more uninsured people were associated with higher hospital or physician prices. Ideally, we would have included an indicator of Medicare price levels for each area, such as the wage index or the GPCI. However, we did not include these as separate explanatory variables in the regression models because we had used the wage index and the GPCI to adjust the hospital and physician prices, respectively, for differences in the cost of doing business in different areas. Therefore, our sole measure of the impact of the Medicare program on prices was the percent of the population who were Medicare beneficiaries. In the physician price regression, the average Medicaid payment was significant. However, Medicaid payments were positively associated with prices, which was inconsistent with the negative association we would have expected if cost shifting were occurring. In the physician price analysis, the percent of people uninsured was significantly related to price and the result showed that where there were more uninsured people, prices were actually lower, rather than higher, as would have been predicted by the cost-shifting hypothesis.

Our inclusion of the set of census division dummy variables allowed us to measure factors affecting price that were due simply to location and that were not accounted for by the other variables included in the model. In both price regression models, we ran an F-test that showed that the set of census division dummy variables was jointly significant.

In the cases where our explanatory variables in the regression were significant, we calculated the significant variables' impact on prices by using our regression results to calculate the percent change in price for a given increase in the explanatory variable. To do this, we simulated the effect of increasing the significant explanatory variable from its average in its lowest quartile to its average in its highest quartile, while controlling for other factors. This was accomplished using the following steps: (1) we calculated the average value of the statistically significant explanatory variable for its lowest quartile, and input that value into our estimated regression equation to calculate price, (2) we calculated the average value of the key explanatory variable in its highest quartile, and used that value in our estimated regression model to calculate price again, and (3) we calculated the percent difference in price using the results from (1) and (2). See table 14.

**Table 14: Effects of Changes in Explanatory Variables on Prices**

| Significant explanatory variable | Percent impact on physician price | Percent impact on hospital price |
|---|---|---|
| Percent hospital beds of the two largest hospitals or hospital networks | 6.64 | 7.62 |
| Percent of primary care physicians' compensation from capitation | -3.31 | -7.17 |
| Average Medicaid payment | 9.69 | * |
| Percent of population uninsured | -6.05 | * |

Source: GAO analysis.

Note: The percent impact is the change in price that would follow an increase in the explanatory variable from its average value in its lowest quartile to its average value in its highest quartile.

*The average cost-adjusted Medicaid fee and the percent uninsured explanatory variables were not statistically significant in the hospital price regression.

We also tested and opted not to include other variables in our regression: specifically, we tried to explain price variations by including the percent of the labor force in the metropolitan area covered by a labor union contract; the mortality rate for persons aged more than one but less than 65 years in the metropolitan area—a proxy for health status; and the effect of certificate-of-need laws.[16] We also used the number of teaching hospital beds per capita to see if this had an independent effect on price, separate from the effects of supply. We included this variable because it was possible that more teaching hospital beds in a metropolitan area might indicate more cutting-edge and higher quality services, or teaching hospitals might conduct more tests or services, which might in turn affect prices. We ultimately excluded labor union, mortality rates, certificate-of-need laws, and teaching hospital variables from our explanatory variables because they were not the focus of our analysis, they were not statistically significant, and their inclusion did not affect the significance of most of the other explanatory variables in the model.

[16]A certificate-of-need law generally requires that a hospital or nursing home obtain approval from the state in which it is located before hospital construction or capital improvements occur.

## Spending Analysis

To determine average total spending per enrollee in each metropolitan area, we summed all payments for each enrollee, assigned enrollees to their metropolitan areas of residence, and then calculated the average for each metropolitan area. We adjusted spending service categories for geographic input costs, removed outliers, and accounted for differences in the age and sex distributions across metropolitan areas. After applying our eligibility criteria and removing outliers, we had about 2.1 million enrollees in our study.

We accounted for geographic differences in the costs of providing hospital inpatient,[17] hospital outpatient, home health, rehabilitation, skilled nursing facility, other outpatient, and ambulatory surgery center services by first summing the payments per enrollee by service categories and then applying Medicare's hospital wage index to the labor-related portion of the total payment for each type of service. This approach is similar to the methodology used by Medicare to adjust such provider payments.[18]

We accounted for geographic differences in the cost of providing physician services using a different methodology, but one that generally follows the basic methodology used by Medicare. We applied the appropriate GPCIs to the total physician payments.[19] However, our method varied slightly from Medicare's in that instead of applying the GPCIs at the carrier/locality level, we calculated separate cost indices for each metropolitan area.[20]

We excluded enrollees with high total health care spending because spending for those enrollees could distort average spending in an area with low enrollment. To identify enrollees with high spending, we used a

[17]Medicare adjusts hospital inpatient payments for labor and capital-related variations in costs. In our study, we applied labor and capital adjustments to the hospital inpatient portion of spending and to hospital inpatient price.

[18]We excluded mental health, chemical dependency services, and pharmaceuticals from our spending analysis.

[19]There are three GPCIs reflecting the cost of three different types of inputs to physician services: physician work, physician practice expenses, and expenses for physician liability insurance. Each GPCI is used to adjust for the price level for related inputs in the local market where the service is furnished.

[20]There are 89 carrier/locality regions nationwide and 331 metropolitan areas in the 50 states and District of Columbia. Thus, a carrier/locality area is, on average, much larger than a metropolitan area. We used county-level data for the GPCIs and aggregated those data to the metropolitan area level.

standard statistical distribution (the lognormal). We removed enrollees from this analysis whose spending was at least three standard deviations above the mean.

We adjusted spending for the age and sex distribution of each metropolitan area's population. To do this, we calculated the average age- and sex-specific spending rates of all 232 metropolitan areas combined, and applied these averages to the actual age and sex distribution in each metropolitan area. This yielded an "expected" spending rate for each metropolitan area: the spending in that metropolitan area if it had the study average spending rate, given the age and sex distribution of that metropolitan area's population. We then calculated the ratio of actual cost-adjusted spending to expected cost-adjusted spending. This yielded an index of how much higher or lower spending in the specific metropolitan area was from what would be expected if it had average spending rates, given its age and sex composition. An index value greater than 1.00 implies spending was higher than expected and an index value less than 1.00 implies spending was lower than expected.

## Decomposing Spending Variation into Price and Utilization Effects

We estimated the relative contribution of price and utilization variation to spending variation in 232 metropolitan areas. To do this, we first computed measures of price, spending, and utilization for hospital and physician services. We then analyzed price and utilization differences between metropolitan areas in the highest and lowest spending quartiles to decompose spending into its component parts.

We used the same method to adjust hospital and physician spending as we did for total spending. That is, we used the appropriate Medicare cost adjustments and adjustments for age and sex. To estimate hospital and physician prices, we used prices we had computed from our price analysis for the same 232 metropolitan areas.

We defined hospital utilization as the count of hospital stays. We excluded mental health and chemical dependency stays, and other nonacute hospital stays, such as nursing home and rehabilitation services, in each of the 232 metropolitan areas. Our measure of physician utilization was simply the count of services provided by physicians, excluding pathology, radiology, anesthesia, and psychiatric services. We aggregated the data for service use per enrollee up to the metropolitan area, and we then adjusted these data in a similar way to the spending data: that is, we adjusted for age and sex composition of the area by calculating the ratio of actual utilization to expected utilization. We calculated the physician and

hospital utilization indices using the 232 metropolitan areas as the population basis.

For both hospital and physician services, we compared the simple average adjusted spending per enrollee in the highest spending quartile metropolitan areas with the lowest spending quartile metropolitan areas. Similarly, we compared the average adjusted price and the average adjusted utilization per enrollee in the highest versus the lowest spending quartile. The proportional difference in spending between the highest and lowest quartiles can be divided into (1) the proportional difference in price between the highest and lowest spending quartiles, and (2) the proportional difference in utilization between the highest and lowest spending quartiles. In order to divide the variation in spending between price and utilization differences, we compared the values of (1) to (2) above. We estimated the relative contribution of physician price and utilization to spending by analyzing the percentage difference between the average prices and utilization in the highest and lowest spending quartiles, relative to the summed total of the percentage differences, as shown in table 9.

## Data Reliability

We used multiple data sources for this report. We obtained 2001 health care claims data from several PPOs participating in FEHBP. In addition, we obtained data describing characteristics of metropolitan areas from several other sources. See table 11. We determined that the data were sufficiently reliable to address the study objectives.

We verified that our claims data were sufficiently reliable and unbiased in several ways. First, we interviewed staff from each of the FEHBP PPOs participating in the study to obtain an understanding of the completeness and accuracy of the data we had requested. Upon receipt of the data from the PPOs, we conducted numerous tests and edit checks to ensure that our data were complete and accurate: we reviewed the documentation that accompanied the data; we checked that essential elements of the data were populated with credible values; we excluded enrollees and claims records that did not match study eligibility criteria; and we examined the internal consistency and validity of the data, coordinating with any PPO that submitted data that required clarification or resubmission of corrected data. To test the validity of the hospital location variable from our claims data, we examined the proportion of hospital stays that occurred outside of the enrollee's state of residence or an adjacent state. For one metropolitan area, we conducted a sensitivity analysis to quantify the impact on our price estimate of removing the admissions from

enrollees in another state. We concluded that our location data were sufficiently reliable for the purposes of our study.

Ultimately, we excluded 12 of the 331 metropolitan areas for one of two reasons. First, in some metropolitan areas, some PPOs made additional "reconciliation" payments that were not recorded in the claims system, and price estimates would have been understated in these areas. Second, if a disproportionate number of enrollees traveled into a metropolitan area to receive care, we excluded the metropolitan area. We also excluded some hospital stays and physician services from our hospital and physician price estimates, respectively, either because there were insufficient data to case-mix adjust these services or because hospital or physician billing conventions were inconsistent across metropolitan areas for those services.

We verified that the data describing market forces and other factors in a metropolitan area were sufficiently reliable and unbiased using methods similar to those we used to verify the claims data. We discussed data quality issues with data suppliers, reviewed the suppliers' documentation and internal data testing, and conducted our own tests for data completeness and credibility. Some limitations came to light through these processes. First, because direct estimates of uninsured rates were unavailable for all metropolitan areas in the study, we used the InterStudy Publications' estimates of the uninsured for metropolitan areas, which were based on statewide uninsured estimates. Similarly, metropolitan area specific Medicaid payment rates were not available, and Medicaid utilization rates were not available to weight the average of Medicaid payments in metropolitan areas. Consequently, we used statewide payment and utilization estimates for California's Medicaid program, which were reported by The Lewin Group.[21]

We performed our work from September 2002 through July 2005 in accordance with generally accepted government auditing standards.

[21]Where metropolitan areas overlapped several states, we prorated state Medicaid payment rates based on U.S. census estimates of Medicaid enrollment in each component county of the metropolitan area. We used utilization rates in California to weight the average Medicaid payment in each metropolitan area because utilization rates were not readily available for any other state.

# Appendix II: FEHBP PPO Adjusted Hospital Prices in U.S. Metropolitan Areas, 2001

The adjusted hospital price indices based on FEHBP PPO payments for hospital stays in 232 metropolitan areas are presented below ranked in order from highest to lowest price.

**Table 15: Ranking of Metropolitan Areas by Adjusted Hospital Prices, 2001**

| Rank | Metropolitan area | Predominant state[a] | Adjusted hospital price index |
|---|---|---|---|
| 1 | [b] | [b] | 1.829 |
| 2 | Dover | DE | 1.680 |
| 3 | Biloxi-Gulfport-Pascagoula | MS | 1.591 |
| 4 | St. Joseph | MO | 1.578 |
| 5 | Milwaukee-Waukesha | WI | 1.568 |
| 6 | Salinas | CA | 1.499 |
| 7 | Buffalo-Niagara Falls | NY | 1.451 |
| 8 | Grand Junction | CO | 1.431 |
| 9 | [b] | [b] | 1.419 |
| 10 | La Crosse, WI-MN | WI | 1.385 |
| 11 | Wichita | KS | 1.379 |
| 12 | Manchester | NH | 1.365 |
| 13 | Bakersfield | CA | 1.361 |
| 14 | Sioux Falls | SD | 1.357 |
| 15 | Bangor | ME | 1.340 |
| 16 | Owensboro | KY | 1.326 |
| 17 | Fort Walton Beach | FL | 1.322 |
| 18 | Portsmouth-Rochester, NH-ME | NH | 1.318 |
| 19 | Lakeland-Winter Haven | FL | 1.310 |
| 20 | South Bend | IN | 1.285 |
| 21 | Honolulu | HI | 1.277 |
| 22 | Albany | GA | 1.270 |
| 23 | Oklahoma City | OK | 1.270 |
| 24 | Nashua | NH | 1.266 |
| 25 | Olympia | WA | 1.262 |
| 26 | Omaha, NE-IA | NE | 1.256 |
| 27 | Duluth-Superior, MN-WI | MN | 1.252 |
| 28 | Rapid City | SD | 1.249 |
| 29 | Terre Haute | IN | 1.244 |
| 30 | Charleston | WV | 1.243 |
| 31 | Wilmington-Newark, DE-MD | DE | 1.239 |
| 32 | Lynchburg | VA | 1.237 |

| Rank | Metropolitan area | Predominant state[a] | Adjusted hospital price index |
|---|---|---|---|
| 33 | Billings | MT | 1.235 |
| 34 | [b] | [b] | 1.233 |
| 35 | Myrtle Beach | SC | 1.231 |
| 36 | Columbia | MO | 1.230 |
| 37 | Topeka | KS | 1.225 |
| 38 | Evansville-Henderson, IN-KY | IN | 1.193 |
| 39 | Lawton | OK | 1.192 |
| 40 | Missoula | MT | 1.187 |
| 41 | Daytona Beach | FL | 1.186 |
| 42 | Medford-Ashland | OR | 1.177 |
| 43 | Roanoke | VA | 1.176 |
| 44 | Bismarck | ND | 1.173 |
| 45 | Charleston-North Charleston | SC | 1.161 |
| 46 | Portland | ME | 1.158 |
| 47 | Sioux City, IA-NE | IA | 1.157 |
| 48 | Jackson | MS | 1.151 |
| 49 | Hattiesburg | MS | 1.148 |
| 50 | Provo-Orem | UT | 1.147 |
| 51 | Fort Collins-Loveland | CO | 1.144 |
| 52 | Boise City | ID | 1.138 |
| 53 | Salt Lake City-Ogden | UT | 1.137 |
| 54 | Enid | OK | 1.137 |
| 55 | Gainesville | FL | 1.136 |
| 56 | San Antonio | TX | 1.132 |
| 57 | Parkersburg-Marietta, WV-OH | WV | 1.127 |
| 58 | Boston, MA-NH | MA | 1.123 |
| 59 | Memphis, TN-AR-MS | TN | 1.117 |
| 60 | Cedar Rapids | IA | 1.113 |
| 61 | Jackson | TN | 1.111 |
| 62 | Houston | TX | 1.103 |
| 63 | Huntington-Ashland, WV-KY-OH | WV | 1.102 |
| 64 | Fayetteville | NC | 1.102 |
| 65 | Springfield | MA | 1.101 |
| 66 | Melbourne-Titusville-Palm Bay | FL | 1.099 |
| 67 | Portland-Vancouver, OR-WA | OR | 1.098 |
| 68 | Iowa City | IA | 1.092 |
| 69 | Florence | SC | 1.087 |

| Rank | Metropolitan area | Predominant state[a] | Adjusted hospital price index |
|---|---|---|---|
| 70 | Fort Pierce-Port St. Lucie | FL | 1.086 |
| 71 | Tacoma | WA | 1.086 |
| 72 | Grand Forks, ND-MN | ND | 1.083 |
| 73 | Lubbock | TX | 1.078 |
| 74 | New Haven-Meriden | CT | 1.071 |
| 75 | Great Falls | MT | 1.068 |
| 76 | Columbus, GA-AL | GA | 1.065 |
| 77 | Fort Myers-Cape Coral | FL | 1.061 |
| 78 | Fargo-Moorhead, ND-MN | ND | 1.061 |
| 79 | Des Moines | IA | 1.060 |
| 80 | Minneapolis-St. Paul, MN-WI | MN | 1.057 |
| 81 | Fort Smith, AR-OK | AR | 1.052 |
| 82 | Bremerton | WA | 1.048 |
| 83 | Richmond-Petersburg | VA | 1.041 |
| 84 | Lincoln | NE | 1.040 |
| 85 | Phoenix-Mesa | AZ | 1.039 |
| 86 | Laredo | TX | 1.033 |
| 87 | Salem | OR | 1.031 |
| 88 | Bloomington | IN | 1.029 |
| 89 | Lexington | KY | 1.029 |
| 90 | Reading | PA | 1.028 |
| 91 | Augusta-Aiken, GA-SC | GA | 1.027 |
| 92 | Fort Worth-Arlington | TX | 1.025 |
| 93 | [b] | [b] | 1.024 |
| 94 | Austin-San Marcos | TX | 1.019 |
| 95 | Asheville | NC | 1.016 |
| 96 | Wichita Falls | TX | 1.015 |
| 97 | Little Rock-North Little Rock | AR | 1.015 |
| 98 | Las Vegas, NV-AZ | NV | 1.013 |
| 99 | McAllen-Edinburg-Mission | TX | 1.011 |
| 100 | Jonesboro | AR | 1.006 |
| 101 | Miami | FL | 1.006 |
| 102 | Charlotte-Gastonia-Rock Hill, NC-SC | NC | 1.002 |
| 103 | Orlando | FL | 1.001 |
| 104 | Seattle-Bellevue-Everett | WA | 0.993 |
| 105 | Pensacola | FL | 0.986 |
| 106 | Odessa-Midland | TX | 0.983 |

| Rank | Metropolitan area | Predominant state[a] | Adjusted hospital price index |
|---|---|---|---|
| 107 | Lansing-East Lansing | MI | 0.983 |
| 108 | Johnson City-Kingsport-Bristol, TN-VA | TN | 0.981 |
| 109 | Charlottesville | VA | 0.980 |
| 110 | Knoxville | TN | 0.978 |
| 111 | Fayetteville-Springdale-Rogers | AR | 0.978 |
| 112 | Clarksville-Hopkinsville, TN-KY | TN | 0.975 |
| 113 | Dayton-Springfield | OH | 0.974 |
| 114 | San Angelo | TX | 0.971 |
| 115 | Tucson | AZ | 0.970 |
| 116 | Tampa-St. Petersburg-Clearwater | FL | 0.967 |
| 117 | Ann Arbor | MI | 0.965 |
| 118 | Scranton—Wilkes-Barre—Hazleton | PA | 0.964 |
| 119 | Eugene-Springfield | OR | 0.964 |
| 120 | Atlantic-Cape May | NJ | 0.963 |
| 121 | Anchorage | AK | 0.962 |
| 122 | Bridgeport | CT | 0.961 |
| 123 | San Francisco | CA | 0.960 |
| 124 | Panama City | FL | 0.957 |
| 125 | Baltimore | MD | 0.953 |
| 126 | Greenville-Spartanburg-Anderson | SC | 0.950 |
| 127 | Trenton | NJ | 0.946 |
| 128 | Redding | CA | 0.946 |
| 129 | York | PA | 0.942 |
| 130 | Amarillo | TX | 0.941 |
| 131 | Lawrence, MA-NH | MA | 0.933 |
| 132 | Springfield | MO | 0.932 |
| 133 | Washington, DC-MD-VA-WV | VA | 0.931 |
| 134 | Las Cruces | NM | 0.930 |
| 135 | Indianapolis | IN | 0.928 |
| 136 | Gary | IN | 0.927 |
| 137 | Detroit | MI | 0.927 |
| 138 | Tulsa | OK | 0.921 |
| 139 | Greensboro—Winston-Salem—High Point | NC | 0.919 |
| 140 | Nashville | TN | 0.914 |
| 141 | Santa Fe | NM | 0.912 |
| 142 | Raleigh-Durham-Chapel Hill | NC | 0.911 |
| 143 | Grand Rapids-Muskegon-Holland | MI | 0.906 |

| Rank | Metropolitan area | Predominant state[a] | Adjusted hospital price index |
|---|---|---|---|
| 144 | Baton Rouge | LA | 0.905 |
| 145 | Columbia | SC | 0.900 |
| 146 | Middlesex-Somerset-Hunterdon | NJ | 0.899 |
| 147 | Sarasota-Bradenton | FL | 0.896 |
| 148 | Cumberland, MD-WV | MD | 0.895 |
| 149 | Waterbury | CT | 0.894 |
| 150 | Atlanta | GA | 0.891 |
| 151 | [b] | [b] | 0.889 |
| 152 | Macon | GA | 0.888 |
| 153 | Birmingham | AL | 0.886 |
| 154 | Harrisburg-Lebanon-Carlisle | PA | 0.885 |
| 155 | Sacramento | CA | 0.884 |
| 156 | Fort Wayne | IN | 0.883 |
| 157 | New London-Norwich, CT-RI | CT | 0.876 |
| 158 | Toledo | OH | 0.875 |
| 159 | New Orleans | LA | 0.873 |
| 160 | Florence | AL | 0.870 |
| 161 | West Palm Beach-Boca Raton | FL | 0.870 |
| 162 | Mobile | AL | 0.870 |
| 163 | Columbus | OH | 0.868 |
| 164 | Hartford | CT | 0.867 |
| 165 | Fort Lauderdale | FL | 0.866 |
| 166 | Corpus Christi | TX | 0.866 |
| 167 | Savannah | GA | 0.865 |
| 168 | Monroe | LA | 0.864 |
| 169 | Montgomery | AL | 0.864 |
| 170 | Houma | LA | 0.864 |
| 171 | Galveston-Texas City | TX | 0.862 |
| 172 | Dallas | TX | 0.861 |
| 173 | Richland-Kennewick-Pasco | WA | 0.861 |
| 174 | Norfolk-Virginia Beach-Newport News, VA-NC | VA | 0.861 |
| 175 | Pittsburgh | PA | 0.861 |
| 176 | Bergen-Passaic | NJ | 0.860 |
| 177 | Denver | CO | 0.859 |
| 178 | Bryan-College Station | TX | 0.859 |
| 179 | Colorado Springs | CO | 0.859 |
| 180 | Monmouth-Ocean | NJ | 0.859 |

| Rank | Metropolitan area | Predominant state[a] | Adjusted hospital price index |
|---|---|---|---|
| 181 | Reno | NV | 0.858 |
| 182 | Texarkana, TX-Texarkana | TX | 0.857 |
| 183 | Punta Gorda | FL | 0.853 |
| 184 | Waco | TX | 0.853 |
| 185 | Flint | MI | 0.847 |
| 186 | Kansas City, MO-KS | MO | 0.838 |
| 187 | Oakland | CA | 0.836 |
| 188 | Killeen-Temple | TX | 0.830 |
| 189 | Tuscaloosa | AL | 0.826 |
| 190 | Philadelphia, PA-NJ | PA | 0.820 |
| 191 | Chattanooga, TN-GA | TN | 0.814 |
| 192 | Providence-Fall River-Warwick, RI-MA | RI | 0.813 |
| 193 | Sherman-Denison | TX | 0.812 |
| 194 | Kalamazoo-Battle Creek | MI | 0.808 |
| 195 | Jacksonville | FL | 0.807 |
| 196 | Boulder-Longmont | CO | 0.804 |
| 197 | Cleveland-Lorain-Elyria | OH | 0.803 |
| 198 | Shreveport-Bossier City | LA | 0.799 |
| 199 | Syracuse | NY | 0.797 |
| 200 | Wilmington | NC | 0.794 |
| 201 | Erie | PA | 0.790 |
| 202 | Jersey City | NJ | 0.787 |
| 203 | Yakima | WA | 0.786 |
| 204 | Los Angeles-Long Beach | CA | 0.785 |
| 205 | Chicago | IL | 0.785 |
| 206 | Huntsville | AL | 0.780 |
| 207 | Hagerstown | MD | 0.779 |
| 208 | Johnstown | PA | 0.777 |
| 209 | Cincinnati, OH-KY-IN | OH | 0.776 |
| 210 | Lafayette | LA | 0.772 |
| 211 | Gadsden | AL | 0.769 |
| 212 | Lake Charles | LA | 0.764 |
| 213 | Louisville, KY-IN | KY | 0.761 |
| 214 | Allentown-Bethlehem-Easton | PA | 0.754 |
| 215 | Spokane | WA | 0.746 |
| 216 | Athens | GA | 0.745 |
| 217 | Albuquerque | NM | 0.743 |

| Rank | Metropolitan area | Predominant state[a] | Adjusted hospital price index |
|---|---|---|---|
| 218 | Nassau-Suffolk | NY | 0.740 |
| 219 | Dothan | AL | 0.728 |
| 220 | San Diego | CA | 0.727 |
| 221 | Riverside-San Bernardino | CA | 0.727 |
| 222 | Newark | NJ | 0.725 |
| 223 | Saginaw-Bay City-Midland | MI | 0.712 |
| 224 | Anniston | AL | 0.709 |
| 225 | Decatur | AL | 0.709 |
| 226 | Altoona | PA | 0.678 |
| 227 | New York | NY | 0.676 |
| 228 | Newburgh, NY-PA | NY | 0.675 |
| 229 | Albany-Schenectady-Troy | NY | 0.674 |
| 230 | Ventura | CA | 0.635 |
| 231 | Pueblo | CO | 0.609 |
| 232 | Orange County | CA | 0.515 |

Source: GAO analysis of FEHBP data.

Note: We adjusted hospital prices to remove the effect of geographic differences in the costs of doing business (wages, rents, etc.) and differences in the severity of illnesses and mix of diagnoses among metropolitan areas. We converted hospital prices to an index by dividing the average price for a hospital stay in a metropolitan area by the average price for all hospital stays in 232 metropolitan areas. The average hospital price index value is 1.00.

[a]Some metropolitan areas spanned more than one state. In those cases, we assigned the state that contained the largest proportion of the population of the metropolitan area.

[b]Metropolitan area name withheld because there was only one hospital in the metropolitan area and the data were proprietary.

# Appendix III: FEHBP PPO Adjusted Physician Prices in U.S. Metropolitan Areas, 2001

The adjusted physician price indices based on FEHBP PPO payments for physician services in 319 metropolitan areas are presented below ranked in order from highest to lowest price.

**Table 16: Ranking of Metropolitan Areas by Adjusted Physician Prices, 2001**

| Rank | Metropolitan area | Predominant state[a] | Adjusted physician price index |
|---|---|---|---|
| 1 | La Crosse, WI-MN | WI | 1.484 |
| 2 | Wausau | WI | 1.459 |
| 3 | Eau Claire | WI | 1.418 |
| 4 | Madison | WI | 1.414 |
| 5 | Jonesboro | AR | 1.348 |
| 6 | Janesville-Beloit | WI | 1.324 |
| 7 | Great Falls | MT | 1.287 |
| 8 | Green Bay | WI | 1.279 |
| 9 | Appleton-Oshkosh-Neenah | WI | 1.267 |
| 10 | Racine | WI | 1.239 |
| 11 | Sheboygan | WI | 1.231 |
| 12 | Billings | MT | 1.230 |
| 13 | Wichita Falls | TX | 1.224 |
| 14 | Anchorage | AK | 1.221 |
| 15 | Corvallis | OR | 1.220 |
| 16 | Milwaukee-Waukesha | WI | 1.217 |
| 17 | Jacksonville | NC | 1.216 |
| 18 | Kenosha | WI | 1.213 |
| 19 | Fayetteville-Springdale-Rogers | AR | 1.206 |
| 20 | Texarkana, TX-Texarkana | TX | 1.204 |
| 21 | Fort Smith, AR-OK | AR | 1.202 |
| 22 | Monroe | LA | 1.198 |
| 23 | Pine Bluff | AR | 1.194 |
| 24 | Missoula | MT | 1.190 |
| 25 | Salem | OR | 1.187 |
| 26 | St. Cloud | MN | 1.187 |
| 27 | Eugene-Springfield | OR | 1.184 |
| 28 | Duluth-Superior, MN-WI | MN | 1.178 |
| 29 | Medford-Ashland | OR | 1.165 |
| 30 | Alexandria | LA | 1.162 |
| 31 | Houma | LA | 1.159 |
| 32 | Sherman-Denison | TX | 1.159 |

| Rank | Metropolitan area | Predominant state* | Adjusted physician price index |
|---|---|---|---|
| 33 | Wheeling, WV-OH | WV | 1.157 |
| 34 | Shreveport-Bossier City | LA | 1.145 |
| 35 | Grand Junction | CO | 1.144 |
| 36 | Omaha, NE-IA | NE | 1.143 |
| 37 | Bryan-College Station | TX | 1.143 |
| 38 | Little Rock-North Little Rock | AR | 1.142 |
| 39 | Rocky Mount | NC | 1.136 |
| 40 | Springfield | MO | 1.135 |
| 41 | Lafayette | LA | 1.134 |
| 42 | Lubbock | TX | 1.129 |
| 43 | San Angelo | TX | 1.129 |
| 44 | Lincoln | NE | 1.129 |
| 45 | Pueblo | CO | 1.128 |
| 46 | Abilene | TX | 1.121 |
| 47 | Hattiesburg | MS | 1.119 |
| 48 | Kankakee | IL | 1.119 |
| 49 | Fayetteville | NC | 1.111 |
| 50 | Parkersburg-Marietta, WV-OH | WV | 1.111 |
| 51 | Jackson | TN | 1.106 |
| 52 | Charleston | WV | 1.105 |
| 53 | Longview-Marshall | TX | 1.103 |
| 54 | Sioux City, IA-NE | IA | 1.101 |
| 55 | Clarksville-Hopkinsville, TN-KY | TN | 1.101 |
| 56 | Albany | GA | 1.098 |
| 57 | Bismarck | ND | 1.097 |
| 58 | Lawrence | KS | 1.096 |
| 59 | Panama City | FL | 1.096 |
| 60 | Rapid City | SD | 1.096 |
| 61 | Lewiston-Auburn | ME | 1.096 |
| 62 | Bangor | ME | 1.095 |
| 63 | Muncie | IN | 1.093 |
| 64 | Baton Rouge | LA | 1.093 |
| 65 | Grand Forks, ND-MN | ND | 1.091 |
| 66 | Portland-Vancouver, OR-WA | OR | 1.085 |
| 67 | Huntington-Ashland, WV-KY-OH | WV | 1.085 |
| 68 | Elmira | NY | 1.084 |
| 69 | Tyler | TX | 1.084 |

| Rank | Metropolitan area | Predominant state[a] | Adjusted physician price index |
|---|---|---|---|
| 70 | Pocatello | ID | 1.083 |
| 71 | Dubuque | IA | 1.082 |
| 72 | Macon | GA | 1.081 |
| 73 | Terre Haute | IN | 1.079 |
| 74 | Goldsboro | NC | 1.078 |
| 75 | Greenville | NC | 1.077 |
| 76 | Columbus, GA-AL | GA | 1.075 |
| 77 | McAllen-Edinburg-Mission | TX | 1.074 |
| 78 | Brownsville-Harlingen-San Benito | TX | 1.072 |
| 79 | Glens Falls | NY | 1.072 |
| 80 | Johnson City-Kingsport-Bristol, TN-VA | TN | 1.072 |
| 81 | Laredo | TX | 1.072 |
| 82 | Waco | TX | 1.069 |
| 83 | Cedar Rapids | IA | 1.067 |
| 84 | Boise City | ID | 1.066 |
| 85 | Greeley | CO | 1.065 |
| 86 | Fort Walton Beach | FL | 1.065 |
| 87 | Lawton | OK | 1.064 |
| 88 | Iowa City | IA | 1.063 |
| 89 | Hickory-Morganton-Lenoir | NC | 1.062 |
| 90 | Asheville | NC | 1.060 |
| 91 | Lake Charles | LA | 1.059 |
| 92 | Sioux Falls | SD | 1.057 |
| 93 | Enid | OK | 1.057 |
| 94 | Portland | ME | 1.055 |
| 95 | Pensacola | FL | 1.051 |
| 96 | Yuma | AZ | 1.051 |
| 97 | Fort Myers-Cape Coral | FL | 1.050 |
| 98 | Joplin | MO | 1.049 |
| 99 | South Bend | IN | 1.049 |
| 100 | Fort Wayne | IN | 1.049 |
| 101 | Lafayette | IN | 1.046 |
| 102 | St. Joseph | MO | 1.046 |
| 103 | Biloxi-Gulfport-Pascagoula | MS | 1.045 |
| 104 | Auburn-Opelika | AL | 1.044 |
| 105 | Fort Worth-Arlington | TX | 1.043 |
| 106 | Odessa-Midland | TX | 1.043 |

| Rank | Metropolitan area | Predominant state[a] | Adjusted physician price index |
|---|---|---|---|
| 107 | Fargo-Moorhead, ND-MN | ND | 1.042 |
| 108 | Flagstaff, AZ-UT | AZ | 1.042 |
| 109 | Savannah | GA | 1.041 |
| 110 | Knoxville | TN | 1.041 |
| 111 | Colorado Springs | CO | 1.040 |
| 112 | Elkhart-Goshen | IN | 1.038 |
| 113 | Las Cruces | NM | 1.037 |
| 114 | Evansville-Henderson, IN-KY | IN | 1.036 |
| 115 | Beaumont-Port Arthur | TX | 1.034 |
| 116 | Columbia | MO | 1.034 |
| 117 | Topeka | KS | 1.034 |
| 118 | Sharon | PA | 1.034 |
| 119 | Fort Collins-Loveland | CO | 1.033 |
| 120 | Killeen-Temple | TX | 1.033 |
| 121 | Owensboro | KY | 1.032 |
| 122 | Sumter | SC | 1.032 |
| 123 | Corpus Christi | TX | 1.030 |
| 124 | Yuba City | CA | 1.029 |
| 125 | Victoria | TX | 1.029 |
| 126 | Jackson | MS | 1.028 |
| 127 | Waterloo-Cedar Falls | IA | 1.027 |
| 128 | New Orleans | LA | 1.026 |
| 129 | Yakima | WA | 1.024 |
| 130 | Dallas | TX | 1.022 |
| 131 | Austin-San Marcos | TX | 1.021 |
| 132 | Utica-Rome | NY | 1.021 |
| 133 | Portsmouth-Rochester, NH-ME | NH | 1.018 |
| 134 | Brazoria | TX | 1.017 |
| 135 | Memphis, TN-AR-MS | TN | 1.016 |
| 136 | Charlotte-Gastonia-Rock Hill, NC-SC | NC | 1.016 |
| 137 | Wichita | KS | 1.013 |
| 138 | Lima | OH | 1.013 |
| 139 | Amarillo | TX | 1.011 |
| 140 | Minneapolis-St. Paul, MN-WI | MN | 1.011 |
| 141 | Yolo | CA | 1.010 |
| 142 | Dothan | AL | 1.010 |
| 143 | Tallahassee | FL | 1.009 |

| Rank | Metropolitan area | Predominant state[a] | Adjusted physician price index |
|---|---|---|---|
| 144 | Des Moines | IA | 1.009 |
| 145 | El Paso | TX | 1.008 |
| 146 | Atlanta | GA | 1.008 |
| 147 | San Antonio | TX | 1.006 |
| 148 | Bloomington | IN | 1.006 |
| 149 | Syracuse | NY | 1.006 |
| 150 | Redding | CA | 1.005 |
| 151 | Albany-Schenectady-Troy | NY | 1.005 |
| 152 | Altoona | PA | 1.003 |
| 153 | Indianapolis | IN | 1.002 |
| 154 | Lakeland-Winter Haven | FL | 1.001 |
| 155 | Roanoke | VA | 1.001 |
| 156 | Modesto | CA | 0.999 |
| 157 | Punta Gorda | FL | 0.999 |
| 158 | Augusta-Aiken, GA-SC | GA | 0.998 |
| 159 | Mansfield | OH | 0.998 |
| 160 | Ocala | FL | 0.997 |
| 161 | Athens | GA | 0.997 |
| 162 | Anniston | AL | 0.994 |
| 163 | Chico-Paradise | CA | 0.994 |
| 164 | Burlington | VT | 0.994 |
| 165 | Tuscaloosa | AL | 0.993 |
| 166 | Binghamton | NY | 0.992 |
| 167 | Florence | SC | 0.992 |
| 168 | Boulder-Longmont | CO | 0.991 |
| 169 | Naples | FL | 0.991 |
| 170 | Spokane | WA | 0.991 |
| 171 | Albuquerque | NM | 0.991 |
| 172 | Merced | CA | 0.991 |
| 173 | Chicago | IL | 0.990 |
| 174 | Tulsa | OK | 0.988 |
| 175 | Gainesville | FL | 0.983 |
| 176 | Johnstown | PA | 0.983 |
| 177 | Denver | CO | 0.983 |
| 178 | Wilmington | NC | 0.982 |
| 179 | Chattanooga, TN-GA | TN | 0.981 |
| 180 | Lexington | KY | 0.980 |

| Rank | Metropolitan area | Predominant state[a] | Adjusted physician price index |
|---|---|---|---|
| 181 | Tacoma | WA | 0.979 |
| 182 | Galveston-Texas City | TX | 0.979 |
| 183 | Norfolk-Virginia Beach-Newport News, VA-NC | VA | 0.975 |
| 184 | Houston | TX | 0.975 |
| 185 | Gary | IN | 0.974 |
| 186 | Oklahoma City | OK | 0.974 |
| 187 | Kokomo | IN | 0.972 |
| 188 | Raleigh-Durham-Chapel Hill | NC | 0.970 |
| 189 | Sarasota-Bradenton | FL | 0.969 |
| 190 | Mobile | AL | 0.966 |
| 191 | Bremerton | WA | 0.965 |
| 192 | Montgomery | AL | 0.964 |
| 193 | Myrtle Beach | SC | 0.964 |
| 194 | Fresno | CA | 0.963 |
| 195 | Nashville | TN | 0.962 |
| 196 | Bellingham | WA | 0.962 |
| 197 | Florence | AL | 0.959 |
| 198 | Scranton—Wilkes-Barre—Hazleton | PA | 0.959 |
| 199 | Lynchburg | VA | 0.959 |
| 200 | Daytona Beach | FL | 0.959 |
| 201 | Steubenville-Weirton, OH-WV | OH | 0.958 |
| 202 | Stamford-Norwalk | CT | 0.958 |
| 203 | Charleston-North Charleston | SC | 0.956 |
| 204 | Honolulu | HI | 0.956 |
| 205 | Richland-Kennewick-Pasco | WA | 0.956 |
| 206 | Gadsden | AL | 0.956 |
| 207 | Greensboro—Winston-Salem—High Point | NC | 0.955 |
| 208 | Visalia-Tulare-Porterville | CA | 0.954 |
| 209 | Decatur | AL | 0.949 |
| 210 | Danbury | CT | 0.949 |
| 211 | New London-Norwich, CT-RI | CT | 0.948 |
| 212 | Jacksonville | FL | 0.947 |
| 213 | Erie | PA | 0.946 |
| 214 | Rochester | NY | 0.946 |
| 215 | Reno | NV | 0.944 |
| 216 | Bakersfield | CA | 0.942 |
| 217 | Olympia | WA | 0.941 |

| Rank | Metropolitan area | Predominant state* | Adjusted physician price index |
|---|---|---|---|
| 218 | Pittsfield | MA | 0.941 |
| 219 | Santa Fe | NM | 0.939 |
| 220 | Louisville, KY-IN | KY | 0.938 |
| 221 | Benton Harbor | MI | 0.938 |
| 222 | Williamsport | PA | 0.936 |
| 223 | Charlottesville | VA | 0.935 |
| 224 | Salinas | CA | 0.935 |
| 225 | Kalamazoo-Battle Creek | MI | 0.935 |
| 226 | Manchester | NH | 0.932 |
| 227 | Youngstown-Warren | OH | 0.930 |
| 228 | Dover | DE | 0.926 |
| 229 | Hartford | CT | 0.923 |
| 230 | Lancaster | PA | 0.923 |
| 231 | Canton-Massillon | OH | 0.922 |
| 232 | Sacramento | CA | 0.920 |
| 233 | Seattle-Bellevue-Everett | WA | 0.919 |
| 234 | Jackson | MI | 0.913 |
| 235 | Springfield | MA | 0.913 |
| 236 | Vallejo-Fairfield-Napa | CA | 0.911 |
| 237 | Orlando | FL | 0.909 |
| 238 | Huntsville | AL | 0.909 |
| 239 | Grand Rapids-Muskegon-Holland | MI | 0.909 |
| 240 | Provo-Orem | UT | 0.906 |
| 241 | Stockton-Lodi | CA | 0.904 |
| 242 | Fitchburg-Leominster | MA | 0.904 |
| 243 | Tucson | AZ | 0.904 |
| 244 | Birmingham | AL | 0.903 |
| 245 | Akron | OH | 0.901 |
| 246 | New Haven-Meriden | CT | 0.900 |
| 247 | Waterbury | CT | 0.899 |
| 248 | Columbus | OH | 0.899 |
| 249 | Tampa-St. Petersburg-Clearwater | FL | 0.899 |
| 250 | Jamestown | NY | 0.898 |
| 251 | Richmond-Petersburg | VA | 0.898 |
| 252 | Cincinnati, OH-KY-IN | OH | 0.897 |
| 253 | Cumberland, MD-WV | MD | 0.895 |
| 254 | York | PA | 0.894 |

| Rank | Metropolitan area | Predominant state[a] | Adjusted physician price index |
|---|---|---|---|
| 255 | Greenville-Spartanburg-Anderson | SC | 0.893 |
| 256 | New Bedford | MA | 0.892 |
| 257 | Riverside-San Bernardino | CA | 0.891 |
| 258 | Saginaw-Bay City-Midland | MI | 0.890 |
| 259 | Columbia | SC | 0.888 |
| 260 | Nashua | NH | 0.888 |
| 261 | Hamilton-Middletown | OH | 0.887 |
| 262 | Harrisburg-Lebanon-Carlisle | PA | 0.886 |
| 263 | Las Vegas, NV-AZ | NV | 0.885 |
| 264 | Toledo | OH | 0.885 |
| 265 | Kansas City, MO-KS | MO | 0.884 |
| 266 | Cleveland-Lorain-Elyria | OH | 0.883 |
| 267 | San Luis Obispo-Atascadero-Paso Robles | CA | 0.883 |
| 268 | Vineland-Millville-Bridgeton | NJ | 0.882 |
| 269 | Reading | PA | 0.876 |
| 270 | Bridgeport | CT | 0.874 |
| 271 | Monmouth-Ocean | NJ | 0.873 |
| 272 | Los Angeles-Long Beach | CA | 0.870 |
| 273 | Ann Arbor | MI | 0.870 |
| 274 | Orange County | CA | 0.870 |
| 275 | Melbourne-Titusville-Palm Bay | FL | 0.869 |
| 276 | Santa Barbara-Santa Maria-Lompoc | CA | 0.866 |
| 277 | Jersey City | NJ | 0.865 |
| 278 | Lawrence, MA-NH | MA | 0.861 |
| 279 | San Diego | CA | 0.861 |
| 280 | Trenton | NJ | 0.861 |
| 281 | State College | PA | 0.861 |
| 282 | Lansing-East Lansing | MI | 0.861 |
| 283 | Barnstable-Yarmouth | MA | 0.861 |
| 284 | Phoenix-Mesa | AZ | 0.859 |
| 285 | Allentown-Bethlehem-Easton | PA | 0.856 |
| 286 | New York | NY | 0.854 |
| 287 | Ventura | CA | 0.851 |
| 288 | Santa Cruz-Watsonville | CA | 0.848 |
| 289 | Worcester, MA-CT | MA | 0.846 |
| 290 | Flint | MI | 0.844 |
| 291 | Pittsburgh | PA | 0.841 |

| Rank | Metropolitan area | Predominant state* | Adjusted physician price index |
|---|---|---|---|
| 292 | San Jose | CA | 0.837 |
| 293 | Atlantic-Cape May | NJ | 0.835 |
| 294 | Dayton-Springfield | OH | 0.833 |
| 295 | Salt Lake City-Ogden | UT | 0.833 |
| 296 | Fort Pierce-Port St. Lucie | FL | 0.830 |
| 297 | Philadelphia, PA-NJ | PA | 0.828 |
| 298 | Buffalo-Niagara Falls | NY | 0.823 |
| 299 | Wilmington-Newark, DE-MD | DE | 0.823 |
| 300 | Newburgh, NY-PA | NY | 0.822 |
| 301 | Hagerstown | MD | 0.822 |
| 302 | Newark | NJ | 0.818 |
| 303 | Santa Rosa | CA | 0.817 |
| 304 | Middlesex-Somerset-Hunterdon | NJ | 0.816 |
| 305 | Oakland | CA | 0.813 |
| 306 | Detroit | MI | 0.809 |
| 307 | Bergen-Passaic | NJ | 0.807 |
| 308 | Brockton | MA | 0.802 |
| 309 | Boston, MA-NH | MA | 0.785 |
| 310 | San Francisco | CA | 0.772 |
| 311 | Dutchess County | NY | 0.768 |
| 312 | Providence-Fall River-Warwick, RI-MA | RI | 0.763 |
| 313 | Miami | FL | 0.755 |
| 314 | West Palm Beach-Boca Raton | FL | 0.749 |
| 315 | Fort Lauderdale | FL | 0.747 |
| 316 | Washington, DC-MD-VA-WV | VA | 0.746 |
| 317 | Nassau-Suffolk | NY | 0.744 |
| 318 | Lowell, MA-NH | MA | 0.743 |
| 319 | Baltimore | MD | 0.729 |

Source: GAO analysis of FEHBP data.

Note: We adjusted physician prices to remove the effect of geographic variation in the costs of doing business (wages, rents, etc.) and differences in the mix of services among metropolitan areas. We converted physician prices to an index by dividing the average physician price per service in a metropolitan area by the average physician price in 319 metropolitan areas. The average physician price index value is 1.00.

*Some metropolitan areas spanned more than one state. In those cases, we assigned the state that contained the largest proportion of the population of the metropolitan area.

# Appendix IV: FEHBP PPO Adjusted Health Care Spending Per Enrollee in U.S. Metropolitan Areas, 2001

The adjusted spending per enrollee indices based on FEHBP PPO spending in 232 metropolitan areas are presented below ranked in order from highest to lowest spending per enrollee.

**Table 17: Ranking of Metropolitan Areas by Adjusted Health Care Spending Per Enrollee, 2001**

| Rank | Metropolitan area | Predominant state[a] | Adjusted spending index |
|---|---|---|---|
| 1 | Biloxi-Gulfport-Pascagoula | MS | 1.422 |
| 2 | Myrtle Beach | SC | 1.404 |
| 3 | Monroe | LA | 1.393 |
| 4 | Hattiesburg | MS | 1.393 |
| 5 | Parkersburg-Marietta, WV-OH | WV | 1.343 |
| 6 | Anniston | AL | 1.322 |
| 7 | Florence | SC | 1.298 |
| 8 | Terre Haute | IN | 1.297 |
| 9 | Bakersfield | CA | 1.268 |
| 10 | San Angelo | TX | 1.258 |
| 11 | Gadsden | AL | 1.250 |
| 12 | Wichita Falls | TX | 1.240 |
| 13 | Houma | LA | 1.240 |
| 14 | Sherman-Denison | TX | 1.235 |
| 15 | Wilmington | NC | 1.216 |
| 16 | Huntington-Ashland, WV-KY-OH | WV | 1.216 |
| 17 | Macon | GA | 1.213 |
| 18 | Lubbock | TX | 1.212 |
| 19 | Dothan | AL | 1.211 |
| 20 | Punta Gorda | FL | 1.211 |
| 21 | Decatur | AL | 1.200 |
| 22 | Milwaukee-Waukesha | WI | 1.197 |
| 23 | Rapid City | SD | 1.195 |
| 24 | Albany | GA | 1.194 |
| 25 | Fort Walton Beach | FL | 1.187 |
| 26 | Texarkana, TX-Texarkana | TX | 1.186 |
| 27 | Oklahoma City | OK | 1.182 |
| 28 | Charleston-North Charleston | SC | 1.180 |
| 29 | Lake Charles | LA | 1.169 |
| 30 | Panama City | FL | 1.167 |
| 31 | La Crosse, WI-MN | WI | 1.163 |
| 32 | Little Rock-North Little Rock | AR | 1.163 |

| Rank | Metropolitan area | Predominant state[a] | Adjusted spending index |
|---|---|---|---|
| 33 | Florence | AL | 1.161 |
| 34 | Knoxville | TN | 1.157 |
| 35 | Jacksonville | NC | 1.155 |
| 36 | Yuma | AZ | 1.151 |
| 37 | Shreveport-Bossier City | LA | 1.133 |
| 38 | Pine Bluff | AR | 1.132 |
| 39 | Lafayette | LA | 1.126 |
| 40 | Galveston-Texas City | TX | 1.122 |
| 41 | Charlotte-Gastonia-Rock Hill, NC-SC | NC | 1.120 |
| 42 | Enid | OK | 1.119 |
| 43 | Johnson City-Kingsport-Bristol, TN-VA | TN | 1.118 |
| 44 | Fort Worth-Arlington | TX | 1.117 |
| 45 | Lawton | OK | 1.116 |
| 46 | Charleston | WV | 1.116 |
| 47 | Jonesboro | AR | 1.115 |
| 48 | McAllen-Edinburg-Mission | TX | 1.113 |
| 49 | Melbourne-Titusville-Palm Bay | FL | 1.108 |
| 50 | Nashville | TN | 1.103 |
| 51 | Tuscaloosa | AL | 1.102 |
| 52 | Dallas | TX | 1.101 |
| 53 | Bryan-College Station | TX | 1.097 |
| 54 | Waco | TX | 1.096 |
| 55 | Omaha, NE-IA | NE | 1.092 |
| 56 | Jackson | MS | 1.089 |
| 57 | Savannah | GA | 1.088 |
| 58 | Springfield | MO | 1.088 |
| 59 | New Orleans | LA | 1.082 |
| 60 | Las Vegas, NV-AZ | NV | 1.081 |
| 61 | Chattanooga, TN-GA | TN | 1.079 |
| 62 | Boulder-Longmont | CO | 1.078 |
| 63 | Duluth-Superior, MN-WI | MN | 1.077 |
| 64 | Greenville-Spartanburg-Anderson | SC | 1.077 |
| 65 | Baton Rouge | LA | 1.076 |
| 66 | Las Cruces | NM | 1.074 |
| 67 | St. Joseph | MO | 1.074 |
| 68 | Owensboro | KY | 1.073 |
| 69 | Corpus Christi | TX | 1.073 |

| Rank | Metropolitan area | Predominant state[a] | Adjusted spending index |
|---|---|---|---|
| 70 | Lakeland-Winter Haven | FL | 1.072 |
| 71 | Sarasota-Bradenton | FL | 1.072 |
| 72 | Jacksonville | FL | 1.070 |
| 73 | San Antonio | TX | 1.067 |
| 74 | Tulsa | OK | 1.060 |
| 75 | Odessa-Midland | TX | 1.059 |
| 76 | Portsmouth-Rochester, NH-ME | NH | 1.057 |
| 77 | Topeka | KS | 1.056 |
| 78 | Orange County | CA | 1.049 |
| 79 | Pensacola | FL | 1.049 |
| 80 | Amarillo | TX | 1.048 |
| 81 | Fort Myers-Cape Coral | FL | 1.048 |
| 82 | Houston | TX | 1.045 |
| 83 | Indianapolis | IN | 1.039 |
| 84 | Colorado Springs | CO | 1.036 |
| 85 | Montgomery | AL | 1.034 |
| 86 | Huntsville | AL | 1.033 |
| 87 | Orlando | FL | 1.033 |
| 88 | Wichita | KS | 1.030 |
| 89 | Memphis, TN-AR-MS | TN | 1.027 |
| 90 | Anchorage | AK | 1.025 |
| 91 | Bloomington | IN | 1.022 |
| 92 | Monmouth-Ocean | NJ | 1.021 |
| 93 | Cumberland, MD-WV | MD | 1.020 |
| 94 | Lincoln | NE | 1.020 |
| 95 | Columbus, GA-AL | GA | 1.014 |
| 96 | Fort Smith, AR-OK | AR | 1.012 |
| 97 | Roanoke | VA | 1.012 |
| 98 | Norfolk-Virginia Beach-Newport News, VA-NC | VA | 1.012 |
| 99 | Mobile | AL | 1.011 |
| 100 | Boise City | ID | 1.010 |
| 101 | Louisville, KY-IN | KY | 1.008 |
| 102 | Austin-San Marcos | TX | 1.007 |
| 103 | Clarksville-Hopkinsville, TN-KY | TN | 1.004 |
| 104 | Ventura | CA | 1.004 |
| 105 | Birmingham | AL | 1.000 |
| 106 | Manchester | NH | 0.999 |

| Rank | Metropolitan area | Predominant state[a] | Adjusted spending index |
|---|---|---|---|
| 107 | Daytona Beach | FL | 0.996 |
| 108 | Sioux Falls | SD | 0.994 |
| 109 | Columbia | SC | 0.994 |
| 110 | Richland-Kennewick-Pasco | WA | 0.992 |
| 111 | Atlantic-Cape May | NJ | 0.988 |
| 112 | Grand Forks, ND-MN | ND | 0.988 |
| 113 | New London-Norwich, CT-RI | CT | 0.988 |
| 114 | Trenton | NJ | 0.987 |
| 115 | Olympia | WA | 0.984 |
| 116 | Columbia | MO | 0.984 |
| 117 | Atlanta | GA | 0.983 |
| 118 | Killeen-Temple | TX | 0.982 |
| 119 | Grand Junction | CO | 0.982 |
| 120 | Kansas City, MO-KS | MO | 0.980 |
| 121 | Gary | IN | 0.979 |
| 122 | West Palm Beach-Boca Raton | FL | 0.977 |
| 123 | Athens | GA | 0.977 |
| 124 | Fayetteville-Springdale-Rogers | AR | 0.977 |
| 125 | Billings | MT | 0.975 |
| 126 | Fort Lauderdale | FL | 0.971 |
| 127 | Great Falls | MT | 0.970 |
| 128 | Dover | DE | 0.965 |
| 129 | Jackson | TN | 0.965 |
| 130 | Lynchburg | VA | 0.962 |
| 131 | Des Moines | IA | 0.962 |
| 132 | Gainesville | FL | 0.960 |
| 133 | Laredo | TX | 0.959 |
| 134 | Augusta-Aiken, GA-SC | GA | 0.959 |
| 135 | Denver | CO | 0.958 |
| 136 | Bremerton | WA | 0.957 |
| 137 | Fort Pierce-Port St. Lucie | FL | 0.955 |
| 138 | Salinas | CA | 0.952 |
| 139 | Pueblo | CO | 0.952 |
| 140 | Tampa-St. Petersburg-Clearwater | FL | 0.951 |
| 141 | Fort Wayne | IN | 0.950 |
| 142 | Hagerstown | MD | 0.949 |
| 143 | Los Angeles-Long Beach | CA | 0.947 |

| Rank | Metropolitan area | Predominant state[a] | Adjusted spending index |
|---|---|---|---|
| 144 | Lexington | KY | 0.946 |
| 145 | Middlesex-Somerset-Hunterdon | NJ | 0.942 |
| 146 | Redding | CA | 0.942 |
| 147 | Bangor | ME | 0.941 |
| 148 | Tacoma | WA | 0.941 |
| 149 | Phoenix-Mesa | AZ | 0.935 |
| 150 | Riverside-San Bernardino | CA | 0.935 |
| 151 | Cedar Rapids | IA | 0.934 |
| 152 | Greensboro—Winston-Salem—High Point | NC | 0.932 |
| 153 | Fayetteville | NC | 0.930 |
| 154 | Miami | FL | 0.928 |
| 155 | Sacramento | CA | 0.927 |
| 156 | Reading | PA | 0.927 |
| 157 | Salt Lake City-Ogden | UT | 0.925 |
| 158 | Cincinnati, OH-KY-IN | OH | 0.923 |
| 159 | Richmond-Petersburg | VA | 0.920 |
| 160 | Detroit | MI | 0.920 |
| 161 | Chicago | IL | 0.918 |
| 162 | Provo-Orem | UT | 0.918 |
| 163 | Fort Collins-Loveland | CO | 0.913 |
| 164 | Yakima | WA | 0.913 |
| 165 | Goldsboro | NC | 0.913 |
| 166 | Albany-Schenectady-Troy | NY | 0.913 |
| 167 | Nashua | NH | 0.911 |
| 168 | Asheville | NC | 0.911 |
| 169 | Nassau-Suffolk | NY | 0.909 |
| 170 | Santa Fe | NM | 0.908 |
| 171 | Scranton—Wilkes-Barre—Hazleton | PA | 0.906 |
| 172 | Missoula | MT | 0.904 |
| 173 | York | PA | 0.904 |
| 174 | Jersey City | NJ | 0.904 |
| 175 | Raleigh-Durham-Chapel Hill | NC | 0.901 |
| 176 | Columbus | OH | 0.901 |
| 177 | Sioux City, IA-NE | IA | 0.899 |
| 178 | Cleveland-Lorain-Elyria | OH | 0.899 |
| 179 | Greenville | NC | 0.897 |
| 180 | Wilmington-Newark, DE-MD | DE | 0.897 |

| Rank | Metropolitan area | Predominant state[a] | Adjusted spending index |
|---|---|---|---|
| 181 | Tucson | AZ | 0.897 |
| 182 | Waterbury | CT | 0.896 |
| 183 | Portland | ME | 0.893 |
| 184 | Salem | OR | 0.892 |
| 185 | Bergen-Passaic | NJ | 0.891 |
| 186 | Eugene-Springfield | OR | 0.883 |
| 187 | Kalamazoo-Battle Creek | MI | 0.881 |
| 188 | Washington, DC-MD-VA-WV | VA | 0.881 |
| 189 | Bismarck | ND | 0.880 |
| 190 | Flint | MI | 0.879 |
| 191 | Newark | NJ | 0.878 |
| 192 | Springfield | MA | 0.876 |
| 193 | Baltimore | MD | 0.875 |
| 194 | New Haven-Meriden | CT | 0.874 |
| 195 | Minneapolis-St. Paul, MN-WI | MN | 0.873 |
| 196 | Philadelphia, PA-NJ | PA | 0.870 |
| 197 | San Diego | CA | 0.869 |
| 198 | Albuquerque | NM | 0.868 |
| 199 | Reno | NV | 0.866 |
| 200 | Altoona | PA | 0.866 |
| 201 | Lawrence, MA-NH | MA | 0.862 |
| 202 | Dayton-Springfield | OH | 0.852 |
| 203 | Portland-Vancouver, OR-WA | OR | 0.848 |
| 204 | Newburgh, NY-PA | NY | 0.848 |
| 205 | New York | NY | 0.845 |
| 206 | Seattle-Bellevue-Everett | WA | 0.843 |
| 207 | Medford-Ashland | OR | 0.841 |
| 208 | Evansville-Henderson, IN-KY | IN | 0.836 |
| 209 | Charlottesville | VA | 0.836 |
| 210 | Providence-Fall River-Warwick, RI-MA | RI | 0.834 |
| 211 | Lansing-East Lansing | MI | 0.833 |
| 212 | Harrisburg-Lebanon-Carlisle | PA | 0.832 |
| 213 | South Bend | IN | 0.830 |
| 214 | Iowa City | IA | 0.827 |
| 215 | Toledo | OH | 0.825 |
| 216 | Allentown-Bethlehem-Easton | PA | 0.814 |
| 217 | San Francisco | CA | 0.809 |

| Rank | Metropolitan area | Predominant state* | Adjusted spending index |
|---|---|---|---|
| 218 | Hartford | CT | 0.809 |
| 219 | Oakland | CA | 0.807 |
| 220 | Erie | PA | 0.803 |
| 221 | Syracuse | NY | 0.793 |
| 222 | Spokane | WA | 0.789 |
| 223 | Ann Arbor | MI | 0.778 |
| 224 | Pittsburgh | PA | 0.776 |
| 225 | Fargo-Moorhead, ND-MN | ND | 0.766 |
| 226 | Saginaw-Bay City-Midland | MI | 0.753 |
| 227 | Johnstown | PA | 0.746 |
| 228 | Boston, MA-NH | MA | 0.746 |
| 229 | Bridgeport | CT | 0.732 |
| 230 | Buffalo-Niagara Falls | NY | 0.715 |
| 231 | Honolulu | HI | 0.684 |
| 232 | Grand Rapids-Muskegon-Holland | MI | 0.672 |

Source: GAO analysis of FEHBP data.

Note: Total spending per enrollee includes spending for all services except mental health, chemical dependency, and pharmaceuticals. We adjusted total spending per enrollee to remove the effect of geographic differences in enrollee age and sex, as well as geographic differences in the costs of doing business (such as wages and rents). The spending per enrollee index compares spending per enrollee in a metropolitan area to the average spending per enrollee in all study metropolitan areas, adjusted for patients' age and sex composition, and costs. The average spending index was 1.00.

*Some metropolitan areas spanned more than one state. In those cases, we assigned the state that contained the largest proportion of the population of the metropolitan area.

# Appendix V: Comments from the Office of Personnel Management

UNITED STATES
OFFICE OF PERSONNEL MANAGEMENT
WASHINGTON, DC 20415-1000

OFFICE OF THE DIRECTOR

JUL 25 2005

A. Bruce Steinwald
Director, Health Care
U.S. Government Accountability Office
Washington, DC 20548

Dear Mr. Steinwald:

Thank you for providing us with a copy of your proposed report entitled *FEDERAL EMPLOYEES HEALTH BENEFITS PROGRAM: Competition and Other Factors Linked to Wide Variation in Health Care Prices* (GAO-05-856). We appreciate the opportunity to comment on the draft report.

Overall, your findings confirm a longstanding healthcare principle at the U.S. Office of Personnel Management (OPM) which is that market-based competition contributes to the affordable healthcare options available to Federal enrollees. The Federal Employees Health Benefits (FEHB) Program now offers almost 250 health plan choices, including both the fee-for-service preferred provider networks and the health maintenance organizations (HMOs) discussed in your report.

The report discusses geographic variations in spending for hospital and physician services and provides interesting observations about provider price and utilization as factors contributing to the variations. In addition, we note that it shows increased competition at the healthcare delivery level contributes to a lowering of healthcare spending. While most of the FEHB enrollment is in the fee-for-service plans, we have long supported HMO arrangements and contract with a far greater number of HMOs than fee-for-service plans. Therefore, we are pleased that your report shows the capitated arrangements commonly found in HMOs contributed to a lowering of both hospital and physician prices in the metropolitan areas you studied. For reasons discussed in the report, the study omits spending for pharmaceuticals. We estimate this represents about 25 percent of FEHB Program costs.

We have the following comments:

- The report indicates that the national Preferred Provider Organizations (PPOs) offered the same benefits and charged the same premiums regardless of where enrollees lived or obtained their health care. However, the prices that PPOs paid to hospitals and physicians varied. Although this is true, it may be worth noting that in most of the PPO cases, the enrollee pays a percentage of the costs so

that as the PPO's charges rise, the enrollee's charges also rise. In other words, enrollees received the same benefit as a percentage of covered cost; however, they generally do not receive the same services for the same price across the regions.

- The report indicates that physician spending levels appear to be mitigated somewhat in geographic areas where there are higher uninsured populations and lower Medicaid payments. Physicians' prices appear to be more closely linked to consumer (patient) expectations than those of hospitals. It would have been interesting to have observed any such linkage with physician prescribing patterns as well.
- On page 16, the report indicates there was a considerable range of hospital prices within regions. Page 35 of the report indicates as part of the concluding observations that further investigation may help to explain why there were regional patterns which appeared to be associated with private sector price variations (i.e., prices for both hospital stays and physician services tended to be higher in the Midwest and lower in the Northeast). It would also be instructive to investigate the variations within regions mentioned on page 16.
- On page 24, the statement that "the effect of increasing HMO capitation was to reduce the hospital price index in a metropolitan area by 7.17 percent and the physician price index in a metropolitan area by 3.31 percent" is found in a footnote to Table 6 and in footnote 43. We would suggest that this is sufficiently relevant to include in the discussion section of the report as well.
- We noted on page 26, the report states "...physician prices were actually lower, on average, in metropolitan areas with lower adjusted Medicaid payment rates and proportionately larger uninsured populations." This appears to be a relevant finding which may merit inclusion in the final discussion in *Concluding Observations* on page 35.

We also have provided some technical comments in the attachment. We appreciate this opportunity to comment.

Sincerely,

Linda M. Springer
Director

Attachment

# Appendix VI: GAO Contacts and Staff Acknowledgments

## GAO Contacts

A. Bruce Steinwald, (202) 512-7101 or steinwalda@gao.gov

## Acknowledgments

In addition to the contact named above, Christine Brudevold, Assistant Director; Jennie F. Apter; Leslie Gordon; Michael Kendix; Daniel Lee; Jennifer M. Rellick; Holly Stockdale; Ann Tynan; and Suzanne Worth made key contributions to this report.

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