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What if All Physician Services Were Paid Under the Medicare Fee Schedule? An Analysis Using Medical Group Management Association Data

*A study conducted by staff from the Urban Institute and the
Medical Group Management Association Center for Research
for the Medicare Payment Advisory Commission*

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Final Report

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Introduction

A primary goal of the 1992 Medicare physician payment reforms based on a resource-based relative value scale (RBRVS) was to create an economically neutral fee schedule -- one that rewards all physician work equally. To develop such a fee schedule, the Centers for Medicare and Medicaid Services (CMS) refined and expanded the estimates developed by William Hsiao and colleagues of the work required to perform physician services. The resulting Medicare Fee Schedule increased payment for evaluation and management services (E&M) and decreased payment for procedures and tests relative to historical payment levels. The expected effect of this shift was to raise Medicare payments per service to primary care specialties and to lower payment per service for most other specialties.¹

At that time, “resource-based” applied to work but not practice expenses. Between 1998 and 2004 resource-based was extended to encompass practice expenses as well, such that the entire fee schedule is now resource-based and designed to be neutral across specialties. That is, payment is supposed to reflect the underlying resource costs associated with reimbursable services. Differences in compensation per hour are supposed to represent differences in practice expenses and the work associated with the mix of services different specialties provide, without specialty differentials otherwise.

Research has shown that there has not been redistribution beyond the initial implementation of resource-based work units from procedures and tests to E&M services. On the one hand, there have been modest increases in the RVUs assigned to many E&M services. Counterbalancing that effect has been an accelerated growth in volume of services, with tests

¹ Hogan, Christopher. “Physician Incomes Under an All-Payer Fee Schedule.” *Health Affairs*, Fall 1993, 170-176.

(including imaging) and minor procedures growing much faster than E&M services and major procedures. Additionally, very few of the new services approved for payment under the fee schedule were in the E&M category, further contributing to differential volume growth of reimbursable services.²

Since the new Medicare Fee Schedule based on RBRVS was implemented in 1992, there has been policy interest in assessing the impact of the fee schedule on physicians' revenues and compensation. Simulating the impact of the Medicare Fee Schedule as if all physician services were paid under the fee schedule would permit policy makers another view about whether the redistributive goals of the RBRVS-based fee schedule are being achieved in the direction of payment neutrality, i.e., providing equal payments for equal work across specialties.

Unfortunately, the analyses performed as the new fee schedule was first implemented lacked the needed data on physician productivity across all reimbursed services to permit a satisfactory simulation of physician compensation that assumed that all physician services were paid at Medicare Fee Schedule rates.³

Since those initial attempts, no one has simulated how the Medicare Fee Schedule would change compensation per hour worked, annual compensation by specialty, or how such simulated compensation compares with actual compensation as reported from various physician surveys. Although there is extensive survey data displaying physician compensation, all of the surveys understandably provide aggregate compensation, that is, compensation from all payers, thereby obscuring the specific impact of Medicare's payments on physician compensation levels.

² Maxwell, Stephanie, Stephen Zuckerman, and Robert Berenson. "Use of Physician Services under Medicare's Resource-Based Payments." *New England Journal of Medicine*, vol. 356, no.13, 1853-1861 (2007).

³ Hogan (1993); Hsiao, W.C. , D.L. Dunn, and D.K. Verrilli, "Assessing the Implementation of Physician-payment Reform," *The New England Journal of Medicine* (1 April 1993): 928-933.

The Medical Group Management Association (MGMA), for a number of years, has routinely collected physician productivity based on RBRVS relative value units (RVUs) as part of their annual *Physician Compensation and Production Survey*. In addition, the MGMA database provides an opportunity to simulate physician compensation as if all physician services were paid under the Medicare fee schedule and to compare the findings, both to assess differences between fee levels and to assess differences across specialties to supplement other information regarding adequacy of Medicare reimbursement to physicians. In Appendix 1, we discuss the representativeness of MGMA data, explaining why the survey provides a satisfactory basis for generating these simulations.

Data and Methods

Data

We rely on data from the *Physician Compensation and Production Survey*, conducted annually by the Medical Group Management Association (MGMA). Observations are at the physician level, with practices reporting on behalf of physicians in their practice. The survey collects information on type of specialty, hours worked, RBRVS relative value units, annual compensation, and annual collections, among other things. This study relies on the 2008 survey report, which reports data from 2007.

The 2008 *Physician Compensation and Production Survey Questionnaire* was sent to 9,975 organizations. Over 80% of the surveys were distributed to organizations that have an MGMA member; however, some non-members are also sampled in order to increase the number of responding practices. MGMA members work in medical practices and ambulatory care organizations of all sizes and types, including integrated systems and hospital- and medical

school-affiliated practices in which over 275,000 physicians provide more than 40 percent of the health care services delivered in the United States.⁴ The overall response rate to the survey was 20%. The survey contains data for 50,264 physicians, representing 112 different specialties, from 1,927 practices.

We restrict our analysis to physicians involved in full-time clinical work.⁵ We also omit certain specialties from our analysis because they either do not normally report productivity in RBRVS relative value units or do not typically serve the Medicare population.⁶ We aggregate some similar specialties and subspecialties from the original categories reported in the survey in order to have adequate sample sizes to report specialty-level estimates, leaving us with 26 specialty and sub-specialty categories. We further collapse these specialties into five clinically meaningful categories to observe if specific patterns of differences in compensation emerge by the consolidation of medical specialties. The five categories are (1) primary care, (2) non-surgical, non-procedural specialties & sub-specialties, (3) non-surgical, procedural specialties & sub-specialties, (4) surgical specialties & sub-specialties, and (5) radiology. These specialty aggregations and categories, along with their respective sample sizes, are presented in Appendix 2. We report estimates for both the 26 specialty and sub-specialties and the five collapsed categories.

⁴ As of December 2008

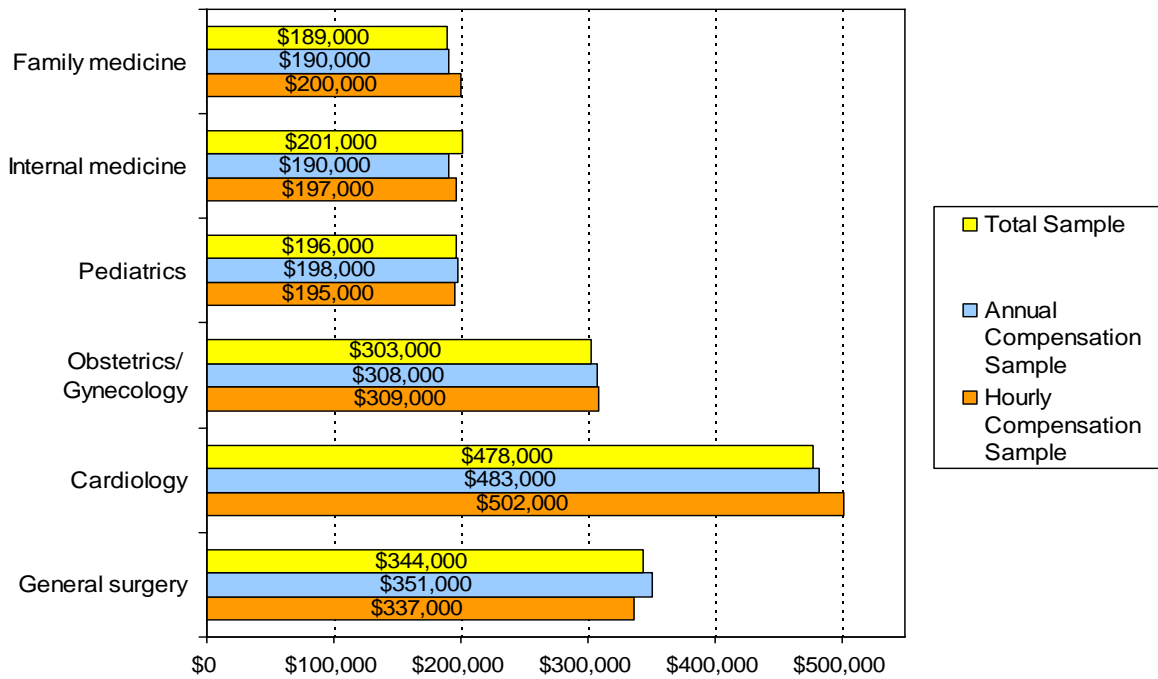
⁵ We consider physicians to be involved in full time clinical work if they report clinical service hours per week at or above .80 full time equivalent (FTE).

⁶ The removed specialties were: Anesthesiology; Dentistry; Family practice- sports medicine, Family practice-urgent care; Genetics; Hospice/ Palliative care; Hospitalist; Occupational medicine; Pathology; Pediatrics- child development, Pediatrics- genetics; Pediatrics- neonatal medicine; Podiatry; Radiation oncology; Surgery- oral; Surgery- trauma, and Urgent care.

Of the physicians involved in full time clinical work, 33,137 reported annual compensation. Annual compensation equals the sum of collections from professional services (measured in RVUs) and collections from all other sources (e.g., laboratory services, drugs and durable medical equipment), less any practices expenses that are incurred. The analysis samples were constructed from the observations with complete data for the variables necessary for the simulation. For the annual compensation analysis sample, the necessary variables included annual compensation, annual collections, and total RVUs. For the hourly compensation analysis sample, the necessary variables included the previous three variables, plus total hours worked annually. Total RVUs had the highest degree of non-response and hence restricted our analysis samples the most, with about 21% of physicians reporting RVU data. After restricting the analysis samples to complete records, the annual compensation analysis sample contained 5,111 observations and the hourly compensation analysis sample contained 3,364 observations.

Although the two analysis samples are subsets of the complete survey sample, the annual compensation estimates are reasonably consistent between the complete sample and the two analysis samples, giving us confidence that our analysis samples are not biased relative to the complete survey sample (Exhibit 1). For example, the mean annual compensation of family medicine physicians was about \$189,000 for the complete sample, \$190,000 for the annual analysis sample, and \$200,000 for the hourly analysis sample. For all physician specialties, the respective estimates were \$295,000, \$273,000, and \$281,000. Estimates for median compensation also appear similar across the three samples. For reported mean annual compensation across the samples for all specialties used in the analysis, refer to Appendix 3.

Exhibit 1: Mean Annual Compensation of Analysis Samples compared to Total Sample, by Specialty¹



¹ Rounded to the nearest \$1,000

Note: The total sample includes those involved in full time clinical work reporting annual compensation for the selected specialties; the annual compensation sample include observations with complete data for annual compensation, annual collections, and total RVUs; the hourly compensation sample includes observations with complete data for annual compensation, annual collections, total RVUs, and hours worked.

Methods

We simulate physician annual and hourly compensation as if Medicare were the only payer for all professional services. The calculation of simulated annual compensation and simulated hourly compensation included the following steps:

- 1) The 2007 Medicare Conversion Factor (MCF) rate of \$37.898 was first adjusted by the 2007 Geographic Adjustment Factor (GAF) to reflect the variation in Medicare allowed charges by local practice area.

- 2) Physician-reported RVUs for full-time clinical work were multiplied by the GAF-adjusted MCF to simulate annual collections for professional services as if Medicare were the only payer.
- 3) We then computed each physician's actual compensation-to-collections ratio, using annual compensation from all sources and collections for professional services that are associated with RVUs, as reported in the survey.
- 4) Simulated annual collections were then multiplied by the actual compensation-to-collections ratio to arrive at simulated annual compensation from all sources. This is the total compensation physicians would receive if all physician services were paid under the Medicare fee schedule.
- 5) Simulated hourly compensation was calculated by dividing simulated annual compensation by the number of hours worked per year.⁷

The use of *simulated* annual collections for professional services (step 2) and the *actual* compensation-to-collections ratio (steps 3 and 4) in the above calculation warrants further explanation. Collections in the denominator of the actual compensation-to-collections ratio only reflect collections for professional services that are associated with RVUs. However, compensation in the numerator of the ratio reflects each individual physician's compensation for professional services as well as from other sources (not measured in RVUs), net of practice expenses. This means that when we multiply simulated annual collections by the actual compensation-to-collections ratio (step 4) the result is a measure of total compensation that

⁷ The MGMA survey collects data on clinical service hours, defined as hours during which a clinician is involved in direct patient care where a patient bill is generated and a fee-for-service equivalent charge is created for the practice. Clinical service hours include seeing patients in the office, outpatient clinic, emergency room, nursing home, operating room, labor and delivery, and time spent on hospital rounds. It includes capitated (HMO) contracts, indigent and professional courtesy care, clinical or ancillary services, dictation and chart documentation, and clinical services delivered at VA facilities where a patient bill is generated.

includes compensation from non-RVU sources as well as professional services (measured in RVUs), less practice expenses that are incurred. The compensation-to-collections ratio can be expected to vary across specialties, because non-RVU compensation is more important in certain specialties than in others and because the expenses associated with operating a practice vary by specialty. For example, in hematology/oncology where some compensation is derived by providing drugs to patients the compensation-to-collection ratio is 0.65, but in family medicine the ratio is only 0.50. In general, the compensation-to-collection ratio is higher in specialties that derive more compensation from sources not associated with RVUs or have lower practice expenses (e.g., psychiatry).

We are aware that the MGMA definition of hours is somewhat conservative in directing survey respondents to report “clinical service hours” associated with practice work that is commonly billable or included in a capitated rate, not all direct patient care. Therefore, we compared MGMA hours worked by specialty to work hours reported in other surveys, some of which defined work hours more broadly than clinical service hours. As we are mainly interested in relative hourly compensation across specialties, the main concern for this analysis is whether the MGMA definition produced conservative estimates of reported hours worked that varied across specialties, that is, some specialties had relatively more non-reimbursable clinical hours than others. After comparing relative hours worked across specialties across four different surveys (including the AMA PPIS and the Community Tracking Study Physician Survey), we find MGMA annual hours are considerably below some, but not all, of the surveys. However, there is very little systematic variation in the differences in hours worked across specialties; that is, in those surveys in which physicians reported more hours worked per year, the increases were fairly consistent across specialties reporting. In the absence of a “gold standard” definition of

hours worked, we are therefore satisfied that although the MGMA hours worked data may produce higher absolute compensation per hour, this does not affect our analysis of relative hourly compensation across specialties. We also present simulation results for annual compensation, which are not complicated by different definitions of hours worked.

For each specialty, we also calculated indices of actual and simulated compensation values to family medicine physicians as the benchmark, constructed by dividing the estimate for each specialty by the estimate for family medicine (with the indices for family medicine equal to one, by definition). These indices provide a measure of the changes in relative compensation across specialties. For the collapsed specialty categories, we constructed indices relative to primary care.

Results

We are interested in examining the effect of the Medicare Fee Schedule on absolute compensation within specialties and on relative compensation across specialties. We studied the effect of the Medicare Fee Schedule on both mean and median compensation. As is typical with compensation data, where very high reported compensation for some respondents can disproportionately raise the mean, the medians are modestly below the means for nearly all specialties. Because the overall results for means and medians demonstrate similar findings, we discuss findings in terms of mean compensation here, and present the results for median compensation in Appendices 4 and 5.

Exhibit 2 presents the simulation results for hourly compensation. Across all specialties, mean hourly compensation would fall by about 13%, from about \$155 to \$134 an hour, if all

services were paid under the Medicare Fee Schedule. However, the impact varied across specialties, with some specialties seeing decreases in hourly compensation of more than 20%, and a few experiencing modest gains.

Exhibit 2: Actual and Simulated Mean Hourly Compensation of Selected Specialties and Subspecialty Groups

Specialty	N	Mean Hourly Compensation			Compensation Ratio ¹		
		Actual	Simulated ²	Percent Difference ³	Actual	Simulated	Difference
Primary Care	1,732	\$113.50	\$100.52	-11.4% ***	1.00	1.00	0.00
Family medicine	841	\$114.45	\$99.30	-13.2% ***	1.00	1.00	0.00
Internal medicine	590	\$112.53	\$102.37	-9.0% ***	0.98	1.03	0.05
Pediatrics general	301	\$112.76	\$100.32	-11.0% ***	0.99	1.01	0.03
Non-surgical, non-procedural	413	\$138.69	\$134.43	-3.1%	1.22	1.34	0.12
Emergency medicine	46	\$120.39	\$114.49	-4.9%	1.05	1.15	0.10
Endocrinology/ Metabolism	42	\$120.01	\$122.97	2.5%	1.05	1.24	0.19
Hematology/ Oncology	49	\$191.05	\$188.73	-1.2%	1.67	1.90	0.23
Nephrology	33	\$159.21	\$166.86	4.8%	1.39	1.68	0.29
Neurology	87	\$145.21	\$131.20	-9.6% *	1.27	1.32	0.05
Physiatry	35	\$127.79	\$116.40	-8.9%	1.12	1.17	0.06
Psychiatry	34	\$92.28	\$78.66	-14.8% **	0.81	0.79	-0.01
Rheumatology	38	\$132.09	\$136.01	3.0%	1.15	1.37	0.22
Other Internal Medicine/ Pediatrics	49	\$139.22	\$142.89	2.6%	1.22	1.44	0.22
Non-surgical, procedural	428	\$239.48	\$214.45	-10.5% ***	2.11	2.13	0.02
Cardiology	185	\$256.69	\$241.65	-5.9%	2.24	2.43	0.19
Dermatology	49	\$237.64	\$187.53	-21.1% ***	2.08	1.89	-0.19
Gastroenterology	148	\$241.58	\$205.16	-15.1% ***	2.11	2.07	-0.04
Pulmonary medicine	46	\$165.47	\$163.67	-1.1%	1.45	1.65	0.20
Surgical	695	\$202.88	\$161.05	-20.6% ***	1.79	1.60	-0.19
Obstetrics/ Gynecology	182	\$177.95	\$145.95	-18.0% ***	1.55	1.47	-0.08
Ophthalmology	49	\$180.08	\$146.14	-18.8% *	1.57	1.47	-0.10
Orthopedics	107	\$231.40	\$176.65	-23.7% ***	2.02	1.78	-0.24
Otorhinolaryngology	52	\$210.82	\$153.72	-27.1% ***	1.84	1.55	-0.29
General surgery	174	\$180.69	\$152.75	-15.5% ***	1.58	1.54	-0.04
Cardiovascular/ Thoracic surgery	13	\$209.89	\$197.63	-5.8%	1.83	1.99	0.16
Neurological surgery	44	\$336.95	\$217.81	-35.4% ***	2.94	2.19	-0.75
Urology	42	\$216.44	\$176.52	-18.4% ***	1.89	1.78	-0.11
Other surgical specialties	32	\$187.07	\$161.54	-13.7%	1.63	1.63	-0.01
Radiology	96	\$244.26	\$193.09	-20.9% ***	2.15	1.92	-0.23
Radiology	96	\$244.26	\$193.09	-20.9% ***	2.13	1.94	-0.19
Total	3,364	\$154.82	\$134.33	-13.2% ***	1.36	1.34	-0.03

¹ Ratios of compensation for detailed specialties are relative to family medicine; consolidated specialty groupings and total are relative to primary care.

² Simulated as if all services were paid under the Medicare Fee Schedule

³ Indicates the difference in actual and simulated mean hourly compensation is significantly different from zero at the .10 (*), .05 (**), and .01 (***) level.

It is important to note that these effects should not be interpreted as the percent difference in what Medicare pays relative to private payers for these specialties because the “actual mean compensation” values already include Medicare revenues and because some amount of compensation derives from non-RVU sources, as discussed earlier. Thus, changes from actual to simulated compensation also reflect differences in payer mix. For example, specialties whose practices include a relatively high percentage of Medicare patients (e.g. cardiology) already are reimbursed for a substantial amount of their services at approved Medicare rates; so a smaller percent of their compensation is affected by the simulation. On the other hand, for specialties with a significant share of Medicaid patients (e.g. pediatrics) the simulated change in compensation captures the net effect of both higher Medicare payments relative to Medicaid and lower Medicare payments relative to private insurers.

Exhibit 2 also demonstrates the simulated impact of Medicare compensation on particular specialties. A few, including orthopedics, otorhinolaryngology, and neurosurgery, experience statistically significant decreases exceeding 20 percent, with neurosurgery experiencing a 35 percent decrease. In contrast, some specialties do relatively well under simulated Medicare compensation, with cardiology experiencing only a six percent decrease, which was not statistically significant. Of note, the primary care specialties of family medicine, internal medicine, and pediatrics each experienced statistically significant decreases very close to the total for all specialties (between 11 and 13%), with internal medicine’s decrease slightly less than the other two (9%), most likely due to this specialty’s higher percentage of Medicare patients.

Within the five composite specialty categories, non-surgical, non-procedural specialties would see their hourly compensation fall by about 3%, primary care specialties by 11%, non-surgical, proceduralists by about 11%, surgical specialties by about 21%, and radiologists also by about 21%.

The compensation ratios shown on the right side of Exhibit 2 provide insight into how the Medicare Fee Schedule affects relative compensation across specialties. Note that we see substantial variation across specialties in actual mean compensation. Relative to primary care physicians, who currently make an average of \$114 an hour, non-surgical, non-procedural specialists earn 22% more an hour, surgical specialists 79% more, and both non-surgical, proceduralists and radiologists earn more than two times the hourly compensation of family medicine physicians, at 111 percent and 115 percent, respectively.

When we simulate hourly compensation under Medicare rates, we see a relatively minor effect on relative compensation across specialties. Non-surgical, non-proceduralists would do somewhat better under the Medicare Fee Schedule relative to primary care specialties, earning about 34% (as opposed to 22%) more than primary care physicians per hour. Surgical specialties compare somewhat less favorably under the fee schedule, now earning about 60% (as opposed to 79%) the hourly rate of primary care physicians. Although the gap between radiologists and primary care narrowed somewhat, non-surgical proceduralists and radiologists continue to earn around twice the hourly rate of primary care physicians (113% and 92% more, respectively) with Medicare rates applied to all services. Thus, although we do find some movement in relative compensation under the fee schedule, with some specialties gaining or losing more than others, we find that the overall impact on the distribution is relatively small.

Of note is that non-surgical proceduralists do relatively better than do surgical specialties under the Medicare Fee Schedule. Non-surgical proceduralists earn 33 percent more than surgeons per hour worked under the fee schedule (the difference between \$214 and \$161), compared to 18 percent more under actual payment rates (the difference between \$239 and \$203). Cardiology does particularly well, earning roughly 140 percent more than primary care physicians and 50 percent more than the composite of surgical specialties under the Medicare Fee Schedule.

As discussed in the Methods section, different surveys use different definitions of hours worked; the MGMA survey uses a conservative definition tied to whether certain work activities are reimbursable and, therefore, provides a relatively low estimate of hours worked. Definitional issues do not arise in reporting annual compensation.

Exhibit 3 presents results for mean annual compensation. The results of this simulation are similar to those discussed above for hourly compensation. We find that overall, mean annual compensation falls by 12%, from about \$273,000 to \$240,000, when we simulate payment for all services at the Medicare rate. Again, non-surgical, non-proceduralists are least affected by the simulation, with mean annual compensation falling only 4%. The percent change in annual compensation was similar for primary care and non-surgical, procedural specialties (a decrease of 9% and 10%, respectively), and surgeons and radiologists (a decrease of 19% and 20%, respectively). The impact on relative annual compensation was also similar to the relative impacts on hourly compensation.

Due to differences in hours worked across specialties, we see somewhat greater variation in actual annual compensation, with non-surgical, non-proceduralists currently earning 36%,

non-surgical, proceduralists 123%, surgical specialties 99%, and radiologists 155% more annually than primary care physicians. Non-surgical, non-procedural specialties gain somewhat relative to primary care (44%), non-surgical, procedural specialties remain about the same (121%), whereas surgeons (78%) and radiologists (124%) experience a modest narrowing of the gap in annual compensation relative to primary care after applying the Medicare Fee Schedule.

Exhibit 3: Actual and Simulated Mean Annual Compensation of Selected Specialties and Subspecialty Groups

Specialty	N	Mean Annual Compensation			Compensation Ratio ¹		
		Actual	Simulated ²	Percent Difference ³	Actual	Simulated	Difference
Primary Care	2,757	\$191,660	\$173,893	-9.3% ***	1.00	1.00	0.00
Family medicine	1,286	\$189,808	\$169,762	-10.6% ***	1.00	1.00	0.00
Internal medicine	871	\$190,178	\$175,166	-7.9% ***	1.00	1.03	0.03
Pediatrics general	600	\$197,782	\$180,897	-8.5% ***	1.04	1.07	0.02
Non-surgical, non-procedural	606	\$260,834	\$249,549	-4.3% ***	1.36	1.44	0.07
Emergency medicine	113	\$235,310	\$227,222	-3.4%	1.24	1.34	0.10
Endocrinology/ Metabolism	62	\$210,491	\$216,105	2.7%	1.11	1.27	0.16
Hematology/ Oncology	68	\$398,593	\$325,607	-18.3% **	2.10	1.92	-0.18
Nephrology	40	\$304,283	\$329,894	8.4%	1.60	1.94	0.34
Neurology	115	\$265,319	\$240,048	-9.5% *	1.40	1.41	0.02
Physiatry	41	\$241,616	\$225,664	-6.6%	1.27	1.33	0.06
Psychiatry	36	\$174,492	\$149,544	-14.3% *	0.92	0.88	-0.04
Rheumatology	53	\$216,858	\$229,498	5.8%	1.14	1.35	0.21
Other Internal Medicine/ Pediatrics	78	\$268,668	\$287,309	6.9%	1.42	1.69	0.28
Non-surgical, procedural	579	\$427,735	\$385,022	-10.0% ***	2.23	2.21	-0.02
Cardiology	240	\$482,805	\$450,079	-6.8% **	2.54	2.65	0.11
Dermatology	71	\$404,633	\$329,157	-18.7% ***	2.13	1.94	-0.19
Gastroenterology	182	\$427,534	\$365,451	-14.5% ***	2.25	2.15	-0.10
Pulmonary medicine	86	\$293,547	\$291,005	-0.9%	1.55	1.71	0.17
Surgical	1,035	\$380,970	\$310,143	-18.6% ***	1.99	1.78	-0.20
Obstetrics/ Gynecology	275	\$308,359	\$258,471	-16.2% ***	1.62	1.52	-0.10
Ophthalmology	78	\$314,761	\$259,547	-17.5% **	1.66	1.53	-0.13
Orthopedics	189	\$457,589	\$362,553	-20.8% ***	2.41	2.14	-0.28
Otorhinolaryngology	72	\$380,484	\$282,938	-25.6% ***	2.00	1.67	-0.34
General surgery	233	\$351,106	\$300,403	-14.4% ***	1.85	1.77	-0.08
Cardiovascular/ Thoracic surgery	32	\$441,744	\$426,158	-3.5%	2.33	2.51	0.18
Neurological surgery	54	\$689,264	\$462,916	-32.8% ***	3.63	2.73	-0.90
Urology	53	\$394,544	\$337,933	-14.3% **	2.08	1.99	-0.09
Other surgical specialties	49	\$346,947	\$290,633	-16.2% **	1.83	1.71	-0.12
Radiology	134	\$488,431	\$389,687	-20.2% ***	2.55	2.24	-0.31
Radiology	134	\$488,431	\$389,687	-20.2% ***	2.57	2.30	-0.28
Total	5,111	\$272,723	\$240,030	-12.0% ***	1.42	1.38	-0.04

¹ Ratios of compensation for detailed specialties are relative to family medicine; consolidated specialty groupings and total are relative to primary care.

² Simulated as if all services were paid under the Medicare Fee Schedule

³ Indicates the difference in actual and simulated mean annual compensation is significantly different from zero at the .10 (*), .05 (**), and .01 (***) level.

We see also wide disparities in simulated annual compensation under Medicare rates. At the low end of the range, there is psychiatry at \$150,000, family medicine at \$170,000, and internal medicine at \$175,000. By contrast, some specialties have simulated annual Medicare compensation that exceeds 2.5 times the compensation for family medicine, with cardiovascular/thoracic surgery at \$426,000, cardiology at \$450,000, and neurological surgery at \$463,000.

Summary and Conclusions

The study demonstrates that it is possible to simulate physician compensation as if all physician services were paid under the Medicare Fee Schedule and to compare the results with the actual compensation that physicians report. Such an analysis provides additional data in assessing whether the policy objectives of the Medicare Fee Schedule are being achieved. Our analysis focuses on simulating compensation by applying the GAF-adjusted Medicare conversion to RVUs reported for all physician services. However, actual and simulated relative compensation across specialties are the result of both differences in payment levels (represented by the conversion factor) and the distribution of RVUs across specialties, demonstrating that the fee schedule's RVUs explain much of the variation in physician compensation. If RVUs are over- or under-valued for services that are primarily provided by certain specialties, this will affect actual and simulated relative compensation across specialties.

This analysis confirms that there are substantial differences in the actual hourly and annual compensation across specialties, with a number of specialties exhibiting compensation ratios exceeding 2:1 when compared to family medicine. Under simulated Medicare

compensation, the compensation ratios across specialties are narrowed very little overall, suggesting that payments under Medicare's Fee Schedule as of 2007 were no more favorable to primary care than were reimbursements from other payers. Some specialties fare relatively well under simulated Medicare compensation. The non-surgical, procedural specialties, particularly cardiology, continue to do relatively better under the Medicare Fee Schedule than under all-payer reimbursements that includes Medicare. In contrast, surgical specialties do relatively less well under the Medicare Fee Schedule, although their compensation remains substantially greater than the primary care benchmark.

It should be noted that the 2010 Medicare Fee Schedule will phase in some significant changes in relative values, particularly for practice expenses, which are likely to produce some increase in payments for services provided by primary care and other non-procedural specialties, with commensurate reductions in payments for certain technologically-based services provided particularly by cardiologists and radiologists.

Appendix 1: Representativeness of MGMA Physician Compensation Data

Introduction

Medical Group Management Association (MGMA) is a professional organization representing over 22,500 members who lead and manage more than 13,700 organizations in which over 275,000 physicians provide more than 40 percent of the health care services delivered in the United States.⁸ The membership includes medical practice administrators, Chief Executive Officers, physicians-in-management, board members, office managers, and many other management professionals. They work in medical practices and ambulatory care organizations of all sizes and types, including integrated systems and hospital- and medical school-affiliated practices.

The MGMA Center for Research, the 501(c)3 not-for-profit research and development affiliate of MGMA, conducts quantitative and qualitative research to advance the art and science of medical group management. MGMA undertakes major surveys every year which are aimed at providing reliable information about specific aspects of group practice administration, performance, and compensation. This project draws on data from the MGMA *Physician Compensation and Production Survey*, which collects data on provider compensation and productivity measures, including physician work relative value units (RVUs). Our study uses data on both compensation and productivity from the most recent edition of the survey available at the time of the study, *The Physician Compensation and Production Survey: 2008 Report Based on 2007 Data*. This edition includes more than 10 performance ratios and detailed compensation information. Unique to this survey is the availability of practice-provided RVU data, which is a key measure of productivity in our analysis.

The *2008 Physician Compensation and Production Survey Questionnaire* was sent out to 9,975 organizations. Over 80% of the survey distribution is to organizations that have an MGMA member; however, some non-members are also sampled in order to maximize the number of responding practices. Of the 9,975 surveys distributed, 202 were undeliverable and 48 of the returned questionnaires were judged ineligible because they were either incomplete or missing a required answer. The overall response rate to the survey was 20%. The 1,943 organizations that responded contributed compensation information for 50,418 providers of whom 43,494 were physicians representing 112 different specialties.

Unique to this survey is the availability of practice-provided RVU data, which is a key measure of productivity in our analysis. We are particularly interested in work RVUs for physicians, which were provided by the surveyed organizations for 19,662 physicians. Thus, while the response rate for compensation data is closely related to overall response, productivity data is only available for about 45% of the physicians in the survey database. Nevertheless, as we discuss below, we think that the RVU responders are reasonably representative of those that responded to the rest of the survey.

⁸ As of December 2008

This appendix consists of four sections, presenting information both on representativeness of respondents to the MGMA *Physician Compensation and Production Survey* and the extent to which other researchers and policy makers have relied on MGMA data. Section 1 discusses MGMA physician respondents compared to all practicing physicians. Section 2 discusses the representativeness of survey respondents compared to all MGMA members, with a special focus on those who responded to the productivity section that provides RVU data. In section 3, we discuss the recognition that the MGMA *Compensation Survey* has achieved, specifically in the context of CMS's recognition of the survey for purposes of establishing fair market value under Stark rules. We also demonstrate that the MGMA compensation data is an "in-lier" when compared to other frequently cited surveys. Finally, section 4 presents a listing of peer-reviewed journals that have accepted data produced by the survey we are using, albeit from previous years, and cites some of the articles that have cited the MGMA compensation data.

Section 1: Survey respondents compared to all American physicians

To determine the national representativeness of the survey sample, we compare respondents (both overall respondents and the smaller subset reporting RVU data) to the American physician population. Appendix Table 1A describes survey respondents and the national physician population across a number of key dimensions. In general, physicians in responding practices are similar to the total American physician population. Like all U.S. physicians, physicians in responding practices and those that provided RVU information are roughly 70% male and 30% female. The specialty distribution of physicians in the survey is similar to the distribution of all U.S. doctors, although family practice physicians are somewhat overrepresented and internal medicine and general surgery physicians somewhat underrepresented.

Compared to the geographic distribution of all U.S. doctors described by the American Medical Association (AMA), Western and Midwestern physicians are overrepresented while Eastern and Southern physicians are underrepresented among MGMA survey respondents. Physicians in responding practices are also less likely to be from non-metropolitan areas compared to all U.S. doctors (11% versus 23%), and RVU respondents from non-metropolitan areas are slightly more underrepresented.

The focus of this study is on relative compensation across specialties, rather than absolute compensation, so we examined whether the somewhat skewed aggregate geographic representation varies across specialties. As demonstrated in Appendix Table 1B, with only a few outliers, the higher representation in the West and Midwest and lower representation in East and South was fairly consistent across the important specialties we looked at. Further, as part of the analysis, we correct for important geographic variations in responses by adjusting compensation using Medicare's own Geographic Adjustment Factor (GAF).

Section 2: Survey respondents compared to overall MGMA membership

As noted above, about 20% of sampled practices responded to the survey, and of these, 45% provided RVU data. Therefore, it is important that we examine the extent to which respondents are representative of overall MGMA membership (the main sample population). Although

respondents are only a fraction of MGMA's total membership, respondents are similar to the total membership population. What makes this project unique is the availability of practice-provided RVU data, so it is important to look at the subset of practices providing RVU data to examine representativeness. Providers reporting RVU data are a smaller subset of the total respondent population; however, this subset is similar to overall respondents and, by extension, to overall MGMA membership.

The practice ownership demographic profiles of respondents and the overall MGMA membership are similar at the physician level, although respondents are somewhat more likely to come from hospital/IDS owned practices (Appendix Table 1A). The distribution for the RVU subset of physicians is similar to overall responding physicians and total membership, as well.

Responding medical groups were similar in size to the overall MGMA membership; however, the number of physicians in the largest sized practices was underrepresented compared to the overall MGMA membership. As with practice ownership, the distribution of practice sizes for the RVU subset looks roughly similar to overall respondents.

Appendix Table 1A also shows MGMA membership distribution across geographic regions and the corresponding distribution provided by survey respondents. Medical practice respondents have a similar geographic distribution compared to overall membership, with a slightly higher share of practices in the Midwest and a slightly smaller share in the Western region. The RVU subset of physicians contains a higher share from the West (seven percentage points) and a corresponding lower share from the three other regions compared to total physician respondents.

The distribution of single and multi-specialty practices is similar for respondents and overall MGMA membership, with about 70% single specialty and 30% multi-specialty practices in both groups. Because member organizations can file data for constituent practices separately, specialty type distribution at the physician level differs from the distribution among medical practices. Overall physician respondents are more likely to come from multi-specialty groups compared to total physician membership. However, the RVU subset of physicians, which is the analysis sample for our study, has an identical distribution of single vs. multi-specialty practices compared to total MGMA member physicians.

Section 3: MGMA compared to other physician compensation surveys

Of all national physician compensation surveys, the Centers for Medicare and Medicaid Services (CMS) named the MGMA *Physician Compensation and Production Survey* as one of four publicly available approved surveys for assessing fair market value of physician services in its Stark II, Phase II regulations.⁹ These regulations, which fall under section 1877 of the Social

⁹ 42 C.F.R. 411.351, Federal Register. (Vol. 69, No. 59). March 26, 2004; Although the Federal Register lists six approved surveys (ECS Watson Wyatt's Survey Report on Hospital and Health Care Management Compensation; Hay Group's Physician Compensation Report; Hospital Compensation & Healthcare Compensation Services' (HHCS) Physician Salary Survey Report; MGMA's Physician Compensation and Productivity Survey; Sullivan, Cotter, and Associates, Inc.'s Physician Compensation and Productivity Survey; William Mercer Inc.'s Integrated Health Network Compensation Survey), two of these (ECS Watson Wyatt and Mercer) are actually private databases used in human resources consulting and not available to the public.

Security Act, enumerate the acceptable terms of financial relationships between physicians and entities providing designated health services.¹⁰ In approving this select group of surveys, CMS recognized that they are representative of the general market value of physician services.

As described earlier, MGMA received compensation information for 112 specialties from 1,943 medical practices with 43,494 physicians in response to its *Physician Compensation and Production Survey: 2008 Questionnaire Based on 2007 Data*. This provides a larger sample size compared to the three other publicly available Stark II approved physician compensation surveys, whose sample sizes ranged from 108-334 participants and 14,000-39,407 physicians.¹¹

A comparison of 2008 physician compensation surveys puts MGMA compensation estimates for 21 major specialties in line with those of 14 other major national surveys.¹² The methodologies and representativeness of these surveys vary, but MGMA estimates consistently fall within the range of these estimates. For example, MGMA reports the mean compensation of family practice physicians to be \$187,953 which falls into the middle of the range of \$150,763-\$204,370 reported by the other surveys. MGMA's estimates are seldom major outliers, and in only two specialties (radiation oncology and hematology including oncology) does MGMA provide the highest or lowest estimate (Appendix Table 1C). Compared to the three other publicly available Stark II approved surveys, MGMA's mean compensation values are again comparable with those of the other surveys (Appendix Table 1D).¹³

Section 4: MGMA in the literature

A number of respected health care journals, such as *Health Services Research* and the *New England Journal of Medicine*, have recognized the MGMA *Physician Compensation and Production Survey* as a reliable source of compensation data by accepting studies utilizing MGMA data for publication. In short, the same data source we rely on has been through peer review and found acceptable despite the discussed limitations. A list of references of peer-reviewed articles utilizing MGMA physician compensation data for empirical analyses can be found in Exhibit A. Among peer-reviewed articles, at least four studies also employ some type of RVU analysis drawn from the survey. Health policy experts also refer to MGMA data in non-scholarly editorials, reports, and non-empirical articles. MGMA estimates have been referenced by noted scholars, including Bodenheimer, Berenson and Rudolf, and Iglehart, to present national physician compensation levels (Exhibit 1A).

¹⁰ Under these regulations, the hourly rate for a physician's services can be considered fair market value using one of two methods. The survey method calculates the average of the 50th percentile compensation level for a physician specialty using at least four of the six approved surveys.

¹¹ Sample sizes are from the 2008 Hay Group Physician Compensation Report, Hospital Compensation & Healthcare Compensation Services (HHCS) Physician Salary Survey Report, and Sullivan, Cotter, and Associates, Inc.'s Physician Compensation and Productivity Survey. Physician sample size information for the remaining two Stark II approved surveys, William Mercer Inc.'s Integrated Health Network Compensation Survey and ECS Watson Wyatt's Survey Report on Hospital and Health Care Management Compensation, was unavailable.

¹² Data trackers. (2008, July 14). *Modern Healthcare*, Retrieved November 17, 2008, from Health Business Fulltext Elite database

¹³ The two other Stark II approved surveys in this study are the Hay Group's Physician Compensation Report and Hospital Compensation & Healthcare Compensation Services' (HHCS) Physician Salary Survey Report.

Conclusion

As noted, there are limitations to the MGMA *Physician Compensation and Production Survey*, particularly related to response rates for the survey overall and for the productivity part in particular. However, it offers a unique opportunity for policy analysis that has been elusive since RBRVS was implemented nearly two decades ago. We have argued that the practices surveyed are reasonably representative of physicians overall, that there are methodological approaches in our analysis for adjusting for some representativeness issues we have identified, and that MedPAC is not alone in looking to this survey for analysis, as a number of articles in the peer-reviewed literature have relied on the same database.

Exhibit 1A: Publications Using Data from the MGMA Physician Compensation and Production Survey

Peer Reviewed Journal Articles

1. Andreae, M. C., & Freed, G. L. (2002). Using a productivity-based physician compensation program at an academic health center: a case study. [Article]. *Academic Medicine*, 77(9), 894-899.*
2. Andreae, M. C., & Freed, G. L. (2003). The rationale for productivity-based physician compensation at academic health centers. [Article]. *The Journal of Pediatrics*, 143(6), 695-696.*
3. Conrad, D. A., Sales, A., Liang, S. Y., Chaudhuri, A., Maynard, C., Pieper, L., et al. (2002). The impact of financial incentives on physician productivity in medical groups. [Article]. *Health Services Research*, 37(4), 885-906.*
4. Ittner, C. D., Larcker, D. F., & Pizzini, M. (2007). Performance-based compensation in member-owned firms: An examination of medical group practices. [Article]. *Journal of Accounting & Economics*, 44, 300-327.*
5. Shi, L., Lazarus, S. S., & Pieper, L. (1997). Physician Recruitment and Retention: A Rural Suburban Comparison. [Article]. *International Journal of Public Administration*, 20, 1341-1365.
6. Tierney, E., & Kimball, A. B. (2006). Median dermatology base incomes in senior academia and practice are comparable, but a significant income gap exists at junior levels. [Article]. *Journal of The American Academy Of Dermatology*, 55(2), 213-219.

Editorials, reports and non-empirical pieces in peer reviewed journals

7. Berkowitz, S. M. (2002). The Development of a Successful Physician Compensation Plan. *Journal of Ambulatory Care Management*, 25, 10.
8. Bodenheimer, T., Berenson, R. A., & Rudolf, P. (2007). The Primary Care--Specialty Income Gap: Why It Matters. *Annals of Internal Medicine*, 146(4), 301-W376.*
9. Hunter, A. (2005). Integrating Market Data Into Your Physician Compensation Plan. *Journal of Oncology Management*, 14(1), 18-21.*
10. Iglehart, J. K. (2008). Medicare, Graduate Medical Education, and New Policy Directions. *New England Journal of Medicine*, 359(6), 643-650.

* Indicates some type of RVU analysis

11. Walker, D. L. (2000). Physician compensation: rewarding productivity of the knowledge worker. *The Journal of Ambulatory Care Management*, 23(4), 48-59.*
12. Woo, B. (2006). Primary care--the best job in medicine? *The New England Journal of Medicine*, 355(9), 864-866.

Appendix Table 1A: Representativeness of MGMA Survey Respondents

	Medical Practices		Physicians			
	MGMA ¹	Respondents ²	AMA ³	MGMA ⁴	Respondents ⁵	RVU Sample ⁶
Gender						
Male	n/a	n/a	70%	n/a	73%	73%
Female	n/a	n/a	30%	n/a	27%	27%
Physicians by Specialty						
Family Practice	n/a	n/a	12%	n/a	16%	15%
Internal Medicine	n/a	n/a	20%	n/a	15%	15%
Gastroenterology	n/a	n/a	2%	n/a	2%	2%
General Surgery	n/a	n/a	5%	n/a	2%	3%
Obstetrics/Gynecology	n/a	n/a	5%	n/a	6%	5%
Orthopedic Surgery	n/a	n/a	3%	n/a	4%	4%
Pediatrics	n/a	n/a	10%	n/a	10%	8%
Other Specialties	n/a	n/a	43%	n/a	45%	48%
Geographic Region						
Eastern	27%	27%	33%	n/a	19%	17%
Midwest	21%	24%	18%	n/a	28%	26%
Southern	32%	33%	27%	n/a	23%	21%
Western	20%	16%	22%	n/a	30%	37%
Rural-Urban Classification						
Non-metro (<50k)	n/a	21%	23%	n/a	11%	9%
Metro (50k - 250k)	n/a	28%	77%	n/a	27%	30%
Metro (>250k - 1m)	n/a	35%	all Metro	n/a	31%	32%
Metro (>1m)	n/a	16%	(50k - >1m)	n/a	32%	29%
Practice Ownership						
Government	1%	1%	n/a	2%	0%	0%
Hospital/IDS	9%	38%	n/a	27%	35%	32%
Insurance co./HMO	0%	0%	n/a	1%	0%	0%
MSO/PPMC	1%	2%	n/a	1%	1%	1%
Physicians	81%	56%	n/a	56%	55%	56%
Other	7%	3%	n/a	13%	9%	11%
Size of practice (FTE Physicians)						
1 to 10	61%	64%	n/a	11%	13%	9%
11 to 25	21%	16%	n/a	12%	11%	11%
26 to 50	8%	9%	n/a	10%	14%	16%
51 to 75	3%	4%	n/a	7%	9%	11%
76 to 150	3%	4%	n/a	10%	16%	18%
151 or more	3%	3%	n/a	50%	38%	34%
Specialty Type						
Single Speciality	71%	70%	n/a	32%	26%	32%
Multiple Speciality	29%	30%	n/a	68%	74%	68%

Sources: Medical Group Management Association member demographics and *MGMA Physician Compensation and Production Survey: 2008 Report Based on 2007 Data*

Note: data not available for every population group

¹All MGMA member practices

²All medical practices responding to MGMA's Physician Compensation and Production Survey

³Data on physicians from the American Medical Association

⁴All physicians from MGMA member practices

⁵All physicians in medical groups responding to MGMA's Physician Compensation and Production Survey

⁶Subset of physician respondents providing RVU data

Appendix Table 1B. Geographic Representation of Physician Respondents by Specialty¹

	Anesthesiology		Emergency medicine		Gastro-enterology		General internal medicine		Neurology		General obstetrics and gynecology		General orthopedic surgery		General pediatrics		General surgery		Urology	
	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Number of FTE Physicians by Geographic Section																				
Eastern	968	24%	276	26%	153	16%	1052	21%	188	28%	385	18%	156	14%	573	18%	164	15%	89	15%
Midwest	752	19%	245	23%	290	31%	1292	25%	165	24%	596	29%	337	31%	918	29%	334	31%	127	21%
Southern	867	22%	150	14%	202	22%	1081	21%	144	21%	425	20%	218	20%	781	25%	225	21%	205	35%
Western	1407	35%	385	36%	286	31%	1642	32%	184	27%	680	33%	371	34%	854	27%	349	33%	171	29%
Total	3994	100%	1056	100%	931	100%	5067	100%	681	100%	2086	100%	1082	100%	3126	100%	1072	100%	592	100%
Number of FTE Physicians by Geographic Classification																				
Rural	189	5%	67	6%	62	7%	541	11%	68	10%	281	13%	185	17%	372	12%	198	18%	61	10%
Metro (50 - 250k)	859	22%	311	29%	277	30%	1416	28%	201	30%	540	26%	286	26%	826	26%	302	28%	147	25%
Metro (250k - 1m)	1504	38%	232	22%	242	26%	1435	28%	224	33%	596	29%	276	26%	824	26%	277	26%	156	26%
Metro (>1m)	1442	36%	446	42%	347	37%	1631	32%	188	28%	645	31%	333	31%	1082	35%	292	27%	226	38%
Total	3994	100%	1056	100%	928	100%	5023	99%	681	100%	2062	99%	1080	100%	3104	99%	1069	100%	590	100%

¹Data for physicians in medical groups responding to MGMA's Physician Compensation and Production Survey

Appendix Table 1C. Physician Compensation Survey Estimates by Specialty*

	MGMA	AMGA	Cejka	Daniel	Delta	Hay	HHCS	Jackson	Locum	Martin	MDN	Medicus	Merritt	Pacific	Pinnacle
Anesthesiology	\$399,222	\$362,904	\$392,000	n/a	\$321,806	\$311,600	\$446,994	\$362,275	\$336,375	\$371,000	\$350,000	\$371,000	\$336,000	\$364,295	\$336,250
Cadiology (invasive)	\$452,970	\$420,106	\$389,000	n/a	n/a	\$401,400	\$484,442	n/a	n/a	\$469,000	\$427,000	\$469,000	\$443,000	\$496,235	\$561,875
Cardiology (noninvasive)	\$418,451	\$420,106	\$365,000	n/a	\$439,233	\$332,900	\$390,392	\$372,600	n/a	\$380,000	\$394,000	n/a	\$392,000	\$380,201	\$392,000
Dermatology	\$400,834	\$371,871	\$326,000	n/a	\$365,000	\$294,700	\$287,832	\$329,267	n/a		\$323,000	n/a	\$315,000	\$385,953	n/a
Emergency															
Medicine	\$260,790	\$267,263	\$250,000	\$250,000	\$245,002	\$216,800	\$272,402	\$257,630		\$235,000	\$253,000	\$239,000	\$240,000	\$269,826	\$300,000
Family Practice	\$187,953	\$201,779	\$170,000	n/a	\$168,277	\$163,500	\$204,370	\$172,556	\$150,763	\$165,000	\$175,000	\$176,000	\$172,000	\$173,495	\$177,389
Gastroenterology	\$457,053	\$420,898	\$330,000	n/a	\$381,404	\$361,000	\$379,682	\$396,620		\$410,000	\$402,000	\$482,000	\$379,000	\$498,762	\$338,750
General Surgery	\$339,362	\$356,938	\$271,000	n/a	\$301,733	\$286,500	\$336,731	\$308,927	\$284,078	\$318,000	\$307,000	\$316,000	\$321,000	\$301,195	\$314,900
Hospitalist	\$206,768	\$217,052	\$198,000	n/a	\$191,964	\$174,100	\$203,520	\$184,289		\$182,000	\$191,000	\$191,000	\$181,000	\$215,015	\$200,000
Internal Medicine	\$201,603	\$209,845	\$184,000	n/a	\$183,937	\$175,200	\$189,979	\$181,420	\$179,806	\$196,875	\$187,000	\$187,000	\$176,000	\$193,102	\$202,500
Neurology	\$260,536	\$246,924	\$219,000	n/a	\$244,326	\$203,200	\$252,700	\$264,889		\$245,000	\$239,000	\$241,000	\$230,000	\$298,503	\$252,857
Obstetrics/ Gynecology	\$302,362	\$304,689	\$243,000	n/a	\$253,214	\$238,500	\$261,869	\$259,613	\$231,514	\$265,000	\$279,000	\$286,000	\$255,000	\$287,306	\$265,167
Oncology (including hematology)	\$449,520	\$345,537	\$361,000	n/a	\$345,833	\$296,500	\$359,158	\$169,434	\$154,446	\$140,000	\$176,000	\$174,000	\$159,000	\$191,908	\$178,333
Orthopedic Surgery	\$497,136	\$483,247	\$401,000	n/a	\$506,489	\$372,400	\$448,148	\$422,638	\$374,200	\$432,500	\$463,000	\$502,000	\$413,000	\$467,432	\$512,500
Pathology	\$331,326	\$311,174	\$298,000	n/a	n/a	\$251,700	\$331,842	\$255,561	n/a	n/a	\$275,000	n/a	\$239,000	\$269,623	n/a
Pediatrics	\$196,936	\$202,547	\$184,000	n/a	\$172,346	\$166,800	\$177,251	\$169,434	\$154,446	\$140,000	\$176,000	\$174,000	\$159,000	\$191,908	\$178,333
Plastic Surgery	\$434,021	\$390,744	\$350,000	n/a	\$387,833	\$390,400	\$791,510	\$385,546	n/a	n/a	\$357,000	n/a	\$312,000	\$372,100	\$300,000
Psychiatry	\$200,518	\$216,202	\$210,000	n/a	\$207,080	\$173,800	\$191,828	\$193,262	\$183,232	\$182,000	\$208,000	\$205,000	\$189,000	\$248,198	\$180,000
Radiation Oncology	\$528,225	\$394,034	\$454,500	n/a	n/a	\$463,000	\$381,733	n/a	n/a	n/a	\$357,000	n/a	n/a	\$427,653	n/a
Radiology	\$470,939	\$438,040	\$401,000	n/a	\$429,532	\$418,100	\$487,591	\$441,890	\$386,755	\$432,500	\$436,000	\$491,000	\$401,000	\$472,804	\$600,000
Urology	\$427,471	\$407,953	\$382,000	n/a	\$383,161	\$325,200	\$386,037	\$340,616	n/a	\$410,000	\$393,000	\$407,000	\$387,000	\$402,591	\$426,000

*Figures reflect mean total annual cash compensation, including salary and bonuses

**Surveys conducted by Medical Group Management Association, American Medical Group Association, Cejka Search, Daniel Stern & Associates, Delta Physician Placement, Hay Group, Hospital & Healthcare Compensation Service, Jackson & Coker, LocumTenens.com, Martin Fletcher, MD Network, Medicus Partners, Merrit Hawkins & Associates, Pacific Cos., and Pinnacle

Source: Data trackers. (July 2008). *Modern Healthcare and MGMA Physician Compensation and Production Survey: 2008 Report Based on 2007 Data*

Appendix Table 1D. Physician Compensation Estimates by Specialty Among Stark II Approved Surveys*

	MGMA	Hay	HHCS	Sullivan Cotter***
Anesthesiology	\$399,222	\$311,600	\$446,994	\$372,252
Cadiology (invasive)	\$452,970	\$401,400	\$484,442	\$452,378
Cardiology (noninvasive)	\$418,451	\$332,900	\$390,392	\$466,014
Dermatology	\$400,834	\$294,700	\$287,832	\$318,031
Emergency Medicine	\$260,790	\$216,800	\$272,402	\$236,293
Family Practice	\$187,953	\$163,500	\$204,370	\$178,074
Gastroenterology	\$457,053	\$361,000	\$379,682	\$471,876
General Surgery	\$339,362	\$286,500	\$336,731	\$294,762
Hospitalist	\$206,768	\$174,100	\$203,520	\$187,196
Internal Medicine	\$201,603	\$175,200	\$189,979	\$186,399
Neurology	\$260,536	\$203,200	\$252,700	\$238,434
Obstetrics/ Gynecology	\$302,362	\$238,500	\$261,869	\$278,520
Oncology (including hematology)	\$449,520	\$296,500	\$359,158	n/a
Orthopedic Surgery	\$497,136	\$372,400	\$448,148	\$436,118
Pathology	\$331,326	\$251,700	\$331,842	n/a
Pediatrics	\$196,936	\$166,800	\$177,251	\$196,955
Plastic Surgery	\$434,021	\$390,400	\$791,510	\$346,963
Psychiatry	\$200,518	\$173,800	\$191,828	\$193,237
Radiation Oncology	\$528,225	\$463,000	\$381,733	n/a
Radiology	\$470,939	\$418,100	\$487,591	n/a
Urology	\$427,471	\$325,200	\$386,037	\$335,876

*Figures reflect mean total annual cash compensation, including salary and bonuses

**In the Stark II, Phase II regulations, CMS specified four publicly available surveys it deemed acceptable for assessing fair market value of physician services.

*** The Sullivan Cotter data is for Group practices In the specific listed specialties and taken from the resource listed below

Source: Data trackers. (July 2008). *Modern Healthcare; MGMA Physician Compensation and Production Survey: 2008 Report Based on 2007 Data*; *Sullivan Cotter and Associates, Inc. 2008 Physician Compensation and Productivity Survey Report*

Appendix 2: Specialty and Subspecialty Groupings

Retained Specialties	First Aggregation	Final Collapsed Categories
Family medicine	Family medicine	Primary Care
Geriatrics	Internal Medicine	
Internal medicine		
Pediatrics general	Pediatrics general	Non-surgical, non-procedural
Emergency medicine	Emergency medicine	
Endocrinology/ Metabolism	Endocrinology/ Metabolism	
Hematology/ Oncology	Hematology/ Oncology	
Nephrology	Nephrology	
Neurology	Neurology	
Physiatry	Physiatry	
Psychiatry	Psychiatry	
Rheumatology	Rheumatology	
Allergy/ Immunology	Other Internal Medicine/Pediatrics	
Critical care		
Infectious disease		
Pediatrics other		
Cardiology	Cardiology	Non-surgical, procedural
Dermatology	Dermatology	
Gastroenterology	Gastroenterology	
Pulmonary medicine	Pulmonary medicine	
Obstetrics/ Gynecology	Obstetrics/ Gynecology	Surgical
Ophthalmology	Ophthalmology	
Orthopedics	Orthopedics	
Otorhinolaryngology	Otorhinolaryngology	
Surgery general	General Surgery	
Surgery bariatric		
Surgery colorectal		
Surgery cardiovascular	Cardiovascular/thoracic Surgery	
Surgery thoracic		
Surgery neurological	Neurological Surgery	
Urology	Urology	
Surgery oncology	Other surgical subspecialties	
Surgery pediatric		
Surgery plastic		
Surgery transplant		
Surgery vascular		
Radiology	Radiology	Radiology

Appendix 3: Annual Compensation of Total Sample and Analysis Samples

Specialty	Total Sample			Annual Compensation Sample			Hourly Compensation Sample		
	N	Mean	Median	N	Mean	Median	N	Mean	Median
Primary Care									
Family medicine	6,979	\$188,688	\$174,514	1,286	\$189,808	\$178,264	841	\$199,523	\$183,951
Internal medicine	5,016	\$200,659	\$189,975	871	\$190,178	\$179,586	590	\$197,201	\$183,357
Pediatrics general	2,933	\$196,226	\$182,727	600	\$197,782	\$183,176	301	\$195,326	\$186,405
Non-surgical, non-procedural									
Emergency medicine	976	\$260,790	\$256,800	113	\$235,310	\$239,080	46	\$217,173	\$218,017
Endocrinology/ Metabolism	291	\$211,550	\$199,006	62	\$210,491	\$194,056	42	\$217,338	\$199,221
Hematology/ Oncology	759	\$381,300	\$298,244	68	\$398,593	\$336,726	49	\$348,468	\$317,441
Nephrology	277	\$305,602	\$299,121	40	\$304,283	\$281,881	33	\$310,566	\$281,385
Neurology	637	\$260,536	\$227,670	115	\$265,319	\$242,210	87	\$272,472	\$252,608
Physiatry	248	\$261,555	\$234,338	41	\$241,616	\$224,362	35	\$250,332	\$235,683
Psychiatry	602	\$206,927	\$198,653	36	\$174,492	\$164,399	34	\$174,222	\$162,828
Rheumatology	287	\$238,574	\$218,704	53	\$216,858	\$190,000	38	\$230,324	\$201,107
Other Internal Medicine/ Pediatrics	1,133	\$253,763	\$234,128	78	\$268,668	\$257,907	49	\$264,426	\$246,380
Non-surgical, procedural									
Cardiology	1,836	\$477,921	\$445,242	240	\$482,805	\$462,764	185	\$501,750	\$492,845
Dermatology	393	\$426,536	\$365,524	71	\$404,633	\$386,637	49	\$414,857	\$386,637
Gastroenterology	897	\$456,062	\$417,688	182	\$427,534	\$431,501	148	\$427,390	\$439,622
Pulmonary medicine	485	\$310,102	\$287,800	86	\$293,547	\$289,866	46	\$313,755	\$303,957
Surgical									
Obstetrics/ Gynecology	2,424	\$303,105	\$280,760	275	\$308,359	\$277,467	182	\$309,265	\$273,739
Ophthalmology	691	\$370,907	\$326,116	78	\$314,761	\$266,744	49	\$313,048	\$256,250
Orthopedics	1,824	\$518,592	\$461,943	189	\$457,589	\$430,602	107	\$435,732	\$406,590
Otorhinolaryngology	541	\$394,506	\$345,210	72	\$380,484	\$370,362	52	\$376,829	\$353,111
General surgery	1,090	\$344,209	\$320,087	233	\$351,106	\$322,707	174	\$337,302	\$320,169
Cardiovascular/ Thoracic surgery	299	\$468,828	\$452,943	32	\$441,744	\$439,715	13	\$438,342	\$444,131
Neurological surgery	237	\$721,458	\$637,895	54	\$689,264	\$655,358	44	\$707,516	\$675,564
Urology	568	\$425,851	\$388,064	53	\$394,544	\$417,223	42	\$380,313	\$376,529
Other surgical specialties	454	\$416,019	\$392,014	49	\$346,947	\$338,701	32	\$349,191	\$334,646
Radiology									
Radiology	1,260	\$480,801	\$465,092	134	\$488,431	\$467,263	96	\$477,168	\$456,411
Total	33,137	\$295,087	\$241,739	5,111	\$272,723	\$223,922	3,364	\$281,403	\$231,830

Note: The total sample includes those involved in full time clinical work reporting annual compensation for the selected specialties; the annual compensation sample include observations with complete data for annual compensation, annual collections, and total RVUs; the hourly compensation sample includes observations with complete data for annual compensation, annual collections, total RVUs, and hours worked.

Appendix 4: Actual and Simulated Median Hourly Compensation of Selected Specialty and Subspecialty Groups

Specialty	N	Median Hourly Compensation			Compensation Ratio ¹		
		Actual	Simulated ²	Percent Difference	Actual	Simulated	Difference
Primary Care	1,732	\$103.52	\$94.31	-8.9%	1.00	1.00	0.00
Family medicine	841	\$103.17	\$93.14	-9.7%	1.00	1.00	0.00
Internal medicine	590	\$103.94	\$98.86	-4.9%	1.01	1.06	0.05
Pediatrics general	301	\$103.99	\$92.51	-11.0%	1.01	0.99	-0.01
Non-surgical, non-procedural	413	\$125.73	\$118.06	-6.1%	1.21	1.25	0.04
Emergency medicine	46	\$122.08	\$117.56	-3.7%	1.18	1.26	0.08
Endocrinology/ Metabolism	42	\$120.77	\$112.69	-6.7%	1.17	1.21	0.04
Hematology/ Oncology	49	\$184.86	\$175.54	-5.0%	1.79	1.88	0.09
Nephrology	33	\$140.69	\$153.61	9.2%	1.36	1.65	0.29
Neurology	87	\$133.43	\$126.95	-4.9%	1.29	1.36	0.07
Physiatry	35	\$109.81	\$107.20	-2.4%	1.06	1.15	0.09
Psychiatry	34	\$92.17	\$77.71	-15.7%	0.89	0.83	-0.06
Rheumatology	38	\$110.85	\$100.38	-9.4%	1.07	1.08	0.00
Other Internal Medicine/ Pediatrics	49	\$131.45	\$118.07	-10.2%	1.27	1.27	-0.01
Non-surgical, procedural	428	\$237.99	\$194.08	-18.5%	2.30	2.06	-0.24
Cardiology	185	\$253.39	\$222.18	-12.3%	2.46	2.39	-0.07
Dermatology	49	\$225.93	\$167.78	-25.7%	2.19	1.80	-0.39
Gastroenterology	148	\$246.61	\$194.57	-21.1%	2.39	2.09	-0.30
Pulmonary medicine	46	\$160.58	\$163.11	1.6%	1.56	1.75	0.19
Surgical	695	\$180.72	\$148.66	-17.7%	1.75	1.58	-0.17
Obstetrics/ Gynecology	182	\$159.51	\$129.12	-19.1%	1.55	1.39	-0.16
Ophthalmology	49	\$136.57	\$129.18	-5.4%	1.32	1.39	0.06
Orthopedics	107	\$209.78	\$168.99	-19.4%	2.03	1.81	-0.22
Otorhinolaryngology	52	\$187.32	\$135.28	-27.8%	1.82	1.45	-0.36
General surgery	174	\$166.76	\$143.73	-13.8%	1.62	1.54	-0.07
Cardiovascular/ Thoracic surgery	13	\$205.46	\$191.04	-7.0%	1.99	2.05	0.06
Neurological surgery	44	\$319.12	\$214.43	-32.8%	3.09	2.30	-0.79
Urology	42	\$205.06	\$171.31	-16.5%	1.99	1.84	-0.15
Other surgical specialties	32	\$152.92	\$147.99	-3.2%	1.48	1.59	0.11
Radiology	96	\$234.33	\$180.56	-22.9%	2.26	1.91	-0.35
Radiology	96	\$234.33	\$180.56	-22.9%	2.27	1.94	-0.33
Total	3,364	\$129.41	\$114.93	-11.2%	1.25	1.22	-0.03

¹ Ratios of compensation for detailed specialties are relative to family medicine; consolidated specialty groupings and total are relative to primary care.

² Simulated as if all services were paid under the Medicare Fee Schedule

Appendix 5: Actual and Simulated Median Annual Compensation of Selected Specialty and Subspecialty Groups

Specialty	N	Median Annual Compensation			Compensation Ratio ¹		
		Actual	Simulated ²	Percent Difference	Actual	Simulated	Difference
Primary Care	2,757	\$179,831	\$162,803	-9.5%	1.00	1.00	0.00
Family medicine	1,286	\$178,264	\$160,584	-9.9%	1.00	1.00	0.00
Internal medicine	871	\$179,586	\$165,280	-8.0%	1.01	1.03	0.02
Pediatrics general	600	\$183,176	\$165,757	-9.5%	1.03	1.03	0.00
Non-surgical, non-procedural	606	\$236,067	\$220,542	-6.6%	1.31	1.35	0.04
Emergency medicine	113	\$239,080	\$238,494	-0.2%	1.34	1.49	0.14
Endocrinology/ Metabolism	62	\$194,056	\$202,024	4.1%	1.09	1.26	0.17
Hematology/ Oncology	68	\$336,726	\$302,711	-10.1%	1.89	1.89	0.00
Nephrology	40	\$281,881	\$274,240	-2.7%	1.58	1.71	0.13
Neurology	115	\$242,210	\$217,162	-10.3%	1.36	1.35	-0.01
Physiatry	41	\$224,362	\$205,822	-8.3%	1.26	1.28	0.02
Psychiatry	36	\$164,399	\$145,936	-11.2%	0.92	0.91	-0.01
Rheumatology	53	\$190,000	\$186,026	-2.1%	1.07	1.16	0.09
Other Internal Medicine/ Pediatrics	78	\$257,907	\$253,119	-1.9%	1.45	1.58	0.13
Non-surgical, procedural	579	\$418,830	\$364,459	-13.0%	2.33	2.24	-0.09
Cardiology	240	\$462,764	\$455,671	-1.5%	2.60	2.84	0.24
Dermatology	71	\$386,637	\$295,225	-23.6%	2.17	1.84	-0.33
Gastroenterology	182	\$431,501	\$351,918	-18.4%	2.42	2.19	-0.23
Pulmonary medicine	86	\$289,866	\$285,888	-1.4%	1.63	1.78	0.15
Surgical	1,035	\$345,000	\$284,742	-17.5%	1.92	1.75	-0.17
Obstetrics/ Gynecology	275	\$277,467	\$236,722	-14.7%	1.56	1.47	-0.08
Ophthalmology	78	\$266,744	\$228,495	-14.3%	1.50	1.42	-0.07
Orthopedics	189	\$430,602	\$344,367	-20.0%	2.42	2.14	-0.27
Otorhinolaryngology	72	\$370,362	\$260,842	-29.6%	2.08	1.62	-0.45
General surgery	233	\$322,707	\$288,582	-10.6%	1.81	1.80	-0.01
Cardiovascular/ Thoracic surgery	32	\$439,715	\$418,479	-4.8%	2.47	2.61	0.14
Neurological surgery	54	\$655,358	\$455,088	-30.6%	3.68	2.83	-0.84
Urology	53	\$417,223	\$331,179	-20.6%	2.34	2.06	-0.28
Other surgical specialties	49	\$338,701	\$256,613	-24.2%	1.90	1.60	-0.30
Radiology	134	\$467,263	\$369,195	-21.0%	2.60	2.27	-0.33
Radiology	134	\$467,263	\$369,195	-21.0%	2.62	2.30	-0.32
Total	5,111	\$223,922	\$203,511	-9.1%	1.25	1.25	0.00

¹ Ratios of compensation for detailed specialties are relative to family medicine; consolidated specialty groupings and total are relative to primary care.

² Simulated as if all services were paid under the Medicare Fee Schedule