



*The* LEWIN GROUP

# **A Study of the Practice Expenses Associated with the Provision of Evaluation and Management Services**

*Prepared for:*

**Industrial Medical Council**

**Department of Industrial Relations**

*Prepared by:*

**The Lewin Group**

*May 13, 2003*

# **A Study of the Practice Expenses Associated with the Provision of Evaluation and Management Services**

*Prepared for:*

**Industrial Medical Council  
Department of Industrial Relations**

*Prepared by:*

**Al Dobson, Ph.D.  
Joan DaVanzo, Ph.D., M.S.W.  
Lane Koenig, Ph.D.  
Jonathan Seigel, M.A.  
Jawaria Gilani, M.P.H.  
Silver Ho, M.P.H.**

*May 13, 2003*

**Table of Contents**

**EXECUTIVE SUMMARY ..... I**

**A. Introduction..... i**

**B. Study Context and Purpose of the Study..... i**

**C. Methodology ..... i**

**D. Results ..... iii**

    1. Clinic Site Visits ..... iii

    2. Analytic Results ..... iii

    3. Impact of Study Results on Payments ..... viii

    4. Impact of Physician Work and Practice Expense Studies for Selected Specialties... ix

**E. Conclusion ..... ix**

**I. INTRODUCTION AND BACKGROUND ..... 1**

**F. Study Context..... 2**

**G. Purpose of Study ..... 2**

**H. Evaluation and Management Services ..... 3**

**I. Overview of Report..... 5**

**II. METHODS ..... 6**

**A. Data Collection ..... 8**

    1. Clinic Site Visits ..... 9

    2. Total Practice Expense Survey ..... 9

    3. Direct Input Panels ..... 10

**B. Data Analysis ..... 12**

    1. Stage One: Creation of Direct and Indirect Practice Expense Pools ..... 12

    2. Stage Two: Allocation of Pools to Individual Codes ..... 14

    3. Stage Three: Workers’ Compensation E&M RVU Adjustments to Practice Expense 15

**III. RESULTS ..... 16**

**A. Clinic Site Visits ..... 16**

**B. Analytic Results..... 16**

    1. Total Practice Expense Survey ..... 16

    2. Revised Direct Input Costs..... 19

    3. Overall Ratio of Revised Workers’ Compensation and RBRVS RVUs ..... 20

**C. Impact of Study Results ..... 21**

    1. Impact of Study Results on Payments ..... 21

    2. Impact of Physician Work and Practice Expense Studies for Selected Specialties.. 22

**IV. CONCLUSIONS..... 23**

**APPENDIX A - Total Practice Expense Survey Cover Letter ..... A-1**

**APPENDIX B - Total Practice Expense Survey ..... B-1**

**APPENDIX C - Total Practice Expense Survey ..... C-1**

<b>APPENDIX D - AMA RUC Practice Expense Direct Input Survey</b>	<b>D-1</b>
<b>APPENDIX E - AMA Workgroup Results</b>	<b>E-1</b>
<b>APPENDIX F - AMA RUC Direct Input Packages</b>	<b>F-1</b>
<b>APPENDIX G - Direct Input Panels Cover Letter</b>	<b>G-1</b>
<b>APPENDIX H - Direct Input Panels Background Materials</b>	<b>H-1</b>
<b>APPENDIX I - Direct Input Panels Sample Worksheets</b>	<b>I-1</b>
<b>APPENDIX J - Data Analysis Example</b>	<b>J-1</b>
<b>APPENDIX K - Primary Treating Physician Flow Chart</b>	<b>K-1</b>
<b>APPENDIX L - Revised and RBRVS Total Direct Input Costs</b>	<b>L-1</b>
<b>APPENDIX M - Revised Practice Expense RVUs</b>	<b>M-1</b>
<b>APPENDIX N - Impact of Work and Practice Expense for All Specialties</b>	<b>N-1</b>
<b>APPENDIX O - Final Presentation</b>	<b>O-1</b>

## EXECUTIVE SUMMARY

### A. Introduction

The Workers' Compensation Official Medical Fee Schedule (OMFS) establishes reasonable maximum fees for medical services provided by health care practitioners in California. Fee rates in the OMFS are based primarily on historic charges. The Industrial Medical Council of the California Department of Industrial Relations (IMC/DIR) proposed to adopt the resource-based relative value scale (RBRVS) used by the Medicare Physician Fee Schedule (MFS) for the OMFS. The MFS RBRVS rests on the concept that the resources consumed in the provision of a medical service should be used as the basis of payment.<sup>1</sup>

### B. Study Context and Purpose of the Study

This study examines the relative practice expense associated with the provision of E&M services (the "Practice Expense Study") and is part of a larger effort undertaken by the IMC/DIR to revise the OMFS. The purpose of the Practice Expense study is threefold: (1) to determine whether the practice expense required to provide E&M services to injured workers in California is less than, greater than, or comparable to the practice expense required to provide the same services to other types of patients, (2) to identify factors that may contribute to any differences identified between the practice expense in providing services to injured workers and the practice expense in providing the same services to other types of patients, and (3) to determine the budgetary impacts of adjusting the RVUs for E&M services based on the findings of both the Physician Work and the Practice Expense studies. A central focus of the Practice Expense study was on the appropriateness of the RBRVS RVUs for valuing E&M services in workers' compensation.

### C. Methodology

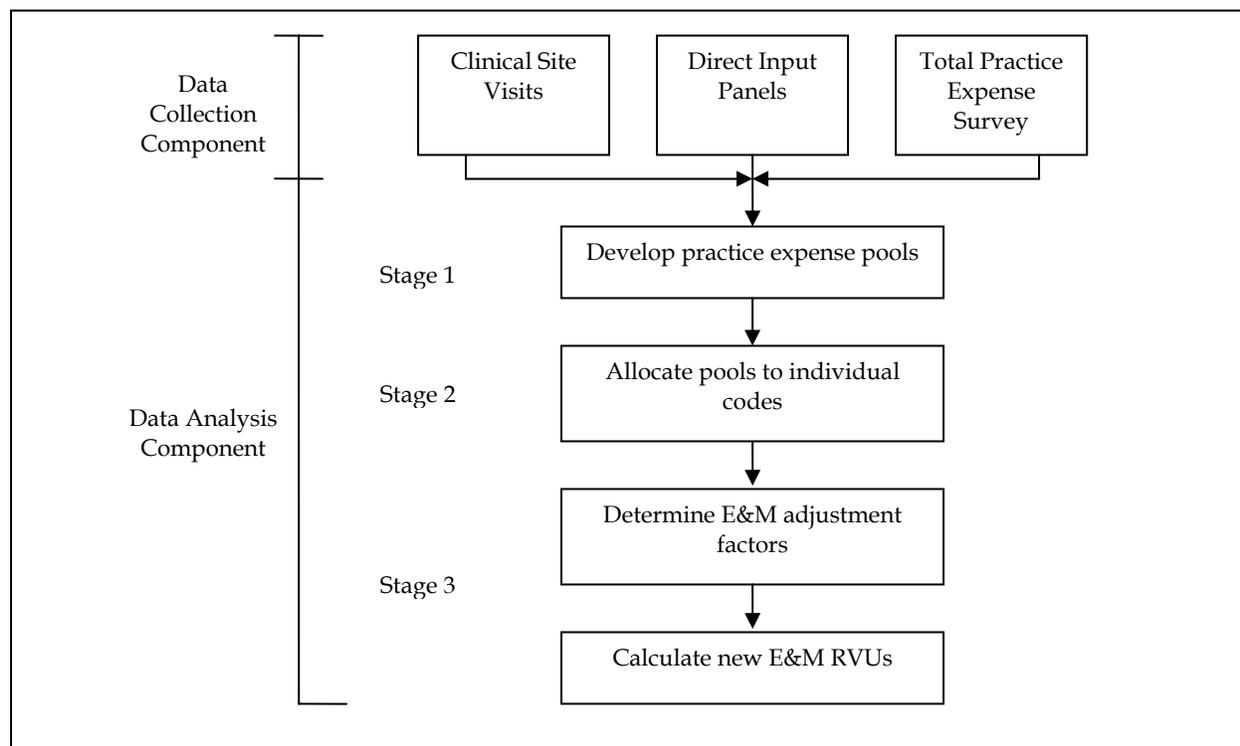
Our approach closely followed the method used by the Centers for Medicare and Medicaid Services (CMS) to develop practice expense relative value units for its RBRVS. We followed the basic CMS method to be consistent with the overall development methodology of the RBRVS.

The Lewin Group's analysis required a data collection component and a data analysis component. As shown in Exhibit ES-2, we collected data through a series of clinical site visits, four direct input panels, and a practice expense survey of medical practices in California. The data analysis component involved similar steps to those used by CMS.

---

<sup>1</sup> Bean JR. (2002). Valuing neurosurgery services: Part I. The historical development and interrelationships of Current Procedural Terminology and the Medicare Fee Schedule. *Neurosurgery Focus*, Vol.12. April 2002.

## Exhibit ES-2 The Lewin Group's Practice Expense Study Steps



### 1. Data Collection Component

We engaged in three data collection efforts to complete the study. First, we visited medical practices that treat workers' compensation and other types of patients to gain a better understanding of the medical and special requirements for providing E&M services to injured workers in California. Second, we conducted a survey of medical practices to collect information on total direct and indirect expenses of these practices. We used the practice expenses from this survey to create estimates of the total practice expenses incurred when treating workers' compensation patients (i.e. practice expense pools). Third, we conducted a series of direct input panels to collect information on the direct input requirements for performing E&M services. This information was used to allocate the practice expense pools to the procedure-code level.

### 2. Data Analysis Component

We used the data collected by the total practice expense survey and the direct input panels to determine the proper adjustment to E&M code practice expense RVUs for workers' compensation patients. To compute the adjustment, we first used data from the direct input panels and a median regression approach to impute direct input costs for all E&M codes. We then used the results of the total practice expense survey to calculate practice expenses per hour in each of the six cost categories, and constructed aggregate practice expense pools using hours-per-procedure data. We then applied the CMS practice expense allocation methodology twice using direct and indirect inputs to develop the adjustment factor: once using direct inputs for

procedure codes as measured by CMS and the physician work RVUs from the RBRVS, and again using adjusted direct inputs based on the findings from our California workers' compensation direct input panels and adjusted physician work RVUs from the Physician Work study. Next, the practice expense RVU adjustment for each E&M code was calculated by comparing the RVUs resulting from each of the above two allocation methods. For each E&M code, this multiplier was multiplied by the RBRVS practice expense RVU to calculate the "revised" workers' compensation practice expense RVU. We then estimated the impact on payment for E&M services and total payments incorporating the results of our workers' compensation Physician Work and Practice Expense studies. Finally, we estimated the impact of the study results on the distribution of payments across specialties treating workers' compensation patients.

## **D. Results**

### **1. Clinic Site Visits**

We visited four workers' compensation clinics in California, two in Southern and two in Northern California. Based on the site visits, we prepared a flowchart that can be found in Appendix K. The flowchart captures the major activities that result when a typical workers' compensation patient presents for care. The flowchart details the complexity of activities that are carried out to determine if a patient is a workers' compensation patient and the resulting set of activities that occur and may result in additional practice expense. For example, the front office must determine if the patient is potentially a workers' compensation patient, notify the employer about the injury and follow employer-specific protocols. Clinical staff must receive and make telephone calls to various parties concerning the injured worker both before and after the service is provided and within a complex medical-legal environment. Other activities that may result in additional practice expense costs include:

- Extensive patient history as it relates to the injury and the setting where the injury took place and other documentation
- Disability management
- Determination of causation
- Return to work issues
- Patient motivation

### **2. Analytic Results**

#### *a. Total Practice Expense Survey*

##### *i) Sample Characteristics*

The total practice expense survey was sent to 1,200 physicians representing an equivalent number of medical practices in California. Exhibit ES-3 presents the breakdown of the sample by physician specialty.

**Exhibit ES-3**  
**Total Practice Expense Survey**  
**Sample Characteristics**

<b>Specialty</b>	<b>#</b>	<b>%</b>
Chiropractic	320	26.7%
Other Specialties	252	21.0%
Orthopedic Surgery	196	16.3%
General Practice/Family Practice/Occ Med	162	13.5%
Neurology & Neurological Surgery	70	5.8%
Psychology	55	4.6%
Psychiatry	46	3.8%
Emergency Medicine	30	2.5%
Podiatry	27	2.3%
Optometry & Ophthalmology	21	1.8%
Acupuncture	11	0.9%
Dentistry	10	0.8%
<b>Total</b>	<b>1200</b>	<b>100.0%</b>

Note: The category "Other Specialties" included Anesthesiology, Cardiology, Dermatology, General Surgery, Pain Management, Pathology, Physical Medicine and Rehabilitation, Plastic Surgery, Radiology, and Urology.

Chiropractic, other specialties, orthopedic surgery and general practice/family practice/occupational medicine providers made up approximately 78 percent of the sample. These specialties are among those that provide the bulk of E&M services to workers' compensation patients in California.<sup>2</sup>

We received a total of 70 completed total practice expense surveys from the 1,200 that were solicited. Exhibit ES-4 presents the breakdown of the survey respondents by specialty.

<sup>2</sup> The Lewin Group. (2003). The Relative Work Content of Evaluation and Management Codes.

**Exhibit ES-4**  
**Total Practice Expense Survey**  
**Respondent Characteristics**

Specialty	Number	# of Physicians Represented
Primary Care <sup>a/</sup>	8	16
Chiropractic	36	43
Orthopedic Surgery	3	5
Psychology	11	17
Large Clinic Network	1	188
Other <sup>b/</sup>	11	19
<b>Total</b>	<b>70</b>	<b>288</b>

a/ Primary care includes family practice, internal medicine, occupational medicine, and industrial medicine.

b/ The category "other" includes acupuncture, dentistry, podiatry, neurology, anesthesiology, neurosurgery, pain management, ophthalmology, ear nose and throat, physical therapy, and multi-specialty.

Chiropractors, psychologists and other specialists represented the majority of the sample respondents.

ii) Practice Expense Per Hour Values

Based on data obtained from the total practice expense survey, we calculated an average practice expense per hour for each of the six cost categories, the results of which are presented in Exhibit ES-5 below. Values were weighted across specialties according to hours spent providing services to California workers' compensation patients to ensure that the average practice expense per hour used properly reflected the relative distribution of specialties treating workers' compensation patients in California.

**Exhibit ES-5**  
**Practice Expense per Hour (2001)**

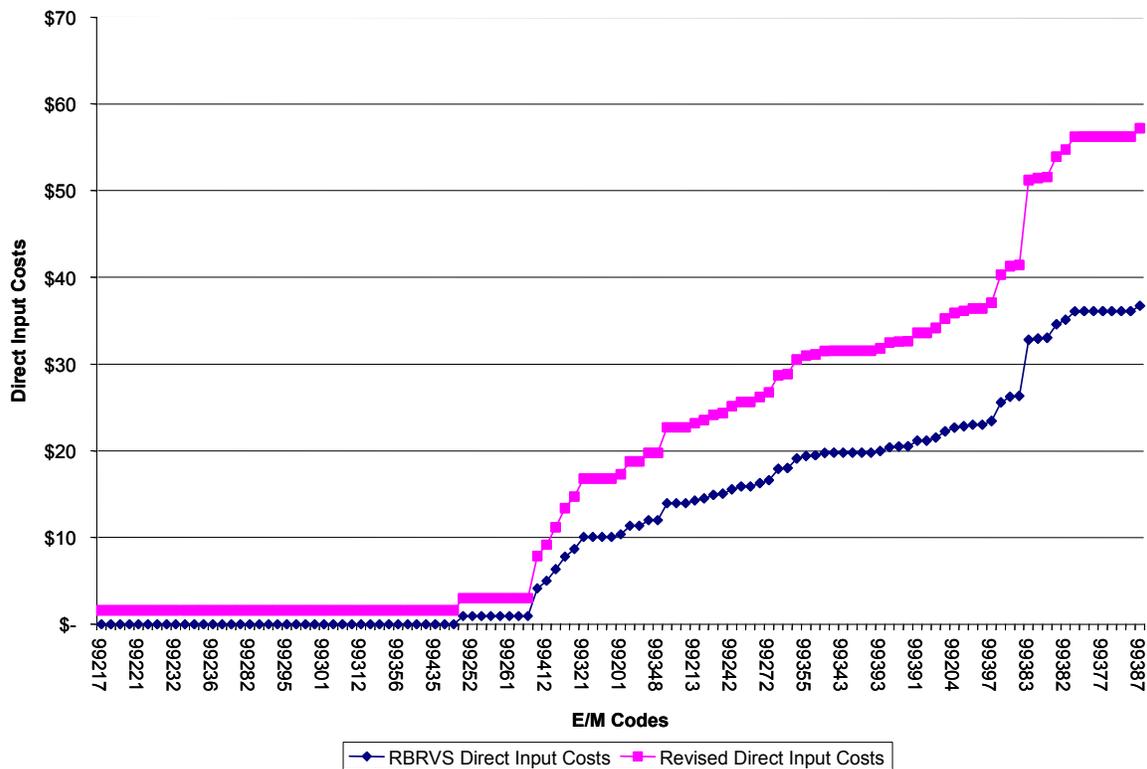
Cost Category	Practice expense/hour
Clinical Labor	\$ 9.69
Medical Supplies	\$ 8.85
Medical Equipment	\$ 1.93
Office	\$ 29.45
Clerical Labor	\$ 27.42
Other	\$ 12.56
<b>Total</b>	<b>\$ 89.89</b>

A total average practice expense per hour for workers' compensation providers was determined to be \$89.89. By comparison, the all physician average used by CMS is \$78.47.<sup>3</sup> In the AMA's all physician average, indirect inputs account for 67 percent of total practice expense costs. The results of the total practice expense survey show that indirect inputs make up approximately 77 percent of total practice expense costs, indicating that the proportion of indirect to total practice expense inputs for workers' compensation is higher than that of physicians treating other types of patients.

*b. Revised Direct Input Costs*

As described in the Methodology section, a median regression equation was estimated to extrapolate from the 18 surveyed codes and predict practice expense direct input costs for all the E&M codes, including the surveyed codes. The revised direct input cost for all codes were higher than the RBRVS direct input costs. Exhibit ES-6 below presents a comparison of the revised workers' compensation versus RBRVS direct input costs for all E&M codes. Appendix L presents the revised and RBRVS direct input costs for all the E&M codes.

**Exhibit ES-6  
Revised and RBRVS Direct Input Costs**



<sup>3</sup> \$69 updated by 14 percent based on Medical Economic Index to 2001.

Overall, there was an average increase of approximately 79 percent in direct input costs, driven primarily by an increase in clinical labor time associated with the provision of E&M services to workers' compensation patients.

**c. Overall Ratio of Revised Workers' Compensation and RBRVS RVUs**

We calculated the ratio of workers' compensation practice expense RVUs to RBRVS practice expense RVUs on a code by code basis. We then multiplied the resulting ratio to calculate revised practice expense RVUs on a code by code basis. The revised practice expense RVUs for all E&M codes in the OMFS based on the allocation methodology are presented in Appendix M. Exhibit ES-7 below presents the RBRVS RVUs, the revised workers' compensation practice expense RVUs and the ratio of the revised workers' compensation practice expense RVUs to RBRVS practice expense RVUs for the 18 E&M codes included in the direct input panels.

**Exhibit ES-7  
Revised Practice Expense RVUs for  
18 Codes included in Direct Input Panels**

CPT Codes	Descriptor (Source CPT Manual 2001)	RBRVS RVUs	Revised WC PE RVUs	Ratio of Revised WC PE RVU / RBRVS PE RVU
	OFFICE VISIT - NEW			
99203	Office/outpatient visit, new, presenting problems of moderate severity.	1.05	1.39	1.32
99204	Office/outpatient visit, new, presenting problems of moderate to high severity.	1.47	1.91	1.30
99205	Office/outpatient visit, new, presenting problems of moderate to high severity.	1.73	2.23	1.29
	OFFICE VISIT - ESTABLISHED			
99212	Office/outpatient visit, established, presenting problems are self-limited/minor.	0.49	0.68	1.38
99213	Office/outpatient visit, established, presenting problems of low to moderate severity.	0.65	0.89	1.35
99214	Office/outpatient visit, established, presenting problems are of moderate to high severity.	1.00	1.32	1.33
99215	Office/outpatient visit, established, presenting problems are of moderate to high severity.	1.29	1.69	1.31
	INITIAL HOSPITAL CARE PER DAY			
99222	Initial hospital care per day, problem(s) requiring admission is of moderate severity.	0.76	0.98	1.28
	SUBSEQUENT HOSPITAL CARE PER DAY			
99232	Subsequent hospital care per day, patient is responding inadequately to therapy or has a minor complication.	0.38	0.50	1.32
	HOSPITAL DISCHARGE DAY			
99239	Hospital discharge day, > 30 min spent for final hospital discharge of a patient. Includes final examination, discussion, instructions, preparation of records, prescriptions.	0.62	0.80	1.29
	OFFICE CONSULTATION			
99243	Office consultation, new or established patient, presenting problem(s) of moderate severity.	1.28	1.69	1.32
99244	Office consultation, new or established patient, presenting problem(s) of moderate to high severity.	1.71	2.22	1.30
99245	Office consultation, new or established patient, presenting problem(s) of moderate to high severity.	2.14	2.77	1.29
	INPATIENT CONSULT - INITIAL			
99254	Initial inpatient consult, new or established patient, presenting problem(s) of moderate to high severity.	1.07	1.36	1.27
	INPATIENT CONSULT - FOLLOW-UP			
99263	Follow-up inpatient consult, established patient, unstable or developed a severe complication or a significant new problem.	0.52	0.68	1.31
	CONFIRMATORY CONSULTATION			
99274	Confirmatory consultation, new or established patient, problem(s) of moderate to high severity.	1.24	1.69	1.35
	EMERGENCY DEPARTMENT VISIT			
99283	Emergency department visit, presenting problem(s) of moderate severity.	0.32	0.42	1.31
	NURSING FACILITY CARE PER DAY - SUBSEQUENT			
99312	Nursing facility care per day, subsequent, new or established, patient is responding inadequately to therapy or has developed a minor complication.	0.34	0.45	1.33
<b>OVERALL RATIO</b>				<b>1.33</b>

CPT 5-digit codes and descriptions are copyrighted by the American Medical Association (AMA). No payment schedules, fee schedules, relative value units, scales, conversion factors or components thereof are included in CPT. The AMA is not recommending that any specific relative values, fees, payment schedules, or related listings be attached to CPT. Any relative value scales assigned to CPT codes are not those of the AMA, and the AMA is not recommending use of these relative values.

While the revised direct input costs increased by roughly 79 percent on average, the overall average increase in allocated direct and indirect practice expenses for E&M services was 33 percent (ratio=1.33). The reason for this difference was primarily due to the indirect allocation method used by CMS, which relies largely on physician work. The results suggest that the total practice expense costs associated with treating workers' compensation patients in California is higher than that of treating other types of patients, indicated by the ratio of the overall average increase being larger than one. This is driven by the higher direct input costs and the higher proportion of indirect input costs over total practice expense costs.

The results show that the practice expense for workers' compensation evaluation and management services reflected in the revised workers' compensation RVUs are approximately 33 percent higher than that for other types of patients.

### 3. Impact of Study Results on Payments

As reported in the RBRVS Study, we estimated that transition to the RBRVS would result in an increase in payments for E&M services of 23 percent. Payments were estimated using a modified version of the relative value units from the RBRVS and a budget-neutral conversion factor of \$44.73. Details of how these RVUs budget neutral conversion factor were derived can be found in that report.<sup>4</sup>

We estimated the impact on total payments and payment for E&M services of incorporating the revised workers' compensation physician work RVUs, as reported in the Physician Work study, and the revised practice expense RVUs, as reported in this study. The revisions to the physician work and practice expense RVUs were modeled using a conversion factor of \$44.73. The findings, shown in Exhibit 10, show the additional payments for E&M services and all services, if the modifications to the E&M RVUs were not made budget neutral. Results of the studies indicate that there would be an increase in total physician payment of 7 percent (see Exhibit ES-8).

#### Exhibit ES-8 Impact of Study Results

	Paid OMFS (A)	Budget Neutral RBRVS (B)	Percent Difference (B-A)/A	Work and Practice Expense Adjusted RBRVS (C)	Percent Difference (C-B)/B
E&M	40,935,969	50,316,807	23%	\$ 64,834,113	29%
<b>Total</b>	<b>215,577,690</b>	<b>215,577,690</b>	<b>0%</b>	<b>\$ 230,094,996</b>	<b>7%</b>

a/ RBRVS payments based on \$44.73 conversion factor

b/ This change in payments for E&M services reflects the impact of both the work and practice expense changes

<sup>4</sup> California Workers' Compensation RBRVS Study. (2002). The Lewin Group.

This 7 percent increase would compensate for the additional physician work and practice expense for E&M services found by the studies without adversely affecting reimbursement for the other codes.

#### 4. Impact of Physician Work and Practice Expense Studies for Selected Specialties

Last, we estimated the impact of the study results on the distribution of payments across specialty. Exhibit ES-9 below presents those results for selected specialties and Appendix N presents the results for all workers' compensation specialties.

### Exhibit ES-9 Impact of Work and Practice Expense for Selected Specialties

Specialty	Paid OMFS (A)	Budget Neutral RBRVS (B)	Impact relative to BN RBRVS (B-A)/A	Work and PE Adjusted RBRVS (C)	Impact of Adj RBRVS relative to BN RBRVS (C-B)/B	Impact of Adj RBRVS relative to Paid OMFS (C A)/A
CLINICS, GROUPS, ASSOCIATIONS	\$ 48,092,856	\$ 49,858,930	3.7%	\$ 54,644,517	9.6%	13.6%
GENERAL PRACTICE	\$ 25,590,462	\$ 24,839,748	-2.9%	\$ 27,463,633	10.6%	7.3%
CHIROPRACTORS	\$ 25,131,738	\$ 24,339,483	-3.2%	\$ 24,962,606	2.6%	-0.7%
ORTHOPEDIC SURGERY	\$ 16,679,373	\$ 15,825,200	-5.1%	\$ 17,428,149	10.1%	4.5%
HOSPITALS (NURSING HOMES/CONVALESCE)	\$ 14,208,676	\$ 14,513,399	2.1%	\$ 15,595,664	7.5%	9.8%
PHYSIOTHERAPISTS	\$ 13,435,777	\$ 13,283,079	-1.1%	\$ 13,330,294	0.4%	-0.8%
RADIOLOGY X-RAYS	\$ 10,765,802	\$ 10,811,934	0.4%	\$ 10,860,977	0.5%	0.9%
ANESTHESIOLOGY	\$ 6,828,515	\$ 6,656,046	-2.5%	\$ 6,690,744	0.5%	-2.0%
PHYSICAL MEDICINE AND REHAB	\$ 6,747,566	\$ 6,893,505	2.2%	\$ 7,009,024	1.7%	3.9%
PSYCHOLOGISTS	\$ 2,963,704	\$ 3,593,461	21.2%	\$ 3,675,626	2.3%	24.0%
OCCUPATIONAL MEDICINE	\$ 2,195,562	\$ 2,343,928	6.8%	\$ 2,636,903	12.5%	20.1%

Overall, payments for E&M services are 19 percent of total physician payments under OMFS and would be 23 percent under a budget neutral RBRVS. Payments for E&M services rise by 29 percent relative to a budget-neutral RBRVS as a result of the Physician Work and Practice Expense studies.

#### E. Conclusion

This study was designed to determine if practice expense for E&M codes is greater than, equal to, or less than that for workers' compensation patients in comparison to the practice expense involved in providing care to other patients. The study approach was modeled after that used by CMS and the AMA. We attempted to be as inclusive as possible of the workers' compensation physician community throughout the course of the study by eliciting participation and feedback from a broad range of stakeholders.

Several study results predominate. The first is that payments for E&M services are 19 percent of total physician payments currently under OMFS and would be 23 percent under a budget neutral RBRVS. We found that payments for E&M services if adjusted for the results of the Physician Work and Practice Expense studies would rise by about 29 percent relative to a budget neutral RBRVS. This implies a seven percent increase in total physician payments. A seven percent non-budget neutral increase would compensate for the additional physician work

and practice expense for E&M services attendant to providing services to injured workers without adversely affecting reimbursement for the other codes.

Overall, through the site visits, the direct input panels, and the total practice expense survey, workers' compensation physicians time and time again expressed their belief that treating injured workers requires more practice expense than treating other types of patients. Providing medical services to workers' compensation patients in California, like in other states, requires physicians and their staff to operate in the complex medical-legal world of opposing objectives, with employers and insurance carriers often on one end of the spectrum, injured worker on the other, and physicians in between. As a result physicians and their staffs engage in activities that they would not engage in when providing care to non-industrial patients. For example, disability management and return-to-work issues are virtually absent for non-workers' compensation patients, yet are a central focus when treating injured workers. Furthermore, many physicians reported that workers' compensation patients often have greater psychological stress associated with their injuries than other types of patients due to the potential loss of employment and other financial considerations. Also, treating workers' compensation patients requires clinical staff to spend substantial additional time collecting information for the medical history and record reviews. Handling all of these types of issues produces the types of increases in practice expense documented in this study.

## I. INTRODUCTION AND BACKGROUND

The Workers' Compensation Official Medical Fee Schedule (OMFS) establishes reasonable maximum fees for medical services provided by health care practitioners in California. Fee rates in the OMFS are based primarily on historic charges. The Industrial Medical Council of the California Department of Industrial Relations (IMC/DIR) proposed to adopt the resource-based relative value scale (RBRVS) used by the Medicare Physician Fee Schedule (MFS) for the OMFS. In addition to the Medicare program, many third party payers, including State workers' compensation systems, state Medicaid programs and managed care organizations are currently using variations of resource based relative value scales to determine payments for physician services.

The MFS RBRVS rests on the concept that the resources consumed in the provision of a medical service should be used as the basis of payment.<sup>5</sup> The principle advantage of moving toward a resource-based relative value scale is that the resulting fee schedule would be resource based and, therefore, more likely to improve the appropriateness of physician payments for workers' compensation services.<sup>6</sup> A second benefit of adopting the RBRVS is that it has undergone a ten year validation process by researchers and payers. The Center for Medicare & Medicaid Services (CMS) is required by Congress to review and update the relative value units (RVUs) in the MFS not less than every five years. It is important to note that the administrative director of the Division of Workers' Compensation and the IMC are proposing to adopt the RVUs in the RBRVS for the OMFS and **not** the Medicare conversion factor which sets overall physician payment levels in the MFS (see below). Used in this fashion, RBRVS is an allocation mechanism, not a budgetary tool.

Services that physicians provide to California's workers' compensation patients are reimbursed based on payment rates set in the OMFS. As with all medical fee schedules, each medical service and procedure has a code associated with it that serves to identify the service or procedure. Each medical service and procedure contained in the MFS is represented by a five-digit current procedural terminology (CPT) code developed by the American Medical Association (AMA). Prior to 1992, physician payments in the MFS were based on a calculation of "customary, prevailing, and reasonable" charges associated with the services. In 1992, under the Omnibus Budget Reconciliation Act of 1989, the federal government replaced its charge-based payment system with one based on the relative resources required to provide service to Medicare patients. Payments for services provided by physicians were based on three components: physician work, practice expense and malpractice. Each of these components have separate RVUs associated with them and therefore each medical service or procedure provided has three separate RVUs. Researchers from the Department of Health Policy and Management at Harvard University School of Public Health developed the work based portion of RBRVS

---

<sup>5</sup> Bean JR. (2002). Valuing neurosurgery services: Part I. The historical development and interrelationships of Current Procedural Terminology and the Medicare Fee Schedule. *Neurosurgery Focus*, Vol.12. April 2002.

<sup>6</sup> Hsiao WC, Braun P, Yntema D, et al. (1988). Estimating physician work for a resource-based relative value scale. *New England Journal of Medicine*. 319: 881-888.

over the course of several years while under contract with the Health Care Financing Administration.<sup>7,8</sup>

Physician work represents approximately 55% of total Medicare payment, practice expense represents approximately 42%, and malpractice approximately 3% of total Medicare payments.<sup>9</sup> Total payments for medical services and procedures are determined by multiplying the RVUs associated with each component by the appropriate geographic practice cost index (GPCI).<sup>10</sup> These values are then summed and multiplied by a single conversion factor to determine the Medicare allowed payment amount which includes a twenty percent patient co-payment.<sup>11</sup>

## F. Study Context

This study examines the relative practice expense associated with the provision of E&M services (the “Practice Expense Study”) and is part of a larger effort undertaken by the IMC/DIR to revise the OMFS. In the original California Workers’ Compensation RBRVS Study (RBRVS Study), The Lewin group determined the distributional impact across specialty groups of adopting a budget neutral version of the RBRVS. Two additional studies commissioned by the IMC/DIR build upon the RBRVS study. The Study of the Relative Work Content of Evaluation and Management Codes (the Physician Work Study) determined the extent to which the physician work component of the RVUs for E&M services in RBRVS are appropriately valued for the treatment of patients covered by the workers’ compensation program. The purpose of the Practice Expense study, a companion study to the Physician Work study, is presented below.

## G. Purpose of Study

The RBRVS is the prevailing model used today to describe the relative resources required for providing physician services. The purpose of the Practice Expense study is threefold: (1) to determine whether the practice expense required to provide E&M services to injured workers in California is less than, greater than, or comparable to the practice expense required to provide the same services to other types of patients, (2) to identify factors that may contribute to any differences identified between the practice expense in providing services to injured workers and the practice expense in providing the same services to other types of patients, and (3) to determine the budgetary impacts of adjusting the RVUs for E&M services based on the findings of both the Physician Work and the Practice Expense studies. A focus of the Practice Expense

<sup>7</sup> Hsiao, W. C., Braun, P., Becker, E. R., et al. (1992) “Results and Impacts of the Resource-Based Relative Value Scale.” *Medical Care*. 30(11): NS61 - NS79.

<sup>8</sup> As of July 1, 2001, the Health Care Financing Administration changed its name to the Centers for Medicare and Medicaid Services (CMS).

<sup>9</sup> <http://www.ama-assn.org/ama/pub/category/2292.html>

<sup>10</sup> There are three GPCIs for each medical service or procedure performed; one for each of the three RVUs used to determine payments in the MFS. The GPCIs are intended to reflect the relative costs of physician work, practice expense and malpractice in a given area compared to a nationwide average. The GPCIs are used to adjust payments to reflect geographic variation in the cost of providing medical care due to differences, for example, in office rent or clinical labor costs.

<sup>11</sup> Medicare Allowed Amount = Conversion Factor \* [(RVUWork \* GPCIWork) + (RVUPractice Expense \* GPCIPractice Expense) + (RVUMalpractice \* GPCIMalpractice)]

study was on the appropriateness of the RBRVS RVUs for valuing E&M services in workers' compensation. There is a commonly-held belief among physicians treating workers' compensation patients that E&M services are the types of services for which the practice expenses required to treat injured workers are most likely to differ from the work required to treat other patients.

## H. Evaluation and Management Services

E&M services are central to the physician-patient relationship, as they incorporate three key components of the care provided by the physician: (1) taking and understanding a patient's medical history; (2) conducting a physical examination of the patient; and, (3) ultimately determining the proper course of treatment. Each E&M service has a descriptor associated with it that recognizes seven components that are used to define the level of the E&M service:

- History;
- Physical Examination;
- Medical Decision Making;
- Counseling;
- Coordination of Care;
- Nature of Presenting Problem;
- Time

E&M services represent a significant portion of services provided by most physicians<sup>12</sup> as well as a significant portion of workers' compensation claims in California. In the year 2000, E&M claims represented approximately 19 percent of workers' compensation expenditures for a subset of insurance carriers.<sup>13</sup>

Evaluation and management services are generally divided into five basic categories: office visits, hospital observation and inpatient services, consultations, emergency departments services, and nursing facility and other services. E&M services can range from a brief encounter to extended or complex visits with either new or established patients. New patient office visits are usually for an acute problem (e.g. an injury or a first visit for chronic care), and established patient visits are usually for more chronic problems.<sup>14</sup> E&M services are defined by variations

<sup>12</sup> American Medical Association. (2000). *Current Procedural Terminology CPT 2001*. Chicago: American Medical Association.

<sup>13</sup> For the RBRVS Study, The Lewin Group 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, whom collectively represent a significant share of the workers' compensation market. The CWCI data received by The Lewin Group contained medical bill records submitted by four carriers. The medical bill records file contained 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 included all service records processed by CWCI as of September 1, 2001. The estimate presented above was obtained from modeled payments based on the CWCI data for calendar year 2000. California Workers' Compensation RBRVS Study, The Lewin Group, June 2002.

<sup>14</sup> E&M services more specifically include the following categories of services: office or other outpatient services, hospital observation services, hospital inpatient services, consultations, emergency department services, critical care services, nursing facility services, domiciliary, rest home or custodial care services, home services, prolonged

in the content of service, the place of service, patient clinical status, the nature of the presenting problem, and the time required to perform the service. There are between three and five levels of services within each category or subcategory of E&M service.<sup>15</sup> The categories/subcategories are also referred to as “families” of E&M codes. Implicit in the coding structure is an increase in anticipated resources as the codes increase within a family and is expected to result in a higher practice expense. Within a family, the intensity of service increases with the code number. Higher codes within a family have a higher RVU and payment associated with them. Exhibit 1 presents categories, subcategories and codes for a sample of E&M services.

### Exhibit 1 Categories of E&M Codes

Category/Subcategory	Code Numbers
Office or Other Outpatient Services	
New Patient	99201 – 99205
Established Patient	99211 – 99215
Hospital Observation Discharge Services	99217
Hospital Observation Services	99218 – 99220
Hospital Observation or Inpatient Care Services	99234 – 99236
Hospital Inpatient Services	
Initial Hospital Care	99221 – 99223
Subsequent Hospital Care	99231 – 99233
Hospital Discharge Services	99238 – 99239
Consultations	
Office Consultations	99241 – 99245
Initial Inpatient Consultations	99251 – 99255
Follow-up Inpatient Consultations	99261 – 99263
Confirmatory Consultations	99271 – 99275
Emergency Department Services	99281 – 99288
Critical Care Services	99291 – 99292
Nursing Facility Services	
Special E&M Services	99450 – 99456
Other E&M Services	99499

Source: American Medical Association. Current Procedural Terminology 2001.

Physicians choose the appropriate CPT code to bill based on their service-related activities or those of their staff before, during, and after the provision of a service. Physicians choose which CPT code to bill based on all the inputs required to perform a service, which may include physician work as well as practice expense.

---

services, case management services, care plan oversight services, preventative medicine services, and special E&M services. American Medical Association. (2000). *Current Procedural Terminology CPT 2001*. Chicago: American Medical Association.

<sup>15</sup> Ibid.

## **I. Overview of Report**

The remainder of this report is divided into three sections. We begin with a description of the methodology, then present results from the study activities. We end with a conclusion section.

## II. METHODS

This methods section describes our approach to: (1) determining whether the practice expense relative value units for E&M services as reported in the RBRVS reflect the relative costs of E&M services under workers' compensation in California; and (2) developing new RVUs for these services, if the RBRVS relative values were found to be inaccurate. The analysis was conducted using information on the direct resources required to provide E&M services to workers' compensation patients and non-workers' compensation patients. We used this information and data on total expenses incurred by practices to calculate code-specific adjustment factors for E&M services. These adjustment factors reflect the resource requirements of providing E&M services to the different patient populations. We applied a code-specific adjustment factor to the practice expense relative value units of each E&M service to develop new RVUs for these services.

Our approach closely followed the method used by CMS to develop practice expense relative value units for its RBRVS. This complex approach has undergone considerable external scrutiny and modification since it was originally proposed in 1997.<sup>16</sup> It is based on a "top-down" approach that first estimates total practice expenses for a medical specialty and then allocates these expenses to the procedure code level. We followed the basic CMS method to be consistent with the development of the RBRVS.

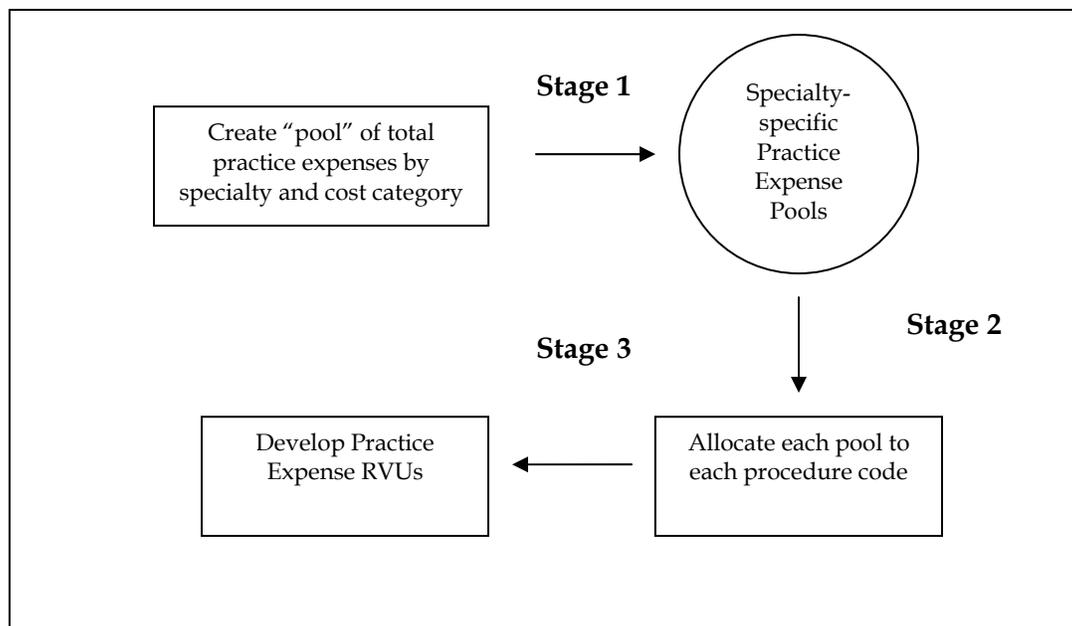
The approach used by CMS to construct resource-based practice expense RVUs consists of three stages of analysis (see Exhibit 2). First, total practice expenses incurred while treating Medicare beneficiaries were estimated for each specialty. These practice expenses were identified for six different categories of costs. The categories of clinical labor, medical supply, medical equipment are considered direct expense categories, because costs associated with these groups can be directly associated with specific procedures. The categories of clerical labor, office expenses, and all other are considered indirect cost categories, because costs associated with these groups cannot be directly associated with any specific procedure. CMS obtained practice expenses by cost category and physician specialty from a series of clinical practice expense panels (CPEPs) and data published by the American Medical Association (AMA). The CPEPs were convened by CMS to determine the actual direct costs of performing a set of reference codes. The AMA collected these data through its Socioeconomic Monitoring System, which collected data from a nationally representative sample of physicians.

Second, each practice expense "pool" (i.e., total practice expenses by cost category) was allocated to each procedure code. The allocation was done using estimates of the direct practice expense inputs (i.e., clinical labor, medical supply, and medical equipment) and physician work effort required to provide specific medical services. As we describe in more detail below, separate allocation approaches were used for direct and indirect practice expenses. Finally, the allocated amounts were converted to relative value units that maintained budget neutrality.

---

<sup>16</sup> Lewin has been providing technical assistance to CMS on the top-down practice expense methodology. Two Lewin reports on the methodology are available at <http://www.hcfa.gov/medicare/pfsmain.htm>. See *The Resource-Based Practice Expense Methodology: An Analysis of Selected Topics* (Dobson et al., 2001) and *An Evaluation of the Health Care Financing Administration's Resource-Based Practice Expense Methodology* (Dobson et al., 2000).

## Exhibit 2 Methodology Used by CMS to Develop Resource-based Practice Expense Relative Value Units



Our analysis was also conducted in the three stages presented in Exhibit 2. We first developed a practice expense pool for each cost category (Stage 1) using data obtained from a survey of practices in California and procedure frequency data from the California Workers' Compensation Institute. We next allocated these practice expense pools to each procedure code, including E&M services (Stage 2). The allocation was done using physician work, clinical labor, medical supply, and medical equipment data from CMS as well as data collected by The Lewin Group from physicians in California.

Although we followed the basic CMS method, the analysis differs in five important ways:

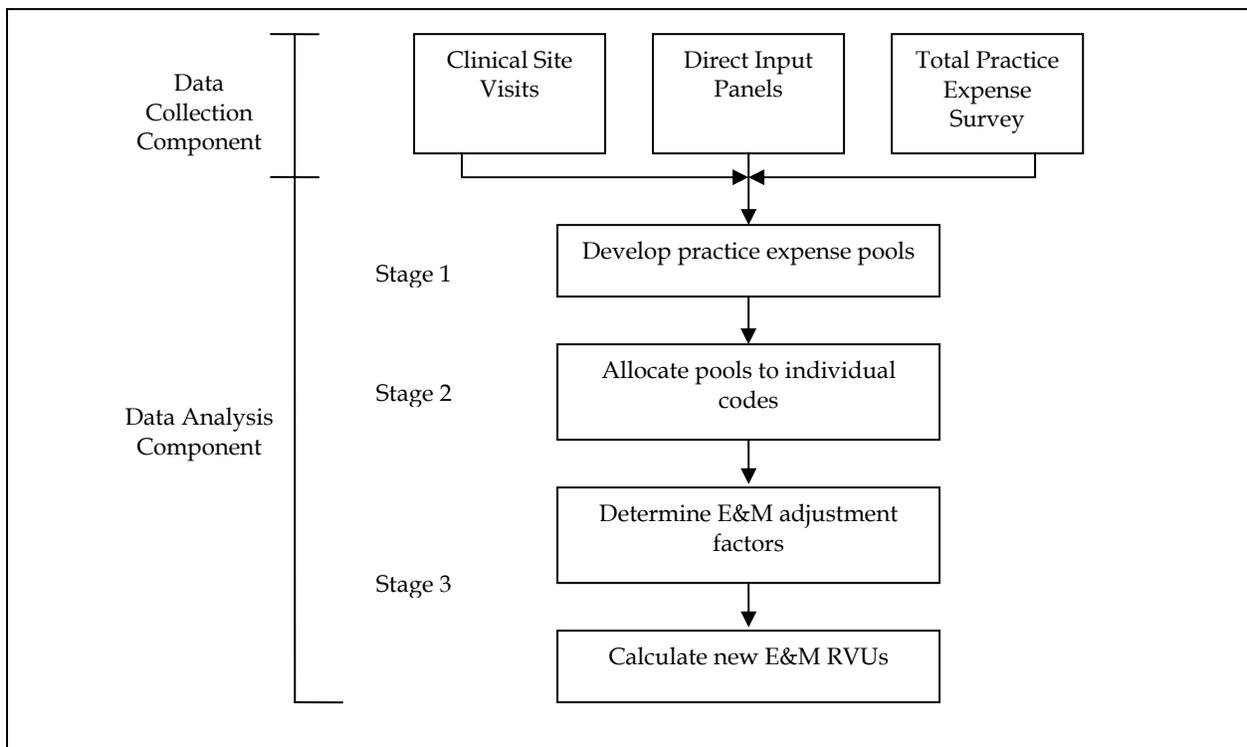
1. We estimated total practice expenses incurred while treating workers' compensation patients in California and not expenses incurred while treating Medicare beneficiaries;
2. We did not create specialty-specific pools, but instead created a single total practice expense pool.
3. Practice expense data were obtained by The Lewin Group from medical practices that treat injured workers in California;
4. Information on the clinical labor, medical supply, and medical equipment required to provide E&M services to workers' compensation patients was

obtained from a series of direct input panels held by The Lewin Group in northern and southern California; and

5. We did not apply a budget neutrality adjustment to the relative value units.

The Lewin Group’s analysis required a data collection component and a data analysis component. As shown in Exhibit 3, we collected data through a series of clinical site visits, four direct input panels, and a practice expense survey of medical practices in California. The data analysis component involved similar steps to those used by CMS as described above. We describe each of the analytic steps in more detail below.

**Exhibit 3  
The Lewin Group’s Practice Expense Study Steps**



**A. Data Collection**

We engaged in three data collection efforts to complete the study. First, we visited medical practices that treat workers’ compensation and other types of patients to gain a better understanding of the medical and special requirements for providing E&M services to injured workers in California. Second, we conducted a survey of medical practices to collect information on total direct and indirect expenses of these practices. We used the practice expenses from this survey to create estimates of the total practice expenses incurred when treating workers’ compensation patients (i.e. practice expense pools). Third, we conducted a series of direct input panels to collect information on the direct input requirements for performing E&M services. This information was used to allocate the practice expense pools to the procedure-code level.

## 1. Clinic Site Visits

In order to understand the process for delivering care to workers' compensation and non-workers' compensation patients, The Lewin Group conducted four site visits (two in Southern California and two in Northern California) to different practice settings. The specialties of the clinics visited were general practice, occupational medicine and chiropractic. The site visits collected qualitative process information, that is the site visits were used to understand the various activities that are carried out by clinical and administrative staff and to identify the equipment and supplies that are used in the delivery of evaluation and management services. Through the site visits, Lewin staff gained a better understanding of the costs incurred by physician practices in the delivery of evaluation and management services.

## 2. Total Practice Expense Survey

The Lewin Group conducted a survey of medical practices in California to obtain information on total practice expenses and hours worked by physicians. The results of the survey were used to produce practice expense per hour values for each of six cost categories - clinical labor, supply, equipment, clerical labor, office, and other. These categories match those defined by the AMA in its Socioeconomic Monitoring System and used by CMS in developing resource-based practice expense RVUs. The categories are broadly defined and are intended to capture all the practice expenses associated with a medical practice. Salaries of physicians and other practitioners who directly bill for their services are not considered practice expenses and are, thus, excluded from the analysis. Using the practice expense per hour values, we created practice expense pools for each cost category.

The survey was administered to a sample of providers in California that provide services to injured workers. The sample frame was constructed from three sources of data: (1) a list of current Qualified Medical Examiners, (2) active providers who had billed various workers' compensation insurance carriers, and (3) a list of physicians in the current State of California Insurance Fund (SCIF) Preferred Provider Network. There were 22,423 individuals represented across the three lists. The lists were consolidated and cleaned to remove duplicates. Only one physician per practice was included in the list. After removing duplicates, the list consisted of 19,872 workers' compensation providers. Next, we removed physicians who had incorrect or flawed addresses. After this step, we were left with 17,913 physician practices. The Lewin Group randomly selected a sample of 1,200 providers from the list.

Baselice & Associates, Inc., a survey firm located in Austin, Texas, administered the survey. All 1,200 practices were sent notification letters regarding the survey. The notification letters included two worksheets. The first worksheet (Summary of 2001 Professional Expenses) asked for information on total practice expenses by expense category. The second worksheet (Frequencies of Services Provided) asked about the frequency of all CPT codes (E&M and all non-E&M) that are provided in the practice. Baselice & Associates, Inc. conducted the survey by telephone. Survey materials can be found in Appendices A - C.

The primary data elements collected in the survey included the following tax-deductible expense items (bold indicates category is relevant for the practice expense RVUs):

- Total expenses for **professional liability, or malpractice insurance premium**;

- **Total office expenses, including rent, mortgage interest, depreciation on office building used in the practice, utilities and telephone;**
- Total payroll expenses, including fringe benefits, for physicians and/or other practitioners who bill directly for their services and are not full or part owners of this practice;
- **Total payroll expenses, including fringe benefits, for employees (excluding physicians and/or other practitioners who bill directly for their services);**
- **Total 2001 payroll expenses that were solely for personnel involved primarily in administrative, secretarial or clerical activities;**
- **Total expenses for clinical materials and supplies, such as X-rays and disposable medical products;**
- **Total expenses for depreciation, leases and rent on medical equipment used in the diagnosis or treatment of patients. Do not include the total purchase price or replacement value of your equipment; and**
- **All other expenses that have not been listed.**

Malpractice insurance premiums are not relevant for constructing resource-based practice expense RVUs, because this expense is captured in the malpractice RVUs that are included in the RBRVS used by CMS. Similarly, payroll expenses for physicians and other practitioners who bill directly for their services are covered under the work RVUs.

### **3. Direct Input Panels**

To determine the direct practice expenses for E&M services provided to workers' compensation patients, The Lewin Group utilized a series of physician working groups using information, data collection methodologies, and survey instruments developed by the Practice Expense Advisory Committee (PEAC) of the AMA. The PEAC is charged with reviewing the direct practice expense inputs of clinical time, medical supplies, and medical equipment for individual procedure codes. The PEAC process was established to update the direct input costs determined during the CPEPs as well as to develop direct input costs for new codes. Specialty groups may collect direct practice expense information through a consensus panel approach, a survey, or an approach that combines features of both. Once the data are collected, the PEAC reviews the practice expense data and process used to collect the information. Appendix D contains the AMA's RUC Direct Practice Expense RVS Update Survey, Appendix E the AMA workgroup results for the clinical labor time and activities for a sample of E&M codes, and Appendix F contains the AMA's direct input cost breakdown.

To collect direct expense inputs for E&M services provided to workers' compensation patients, we convened four "PEAC" (direct input) panels. The purpose of the panels was to develop consensus estimates of the clinical labor time, medical supplies, and equipment required to deliver E&M services to workers' compensation patients relative to non-workers' compensation cases. Our panels were comprised of approximately 10 physicians who had experience treating

both workers' compensation and non-workers' compensation patients. The composition of the direct input panels was determined based on common services provided by the specialties represented by participants. Through the four panel meetings, which were attended by 27 physicians, we determined direct practice expense inputs for 18 E&M CPT codes. The 18 codes evaluated were a subset of the 20 codes that were surveyed for the Physician Work Study and represented a bulk of the E&M services provided in California to workers' compensation patients. There was some overlap between the codes evaluated at each of the panels, specifically among the codes that were most frequently provided to workers' compensation patients in California. The physicians present at the panels represented the range of specialties that provide services to workers' compensation patients. Three of the panels were made up of physicians that provide E&M services in office based settings. The fourth panel was made up of physicians that provide E&M services in both hospital and office based settings. Specialties represented in the panels included acupuncture, chiropractic, neurology, occupational medicine, ophthalmology, physical medicine and rehabilitation, psychiatry and psychology. Based on the results of the panels, we predicted revised total direct costs (sum of costs for clinical labor, medical supplies and medical equipment) for workers' compensation patients for all E&M codes. We utilized a median regression approach to predict direct input costs for the codes not evaluated by the four panels, because the RUC uses the median of surveyed codes to establish physician work RVUs. We produced revised direct input costs for all E&M codes based on the median regression analysis, including the 18 codes that were evaluated in the panels. For all other codes, we used direct input costs available from CMS. These direct input costs were from the original CMS CPEPs and the PEACs. Appendix G contains the letter that was used to recruit physicians into the panels, Appendix H contains the background materials that were sent to the panelists and Appendix I contains a sample of the worksheets that the panelists completed.

Panelists were told that consensus estimates would be used in The Lewin Group's estimations of the direct practice expenses incurred during the delivery of E&M services to workers' compensation patients. Panelists were given definitions of clinical labor, supply, and equipment and worksheets to review prior to attending the panels. We define each of the direct practice expense items below.<sup>17</sup>

*a. Clinical Labor*

At the direct input panel meetings, participants were asked about the typical amount of clinical labor time spent for a series of E&M services. Broadly defined, clinical labor is time spent by health care professionals conducting clinical activities. Following the AMA and PEAC protocols, clinical labor services were divided into a pre-service period, a service period, and a post-service period and examples of discrete tasks provided during each of these service periods were provided to panel members. Participants considered the clinical labor time required to complete each period of service.

Clinical labor includes activities provided by salaried health care professionals who do not bill separately for medical services, such as registered nurses (RNs), licensed practical nurses (LPNs), certified medical assistants (MA), and similar personnel. Activities that clinical staff

---

<sup>17</sup> The definitions provided below are from the *American Medical Association/Specialty Society RVS Update Committee Practice Expense RVS Update Survey, Global Period xxx*.

provide that are above and beyond the tasks that the physician is usually expected to do and not a substitute for physician services are also considered clinical labor. This may include such activities as: review of history and test results, recording of notes, measurement of vital signs, review of x-ray or pathology reports, and completion of medical forms and prescriptions. Any services that can be directly billed for by a health care professional are explicitly excluded from clinical labor as are services that substitute for physician services.

Administrative activities provided by clerical staff, medical secretaries, or clinical staff are not counted as clinical labor. These include such activities as billing for services, scheduling appointments, transcribing and filing reports, and obtaining service authorizations. Additional activities not counted as clinical labor are obtaining referral from referring physicians, obtaining medical records, managing patient databases, developing charts, pre-certifying patients, conducting pre-service billing, verifying insurance, registering patients, transcribing results, filing and managing patient records, notifying and completing reports to referring physicians, and collection activities.

*b. Medical Supplies*

Medical supplies are supplies that are purchased by a practice that are used when providing medical care. Supplies that are separately reimbursable (supplies that are provided over and above those usually included with the office or other services rendered) are not considered direct inputs.

*c. Medical equipment*

Medical equipment is equipment which a practice has purchased or leased with a purchase price of \$500 or more that is easily attributable to a particular service.

## **B. Data Analysis**

We used the data collected by the total practice expense survey and the direct input panels to determine the proper adjustment to E&M procedure code practice expense RVUs. To compute the adjustment, we first used data from the total practice expense survey to calculate practice expenses per hour in each of six cost categories, and constructed aggregate practice expense pools using hours-per-procedure data. We then applied the CMS practice expense allocation methodology twice using direct and indirect inputs to develop the adjustment factor: once using direct inputs for procedure codes as measured by CMS and the physician work RVUs from the RBRVS, and again using adjusted direct inputs based on the findings from our California workers' compensation direct input panels and adjusted physician work RVUs from the Physician Work study. Finally, the PE RVU adjustment for each E&M code was calculated by comparing the RVUs resulting from each of the two methods.

### **1. Stage One: Creation of Direct and Indirect Practice Expense Pools**

Six cost categories of practice expenses per hour were estimated, three direct and three indirect, for each of several different physician specialties.

The total practice expense survey of workers' compensation providers in California provided the data for estimating practice expenses per hour in each of the six cost categories for each of six practice specialties: Chiropractic, Orthopedic Surgery, Psychiatry/Psychology, Primary Care<sup>18</sup>, Clinics, and Other Specialties<sup>19</sup>. We constructed a single average practice expense per hour for each of the six cost categories by weighing across the six specialties according to their relative frequency of services performed in the California Workers' Compensation Institute (CWCI) database. CWCI receives medical services data from a number of carriers throughout California, whom collectively represent a significant share of the workers' compensation market.

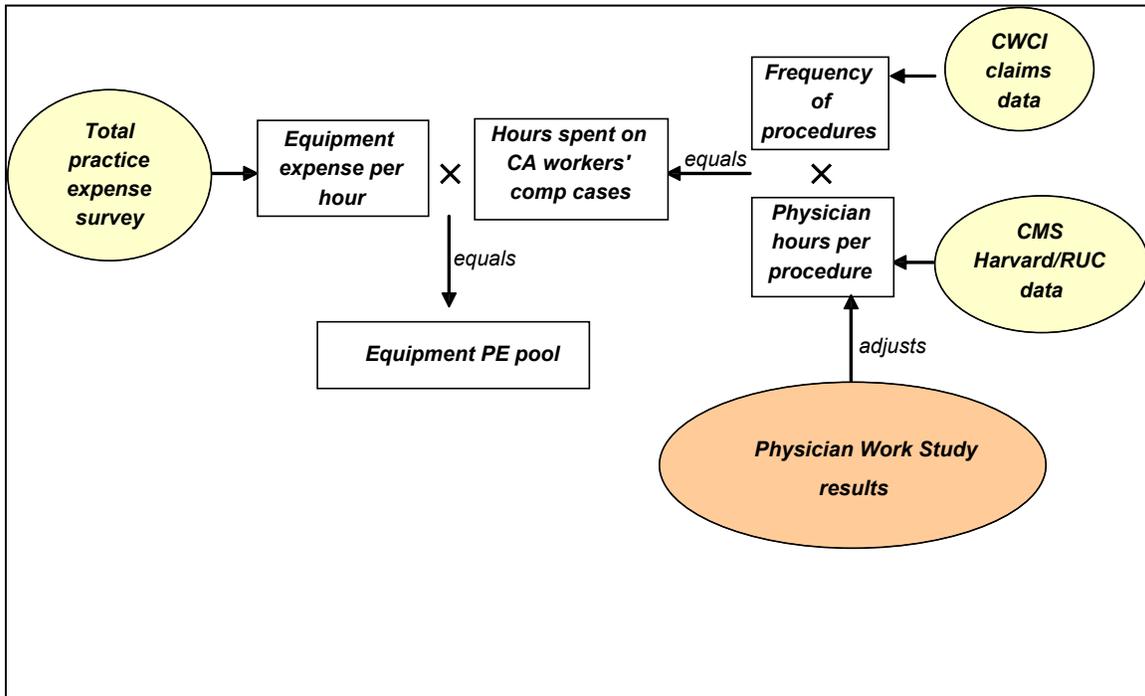
We built the six cost category practice expense pools by multiplying the estimated specialty-weighted practice expenses per hour by the total hours spent treating California's injured workers. Total hours spent treating California workers' compensation patients were determined by summing the frequency of each procedure code (from the CWCI data), and multiplying that sum by the typical number of hours spent for that procedure code. For non-E&M procedure codes, the typical number of hours was obtained from CMS data on physician time spent per procedure (Harvard/RUC data). For E&M procedure codes, the CMS physician time data were adjusted by the results from the Physician Work study. Exhibit 4 shows an example of the practice expense method used. The diagram is for the computation of the medical equipment expense category. The diagram includes the California workers' compensation-specific adjustments.

---

<sup>18</sup> Primary Care includes Family Practice, Internal Medicine, Occupational Medicine, and Industrial Medicine.

<sup>19</sup> Other Specialties includes Acupuncture, Dentistry, Podiatry, Neurology, Anesthesiology, Neurosurgery, Pain Management, Ophthalmology, Otolaryngology, Physical Therapy, and multi-specialty practices.

**Exhibit 4  
Computation of  
Medical Equipment Practice Expense  
(One of Three Direct Input Practice Expense Components)**



**2. Stage Two: Allocation of Pools to Individual Codes**

Direct practice expense pools were allocated in proportion to estimated direct costs per procedure. The indirect practice expense pools are then allocated in proportion to the sum of all allocated direct practice expenses plus the value of physician work per procedure. The practice expense pools were allocated twice, using two different sources of estimated direct costs and physician work per procedure, so that resulting values may be compared. For the first allocation, direct costs per procedure were obtained from CMS data (CPEP), and the value of physician work per procedure was obtained from the RBRVS work RVUs. For the second allocation, direct costs per procedure from the CPEPs and work RVU values for E&M codes were adjusted to reflect the differences between California workers’ compensation cases and non-workers’ compensation cases, as determined by Lewin’s direct input panels.

For each allocation, the CPEP data (or the California workers’ compensation adjusted CPEP values) provide an estimate of the equipment, medical supplies, and clinical labor (non-physician medical employee labor) costs associated with a specific procedure. Individual procedure codes are allocated direct practice expense *in proportion* to these CPEP values, where the per-procedure dollar value is adjusted to ensure that the sum of allocations over all procedures equals the direct practice expense pool created in Stage One. Similarly, indirect practice expenses are allocated in proportion to the sum of direct allocations plus physician work, so that the sum of indirect allocations equals the indirect practice expense pools.

### 3. Stage Three: Workers' Compensation E&M RVU Adjustments to Practice Expense

The final step calculates the an adjustment multiplier for E&M procedure codes practice expense RVUs, to reflect the information learned about California workers' compensation-specific medical treatment. In Stage Two, practice expenses were allocated to each procedure code, both without specific adjustments for workers' compensation, and with such adjustments. In each case, we examine the ratio of each E&M code practice expense allocation to the average non-E&M procedure practice expense allocation. The adjustment multiplier for E&M code practice expense RVUs equals the ratio of these ratios: the ratio for the workers' compensation-adjusted allocation versus the ratio for unadjusted allocation.

$$\text{E/M Practice Expense RVU multiplier} = \frac{\text{E/M code practice expense allocation (adjusted for workers' comp)}}{\text{Average non-E/M practice expense allocation (adjusted for workers' comp)}} \div \frac{\text{E/M code practice expense allocation (unadjusted)}}{\text{Average non-E/M practice expense allocation (unadjusted)}}$$

If this RVU multiplier is greater than one, this implies that practice expense to perform E&M under workers' compensation exceeds the practice expense for non-workers' compensation cases. If the ratio is less than one, the workers' compensation cases require less practice expense for E&M than non-workers' compensation cases. For each E&M code, this multiplier was multiplied by the RBRVS practice expense RVU to calculate the revised workers' compensation E&M practice expense RVU. See Appendix J for an example of the computation to calculate the RVU multiplier.

### III. RESULTS

In this section of the report, we present the results of our analyses. We have organized the section to present qualitative results from the clinic site visits followed by a presentation of the analytic findings and end with a presentation of the impact of the analyses.

#### A. Clinic Site Visits

We visited four workers' compensation clinics in California, two in Southern and two in Northern California. Based on the site visits, we prepared a flowchart that can be found in Appendix K. The flowchart captures the major activities that result when a typical workers' compensation patient presents for care at a primary treating physician's office.

The flowchart details the complexity of activities that are carried out to determine if a patient is a workers' compensation patient and the resulting set of activities that occur and may result in additional practice expense. For example, the front office must determine if the patient is potentially a workers' compensation patient, notify the employer about the injury and follow employer-specific protocols. Clinical staff must receive and make telephone calls to various parties concerning the injured worker both before and after the service is provided and within a complex medical-legal environment. Other activities that may result in additional practice expense costs include:

- Extensive patient history as it relates to the injury and the setting where the injury took place and other documentation
- Disability management
- Determination of causation
- Return to work issues
- Patient motivation

#### B. Analytic Results

##### 1. Total Practice Expense Survey

###### a. Sample Characteristics

The total practice expense survey was sent to 1,200 physicians representing an equivalent number of medical practices in California. Exhibit 5 presents the breakdown of the sample by physician specialty.

**Exhibit 5**  
**Total Practice Expense Survey**  
**Sample Characteristics**

<b>Specialty</b>	<b>#</b>	<b>%</b>
Chiropractic	320	26.7%
Other Specialties	252	21.0%
Orthopedic Surgery	196	16.3%
General Practice/Family Practice/Occ Med	162	13.5%
Neurology & Neurological Surgery	70	5.8%
Psychology	55	4.6%
Psychiatry	46	3.8%
Emergency Medicine	30	2.5%
Podiatry	27	2.3%
Optometry & Ophthalmology	21	1.8%
Acupuncture	11	0.9%
Dentistry	10	0.8%
<b>Total</b>	<b>1200</b>	<b>100.0%</b>

Note: The category "Other Specialties" included Anesthesiology, Cardiology, Dermatology, General Surgery, Pain Management, Pathology, Physical Medicine and Rehabilitation, Plastic Surgery, Radiology, and Urology.

Chiropractic, other specialties, orthopedic surgery and general practice/family practice/occupational medicine providers made up approximately 78 percent of the sample. These specialties are among those that provide the bulk of E&M services to workers' compensation patients in California.<sup>20</sup>

We received a total of 70 completed total practice expense surveys from the 1,200 that were solicited. Exhibit 6 presents the breakdown of the survey respondents by specialty.

<sup>20</sup> The Lewin Group. (2003). The Relative Work Content of Evaluation and Management Codes.

**Exhibit 6**  
**Total Practice Expense Survey**  
**Respondent Characteristics**

Specialty	Number	# of Physicians Represented
<b>Primary Care</b> <sup>a/</sup>	8	16
<b>Chiropractic</b>	36	43
<b>Orthopedic Surgery</b>	3	5
<b>Psychology</b>	11	17
<b>Large Clinic Network</b>	1	188
<b>Other</b> <sup>b/</sup>	11	19
<b>Total</b>	70	288

a/ Primary care includes family practice, internal medicine, occupational medicine, and industrial medicine.

b/ The category "other" includes acupuncture, dentistry, podiatry, neurology, anesthesiology, neurosurgery, pain management, ophthalmology, ear nose and throat, physical therapy, and multi-specialty.

Chiropractors, psychologists and other specialists represented the majority of the sample respondents.

b. Practice Expense Per Hour Values

Based on data obtained from the total practice expense survey, we calculated an average practice expense per hour for each of the six cost categories, the results of which are presented in Exhibit 7 below. Values were **weighted** across specialties according to hours spent providing services to California workers' compensation patients to ensure that the average practice expense per hour used properly reflected the relative distribution of specialties treating workers' compensation patients in California.

**Exhibit 7**  
**Practice Expense per Hour (2001)**

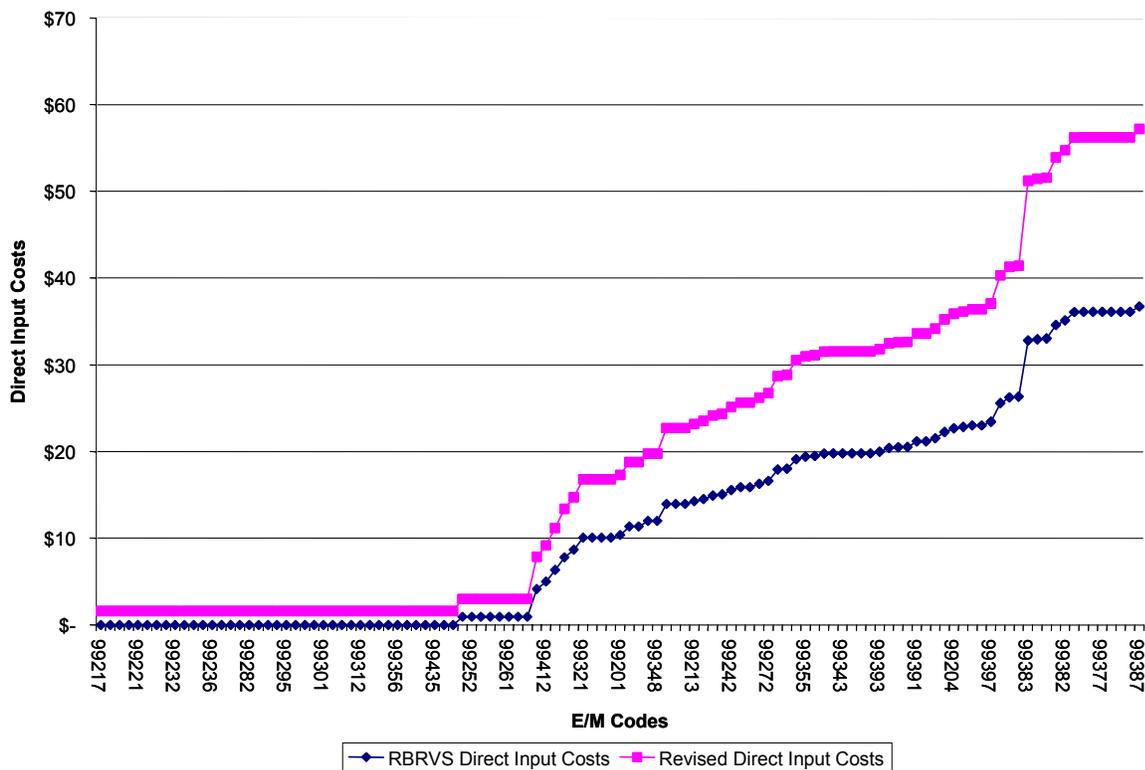
Cost Category	Practice expense/hour
Clinical Labor	\$ 9.69
Medical Supplies	\$ 8.85
Medical Equipment	\$ 1.93
Office	\$ 29.45
Clerical Labor	\$ 27.42
Other	\$ 12.56
<b>Total</b>	<b>\$ 89.89</b>

A total average practice expense per hour for workers' compensation providers was determined to be \$89.89. By comparison, the all physician average used by CMS is \$78.47.<sup>21</sup> In the AMA's all physician average, indirect inputs account for 67 percent of total practice expense costs. The results of the total practice expense survey show that indirect inputs make up approximately 77 percent of total practice expense costs, indicating that the proportion of indirect to total practice expense inputs for workers' compensation is higher than that of physicians treating other types of patients.

## 2. Revised Direct Input Costs

As described in the Methodology section, a median regression equation was estimated to extrapolate from the 18 surveyed codes and predict practice expense direct input costs for all the E&M codes, including the surveyed codes. The revised direct input cost for all codes were higher than the RBRVS direct input costs. Exhibit 8 below presents a comparison of the revised workers' compensation versus RBRVS direct input costs for all E&M codes. Appendix L presents the revised and RBRVS direct input costs for all the E&M codes.

**Exhibit 8**  
**Revised and RBRVS Direct Input Costs**



<sup>21</sup> \$69 updated by 14 percent based on Medical Economic Index to 2001.

Overall, there was an average increase of approximately 79 percent in direct input costs, driven primarily by an increase in clinical labor time associated with the provision of E&M services to workers' compensation patients.

### 3. Overall Ratio of Revised Workers' Compensation and RBRVS RVUs

We calculated the ratio of workers' compensation practice expense RVUs to RBRVS practice expense RVUs on a code by code basis. We then multiplied the resulting ratio to calculate revised practice expense RVUs on a code by code basis. The revised practice expense RVUs for all E&M codes in the OMFS based on the allocation methodology are presented in Appendix M. Exhibit 9 below presents the RBRVS RVUs, the revised workers' compensation practice expense RVUs and the ratio of the revised workers' compensation practice expense RVUs to RBRVS practice expense RVUs for the 18 E&M codes included in the direct input panels.

#### Exhibit 9 Revised Practice Expense RVUs for 18 Codes included in Direct Input Panels

CPT Codes	Descriptor (Source CPT Manual 2001)	RBRVS RVUs	Revised WC PE RVUs	Ratio of Revised WC PE RVU / RBRVS PE RVU
OFFICE VISIT - NEW				
99203	Office/outpatient visit, new, presenting problems of moderate severity.	1.05	1.39	1.32
99204	Office/outpatient visit, new, presenting problems of moderate to high severity.	1.47	1.91	1.30
99205	Office/outpatient visit, new, presenting problems of moderate to high severity.	1.73	2.23	1.29
OFFICE VISIT - ESTABLISHED				
99212	Office/outpatient visit, established, presenting problems are self-limited/minor.	0.49	0.68	1.38
99213	Office/outpatient visit, established, presenting problems of low to moderate severity.	0.65	0.89	1.35
99214	Office/outpatient visit, established, presenting problems are of moderate to high severity.	1.00	1.32	1.33
99215	Office/outpatient visit, established, presenting problems are of moderate to high severity.	1.29	1.69	1.31
INITIAL HOSPITAL CARE PER DAY				
99222	Initial hospital care per day, problem(s) requiring admission is of moderate severity.	0.76	0.98	1.28
SUBSEQUENT HOSPITAL CARE PER DAY				
99232	Subsequent hospital care per day, patient is responding inadequately to therapy or has a minor complication.	0.38	0.50	1.32
HOSPITAL DISCHARGE DAY				
99239	Hospital discharge day, > 30 min spent for final hospital discharge of a patient. Includes final examination, discussion, instructions, preparation of records, prescriptions.	0.62	0.80	1.29
OFFICE CONSULTATION				
99243	Office consultation, new or established patient, presenting problem(s) of moderate severity.	1.28	1.69	1.32
99244	Office consultation, new or established patient, presenting problem(s) of moderate to high severity.	1.71	2.22	1.30
99245	Office consultation, new or established patient, presenting problem(s) of moderate to high severity.	2.14	2.77	1.29
INPATIENT CONSULT - INITIAL				
99254	Initial inpatient consult, new or established patient, presenting problem(s) of moderate to high severity.	1.07	1.36	1.27
INPATIENT CONSULT - FOLLOW-UP				
99263	Follow-up inpatient consult, established patient, unstable or developed a severe complication or a significant new problem.	0.52	0.68	1.31
CONFIRMATORY CONSULTATION				
99274	Confirmatory consultation, new or established patient, problem(s) of moderate to high severity.	1.24	1.69	1.35
EMERGENCY DEPARTMENT VISIT				
99283	Emergency department visit, presenting problem(s) of moderate severity.	0.32	0.42	1.31
NURSING FACILITY CARE PER DAY - SUBSEQUENT				
99312	Nursing facility care per day, subsequent, new or established, patient is responding inadequately to therapy or has developed a minor complication.	0.34	0.45	1.33
<b>OVERALL RATIO</b>				<b>1.33</b>

CPT 5-digit codes and descriptions are copyrighted by the American Medical Association (AMA). No payment schedules, fee schedules, relative value units, scales, conversion factors or components thereof are included in CPT. The AMA is not recommending that any specific relative values, fees, payment schedules, or related listings be attached to CPT. Any relative value scales assigned to CPT codes are not those of the AMA, and the AMA is not recommending use of these relative values.

While the revised direct input costs increased by roughly 79 percent on average, the overall average increase in allocated direct and indirect practice expenses for E&M services was 33 percent (ratio=1.33). The reason for this difference was primarily due to the indirect allocation method used by CMS, which relies largely on physician work. The results suggest that the total practice expense costs associated with treating workers' compensation patients in California is higher than that of treating other types of patients, indicated by the ratio of the overall average increase being larger than one. This is driven by the higher direct input costs and the higher proportion of indirect input costs over total practice expense costs.

The results show that the practice expense for workers' compensation evaluation and management services reflected in the revised workers' compensation RVUs are approximately 33 percent higher than that for other types of patients.

### C. Impact of Study Results

As reported in the RBRVS Study, we estimated that transition to the RBRVS would result in an increase in payments for E&M services of 23 percent. Payments were estimated using a modified version of the relative value units from the RBRVS and a budget-neutral conversion factor of \$44.73. Details of how these RVUs budget neutral conversion factor were derived can be found in that report.<sup>22</sup>

#### 1. Impact of Study Results on Payments

We estimated the impact on total payments and payment for E&M services of incorporating the revised workers' compensation physician work RVUs, as reported in the Physician Work study, and the revised practice expense RVUs, as reported in this study. The revisions to the physician work and practice expense RVUs were modeled using a conversion factor of \$44.73. The findings, shown in Exhibit 10, show the additional payments for E&M services and all services, if the modifications to the E&M RVUs were not made budget neutral. Results of the studies indicate that there would be an increase in total physician payment of 7 percent (see Exhibit 10).

**Exhibit 10**  
**Impact of Study Results on Payments**

	Paid OMFS (A)	Budget Neutral RBRVS (B)	Percent Difference (B-A)/A	Work and Practice Expense Adjusted RBRVS (C)	Percent Difference (C-B)/B
E&M	40,935,969	50,316,807	23%	\$ 64,834,113	29%
<b>Total</b>	<b>215,577,690</b>	<b>215,577,690</b>	<b>0%</b>	<b>\$ 230,094,996</b>	<b>7%</b>

a/ RBRVS payments based on \$44.73 conversion factor

b/ This change in payments for E&M services reflects the impact of both the work and practice expense changes

<sup>22</sup> California Workers' Compensation RBRVS Study. (2002). The Lewin Group.

This 7 percent increase would compensate for the additional physician work and practice expense for E&M services found by the studies without adversely affecting reimbursement for the other codes.

## 2. Impact of Physician Work and Practice Expense Studies for Selected Specialties

Last, we estimated the impact of the study results on the distribution of payments across specialty. Exhibit 11 below presents those results for selected specialties and Appendix N presents the results for all workers' compensation specialties.

**Exhibit 11**  
**Impact of Physician Work and Practice Expense**  
**for Selected Specialties**

Specialty	Paid OMFS (A)	Budget Neutral RBRVS (B)	Impact relative to BN RBRVS (B-A)/A	Work and PE Adjusted RBRVS (C)	Impact of Adj RBRVS relative to BN RBRVS (C-B)/B	Impact of Adj RBRVS relative to Paid OMFS (C A)/A
CLINICS, GROUPS, ASSOCIATIONS	\$ 48,092,856	\$ 49,858,930	3.7%	\$ 54,644,517	9.6%	13.6%
GENERAL PRACTICE	\$ 25,590,462	\$ 24,839,748	-2.9%	\$ 27,463,633	10.6%	7.3%
CHIROPRACTORS	\$ 25,131,738	\$ 24,339,483	-3.2%	\$ 24,962,606	2.6%	-0.7%
ORTHOPEDIC SURGERY	\$ 16,679,373	\$ 15,825,200	-5.1%	\$ 17,428,149	10.1%	4.5%
HOSPITALS (NURSING HOMES/CONVALESCE)	\$ 14,208,676	\$ 14,513,399	2.1%	\$ 15,595,664	7.5%	9.8%
PHYSIOTHERAPISTS	\$ 13,435,777	\$ 13,283,079	-1.1%	\$ 13,330,294	0.4%	-0.8%
RADIOLOGY X-RAYS	\$ 10,765,802	\$ 10,811,934	0.4%	\$ 10,860,977	0.5%	0.9%
ANESTHESIOLOGY	\$ 6,828,515	\$ 6,656,046	-2.5%	\$ 6,690,744	0.5%	-2.0%
PHYSICAL MEDICINE AND REHAB	\$ 6,747,566	\$ 6,893,505	2.2%	\$ 7,009,024	1.7%	3.9%
PSYCHOLOGISTS	\$ 2,963,704	\$ 3,593,461	21.2%	\$ 3,675,626	2.3%	24.0%
OCCUPATIONAL MEDICINE	\$ 2,195,562	\$ 2,343,928	6.8%	\$ 2,636,903	12.5%	20.1%

Overall, payments for E&M services are 19 percent of total physician payments under OMFS and would be 23 percent under a budget neutral RBRVS. Payments for E&M services rise by 29 percent relative to a budget-neutral RBRVS as a result of the Physician Work and Practice Expense studies.

## IV. CONCLUSIONS

This study was designed to determine if practice expense for E&M codes is greater than, equal to, or less than that for workers' compensation patients in comparison to the practice expense involved in providing care to other patients. The study approach was modeled after that used by CMS and the AMA. We attempted to be as inclusive as possible of the workers' compensation physician community throughout the course of the study by eliciting participation and feedback from a broad range of stakeholders.

Several study results predominate. The first is that payments for E&M services are 19 percent of total physician payments currently under OMFS and would be 23 percent under a budget neutral RBRVS. We found that payments for E&M services if adjusted for the results of the Physician Work and Practice Expense studies would rise by about 29 percent relative to a budget neutral RBRVS. This implies a seven percent increase in total physician payments. A seven percent non-budget neutral increase would compensate for the additional physician work and practice expense for E&M services attendant to providing services to injured workers without adversely affecting reimbursement for the other codes.

Overall, through the site visits, the direct input panels, and the total practice expense survey, workers' compensation physicians time and time again expressed their belief that treating injured workers requires more practice expense than treating other types of patients. Providing medical services to workers' compensation patients in California, like in other states, requires physicians and their staff to operate in the complex medical-legal world of opposing objectives, with employers and insurance carriers often on one end of the spectrum, injured worker on the other, and physicians in between. As a result physicians and their staffs engage in activities that they would not engage in when providing care to non-industrial patients. For example, disability management and return-to-work issues are virtually absent for non-workers' compensation patients, yet are a central focus when treating injured workers. Furthermore, many physicians reported that workers' compensation patients often have greater psychological stress associated with their injuries than other types of patients due to the potential loss of employment and other financial considerations. Also, treating workers' compensation patients requires clinical staff to spend substantial additional time collecting information for the medical history and record reviews. Handling all of these types of issues produces the types of increases in practice expense documented in this study.