

California Workers' Compensation RBRVS Study

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EXECUTIVE SUMMARY

The *Workers' Compensation Official Medical Fee Schedule* (OMFS) is used to determine reimbursement rates for California's workers' compensation system. The OMFS establishes reasonable maximum fees for medical services provided by physician and non-physician health care providers to individuals under workers' compensation. As part of a major restructuring of the OMFS, the State of California is proposing to adopt a modified version of the Resource-Based Relative Value Scale (RBRVS) developed by the Centers for Medicare and Medicaid Services.¹ A primary goal of the proposed system is to ensure that California's injured workers have access to quality care by increasing the accuracy of payments to the State's healthcare providers. To reach this objective, the payment system must provide the appropriate incentives to healthcare providers by reflecting the relative resources required to perform different medical procedures.

Purpose of the Study

The Industrial Medical Council of the California Department of Industrial Relations (IMC/DIR) contracted with The Lewin Group to provide technical analyses and policy recommendations related to the proposed migration to RBRVS for its OMFS. As part of an initial analysis, The Lewin Group (1) updated the OMFS to 2001 Current Procedural Terminology (CPT), (2) developed procedure payment weights based on RBRVS and a budget neutral conversion factor, (3) assessed the proposed system's impact on providers, and (4) identified strategies to ease the transition.

The work presented in this report is preliminary in that it is based on current ground rules in the OMFS. The IMC/DIR has contracted with The Lewin Group to generate new results based on recommendation concerning payment policies and ground rules to be made by the IMC. The new analysis will also incorporate the results of The Lewin Group's physician work and practice expense studies, which determined the relative work and practice expense required to provide evaluation and management services to workers' compensation patients in California.

To conduct our impact assessment, we used a sample of workers' compensation medical claims for calendar year 2000 (N=4,132,063) and simulated payments under the current OMFS and under the proposed RBRVS. We then compared payments under each system by major section of the fee schedule and by specialty. In this report, we discuss our methodology, present preliminary findings on the potential impact of the new system on providers, and highlight options regarding the implementation and transition to the proposed system. We also discuss potential mechanisms for updating the fee schedule over time, and possible ways to account for geographic variation in costs.

¹ The Health Care Financing Administration changed its name to the Centers for Medicare and Medicaid Services on July 1, 2001.

Data and Methods

To optimally support our analysis, we required a database consisting of records of medical services provided to all injured workers in California in order to construct frequencies by CPT code, provider specialty, and county. Workers' compensation medical records in California are processed and compiled by a number of different insurance carriers and entities. Consequently, no single database currently exists that includes all workers' compensation medical records for California or the frequency distribution of services across CPT codes. Moreover, a general limitation of available claims data is that they do not include information from self-insured companies.

To conduct our analysis, we obtained a comprehensive data set of medical claims records from the California Workers' Compensation Institute (CWCI). CWCI receives medical services data from a number of carriers throughout California, who collectively represent a significant share of the workers' compensation market. The CWCI data has a number of useful features for the study. First, it contains all the elements required to complete our analysis. Second, it includes records from a number of medical carriers that cover workers in a broad range of industries and regions within the state, although it does not include self-insured data.

The CWCI data received by The Lewin Group included two primary data sets. The first contains medical bill records submitted by four carriers. The medical bill records file contains a total of 4,132,063 unique CPT service level records with dates of service between January 1, 2000 and December 31, 2000. This database of medical bills was compiled from 116,548 unique workers' compensation claims (injured workers). These data were not pre-selected and include all service records processed by CWCI as of September 1, 2001. The second data set includes the specialty of treating physicians and an encrypted physician identification number that was used to link specialty information with the medical service data. The ability to identify the specialty of treating physicians is critical to complete the specialty-specific impact assessment. We will be receiving additional data from a fifth carrier, which will complete our 2000 medical bill records file. We will incorporate these data into our analysis and present it in the final report.

For purposes of this study, "representativeness" relates to the frequency distribution of services across CPT codes. That is, if the frequency distribution across CPT codes of the CWCI database provided to The Lewin Group approximates the distribution of all services provided to injured workers in California, our results could be generalized to all California workers' compensation cases. The CWCI data represents approximately 40 percent of the workers' compensation insurance premium in calendar year 2000.² Data on submitted and allowed charges and paid amounts are not relevant for our study, because we simulate paid amounts under OMFS and the proposed RBRVS.

As indicated above, the exact distribution across CPT codes of the universe of services provided under workers' compensation is unknown. However, we can assess the extent to which the data are representative of the universe by examining the distribution of industries and injured

² Based on discussions with Alex Swedlow, Executive Vice President of Research and Development of the California Workers' Compensation Institute.

body parts reflected in the CWCI database, as compared to data representing the broader universe of injured workers. If these distributions are comparable, we can assume that the underlying types of medical services provided to injured workers are comparable between the CWCI data and aggregate data. To determine how representative the CWCI data set is of the universe of workers' compensation claims in California, we compared the distribution of CWCI data to data from the Workers' Compensation Insurance Rating Bureau of California (WCIRB), the Division of Labor Statistics and Research (DLSR), and the Workers' Compensation Information System (WCIS).

We found that the distribution of injuries by industry in both the CWCI and the WCIRB data sets is similar, with no more than a three percentage point difference for any category, except the "All Other" category. The "All Other" group differs by 4.5 percentage points between the two data sets, but contains a diverse selection of industries and, hence, we expected to find greater variance in this group.

Similarly, we found that both the CWCI data and the WCIS data represent the most frequent body part injuries in almost identical proportions. The frequencies of the listed body parts are never more than three percentage points apart, and rarely as high as one percentage point different. These findings indicate that the frequency distribution of medical procedures found in the CWCI database may not differ significantly from the frequency distribution of medical procedures performed on all of California's injured workers.

Methods

We completed our analysis in the following five key steps:

Step 1: Developed a single Relative Value Unit (RVU) for each CPT code based on RBRVS and other information. We calculated an Adjusted RVU for each code using the relative value units in the 2001 Medicare Fee Schedule and code-specific, weighted average Work, Practice Expense, and Malpractice GPCIs. We crosswalked to analogous codes in instances where the OMFS and the 2001 Medicare Fee Schedule differed.

Step 2: Estimated payments for each procedure and in total based on the OMFS. To estimate payments for a procedure under the OMFS system, each RVU is multiplied by the appropriate OMFS conversion factor. We applied the OMFS discounting payment methodologies to the surgery and physical medicine sections.

Step 3: Created a single conversion factor under the proposed RBRVS that keeps payments budget neutral to 2001 OMFS payments. IMC/DIR had asked us to model the proposed payment system with a single, budget-neutral conversion factor. Accordingly, we developed the conversion factor by dividing total payments under the OMFS by total adjusted RVUs. The resulting conversion factor was \$44.73.

Step 4: Calculated payments under the proposed RBRVS based on the relative value units from Step 1 and the conversion factor from Step 3. To estimate payments for a procedure under the RBRVS system, each RVU is multiplied by the corresponding conversion factor. We applied the OMFS discounting payment methodologies ("cascades") to the surgery and physical medicine sections.

Step 5: Assessed the financial impact by CPT procedure group and by provider specialty of adopting the proposed RBRVS. We simulated payments under OMFS and the RBRVS for each procedure. We then measured impacts by the dollar and percent change in payments for each procedure code category and specialty.

Study Findings

We analyzed the financial impact of adopting RBRVS by procedure code category and provider specialty group. Using simulation, we developed payments under both the OMFS and the Medicare RBRVS for each procedure and compared them. We did not model anesthesia codes and did not include drug and supply codes that are outside the physician fee schedule.

We calculated a single conversion factor of \$44.73 for the modeled RBRVS-based OMFS. This conversion factor is about 10 percent higher than the 2001 California GPCI-adjusted Medicare conversion factor of \$40.54. Hence, on average the modeled RBRVS-based OMFS reimburses at a higher level than the Medicare RBRVS. Under the Lewin OMFS payment model, we estimated OMFS payments of \$215,577,690 for codes subject to RBRVS. We used this number as our budget neutrality target throughout the analysis.

Table 1 below shows that E & M and Pathology and Laboratory would receive higher payments under the RBRVS-based OMFS, while Surgery would receive lower payments. Other procedure groups are expected to experience smaller changes in payments.

Table 1
Financial Impact by Procedure Group Using a Single Budget neutral Conversion Factor (\$44.73)

OMFS Category	Modeled Paid RBRVS	Modeled Paid OMFS	Dollar Difference	Percent Difference
Anesthesia	\$6,145,869	\$6,145,869	-	0.0%
E&M	\$50,316,739	\$40,935,969	\$9,380,770	22.9%
Surgery	\$35,432,041	\$42,098,904	\$(6,666,863)	-15.8%
Radiology	\$24,341,127	\$24,523,624	\$(182,497)	-0.7%
Pathology & Laboratory	\$2,188,852	\$1,818,870	\$369,982	20.3%
Medicine	\$12,375,410	\$13,155,808	\$(780,398)	-5.9%
Special Services (total)*	\$11,505,896	\$11,845,046	\$(339,150)	-2.9%
Subject to RBRVS	\$56,892	\$396,042	\$(339,150)	-85.6%
Pass Throughs	\$11,449,004	\$11,449,004	-	0.0%
Physical Medicine	\$73,271,755	\$75,053,599	\$(1,781,844)	-2.4%
Total	\$215,577,690	\$215,577,690	\$ 0	0.0%

* Since most special service codes are paid using codes created by the state for California workers' compensation services, we assumed payments would remain the same under RBRVS and categorized them as "pass throughs." Many of those codes that are subject to RBRVS were bundled into other codes in the Medicare RBRVS, and hence experienced significant payment decreases.

Note: Estimated payments reported in Table 1 reflect only the procedures included in the CWCI database, and are not an estimate of all workers' compensation payments in the state of California.

Table 2 below presents modeled payments under the OMFS and the RBRVS-based OMFS for physician specialty groups with estimated payments greater than \$5 million. The largest physician specialty groups would experience percent changes in payments in the -5.1 to 3.7 percent range. We estimate that Orthopedic surgery would experience the largest percent decrease in payments at -5.1 percent, while Clinics, Groups and Associations would experience

the largest percent increase in payments at 3.7 percent. Specialty categories are based on categories that are used by physicians when submitting bills to workers' compensation insurers.

Table 2
Financial Impact for Physician Specialty Groups with Payments Greater than \$5M

Specialty	Modeled Paid RBRVS	Modeled Paid OMFS	% Difference
Clinics, Groups, Associations	\$49,858,877	\$48,092,856	3.7%
General Practice	\$24,839,718	\$25,590,462	-2.9%
Chiropractors	\$24,339,469	\$25,131,738	-3.2%
Orthopedic Surgery	\$15,825,183	\$16,679,373	-5.1%
Hospitals	\$14,513,384	\$14,208,676	2.1%
Physiotherapists	\$13,283,073	\$13,435,777	-1.1%
Radiology X-Rays	\$10,811,919	\$10,765,802	0.4%
Physical Medicine and Rehab	\$6,893,501	\$6,747,566	2.2%
Anesthesiology	\$6,656,046	\$6,828,515	-2.5%
Total	\$167,021,170	\$167,480,765	-0.3%
% of Total	77.5%	77.7%	

Of all physician specialty groups, we estimate that Diagnostic Roentgenology would experience the greatest percent reduction under the modeled RBRVS-based OMFS at -46.4 percent, while Colon and Rectal Surgery would experience the greatest percent increase at 35.7 percent (see *Appendix A*). For the top ten physician specialty groups in terms of payouts, the average absolute change is approximately 4.5 percent. This top ten grouping includes the nine specialties listed in *Table 2*, in addition to the Psychology specialty, which would experience an increase in payments of 21.2 percent. If the Psychology specialty is excluded from the average absolute change calculation, the percent change decreases to 2.6 percent.

In general, those specialties that we estimate would experience the largest changes in payment account for a small proportion of paid dollars. Fourteen specialties would receive an additional 10 percent or more in payments under the RBRVS-based OMFS; payments to these specialties account for 3.3 percent of total payments. Seven specialties would lose 10 percent or more in payments under the RBRVS-based OMFS; payments to these specialties account for 1.7 percent of total payments.

Implementing and Updating a Resource-Based OMFS

We conducted telephone interviews with a sample of states concerning their transition strategies and the methods they used to update their fee schedules (see *Appendix B*). States generally told us they chose not to transition to the new fee schedule or make geographic adjustments to payments. Most have updated their conversion factors using the statewide average weekly wage (SAWW), the Medicare Economic Index (MEI), or the Consumer Price Index (CPI). Lewin also conducted interviews with specialty provider associations to get their comments on the methodology of the RBRVS Study.

Transition Strategies

Adopting a resource-based OMFS would result in a redistribution of payments across providers. Lewin identified three approaches to assist providers in dealing with such redistributive impacts, which could be applied at one time or over a fixed time period: (1) blending the old and new RVUs or payments (“blending”); (2) limiting the change in fee schedule amount under RBRVS for any given code in a single year (“loss-gain limit”); and (3) using multiple conversion factors.

- The “blending” approach would ease the impact of adopting RBRVS at the code level, providing an opportunity for providers to adjust to the new payment system. Nevertheless, the change in payments for some codes could still be significant.
- The “loss-gain limit” approach is slightly more complex than the blending approach, because not all codes would be transitioned over the same time period. To mitigate this problem, the transition could be limited to a fixed time period. The loss-gain limit approach would offer temporary protection for specific procedure codes for which payments under the new system would be significantly reduced. However, the approach is unlikely to be budget neutral, unless budget neutrality is imposed on the system. In addition, procedures for which payments decrease less than the loss limit level would be implemented without a transition. For this reason, the IMC/DIR could consider combining the blending and the loss-limit approaches, which would both target the codes that would change the most, and ensure that every code would be transitioned into the new system.
- If IMC/DIR decided to use multiple conversion factors, it would have to determine how many conversion factors were appropriate, and how to subdivide the OMFS. Using multiple conversion factors to minimize the impact of RBRVS is the broadest solution IMC/DIR could implement. Each conversion factor would protect large groups of codes from significant changes in payments. Therefore, the impact of RBRVS could still be large for some procedure codes. In addition, an RBRVS-based system that uses multiple conversion factors would not be fully resource based.

Although we have provided some options for phasing in the proposed payment system, there are other factors that should be considered when evaluating whether a payment system should be phased in over time. In particular, a gradual transition to RBRVS would add complexity to the system and increase administrative costs. Several specialty groups have raised concerns about the administrative challenges involved in adopting a transition strategy, and the potential consequences for providers (i.e. timely reimbursement). A transition period would also distort the relativity of the RBRVS-based OMFS. The transition system would be more resource-based than the present system, but would not be fully resource-adjusted.

Using an Economic Indicator to Update the CFs

We assessed the appropriateness of several economic indicators that could be used to update the conversion factor(s). The CPI is state-specific, but is such a broad measure of economic change that it may not be an appropriate measure with which to update the conversion factor(s). The MEI reflects the changing cost of delivering health care services, but is a national

indicator rather than a California-specific measure. Finally, the SAWW is state-specific and includes several health care categories, but covers only wages and may not be indicative of annual changes in input prices for workers' compensation.

Geographic Adjustment Factors

Geographic adjustment factors (GAFs) are used in provider payment systems to account for different input prices in different areas covered by a payment system. GAFs reflect the relative prices of labor, practice expenses, and malpractice insurance in an area compared to the average. In developing the relative value units for the resource-based OMFS, we made a one-time geographic adjustment to the relative value units for each code in RBRVS based on the average Medicare work, practice expense, and malpractice GPCIs. Making a one-time geographic adjustment is better than making no adjustment because it improves payment accuracy at the Medicare locality level. However, the one-time geographic adjustment has several limitations, and IMC/DIR should consider individually adjusting each claim based on the locality in which the procedure was performed. If IMC/DIR determines that costs vary significantly enough to justify the use of GAFs, it must then determine which locality divisions to use in the geographic adjustments. The nine Medicare localities, 28 MSAs, 58 California counties, or a new division of California counties could all be used.

Conclusion and Recommendations

The purpose of the study was to provide IMC/DIR with technical analyses and policy recommendations related to the proposed migration to RBRVS for its OMFS. Based upon our findings, E & M, Psychology, and Pathology and Laboratory would receive higher payments under the RBRVS-based OMFS, while Surgery would receive lower payments. Physician specialties that would experience the largest changes in payment, however, account for a relatively small proportion of paid dollars.

IMC/DIR will need to consider several questions related to the adoption of the new RBRVS system. First, it will need to decide whether the protection a transition strategy would offer to providers justifies the administrative costs and delay in implementation required. Both the E & M and Pathology and Laboratory procedure groups would experience greater than a 20 percent increase in payments under RBRVS, while Surgery would experience almost a 16 percent decrease. Given the large impact of the proposed system, it might be prudent to phase the payment changes in gradually.

If IMC/DIR decides to use a transition strategy, we believe a combination of the blending and the loss-limit approaches would offer the best protection to providers, as this combination would target the codes that would change the most, and ensure that every code would be transitioned into the new system. We would not recommend using multiple conversion factors because the impact would still be large for some procedure codes, the system would not be fully resource-based, and multiple conversion factors would be more challenging to update than a single conversion factor.

As input prices vary over time, it is important to adjust the current fee schedule to keep payments in line with prices. Regularly updating the conversion factor(s) and keeping the payment system current avoids the payment dislocations associated with irregular updates. We

believe IMC/DIR should consider using the “health services” statewide average weekly wage to update its conversion factor(s). The SAWW indicator is both state and health care-specific, and hence captures the changing costs of delivering health care services in California more precisely than the CPI or MEI. Furthermore, the “health services” basket of services incorporates all facilities utilized by the workers’ compensation population. The MEI, however, would also be an appropriate measure because although it is not California-specific, it incorporates all costs relevant to the provision of medical services.

There is significant geographic cost variation across different localities within California, differing by more than 21 percent between the highest and lowest GAFs of the nine Medicare localities, and by almost 30 percent across all county GAFs. Hence, we believe IMC/DIR should individually adjust each claim based on the locality in which the procedure was performed. At the very least, IMC/DIR should employ the nine Medicare localities, but should consider using a finer geographic division such as MSAs to improve payment accuracy, depending on the degree of added administrative complexity involved.

I. INTRODUCTION AND BACKGROUND

A. Purpose of Study

The *Workers' Compensation Official Medical Fee Schedule* (OMFS) is used to determine reimbursement rates for California's workers' compensation system. The OMFS establishes reasonable maximum fees for medical services provided by physician and non-physician health care providers to individuals under workers' compensation. As part of a major restructuring of the OMFS, the State of California is proposing to adopt a modified version of the Resource-Based Relative Value Scale (RBRVS) developed by the Centers for Medicare and Medicaid Services.³ The Centers for Medicare and Medicaid Services (CMS) implemented RBRVS in 1992 with publication of its Medicare Fee Schedule (MFS). The relative value units in RBRVS are intended to reflect the amount of resources required to provide a medical procedure relative to a typical or average procedure. The RBRVS was not designed to be Medicare-specific, so RBRVS relative value units are appropriate for other populations.

A primary goal of the proposed system is to ensure that California's injured workers have access to quality care by increasing the accuracy of payments to the State's healthcare providers. To reach this objective, the payment system must provide the appropriate incentives to healthcare providers by reflecting the relative resources required to perform different medical procedures. The current OMFS is based in part on the 1974 California Relative Value Study and updates supplied by private vendors or values assigned by the state of California. As a result, the current relative value units may not be representative of providers' relative costs or the level of reimbursement received from other payers.

The Industrial Medical Council of the California Department of Industrial Relations (IMC/DIR) contracted with The Lewin Group to provide technical analyses and policy recommendations related to the proposed migration to RBRVS for its OMFS. As part of this effort, The Lewin Group 1) updated the OMFS to 2001 Current Procedural Terminology (CPT), 2) developed procedure payment weights based on RBRVS and a budget neutral conversion factor, 3) assessed the proposed system's impact on providers, and 4) identified strategies to ease the transition.

The work presented in this report is preliminary in that it is based on current ground rules in the OMFS. The IMC/DIR has contracted with The Lewin Group to generate new results based on recommendation concerning payment policies and ground rules to be made by the IMC. The new analysis will also incorporate the results of The Lewin Group's physician work and practice expense studies, which determined the relative work and practice expense required to provide evaluation and management services to workers' compensation patients in California.

³ The Health Care Financing Administration changed its name to the Centers for Medicare and Medicaid Services on July 1, 2001.

To conduct our impact assessment, we used a sample of workers' compensation medical claims for calendar year 2000 (N=4,132,063) and simulated payments under the current OMFS and under the proposed RBRVS. We then compared payments under each system by major section of the fee schedule and by specialty⁴. In this report, we discuss our methodology, present preliminary findings on the potential impact of the new system on providers, and highlight our recommendations regarding the implementation and transition to the proposed system. We also discuss potential mechanisms for updating the fee schedule over time, and possible ways to account for geographic variation in costs.

B. RBRVS: Background and Key Features

The RBRVS, which consists of a set of relative value units (RVUs) for over 7,000 medical procedures, was originally adopted by the Medicare program in 1992 with publication of the Medicare Fee Schedule (MFS) (November 25, 1991; 56 FR 59502). Each procedure is represented in the MFS by a five-digit CPT code developed by the American Medical Association. For each CPT code, the MFS includes three RVUs corresponding to the following resource category: physician work, practice expenses, and malpractice insurance. Payments for each procedure are determined by first multiplying the RVUs associated with each component by the appropriate geographic practice cost index (GPCI). The GPCIs are used to adjust payments to reflect geographical variation in the cost of providing medical care due to differences, for example, in office rent or clinical labor costs. These values are then summed and multiplied by a single conversion factor. Under the RBRVS-based MFS, payments for most E/M services increased 15 to 45 percent, while payments for invasive services and diagnostic tests decreased 20 to 30 percent.⁵

Researchers from the Department of Health Policy and Management at Harvard University developed RBRVS over the course of several years.⁶ However, when the MFS was originally implemented by the Medicare program, only the work RVUs were based on estimates of the actual resources required to provide medical services and, hence, were truly resource-based. The practice expenses and malpractice RVUs were based on charges, which were thought to have only a limited and indirect relationship to resource costs.

To correct for the inaccuracies associated with charge-based RVUs, CMS developed methods to construct practice expense and malpractice RVUs using actual cost data and began implementing these changes in 1999. CMS developed the resource-based practice expense RVUs using data from a series of consensus panel meetings (i.e., Clinical Practice Expense Panels or CPEPs) and the American Medical Association's Socioeconomic Monitoring System (SMS). The CPEPs provided data on the expenses associated with the direct inputs used in

⁴ The OMFS consists of seven major sections, including: Evaluation and Management, Anesthesiology, Surgery, Radiology, Pathology and Laboratory, Medicine (Physical Medicine, Manipulative Treatment, Special Services), and Orthotics and Prosthetics. For our purposes, specialty is defined as the specialty categories included in the CWCI data set (see *Appendix A* for complete listing).

⁵ Hsiao, W.C., Braun, P., Becker, E.R., et al. "Results and Impacts of the Resource-Based Relative Value Scale." *Medical Care*. 1992; 30(11): NS61-NS79.

⁶ For an overview of the initial development of RBRVS, see Hsiao et al. (1992) "An Overview of the Development and Refinement of the Resource-based Relative Value Scale," *Medical Care*, November 1992, Vol. 30, No. 11, Supplement.

performing individual medical procedures, such as medical supply costs. Total practice expenses by specialty were obtained from an analysis of the SMS survey data.⁷ CMS began a four-year transition to resource-based practice expense RVUs in 1999, which were fully implemented on January 1, 2002. For malpractice RVUs, the charge-based values were replaced with resource-based RVUs on January 1, 2000. These RVUs were based on malpractice premium data collected from each state's Department of Insurance. In total, the data contained premium information for 46 companies that sold malpractice insurance.⁸ CMS did not use a transition period for the malpractice RVUs, choosing, instead, to implement them at one time.

The RBRVS offers a number of advantages as a resource-based payment system. Specifically, it has gone through an extensive process of external validation and public rule making. In addition, CMS is required to review and update the MFS relative values periodically, thereby providing California with an opportunity to update OMFS relative values with future revisions of the Medicare Fee Schedule.⁹ Because of these favorable attributes, a number of diverse payers have adopted the Medicare RBRVS or systems based on it. Approximately, 20 states in 1999 used the resource-based relative value scale to determine payments to physicians in state workers' compensation program (Kominski et al., 1999). In addition, a survey of public and private payers in 1998 indicated that 87 percent of Blue Cross/Blue Shield and 69 percent of managed care payers had implemented or were in the process of implementing RBRVS (American Medical Association, 2000).

C. Key Fee Schedule Development Issues

We encountered several issues in conducting our study that are worth noting in this introduction. First, the proposed system we model would update the OMFS, which is primarily based on 1997 CPT, to 2001 CPT. Even more dated is the Physical Medicine subsection of the fee schedule, which is based on 1994 CPT codes. We developed the proposed fee schedule using the CPT codes and the relative values appearing in the 2001 MFS. Updating the fee schedule has implications for our modeling of the impact on providers, because a number of CPT codes were deleted and replaced since the 1994 and 1997 editions of CPT. Therefore, in conducting our impact analysis, we created a crosswalk between deleted and new codes, whereby we assigned the frequency of services associated with a deleted code to the new code(s) that replaced it.

Second, the Surgery subsection and the Physical Medicine subsection of the OMFS each employ multiple procedure discounting rules. In estimating payments associated with surgery and

⁷ For a detailed description of the methodology used to develop the resource-based practice expense RVUs, see Chapter 2 in Dobson et al. (2001) "The Resource-Based Practice Expense Methodology: An Analysis of Selected Topics," prepared by The Lewin Group for The Centers for Medicare and Medicaid Services, June 5, 2001 (<http://www.hcfa.gov/medicare/pfsmain.htm>).

⁸ For more detailed information on the development of the resource-based malpractice RVUs, see "Addendum G— Technical Addendum to the April 1999 Report on the Development of Resource Based Malpractice Relative Value Units Prepared by KPMG," Federal Register, November 1, 2000, p. 65589.

⁹ For example, on June 8, 2001, CMS published a notice on its most recent five-year review of the work relative value units under the MFS. CMS will conduct a five-year review of the practice expense RVUs in 2007. In addition, the transition period for practice expenses encompassed a refinement process during which CMS made modifications to the complex methodology used to determine practice expense RVUs.

physical medicine procedures, we attempted to apply the discounting rules as described in the OMFS. In addition, the Physical Medicine subsection has a number of other ground rules. We incorporated those features that could be modeled given the level of detail in our workers' compensation claims data.

Third, for several CPT codes, the Medicare RBRVS associates a different practice expense RVU for a procedure depending on whether it is performed in an office or a hospital setting. However, the OMFS contains a single relative value unit for each code, and we were asked by DIR to maintain this convention in our study. Therefore, we developed an approach to combining the practice expense RVUs for codes with values that depend on place of service. We also developed RVUs for a number of California-specific codes that appear in the OMFS, but are absent from the 2001 MFS.

In Sections II and III of this report, we discuss the source and quality of our workers' compensation medical claims data and then present our methods for conducting the analyses and addressing the technical issues noted above. We present the results of our impact analysis in Section IV and discuss implementation and updating the proposed fee schedule in Section V. Finally, we provide our conclusions and recommendations in Section VI.

II. DATA

To optimally support our analysis, we required a database consisting of all records of medical services provided to injured workers in California. These data would then be used to construct frequencies by CPT code, provider specialty, and county. However, workers' compensation claims in California are processed and compiled by a number of different insurance carriers and entities. Consequently, no single database currently exists that includes all workers' compensation medical records for California or a frequency distribution of services across CPT codes. Moreover, a general limitation of available claims data is that they do not include information from self-insured companies.

To conduct our analysis, we obtained a comprehensive data set of medical claims records from the California Workers' Compensation Institute (CWCI). CWCI receives medical services data from a number of carriers throughout California, who collectively represent a significant share of the workers' compensation market. The CWCI data have a number of useful features. First, they contain the specific elements required to complete our analysis. Second, although they do not contain self-insured data, they do include records from a number of medical carriers that cover workers in a broad range of industries and regions across the state.

The CWCI data received by The Lewin Group included two primary data sets. The first contains medical bill records submitted by four major carriers. The medical bill records file contains a total of 4,132,063 unique CPT service level records with dates of service between January 1, 2000 and December 31, 2000. This database of medical bills was compiled from 116,548 unique workers' compensation claims (injured workers). These data were not pre-selected and include all service records processed by CWCI as of September 1, 2001. The second data set includes the specialty of treating physicians and an encrypted physician identification number that was used to link specialty information with the medical service data. The ability to identify the specialty of treating physicians is critical to assessing the specialty-specific impact. We will be receiving additional data from a fifth carrier, which will complete our 2000 medical bill records file. We will incorporate these data into our analysis and present it in the final report.

In addition to using the CWCI data, Lewin conducted interviews with workers' compensation officials in states that have been using either the Medicare RBRVS or St. Anthony's RVP for determining reimbursement levels for physicians who provide services to workers' compensation patients. A total of 18 interviews were conducted (see *Appendix B*). Topics covered during the interviews included background on the adoption of the new payment methodology, transition strategies, conversion factors and updates, ground rules, geographic adjustments and outcomes. Lewin also conducted interviews with specialty provider associations to get their comments on the methodology of the RBRVS Study. Topics covered included thoughts on transition, geographic adjustment and conversion factor updates.

A. Representativeness of the Data

The CWCI database provided to The Lewin Group represents approximately 40 percent of the workers' compensation insurance premium in calendar year 2000.¹⁰ The fact that the data cover a significant share of workers' compensation medical services increases the likelihood that the data are a representative sample of all medical services provided to injured workers covered under non-self insured workers' compensation plans. To further examine how representative the CWCI data set is of the universe of workers' compensation claims in California, we compared the distribution of CWCI data to data from several other sources: 1) the Workers' Compensation Insurance Rating Bureau of California (WCIRB), 2) the Division of Labor Statistics and Research (DLSR), and 3) the Workers' Compensation Information System (WCIS).

For purposes of this study, "representativeness" relates to the frequency distribution of services across CPT codes. That is, if the frequency distribution across CPT codes of our data approximates the distribution of all services provided to injured workers in California, our results could be generalized to all California workers' compensation cases. Data on submitted and allowed charges and paid amounts are not relevant for our study, because we simulate paid amounts under OMFS and the proposed RBRVS. Therefore, we are not concerned with the representativeness or quality of the data in these respects.

As indicated above, the frequency distribution across CPT codes of all services provided under workers' compensation is unknown. However, we can assess the representativeness of the data by examining the distribution of industries and injured body parts reflected in the CWCI database, as compared to data representing the universe of injured workers. If these distributions are comparable, we can assume that the underlying types of medical services provided to injured workers are comparable between CWCI and aggregate data.

Table 1 shows the percentage of claims filed by each industry in the CWCI data set and the 1998 Workers' Compensation Insurance Rating Bureau of California (WCIRB) data set. The WCIRB is an unincorporated, nonprofit association comprised of all companies licensed to transact workers' compensation insurance in California and has over 400 member companies. To accurately measure the cost of providing workers' compensation insurance, the WCIRB performs a number of functions, including the collection of premium and loss data on every workers' compensation insurance policy, examination of policy documents, inspections of insured businesses, and test audits of insurance companies. Each of these activities helps ensure the quality of the WCIRB data.

As *Table 1* shows, the distribution of injuries by industry in both data sets is highly similar, with no more than a three percentage point difference for any category, except the "All Other" category. The "All Other" group differs by 4.5 percent between the two data sets, but because the group contains a diverse selection of industries we expect higher variance.

¹⁰ Based on discussions with Alex Swedlow, Executive Vice President of Research and Development of the California Workers' Compensation Institute.

Table 1
Distribution by Industry Class: CWCI Sample & WCIRB 1998 Policy Year Statistics

Industry	CWCI	WCIRB
Construction	9.8%	12.7%
Manufacturing Metal	4.6%	2.5%
Manufacturing Wood	1.8%	0.8%
Manufacturing Plastic	0.9%	0.4%
Manufacturing Paper	0.8%	0.6%
Manufacturing Textile	1.5%	2.3%
Manufacturing Food	1.2%	0.7%
Manufacturing Elect	1.5%	1.1%
Manufacturing Other	1.6%	0.8%
Agriculture	3.1%	5.2%
Mercantile	10.8%	12.3%
Aircraft	0.4%	0.2%
Professional & Clerical	27.6%	30.5%
All Other	34.6%	30.1%

Source: Medical claims records from California Workers' Compensation Institute (CWCI) and Workers' Compensation Insurance Rating Bureau of California (WCIRB).

Table 2 shows the distribution of CWCI and Workers' Compensation Information System (WCIS) data by the most frequently injured body parts. Mandated by legislation enacted in 1993, California's Workers' Compensation Information System (WCIS) uses Electronic Data Interchange (EDI) to collect comprehensive information from claims administrators to help the Department of Industrial Relations oversee the state's workers' compensation system. The WCIS data represents claims filed between March 2000 and August 2001, and includes data from both insurers and self-insured employers, and from public and private employers. The WCIS does not represent the universe of all claims because it is in the development stage and hence only includes data from early adopters of the electronic system. However, it is another indicator of the types of claims filed in California during approximately the same time period as the CWCI data used in this study.

As *Table 2* shows, the CWCI data and the WCIS data represent the most frequent body part injuries in almost identical proportions. The frequencies of the listed body parts are never more than three percentage points apart, and rarely as high as one percentage point different. We did not include similar statistics produced by the DLSR in *Table 2* because the available data are older (1999), and the body part categories are difficult to match with those in the CWCI and WCIS data sets. However, in consistently defined cases, the body part frequencies are again very similar (not shown in *Table 2*).

The comparisons presented in this section suggest that the CWCI data set is representative of the types of industries and body part injuries found in California's workers' compensation population. These findings further suggest that the frequency distribution of medical procedures found in the CWCI database may not differ significantly from the frequency distribution of medical procedures performed on all of California's injured workers.

Furthermore, although the CWCI data do not include claims from self-insured employers, the results in *Table 2* indicate that inclusion of self-insured data, if available, would not materially alter the distribution of the procedures in our data. This is important because our analysis is primarily dependent on the distribution across procedures. Consequently, available evidence suggests that our study results are broadly representative of California’s injured worker population.

Table 2
Distribution of CWCI and WCIS Data by Top Injured Body Parts

Part of Body	CWCI	WCIS
Low Back (inc. Lumbar and Lumbo-Sacral)	16.10%	14.7%
Multiple Body Parts	11.9%	10.0%
Finger(s)	11.5%	8.9%
Hand	6.0%	6.3%
Knee	5.7%	5.9%
Eye(s)	5.2%	4.4%
Wrist	4.2%	5.0%
Ankle	3.6%	3.6%
Shoulder(s)	3.4%	3.0%
Lower Arm	3.3%	3.0%
Foot	2.8%	2.8%
Lower Leg	2.5%	1.9%
Multiple Head Injury	1.9%	1.3%
Elbow	1.7%	1.9%
Abdomen	1.6%	1.0%
No Physical Injury (Mental Disorder)	1.6%	0.7%
Other Facial Soft Tissue	1.5%	1.3%
Multiple Injury (Neck)	1.5%	0.8%
Chest (inc. Ribs, Sternum and Soft Tissue)	1.4%	1.3%
Thumb	1.3%	2.8%
Mult. Upper Extremities (no hands/wrists)	1.1%	2.7%
Upper Arm	0.9%	2.5%
Toe(s)	0.8%	0.7%
Upper Back (Thoracic)	0.7%	1.7%

Source: Medical claims records from California Workers’ Compensation Institute (CWCI) and Workers’ Compensation Information System (WCIS).

III. METHODS

In this section, we describe our methods for developing a single relative value unit for each code based on Medicare RBRVS values, simulating payments, and assessing the impact of the proposed system on providers. In evaluating the impact of RBRVS, we modeled the proposed payment system with a single conversion factor. That is, the conversion factor was to be established at a level such that total payments would remain unchanged if the number and type of medical procedures performed did not change. We completed our analysis in five key steps:

- 1) Developed a single relative value unit for each CPT code based on RBRVS and other information;
- 2) Estimated payments for each procedure and in total based on the OMFS;
- 3) Created a single conversion factor under the proposed RBRVS that keeps RBRVS payments budget neutral to 2001 OMFS payments;
- 4) Calculated payments under the proposed RBRVS based on the relative value units from Step 1 and the conversion factor from Step 3; and
- 5) Assessed the financial impact by CPT procedure group and by provider specialty of adopting the proposed RBRVS.

We describe our methods for completing each step in the sections below.

A. Developing a Single RVU for Each CPT Code Based on RBRVS

The RBRVS based physician payment system consists of work RVUs, practice expense RVUs (PE RVUs), and malpractice RVUs (Mal RVUs) for each CPT code. These relative value units are appropriate for determining payments to localities having average costs of running medical practices. To account for geographic variation in costs, the Medicare program adjusts the relative value units by locality-specific work, practice expense, and malpractice Geographic Practice Cost Indexes (GPCIs). For localities with above average medical practice operating costs, the GPCIs are greater than 1.0, while localities with below average costs have GPCIs less than 1.0. The value of a GPCI reflects the estimated difference in costs for a locality from the national average.¹¹ A practice expense GPCI equal to 1.2, for example, would indicate that the inputs associated with practice expenses (e.g., office expenses, medical assistant) are 20 percent higher in that locality than for an average locality.

To calculate payments for a procedure under the Medicare RBRVS system, each RVU component is multiplied by the corresponding GPCI for a given locality, the RVUs across components are summed, and this total is then multiplied by the conversion factor. The formulas for calculating payments for an individual procedure are as follows:

¹¹ A more detailed description of the Medicare GPCIs and their development is presented in Chapter V.

1) Adjusted RVU = (Work GPCI * Work RVU + PE GPCI * PE RVU + Mal GPCI * Mal RVU);

2) Payments = Conversion Factor * Adjusted RVU.

While the Medicare Fee Schedule currently pays different amounts based on site of service (e.g. office vs. hospital setting), the OMFS includes only a single RVU for each code. We maintain the OMFS convention in the proposed system. In addition, DIR asked that we base the proposed system on the RBRVS using current average Medicare values for all of California by not using unique California sub-area GPCIs; this approach is also consistent with the current OMFS. To maintain or incorporate these features, we calculated a single relative value unit for each code using the formula (1) for Adjusted RVU, shown above.

We calculated an Adjusted RVU for each code using code-specific average Work, PE, and Mal GPCIs and the relative value units as reported in the 2001 Medicare Fee Schedule. As shown in *Table 3*, the Medicare program divides California into nine localities for payment purposes. We computed an average GPCI for each code using weights derived from a procedure's relative frequency in each of the nine localities based on the volume of services reported in our claims data.

Table 3
California GPCIs for 2001

Locality Number	Fee Schedule Area	Counties	Work GPCI	Practice Expense GPCI	Mal-practice GPCI
26	Anaheim/Santa Ana	Orange	1.036	1.187	0.901
18	Los Angeles	Los Angeles	1.055	1.169	0.901
03	Marin/Napa/Solano	Marin, Napa, Solano	1.014	1.205	0.677
07	Oakland/Berkeley	Alameda, Contra Costa	1.04	1.216	0.677
05	San Francisco	San Francisco	1.067	1.378	0.677
06	San Mateo	San Mateo	1.047	1.353	0.677
09	Santa Clara	Santa Clara	1.062	1.321	0.653
17	Ventura	Ventura	1.027	1.128	0.75
99	Rest of State	All Other	1.007	1.039	0.723

Source: Federal Register, July 17, 2000, vol. 65, no. 137, p. 44354.

To take a simple hypothetical example, suppose that a procedure appeared in our database 200 times. One hundred of these instances occurred in Los Angeles county and 100 occurred in Alameda county. For this procedure, we would have computed an average Work GPCI of 1.0475 ($0.5 \times 1.055 + 0.5 \times 1.04$), an average PE GPCI of 1.1925 ($0.5 \times 1.169 + 0.5 \times 1.216$), and an average Mal GPCI of 0.789 ($0.5 \times 0.901 + 0.5 \times 0.677$). We would compute an Adjusted RVU for this procedure using the following formula:

$$\text{Adjusted RVU} = 1.0475 * \text{Work RVU} + 1.1925 * \text{PE RVU} + 0.789 * \text{Mal RVU}.$$

This approach to creating the Adjusted RVUs partially accounts for geographic variation in costs across California and thus improves payment accuracy. If a procedure is performed more

often in costly areas of the state, the Adjusted RVUs and payments for this procedure will be higher using this approach than if no adjustment is made. Nevertheless, building the geographic adjustment into the relative value units has its limitations. First, payments do not vary depending on the geographic location of the provider. As a result, payments to an average provider in a high cost locality may be too low, while payments to an average provider in a low cost locality may be too high. Second, changes in the distribution of services across localities of the state will not be reflected in the relative value units unless they are updated using new data on the distribution of services across the state. These limitations can be addressed by applying the geographic adjustment factors at an individual case level as Medicare does. We consider this issue further in Chapter V of this report.

1. Zip Code Matching

To use the Medicare GPCIs, we had to match each patient ZIP code appearing in our claims data to its respective county in California.¹² To do this, we used a county-ZIP code database that lists all ZIP codes and counties in the United States and its territories to which the US Postal Service (USPS) delivers mail. The data reflect every zip code in operation during the month of July, 2001. More than 20 percent of all active ZIP codes in California cross county lines. We decided to assign each ZIP code to its “predominant” county, as defined by the USPS. Once we mapped each ZIP code to a county, we assigned the appropriate locality GPCI to each record in our claims to data and calculate a weighted average GPCI for each procedure code.¹³

2. Special Cases

a. Place-of-Service

In some cases, Medicare uses different PE RVUs depending on whether a procedure is performed in an office or a hospital setting. Under the OMFS, payments to physicians for a procedure are the same regardless of where the procedure is performed. Therefore, we decided to use a weighted average of the PE RVUs for codes whose relative value units depended on the place of service, where the weights would correspond to the percent of time a procedure is performed in an office or a hospital setting. However, a place-of-service indicator was not coded in the CWCI data, so we analyzed Medicare data to calculate the percentage of each code performed in an office and a hospital setting. We used these values to calculate an average PE RVU for procedures with a site of service differential. For example, suppose that the procedure used in the previous example has different PE RVUs depending on where the service is provided. In addition, suppose that the procedure is performed in an office setting 70 percent

¹² We were also given provider ZIP codes. However, CWCI staff recommended using patient ZIP codes because they are more complete and accurate.

¹³ To develop the average GPCIs, we used a database of 1999 claims provided to us by CWCI. This 1999 claims database was originally going to be used to complete our analysis. However, after the initial phase of our work was completed, CWCI made available its 2000 claims data, which was ultimately used to conduct our impact analysis. Based on the 1999 data, we found that nine percent of the total procedure records were recorded with ZIP codes that did not appear in our California ZIP code list. These missing ZIP codes were either retired, out of state, or nonexistent. When we analyzed the five-digit, California ZIP codes in our claims data, we found that only 1.4 percent of procedures with a California zip code corresponded to a missing zip code. These cases were excluded from our calculations.

of the time and in a hospital 30 percent of the time, based on an analysis of Medicare claims data. We would compute an Adjusted RVU for this procedure using the following formula:

$$1.0475 * \text{Work RVU} + 1.1925 (0.7 * \text{PE RVU}_{\text{Office}} + 0.3 * \text{PE RVU}_{\text{Hospital}}) + 0.789 * \text{Mal RVU}.$$

In cases where no Medicare data existed for a specific procedure, we used the average from a group of related procedures.

b. OMFS-Specific Codes

A relatively small number of codes in the OMFS are specific to the California workers' compensation program. In these cases, there was no corresponding code or relative value unit in the Medicare RBRVS. For these codes, we calculated an RVU by creating a ratio of the OMFS RVU for the code to the average OMFS RVU for the corresponding fee schedule section, and multiplying it by the average RBRVS RVU for the same section. Our approach to developing RVUs for California-specific codes ensures that the payment for these codes relative to the average payment for a similar set of procedures will remain unchanged.

c. Laboratory Services

Not all services covered under the OMFS are included in the Medicare Fee Schedule. Both Laboratory and Anesthesia services are paid for using separate fee schedules. Medicare pays for outpatient clinical laboratory tests using the Clinical Laboratory Fee Schedule (CLFS). Congress adopted this fee schedule in 1984, and has continually modified its structure. Payments for approximately 1,100 tests are based on what laboratories charged in 1983, and updated periodically for inflation. Payments are determined separately for 56 geographic jurisdictions. In 1987, fees for outpatient services in hospital laboratories were set at the current level of 60 percent of the prevailing charge in each Medicare carrier area, except for sole community provider hospitals offering 24-hour emergency room services, which were set at 62 percent. In 1986, Congress also established the National Limitation Amounts (NLAs) to cap Medicare's payment for each test. Congress has gradually reduced the NLAs to the current level of 74 percent of the median of the carrier fee for each test. Medicare now pays the lower of the carrier's fee, the provider's charge, or the NLA, although providers rarely charge less than the carrier's fee, and the carrier's fee is usually higher than the NLA. As so many of the carrier fees are constrained by the NLAs, the current CLFS basically establishes a single fee for each test.¹⁴

To adapt the CLFS for purposes of a resource-based OMFS, we converted the Medicare payments in the fee schedule to RVUs. We created these RVUs by dividing the fees in the CLFS by the Medicare 2001 conversion factor. The resulting relative value units are comparable to

¹⁴ There are, however, several exceptions to this NLA-driven model. CMS sets fees for panel tests and new technology through unique formulas. Congress can make changes in specific test fees if they feel a payment is significantly inaccurate, or a test is under or over-utilized. If a carrier believes a particular fee is too low, it can ask the CMS policy office for an adjustment. And if the Secretary of the Department of Health and Human Services (DHHS) feels that a payment is "grossly excessive or grossly deficient,...not inherently reasonable" the DHHS can adjust the payment.

those in the MFS. To create an Adjusted RVU, we adjusted the relative value units by the GPCIs using the methodology described above

d. Anesthesia Services

The Medicare RBRVS and the OMFS reimburse anesthesia codes by combining a base value with a time unit (recorded in 15 minute increments) and multiplying by an anesthesia conversion factor. The base values used in both the Medicare Fee Schedule and the OMFS are based on the *Relative Value Guide* published by the American Society of Anesthesiologists. Consequently, the base values in the Medicare Anesthesia Fee Schedule and the OMFS are almost identical.¹⁵ Therefore, we did not develop relative value units for the anesthesia codes. In addition, we believe that these codes should maintain their own conversion factor, which maintains the current level of payments. Therefore, we do not model these codes, since there will be no impact on the payments received for anesthesia services under the proposed system.

B. Budget Neutrality and Simulating Payments

DIR asked Lewin to develop the proposed payment system with a budget neutral conversion factor (CF). Budget neutrality requires that total payments remain unchanged if the number and type of medical procedures performed do not change. The calculation of a budget neutral CF is straightforward and is shown below:

$$\text{Budget Neutral CF} = \text{Total Payments under OMFS} / \text{Total Adjusted RVUs},$$

where the Adjusted RVUs are those developed based on the RBRVS.

We simulated total payments for those medical records in our claims data using the relative value units and conversion factors in the current OMFS. Similarly, we were able to calculate the total Adjusted RVUs by associating an RBRVS-based relative value unit to each record (i.e., procedure code) in our data and then aggregating.

The ability of our CF to maintain budget neutrality in practice depends on the representativeness of our workers' compensation claims data to the universe of claims in California. As discussed in Chapter II, we believe that the comparison of our CWCI data to external sources suggests that the data reliably represents the frequency distribution of all workers' compensation medical procedures in the state.

1. Modeling Subsections of the OMFS with Complex Payment Rules

The Physical Medicine and Surgery sections of the OMFS employ different payment rules from the other sections of the fee schedule. We accounted for these rules when we simulated total payments under the OMFS to compute the budget neutral conversion factor.

¹⁵ There are some slight differences, however. We analyzed the CWCI data to determine how significant the differences between the base values in the OMFS and the Medicare Anesthesia Fee Schedule are. We found that only 0.43 percent of procedures in the data set corresponded to codes with different base values, and only 0.64 percent of the dollars paid corresponded to codes with different base values.

a. Modeling the Physical Medicine Subsection

The Physical Medicine subsection of the OMFS uses complex ground rules to limit and discount multiple procedures, making it the most difficult OMFS payment section to analyze and model. In order to model this section, we identified each unique combination of services subject to discounting. We modeled the following ground rules from the Physical Medicine subsection:

- Section B: If billing for modality treatments only, reimbursement limited to two codes on same visit.
- Section D: No more than four physical medicine procedures and/or modalities reimbursed in one visit.
- Section E: Multiple physical medicine procedures and modalities and acupuncture are subject to cascade reimbursement (major = 100 percent reimbursement of maximum allowable fee, second = 75 percent, third = 50 percent, fourth = 25 percent reimbursement). Only one procedure/modality can be reimbursed at 100 percent of its listed value.

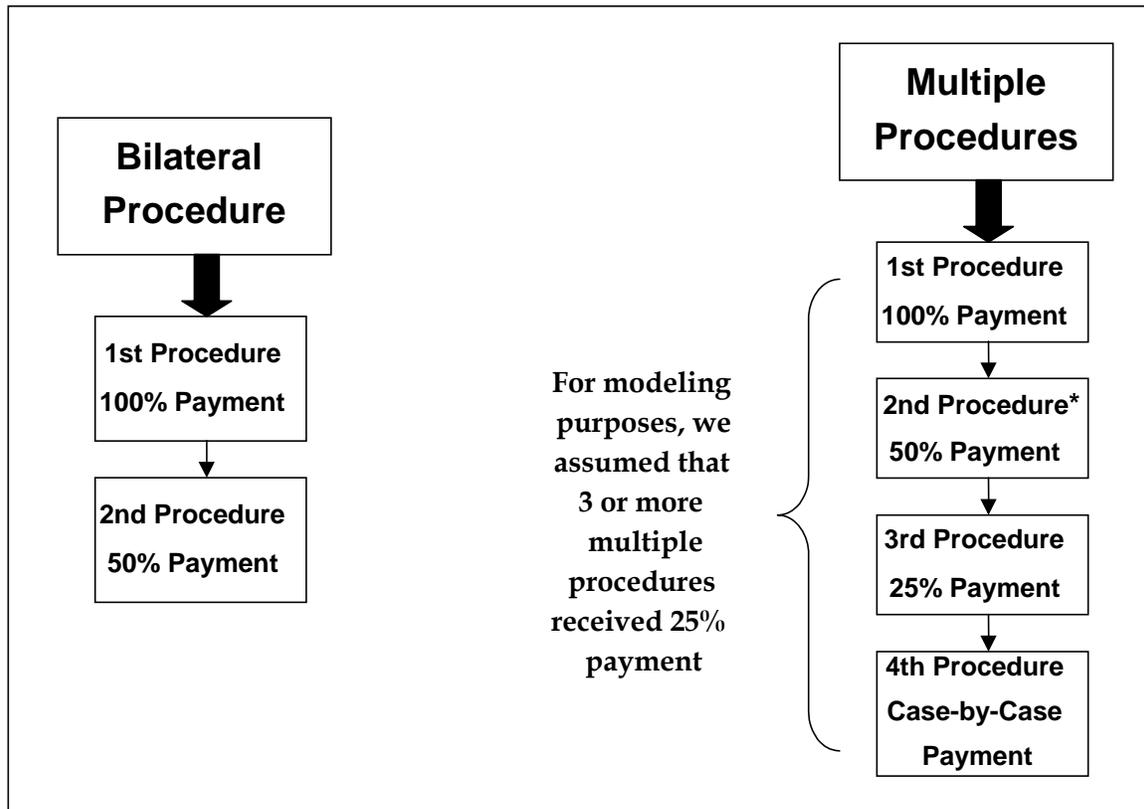
The physical medicine subsection of the OMFS is based on 1994 CPT codes, while the Medicare RBRVS is based on 2000 codes. Furthermore, the 1994 CPT codes are defined in 30 minute increments, while the 2000 CPT codes are defined in 15 minute increments. After extensive consultation with carriers and providers, IMC/DIR decided to map each 30 minute code to one 15 minute code.

b. Modeling the Surgery Subsection

The Medicare fee schedule bundles the pre-operative, intra-operative, and post-operative care involved in a surgical procedure into one RVU. For some surgery codes (the “starred” codes), the OMFS allows separate payment for each of these components. The Medicare RBRVS associates a proportion of the RVU to each stage of care. We used the proportion associated with intra-operative care as the RBRVS value for “starred” surgical procedures not paid on a bundled basis.

We applied the discount rules in the OMFS to estimate payments for surgical procedures billed with a modifier. Bilateral (modifier 50) and multiple (modifier 51) procedures were modeled using the cascade system diagrammed in *Figure 1*. Assistant surgeon services (modifiers 80 and 82) were reimbursed at 20 percent of the listed value of the surgical procedures. Surgical assistant services provided by a licensed non-physician health care provider (modifier 83) were reimbursed at 10 percent of the allowable surgical fee. Minimum assistant surgeon services (modifier 81) receive 3.2 RVUs in our model. Minimum surgical assistant services are valued at 1.1 surgical units in the OMFS. We calculated the 3.2 RVUs by multiplying the ratio of the average surgical RBRVS RVUs to the average surgical RVU in OMFS by 1.1. When multiple arthroscopic procedures were performed on the same joint during the same operative session, the first procedure was reimbursed at 100 percent of the fee schedule value and the following procedures at 10 percent.

Figure 1
Modeling Assumptions for Surgical Procedures



IV. ANALYTIC FINDINGS

A. Basis for Analysis

In our impact analysis, we analyzed the financial impact of adopting RBRVS by procedure code category and provider specialty group. We simulated payments under OMFS and the Medicare RBRVS for each procedure. We then measured impacts by the dollar and percent change in payments to each procedure code category and specialty. The dollar totals presented below reflect data contained in the CWCI database analyzed by Lewin, rather than total workers' compensation expenditures. The frequency of claims in our final analysis was 3,807,220. This number is lower than the total number of claims in the CWCI data set of 4,132,063 because we did not model anesthesia codes and did not include drug and supply codes which are outside the physician fee schedule.

Due to the additions and deletions of codes in recent editions of CPT, the OMFS (1997 CPT) includes procedure codes that are absent from the Medicare RBRVS (2001 CPT). In the case where a code in the OMFS was replaced by a new code in the Medicare RBRVS, Lewin simply matched the two codes directly. For modeling purposes, in the case where one code in the CWCI data set was replaced by two or more codes in the Medicare RBRVS, Lewin assumed that the frequency in the CWCI data was evenly distributed between the new codes. Hence, if one OMFS code was represented by three Medicare RBRVS codes, we weight-averaged the Medicare RVUs in equal proportions. This rule does not apply to the psychotherapy codes, due to the complexity of the redistribution of those codes. To assign the psychotherapy codes to CPT codes in RBRVS, we distributed the Medicare RBRVS codes using the Medicare frequencies of those codes. Hence, if one OMFS psychotherapy code was replaced by two Medicare RBRVS codes, we weight-averaged the two codes using their relative Medicare frequencies.

There will be no impact on the payments received for anesthesia services under the proposed system, hence we did not develop relative value units for the anesthesia codes. However, anesthesiologists perform many generalized tasks included in the Medicare fee schedule, in addition to the anesthesia-specific codes. We determined the impact of the new fee schedule on anesthesiologists by calculating the change in reimbursement to anesthesiologists for these general codes, then averaging it with the payments for anesthesia codes. For example, if anesthesiologist reimbursement for non-anesthesia codes decreases 10 percent under the new fee schedule, and non-anesthesia codes account for 50 percent of anesthesiologist billing, then anesthesiologist reimbursement would decrease by 5 percent under the new fee schedule.

Lewin calculated a single conversion factor of \$44.73 for the modeled RBRVS-based OMFS. This conversion factor is about 10 percent higher than the 2001 California GPCI-adjusted Medicare conversion factor of \$40.54. Hence, on average the modeled RBRVS-based OMFS reimburses at a higher level than the Medicare RBRVS. Under the Lewin OMFS payment model, we estimated OMFS payments of \$215,577,690 for codes subject to RBRVS. We used this number as our budget neutrality target throughout the analysis.

B. Key Findings

Table 4 displays each procedure group and its modeled payments under the current OMFS and the RBRVS-based OMFS. The table shows that E & M and Pathology and Laboratory receive higher payments under the RBRVS-based OMFS, while Surgery receives lower payments. Other procedure groups experience smaller changes in payments.

Table 4
Financial Impact by Procedure Group Using a Single Budget neutral Conversion Factor (\$44.73)

OMFS Category	Modeled Paid RBRVS	Modeled Paid OMFS	Dollar Difference	Percent Difference
Anesthesia	\$6,145,869	\$6,145,869	-	0.0%
E&M	\$50,316,739	\$40,935,969	\$9,380,770	22.9%
Surgery	\$35,432,041	\$42,098,904	\$(6,666,863)	-15.8%
Radiology	\$24,341,127	\$24,523,624	\$(182,497)	-0.7%
Pathology & Laboratory	\$2,188,852	\$1,818,870	\$369,982	20.3%
Medicine	\$12,375,410	\$13,155,808	\$(780,398)	-5.9%
Special Services (total)	\$11,505,896	\$11,845,046	\$(339,150)	-2.9%
Subject to RBRVS	\$56,892	\$396,042	\$(339,150)	-85.6%
Pass Throughs*	\$11,449,004	\$11,449,004	-	0.0%
Physical Medicine	\$73,271,755	\$75,053,599	\$(1,781,844)	-2.4%
Total	\$215,577,690	\$215,577,690	\$ 0	0.0%

* Since most special service codes are paid on a case by case basis, we assumed payments would remain the same under RBRVS and categorized them as “pass throughs.” Many of those codes that are subject to RBRVS were bundled into other codes in the Medicare RBRVS, and hence experienced significant payment decreases.

Note: Estimated payments reported in Table 1 reflect only the procedures included in the CWCI database, and are not an estimate of all workers’ compensation payments in the state of California.

Table 5 presents modeled payments under the OMFS and the RBRVS-based OMFS for physician specialty groups with estimated payments greater than \$5 million. The largest physician specialty groups experience percent changes in payments in the -5.1 to 3.7 percent range. Orthopedic surgery loses the greatest percentage of payments at -5.1 percent, while Clinics, Groups and Associations gain the greatest percentage of payments at 3.7 percent.

Table 5
Financial Impact for Physician Specialty Groups with Payments Greater than \$5M

Specialty	Paid RBRVS	Paid OMFS	% Difference
Clinics, Groups, Associations	\$49,858,877	\$48,092,856	3.7%
General Practice	\$24,839,718	\$25,590,462	-2.9%
Chiropractors	\$24,339,469	\$25,131,738	-3.2%
Orthopedic Surgery	\$15,825,183	\$16,679,373	-5.1%
Hospitals	\$14,513,384	\$14,208,676	2.1%
Physiotherapists	\$13,283,073	\$13,435,777	-1.1%
Radiology X-Rays	\$10,811,919	\$10,765,802	0.4%
Physical Medicine and Rehab	\$6,893,501	\$6,747,566	2.2%
Anesthesiology	\$6,656,046	\$6,828,515	-2.5%
Total	\$167,021,170	\$167,480,765	-0.3%
% of Total	77.5%	77.7%	

Specialty categories are based on categories that are used by physicians when submitting bills to workers' compensation insurers.

Of all physician specialty groups, Diagnostic Roentgenology loses the greatest percent of payments under the modeled RBRVS-based OMFS at -46.4 percent, while Colon and Rectal Surgery gains the greatest percent at 35.7 percent (see *Appendix A*). For the top ten physician specialty groups the average absolute is approximately 4.5 percent. This top ten grouping includes the nine specialties listed in *Table 5*, in addition to the Psychology specialty, which experiences a large increase in payments of 21.2 percent. If the Psychology specialty is excluded from the average absolute change calculation, the percent change decreases to 2.6 percent.

In general, those specialties that experience the greatest percent changes in payment account for a small proportion of paid dollars. Fourteen specialties would receive an additional 10 percent or more in payments under the RBRVS-based OMFS; payments to these specialties account for 3.3 percent of total payments. Seven specialties would lose 10 percent or more in payments under the RBRVS-based OMFS; payments to these specialties account for 1.7 percent of total payments.

V. IMPLEMENTING AND UPDATING A RESOURCE-BASED OMFS

In this section, we provide options and recommendations for implementing and updating a resourced-based medical fee schedule for California's workers' compensation program. We discuss strategies to ease the impact on providers, such as phasing in a new system, the value of linking conversion factor updates to an economic indicator, and whether or not the system should include geographic adjustment factors for payments. Each of these strategies has important implications for the short- and long-term accuracy and viability of the payment system.

A. Strategies of Other States

The Lewin Group conducted telephone interviews with 18 states¹⁶ that are using a RBRVS for reimbursement of medical services covered under workers' compensation. The purpose of the interviews were to identify strategies used by other states in implementing and updating their resource-based fee schedules. Most states that have implemented a resource-based Medical fee schedule for their workers' compensation program did not use a transition strategy. Furthermore, only one state, Pennsylvania, adjusts payments to account for within state differences in the cost of providing care.

Of the 18 states interviewed, only Michigan, South Dakota, and Washington used a transition strategy. Michigan phased in its resource-based system, which was build on the 1995 Medicare Fee Schedule, over two years. The transition only applied to codes for which the change in fees between the new and old payment systems was 15 percent or more. In these cases, the fee was phased in using a blend of the old and the new fees. In the first year, the payment for a transitioned code was 66 percent of the old fee and 33 percent of the new. In the second, the payment was 33 percent of the old fee and 66 percent of the new. The new fees were fully implemented in the third year. South Dakota also phased in their system over two years. They based their transition on percentiles of charges over 2 years, beginning in 1994. By 1995, they had reduced payments to the 80th percentile of charges, and by 1996, to the 70th percentile. Washington had planned on phasing in the new payment system by blending old and new payments during a transition period. However, providers asked the State to fully implement the system after one year.

States that did not use a transition strategy suggested that they were able to do so by building consensus throughout the process. There was also concern that using a transition strategy to phase in a workers' compensation payment system would add complexity to the system for both providers and payers. However, some states have used alternative approaches to a phase

¹⁶ States interviewed included: CO, FL, HI, MI, MN, MS, MT, ND, NV, OH, OK, OR, PA, SC, SD, WA, WV and WY.

in to lessen the impact of the new system on providers. For example, Texas limited the reduction in payments for any single code to 25 percent.¹⁷

We found some variation in the indicators used by states to update the payments in their systems. The majority of states we interviewed have updated their conversion factors at some point in the past based on an economic measure of wage or price change. Many states, however, have not updated their conversion factors in several years. Of the states that have updated conversion factors, a number link updates to the statewide average weekly wage, and a smaller number link updates to the MEI or the U.S. Bureau of Labor Statistics' Consumer Price Index (CPI).

B. Easing the Redistributive Impacts of Adopting a RBRVS

Adopting a resource-based OMFS would result in a redistribution of payments across providers. One approach to assisting providers in dealing with such redistributive impacts would be for the Department of Industrial Relations to transition to the new system over a fixed time period. One frequently used transition strategy is to blend old and new RVUs or payments. This approach is similar to the one used by Michigan in implementing its resource-based fee schedule. In this approach, the weight of the old RVUs or payment decreases over time in the calculation of the blended payment until the new fee schedule values are obtained. The key variables in this type of transition strategy are the length of the phase-in period and the rate at which the weight for the old payments change, although the weights are usually specified to decrease at a constant rate. For example, the first year of a three-year phase-in period might blend 75 percent of the old RVUs and 25 percent of the new, with a 50/50 blend in the second year, and a 25/75 blend the third year. In the fourth year, the new RVUs or payments would be fully implemented. This was the transition approach used by CMS in implementing the MFS's resource-based practice expense RVUs.

The "blending" approach would ease the impact of adopting RBRVS at the code level, providing an opportunity for providers to adjust to the new payment system. Nevertheless, the change in payments for some codes could still be significant. An alternative transition approach would be to limit the change in fee schedule amount under RBRVS for any given code in a single year. For example, payments for a procedure would not be allowed to increase or decrease more than 20 percent in a year (relative to its old payments). If payments for a procedure would change less than 20 percent, it would be fully phased in immediately.

This "loss-gain limit" approach is slightly more complex than the blending approach, because not all codes would be transitioned over the same time period. A procedure code with an associated 60 percent increase in payments, say from \$10 to \$16, would be allowed to increase to \$12 in the first year, \$14 in the second year, and \$16 in the third year. If it increased 80 percent, the payment amount would not be fully phased-in until the fourth year. However, the transition could be limited to a fixed time period. The loss-gain limit approach would offer temporary protection for specific procedure codes for which payments under the new system

¹⁷ Kominski, G., Pourat, N., and Black, J., *The Use of Resource-Based Relative Value Scales for Provider Reimbursement in State Workers' Compensation Programs*. Report to the Industrial Medical Council, California Department of Industrial Relations, September 1999.

would be significantly reduced. However, the approach is unlikely to be budget neutral, unless budget neutrality is imposed on the system. Without it, total payments could increase or decrease. In addition, procedures for which payments decrease less than the loss limit level would be implemented without a transition. For this reason, the IMC/DIR could consider combining the blending and the loss-limit approaches, which would both target the codes that would change the most, and ensure that every code would be transitioned into the new system.

Finally, IMC/DIR could use multiple conversion factors to limit the impact of adopting RBRVS. IMC/DIR would have to determine how many conversion factors were appropriate, and how to subdivide the OMFS. Using multiple conversion factors to minimize the impact of RBRVS is the broadest solution IMC/DIR could implement. Each conversion factor would protect large groups of codes from significant changes in payments. Therefore, the impact of RBRVS could still be large for some procedure codes. In addition, an RBRVS-based system that uses multiple conversion factors would not be fully resource based.

Although we have provided some options for phasing in the proposed payment system, there are other factors that should be considered when evaluating whether a payment system should be phased in over time. In particular, a gradual transition to RBRVS would add complexity to the system and increase administrative costs. Several specialty groups have raised concerns about the administrative challenges involved in adopting a transition strategy, and the potential consequences for providers (i.e. timely reimbursement). A transition period would also distort the relativity of the RBRVS-based OMFS. The transition system would be more resource-based than the present system, but would not be fully resource-adjusted.

C. Linking Conversion Factor Updates to an Economic Indicator

As input prices vary over time, policymakers may want to adjust the current fee schedule to keep payments in line with prices. Regularly updating the conversion factor(s) and keeping the payment system current avoids the payment dislocations associated with irregular updates. One way to update the fee schedule is to link the conversion factor to an economic indicator. In order for the economic indicator to be functional, it must reflect the changing cost of delivering health care services. Hence, indicators measuring broad changes in the cost of living may not be appropriate, as they may overstate or understate the cost of delivering health care.

One measure that could be used to update the conversion factor is the California Consumer Price Index (CPI) available for the U.S. Bureau of Labor Statistics. The CPI is a measure of the average change over time in the prices paid by urban consumers for a market basket of consumer goods and services. The All Urban Consumers CPI shown in *Figure 2* is based on the expenditures of almost all residents of urban or metropolitan areas, including professionals, the self-employed, the poor, the unemployed and retired persons as well as urban wage earners and clerical workers. Not included in the CPI are the spending patterns of persons living in rural non-metropolitan areas, farm families, persons in the Armed Forces, and those in institutions, such as prisons and mental hospitals.

The CPI represents all goods and services purchased for consumption by the reference population. The Bureau of Labor Statistics has classified all expenditure items into more than

200 categories, arranged into eight major groups. Major groups and examples of categories in each are as follows:

- Food and Beverage (breakfast cereal, milk, coffee, chicken, wine, full service meals and snacks);
- Housing (rent of primary residence, owners' equivalent rent, fuel oil, bedroom furniture);
- Apparel (men's shirts and sweaters, women's dresses, jewelry);
- Transportation (new vehicles, airline fares, gasoline, motor vehicle insurance);
- Medical Care (prescription drugs and medical supplies, physicians' services, eyeglasses and eye care, hospital services);
- Recreation (televisions, cable television, pets and pet products, sports equipment, admissions);
- Education and Communication (college tuition, postage, telephone services, computer software and accessories);
- Other Goods and Services (tobacco and smoking products, haircuts and other personal services, funeral expenses).

Also included within these major groups are various government-charged user fees, such as water and sewerage charges, auto registration fees, and vehicle tolls. The CPI also includes taxes (such as sales and excise taxes) that are directly associated with the prices of specific goods and services. However, the CPI excludes taxes (such as income and Social Security taxes) not directly associated with the purchase of consumer goods and services. The CPI does not include investment items, such as stocks, bonds, real estate, and life insurance. (These items relate to savings and not to day-to-day consumption expenses.)

The California CPI is state-specific, but is such a broad measure of economic change that it may not be an appropriate measure with which to update the conversion factor(s). It would be preferable to use an index that accounts solely for price changes in the health care industry.

One economic indicator that reflects the changing cost of delivering health care services is the MEI (Medicare Economic Index) produced by the Centers for Medicare and Medicaid Services. The MEI is a weighted average of price changes for inputs used to produce physician services. These include:

- Physician net income: wages, salaries, and benefits
- Physician practice expense: non-physician employee compensation, office expenses, medical materials and supplies, professional liability insurance, medical equipment, and other professional expenses.

Table 6
Medicare Economic Index Expenditure Categories and Weights

Expense Category	Weights*	CY 2001 Percent Changes
Total	100.0	2.1
Physician's Own Time	54.5	1.7
Wages and Salaries	44.2	1.6
Fringe Benefits	10.3	2.4
Physician's Practice Expense	45.5	2.5
Nonphysician Employee Compensation	16.8	1.8
Wages and Salaries	12.4	1.7
Fringe Benefits	4.4	2.6
Office Expense	11.6	2.5
Medical Materials and Supplies	4.5	2.0
Professional Liability Insurance	3.2	7.2
Medical Equipment	1.9	-1.1
Other Professional Expense	7.6	2.8
Professional Car	1.3	5.5
Other	6.3	2.1

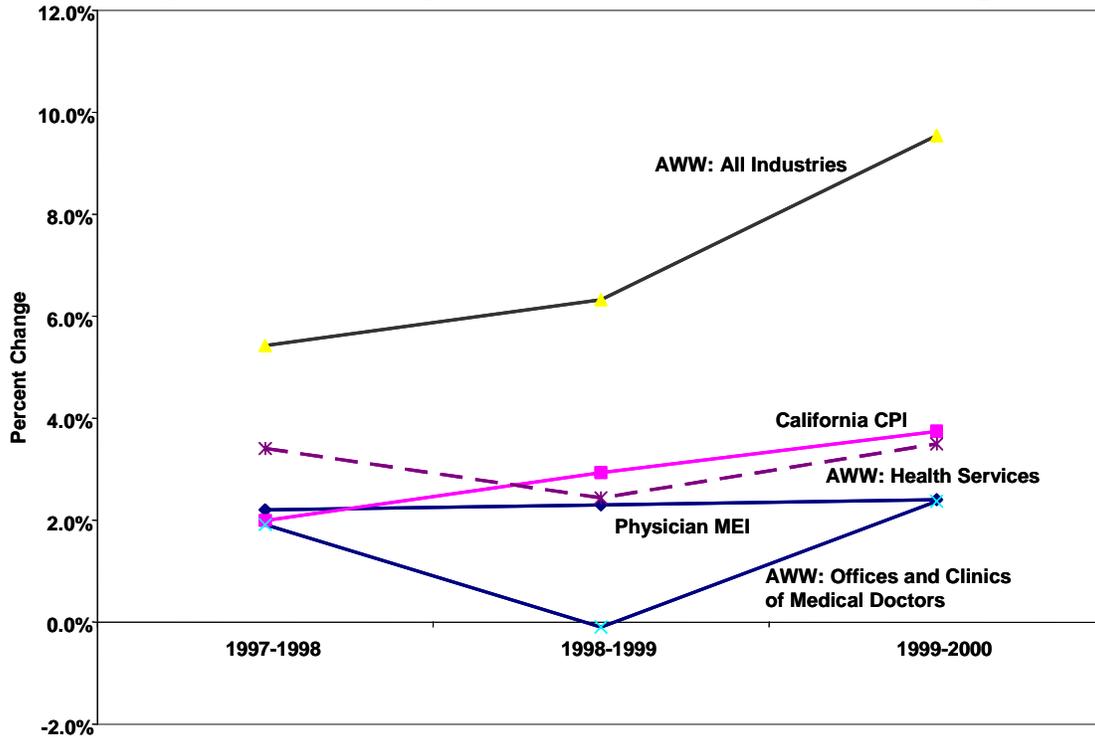
Source: Federal Register, November 1, 2000, vol. 65, no. 212, p. 65428.

Note: Weights use 1996 as base year.

One advantage of using the MEI to update the conversion factor is that it includes an adjustment for productivity growth. The adjustment prevents the double counting of gains in labor productivity. Failure to remove improvements in productivity from the earnings estimates in the MEI would mean that physicians could be paid twice for productivity growth, once in the MEI, and once for any increases in the volume and intensity of services that result from becoming more productive in their practices. One disadvantage of using the MEI is that it is a national indicator, rather than a California-specific measure. *Figure 2* presents the percent changes in the MEI between 1997 and 2000.

Policymakers could also update the conversion factor based on annual changes in the statewide average weekly wage (SAWW) available from the U.S. Bureau of Labor Statistics. *Figure 2* presents the percent changes in the California SAWW for three industry categories: "all industries," "health services," and "offices and clinics of medical doctors." The "health services" category encompasses numerous facilities, including: offices and clinics of medical doctors, offices and clinics of dentists, offices of osteopathic physicians, offices of other health practitioners, nursing and personal care facilities, hospitals, medical and dental labs, home health care services, and health and allied services. Like the CPI, the "all industries" category is probably too broad to be used as an update factor, but the "health services" and "offices and clinics of medical doctors" categories are both specific to the health care industry. The advantage of using the SAWW is that it is geographically based and can capture changes in the cost of delivering health care services. The disadvantage of using the SAWW is that it covers only wages and may not be indicative of annual changes in input prices for workers' compensation.

**Figure 2
Comparison of Five Update Factors: Annual Percent Change**



D. Geographic Adjustment Factors

Geographic adjustment factors (GAFs) are used in provider payment systems to account for different input prices in different areas covered by a payment system. Providers have little control over these input prices. The key provider input prices that may vary across geographic areas include:

- Labor Costs (clinical & administrative);
- Practice Expenses (Office and Medical Supplies and Equipment, Rent);
- Malpractice Expenses.

GAFs reflect the relative prices of labor, practice expenses, and malpractice insurance in an area compared to the average. Within California, this means that if a service is more likely to be performed in a high cost area, physician payment for that service will be adjusted upwards. For example, if the GAF for a region is 1.2, the input price for that region is 20 percent greater than the average. Suppose the base payment for a service is \$100. If a geographic adjustment is used, the actual paid amount would be \$120 for services provided in that region. Conversely, if the GAF for a region is 0.8, the input price for that region is 20 percent less than the average. Suppose the base payment for a service is \$100. If a geographic adjustment is used, the actual paid amount would be \$80 for services provided in that region.

In developing the relative value units for the resource-based OMFS, we made a one-time geographic adjustment to the relative value units for each code in RBRVS based on the average Medicare work, practice expense, and malpractice GPCIs. Using 1999 CWCI data, we mapped each claim to a Medicare locality using patient zip codes, then each Medicare locality to the Medicare GPCIs (e.g. work, practice expense and malpractice). We then computed an average GPCI for each procedure code based on 1999 CWCI regional data weights and adjusted the RBRVS RVUs by their respective procedure-specific average GPCI.

Making a one-time geographic adjustment is better than making no adjustment because it improves payment accuracy at the Medicare locality level (i.e., if a service is more likely to be performed in a high cost area, then the RVUs for that service will be adjusted upwards). However, the one-time geographic adjustment has several limitations. Service in high cost areas will still be underpaid, and service in low cost areas will be overpaid. The payment will not *fully* recognize input costs for services provided in high cost areas. Long-term changes in the distribution of workers' compensation of medical services across California will also not be captured unless the RVUs are updated periodically to reflect new GPCIs. Furthermore, Lewin's adjustment is based on Medicare's nine localities. These large divisions cannot capture all the economic variation within California.

2. Development of Medicare GPCIs

Section 1848 of the Social Security Act requires that Medicare payments for physician services vary among fee schedule areas according to the extent that relative costs vary. The Act requires the development of separate indexes to measure relative cost differences among fee schedule areas compared to the national average for each of the three fee schedule components – physician work, practice expense and malpractice expense. The practice expense and malpractice indexes need to reflect the full relative cost differences, while the work index reflects only one-quarter of the relative cost differences compared to the national average.

The Act also requires the review and adjustment of GPCIs at least every three years. CMS must phase in the adjustment over a two-year period and implement only one-half of any adjustment in the first year if more than one year has elapsed since the last GPCI revision. The GPCIs were first implemented in 1992. The first review and revision was implemented in 1995, the second in 1998, and the third in 2001.

a. Origination of the GPCI

The GPCIs were developed by a joint effort of researchers at The Urban Institute and The Center for Health Economics Research. Indexes were developed that measured the relative cost differences among areas compared to the national average in a “market basket” of goods and services. In this case, the market basket consists of the resources involved in operating a private medical practice. The three major resource inputs are physician work, practice expense and malpractice. Employee wages, rents, medical equipment, supplies and other miscellaneous expenses are used as inputs to create the practice expense component of the GPCI. The resource inputs and the weights for the GPCIs were obtained from the AMA's Socioeconomic Characteristics of the Medical Practice Survey. The weights for the 1992 through 1994 GPCIs were from the AMA's 1987 survey, the latest available when the original GPCIs were being

developed. The 1995 through 2000 weights were based on the 1989 survey, and the 2001 through 2003 weights were based on the 1997 survey.

In 1992, after the determination of components and their weights, data sources were identified that were widely and consistently available in all physician fee schedule areas to measure costs. Several proxies were selected as optimal sources for measuring each component of the GPCIs. The current GPCIs are based on the following inputs and sources:

Table 7
Data Sources Used to Develop GPCIs

Component	Description
Physician Work	The median hourly earnings, based on a 20 percent sample of 1990 census data, of workers in six professional specialty occupation categories (engineers, surveyors, and architects; natural scientists and mathematicians; teachers, counselors, and librarians; social scientists, social workers and lawyers; registered nurses and pharmacists; writers, artists, and editors). Metropolitan-wide wages used for each county within an MSA except for the Consolidated Metropolitan Statistical Areas (CMSAs), where the metropolitan earnings are replaced with county-specific earnings.
Employee Wages	Median hourly wages of clerical workers, registered nurses, licensed practical nurses, and health technicians based on a 20 percent sample of 1990 census data.
Office Rents	2000 Housing and Urban Development (HUD) fair market rental data for residential rents used as a proxy for physician office rents because there were insufficient data on commercial rents across all physician fee schedule areas. Uses county level data for CMSAs.
Miscellaneous Expenses	This component's index is 1.00 for all areas to indicate no variation from the national average.
Malpractice	Based on 1996 through 1998 premium data for a \$1 million to \$3 million mature "claims made" policy, with mandatory patient compensation funds considered. Uses data from 20 specialties.

Metropolitan Statistical Areas (MSAs) were selected as areas for measurement purposes. Non-MSA areas within a state were aggregated into one residual area. As the Act required that GPCIs reflect cost differences among fee schedule areas, Medicare localities were mapped to the MSA and non-MSA aggregation of GPCI data.

b. California GPCI

There are two Medicare carriers and nine localities in the State of California. The 2001 GPCIs by Medicare locality are provided in *Table 8*, and the nine localities by corresponding county are shown in *Table 9*.

Table 8
2001 Geographic Practice Cost Indexes by 9 Medicare Localities

Locality Number	Medicare Locality Name	Work GPCI*	Practice Expense GPCI*	Malpractice GPCI*	Average GAF
26	Anaheim/Santa Ana	1.036	1.187	0.901	1.0956
18	Los Angeles	1.055	1.169	0.901	1.0983
03	Marin/Napa/Solano	1.014	1.205	0.677	1.084
07	Oakland/ Berkeley	1.04	1.216	0.677	1.1028
05	San Francisco	1.067	1.378	0.677	1.1861
06	San Mateo	1.047	1.353	0.677	1.1646
09	Santa Clara	1.062	1.321	0.653	1.1585
17	Ventura	1.027	1.128	0.75	1.0609
99	Rest of California	1.007	1.039	0.723	1.0114

Source: Federal Register, July 17, 2000, vol. 65, no. 137, p. 44354.

* The practice expense and malpractice indexes reflect the full relative cost differences compared to the national average, while the work index reflects only one-quarter of the relative cost differences.

Table 9
Medicare Localities and Corresponding Counties

Medicare Locality	Counties
Anaheim/Santa Ana	Orange
Los Angeles	Los Angeles
Marin/Napa/Solano	Marin, Napa, and Solano
Oakland/Berkeley	Alameda and Contra Costa
San Francisco	San Francisco
San Mateo	San Mateo
Santa Clara	Santa Clara
Ventura	Ventura
Rest of State	All Other Counties

3. Alternatives to the Current Approach

IMC/DIR could improve the accuracy of the geographic adjustment by individually adjusting each claim based on the locality in which the procedure was performed. Individual adjustment would add complexity to the system and increase the administrative cost of the program, hence

IMC/DIR must determine whether costs vary significantly enough to justify consideration of GAFs.

If IMC/DIR decides to individually adjust each claim, it will need to determine which locality divisions it should use:

- 9 Medicare Localities
- Metropolitan Statistical Areas (MSAs) (Department of Labor uses the 26 MSA groups to geographically adjust claims)
- 58 California Counties
- New division of California counties

c. Variation in GAFs

For illustrative purposes, we calculated a single GAF for each locality, MSA and county using a weighted average of GPCIs.

The Centers for Medicare and Medicaid Services (CMS) publishes a standard set of national weights based on The American Medical Association's annual Socio Economic Monitoring survey:

work = 54.5 percent

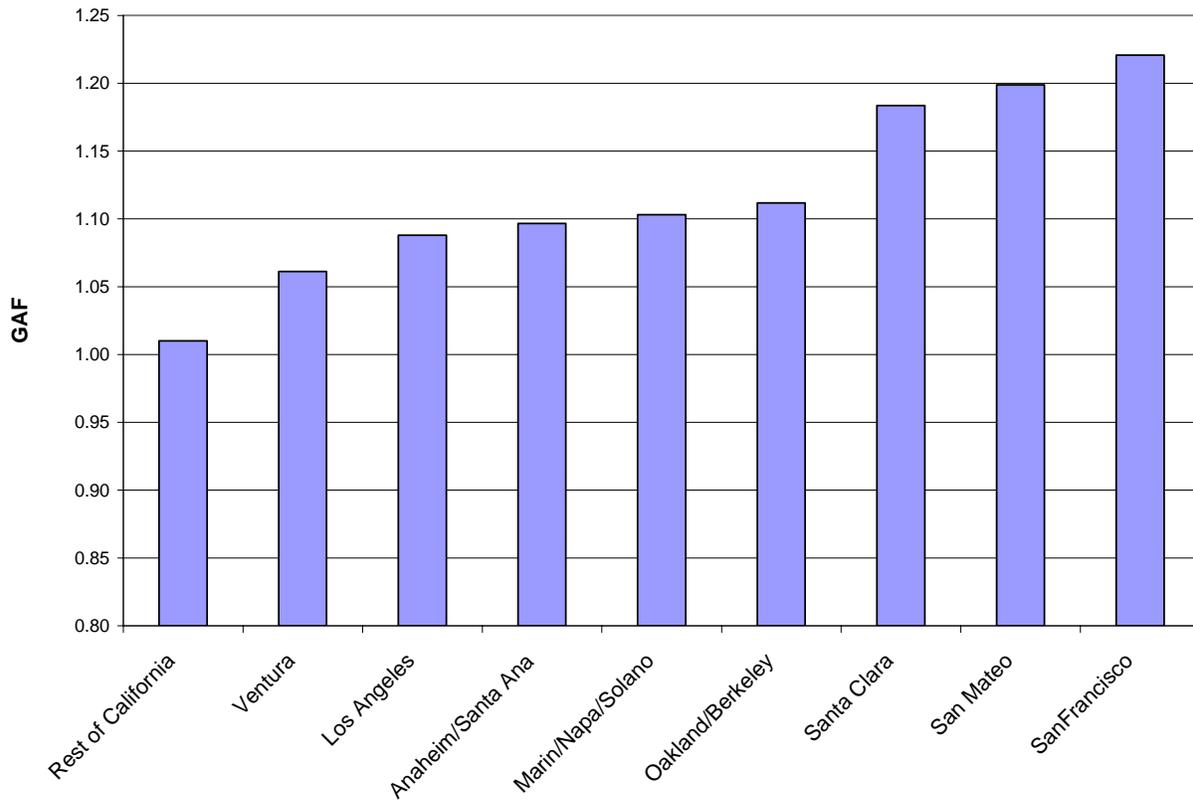
practice expense = 42.3 percent

malpractice = 3.2 percent

We used these weights to create the average GAFs presented in the following figures.

Figure 3 shows the average 2002 GAF for each of the nine California localities. There is a significant range of GAF values in these localities, from a minimum of 1.0101 for the "Rest of California" locality, to a maximum of 1.2208 for the San Francisco locality. Hence, these nine localities represent more than a 21 percent variation in cost.

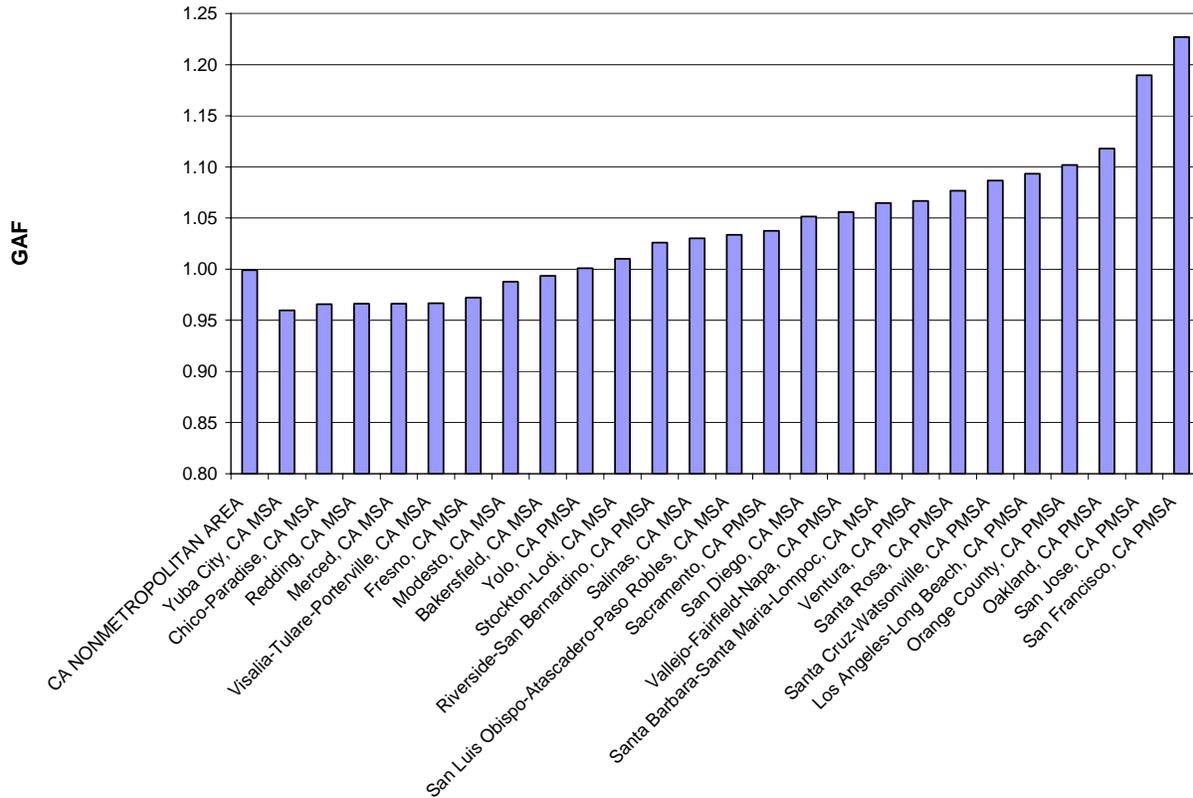
Figure 3
Variation in Geographic Adjustment Factors by Locality



Source: 2002 GPCIs as cited in Federal Register, November 1, 2001, vol. 66, no. 212, p.55499.

Figure 4 presents the average 2001 GAFs for the 26 California MSAs. The MSAs produce an even greater range of costs than the nine localities, with a minimum of .9597 for the Yuba City MSA, and a maximum of 1.2270 for the San Francisco PMSA. This spread represents almost a 27 percent difference in costs.

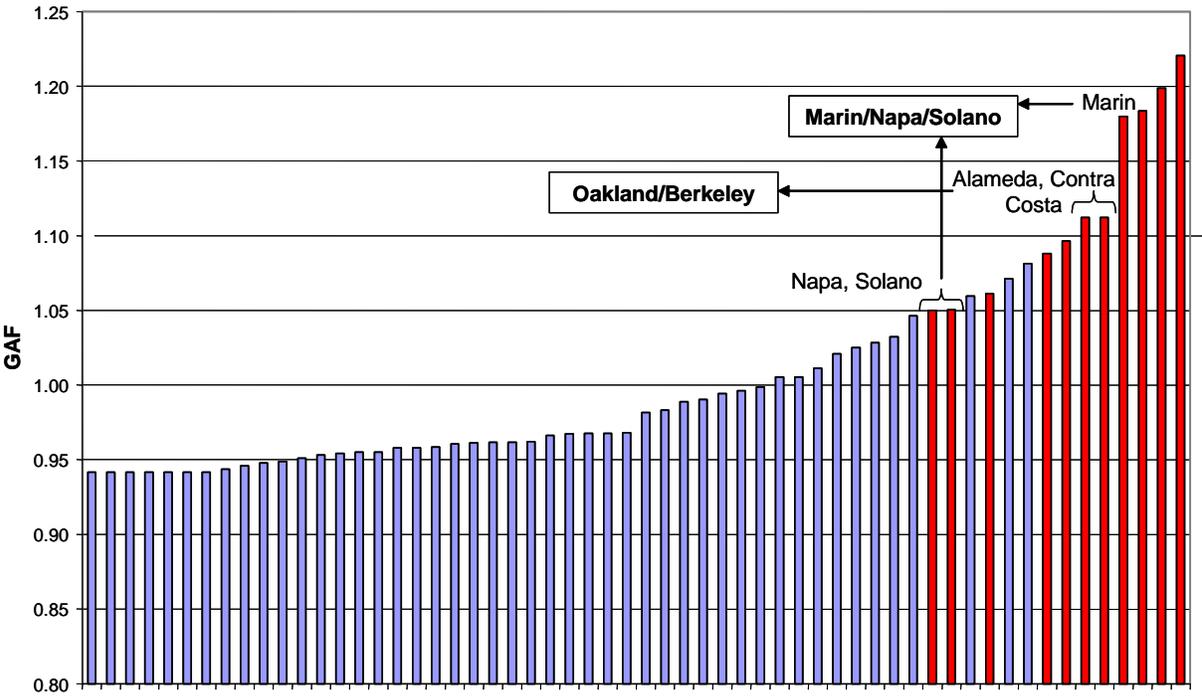
Figure 4
Variation in Geographic Adjustment Factors by MSA



Source: U.S. Department of Labor OWCP Fee Schedule Geographic Adjustment Values by MSA Number, May 31, 2001.

Figure 5 shows the average 2002 GAFs for each of California’s 58 counties. These GAFs range from a minimum of .9416 for Colusa, to a maximum of 1.2206 for San Francisco, representing almost a 30 percent cost spread. *Figure 5* also indicates the 11 counties that make up the eight named California localities (i.e. the counties that do not fall into the “Rest of California” locality). All 11 counties fall at the high end of the GAF range, although three additional counties fall within the same spectrum (Santa Barbara, Sonoma, and Santa Cruz). Furthermore, two localities encompass multiple counties: the Marin/Napa/Solano locality combines Marin, Napa and Solano counties, while the Oakland/Berkeley locality combines Alameda and Contra Costa counties. Napa and Solano have very similar GAFs (1.0499 and 1.0504, respectively), but Marin’s GAF is significantly higher (1.1798). Alameda and Contra Costa counties have identical GAFs (1.1122).

Figure 5
Variation in Geographic Adjustment Factors by County



Source: 2002 California county GAFs from CMS.

VI. CONCLUSIONS AND RECOMMENDATIONS

The purpose of the study was to provide IMC/DIR with technical analyses and policy recommendations related to the proposed migration to RBRVS for its OMFS. Based upon our findings, E & M, Psychology, and Pathology and Laboratory would receive higher payments under the RBRVS-based OMFS, while Surgery would receive lower payments. Physician specialties that would experience the largest changes in payment, however, account for a relatively small proportion of paid dollars.

IMC/DIR will need to consider several questions related to the adoption of the new RBRVS system. First, it will need to decide whether the protection a transition strategy would offer to providers justifies the administrative costs and delay in implementation required. Both the E & M and Pathology and Laboratory procedure groups would experience greater than a 20 percent increase in payments under RBRVS, while Surgery would experience almost a 16 percent decrease. Given the large impact of the proposed system, it might be prudent to phase the payment changes in gradually.

If IMC/DIR decides to use a transition strategy, we believe a combination of the blending and the loss-limit approaches would offer the best protection to providers, as this combination would target the codes that would change the most, and ensure that every code would be transitioned into the new system. We would not recommend using multiple conversion factors because the impact would still be large for some procedure codes, the system would not be fully resource-based, and multiple conversion factors would be more challenging to update than a single conversion factor. Furthermore, Medicare initially tried a multiple conversion factor system, and abandoned it in favor of the current single conversion factor RBRVS.

As input prices vary over time, it is important to adjust the current fee schedule to keep payments in line with prices. Regularly updating the conversion factor(s) and keeping the payment system current avoids the payment dislocations associated with irregular updates. We believe IMC/DIR should consider using the “health services” statewide average weekly wage to update its conversion factor(s). The SAWW indicator is both state and health care-specific, and hence captures the changing costs of delivering health care services in California more precisely than the CPI or MEI. Furthermore, the “health services” basket of services incorporates all facilities utilized by the workers’ compensation population. The MEI, however, would also be an appropriate measure because, although it is not California-specific, it incorporates all costs relevant to the provision of medical services.

There is significant geographic cost variation across different localities within California, differing by more than 21 percent between the highest and lowest GAFs of the nine Medicare localities, and by almost 30 percent across all county GAFs. Hence, we believe IMC/DIR should individually adjust each claim based on the locality in which the procedure was performed. At the very least, IMC/DIR should employ the nine Medicare localities, but should consider using a finer geographic division such as MSAs to improve payment accuracy, depending on the degree of added administrative complexity involved.

APPENDIX A

Financial Impact by Physician Specialty Group Ranked by Modeled RBRVS Payments

Specialty	Modeled Paid RBRVS	Modeled Paid OMFS	Percent Difference
CLINICS, GROUPS, ASSOCIATIONS	\$49,858,877	\$48,092,856	3.7%
GENERAL PRACTICE	\$24,839,718	\$25,590,462	-2.9%
CHIROPRACTORS	\$24,339,469	\$25,131,738	-3.2%
ORTHOPEDIC SURGERY	\$15,825,183	\$16,679,373	-5.1%
HOSPITALS (NURSING HOMES/CONVALESCE)	\$14,513,384	\$14,208,676	2.1%
PHYSIOTHERAPISTS	\$13,283,073	\$13,435,777	-1.1%
RADIOLOGY X-RAYS	\$10,811,919	\$10,765,802	0.4%
PHYSICAL MEDICINE AND REHAB	\$6,893,501	\$6,747,566	2.2%
ANESTHESIOLOGY	\$6,656,046	\$6,828,515	-2.5%
PSYCHOLOGISTS	\$3,593,456	\$2,963,704	21.2%
OCCUPATIONAL MEDICINE	\$2,343,925	\$2,195,562	6.8%
NEUROLOGY	\$1,442,559	\$1,741,355	-17.2%
PSYCHIATRY	\$1,059,949	\$900,744	17.7%
NEUROLOGICAL SURGERY	\$961,941	\$1,345,492	-28.5%
ACCUPUNCTURE	\$949,831	\$942,635	0.8%
DERMATOLOGY	\$769,383	\$792,190	-2.9%
GENERAL SURGERY	\$731,553	\$793,163	-7.8%
CARDIOVASCULAR DISEASE	\$640,550	\$755,983	-15.3%
INTERNAL MEDICINE	\$562,531	\$584,372	-3.7%
LABORATORIES	\$511,631	\$448,350	14.1%
OSTEOPATH	\$460,004	\$413,877	11.1%
FAMILY PRACTICE	\$431,233	\$380,803	13.2%
PODIATRISTS	\$429,734	\$355,783	20.8%
HAND SURGERY	\$401,747	\$376,176	6.8%
OTORHINOLARYNGOLOGY	\$361,137	\$474,017	-23.8%
OPHTHALMOLOGY (EYE)	\$360,737	\$294,066	22.7%
PLASTIC SURGERY	\$307,022	\$286,167	7.3%
DENTISTS	\$284,219	\$293,983	-3.3%
PATHOLOGY	\$159,633	\$187,844	-15.0%
OPTOMETRISTS	\$141,147	\$110,473	27.8%
UROLOGY	\$133,741	\$113,078	18.3%
NURSE	\$90,363	\$98,158	-7.9%
EMERGENCY	\$50,824	\$56,388	-9.9%
DIAGNOSTIC ROENTGENOLOGY	\$45,595	\$85,054	-46.4%
PHARMACIES	\$23,454	\$22,921	2.3%
AMBULANCE	\$22,635	\$17,405	30.1%

Specialty	Modeled Paid RBRVS	Modeled Paid OMFS	Percent Difference
INTERPRETERS	\$18,775	\$19,176	-2.1%
GASTROENTEROLOGY	\$18,548	\$22,781	-18.6%
PULMONARY DISEASES	\$17,601	\$18,770	-6.2%
THORACIC SURGERY	\$9,471	\$9,666	-2.0%
GENERAL PREVENTIVE MEDICINE	\$7,976	\$7,546	5.7%
PUBLIC HEALTH	\$7,785	\$6,050	28.7%
PEDIATRICS	\$7,228	\$7,209	0.3%
COLON AND RECTAL SURGERY	\$3,148	\$2,320	35.7%
ALLERGY	\$3,090	\$2,600	18.8%
OBSTETRICS AND GYNECOLOGY	\$1,404	\$1,158	21.3%
UNSPECIFIED	\$29,077,699	\$28,870,135	0.7%
N/A	\$2,113,258	\$2,099,770	0.6%
TOTAL	\$215,577,690	\$215,577,690	0.0%

APPENDIX B

Strategies of 18 Other States

State	System	Transition Period	Conversion Factors	Conversion Factors	Basis for CF Update	Geographic Adjustment
CO	St. Anthony RVP	No	Multiple	Yes	Recommendations from St. Anthony's	No
FL	Medicare RBRVS	No	Multiple	Yes	CPI	No
HI	Medicare RBRVS	No	Multiple	Yes	Medicare	No
MI	Medicare RBRVS	Yes	Multiple	No		No
MN	Medicare RBRVS	No	Single	Yes	SAWW	No
MS	Medicare RBRVS	No	Multiple	Yes	Recommendations from consultant	No
MT	St. Anthony RVP	No	Multiple	Yes	SAWW	No
ND	St. Anthony RVP	No	Multiple	Yes	Actuarial analyses	No
NV	St. Anthony RVP	No	Multiple	Yes	Recommendations from St. Anthony's	No
OH	Medicare RBRVS	No	Multiple	Yes	Budget	No
OK	St. Anthony RVP	No	Multiple	Yes	Recommendations from St. Anthony's	No
OR	Medicare RBRVS	No	Multiple	Yes	Cost of living	No
PA	Medicare RBRVS	No	Not used	N/A	N/A	Yes
SC	Medicare RBRVS	No	Single	N/A	N/A	No
SD	St. Anthony RVP	Yes	Multiple	Yes	SAWW	No
WA	Medicare RBRVS	Yes	Single	Yes	SAWW	No
WV	Medicare RBRVS	No	Single	Yes	MEI	No
WY	St. Anthony RVP	No	Multiple	Yes	Recommendations from St. Anthony's	No

Source: Lewin interviews with 18 states.

Note: States that have a single conversion factor, may, as Medicare does, have a separate factor for anesthesia services.