



Analysis of California Workers' Compensation Reforms

Part 4: Changes in Medical Payments, AY 2002 to 2007 Claims Experience

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EXECUTIVE SUMMARY

As part of its legislative requirement to analyze changes in medical costs as a result of the recent implementation of medical reforms, the Workers' Compensation Insurance Rating Bureau (WCIRB) asked the California Workers' Compensation Institute (CWCI) to assist its efforts to measure ongoing trends and changes in medical utilization and associated costs. A series of studies published by CWCI¹ showed an association between the recent workers' compensation medical reforms and significant reductions in average visits and payments for physical therapy and chiropractic manipulation, as well as other areas of medical treatment.

In early 2008, however, new WCIRB findings began to indicate a reversal of the downward trend in estimated ultimate indemnity claim costs, particularly in the area of medical care. In June 2008, CWCI issued a preliminary report on medical cost development through 2007 that confirmed a new upward trend in workers' compensation medical costs².

This report updates the Institute's prior analysis of medical development using accident year (AY) 2002 – AY 2007 claims and medical data through the third quarter of 2008 to isolate specific areas of increasing medical cost and to explore reasons for these increases. The analysis, the first of two parts³, utilizes medical benefit payment transaction data derived from the payment administrative claim systems that record all medical costs.

Key findings include:

- Between AY 2005 and AY 2007, average medical payments (including physician, hospital, pharmaceutical, medical-legal and medical management fees) for all California workers' compensation claims at 12 months post injury increased by 23 percent (from \$2,100 to \$2,582). Over the same period, average medical payments at 12 months post injury for indemnity claims increased by 30 percent (from \$5,465 to \$7,129).
- Breaking out the AY 2005 – AY 2007 growth in average payments for each of the medical components at 12 months post-injury shows:
 - the average amount paid on all claims for medical care increased from \$1,735 to \$2,081, (+ 20 percent), while on indemnity claims medical care payments rose 28 percent, from \$4,443 to \$5,665;

1 Swedlow, A., Ireland, J., California Workers' Compensation Reform Monitoring Series, 2007 and 2008, CWCI.

2 Swedlow, A., Ireland, J., California Workers' Compensation Reform Monitoring, Medical Utilization by Official Medical Fee Schedule Section, 2002 – 2007, CWCI, September 2008

3 The follow-up study, to be distributed in a separate report, utilizes medical bill review transaction data taken from the detailed record of medical services delivered to the injured worker by physicians, hospitals, clinics and pharmacies.

- average pharmaceutical and durable medical equipment (DME) payments for all claims rose from \$80 to \$112 (+40 percent), while for indemnity claims they climbed from \$224 to \$319 (+42 percent);
 - average medical management payments for all claims jumped from \$194 to \$279 (+44 percent) and from \$519 to \$784 (+51 percent) for indemnity claims; and
 - average medical-legal payments on all claims increased from \$80 to \$126 (+58 percent) and for indemnity claims they went from \$220 to \$349 (+59 percent).
- Following the removal of the primary treating physician's presumption of correctness, the implementation of the Medical Treatment Utilization Schedule, and the adoption of the mandate that all workers' compensation payors implement utilization review (UR) programs, UR payments as a percentage of medical management expense rose from 8.9 percent for AY 2002 (pre-reform) claims to 34.2 percent for AY 2007 (post-reform) claims.
 - Estimates of ultimate medical costs for insured claims reveal that between AY 2002 and AY 2008, average medical costs per insured claim fell between 25.7 percent and 54.5 percent from what they would have been without the reforms. Translated into dollar terms, the reforms are associated with an estimated cumulative net savings of \$12.8 to \$25.3 billion in insured medical costs for accident years 2004 through 2008.

- 24-visit caps for physical medicine and chiropractic care;
- the introduction of Medical Provider Networks;
- the expansion of and revisions to the Official Medical Fee Schedule; and
- expansion of the generic drug substitution requirement.⁶

For claims in accident year 2006, however, there was a distinct reversal in the downward trend of medical payments.⁷ At the request of the California Workers' Compensation Insurance Rating Bureau (WCIRB), the California Workers' Compensation Institute (CWCI) developed a special database to analyze factors that have contributed to the recent reversal of the medical development trend. This report updates and expands upon the Institute's preliminary analysis of post-reform medical cost development published in December 2007.

Data

For this analysis, the Institute compiled a special data set from its Industry Claims Information System (ICIS).⁸ The data included policy, claim, benefit and medical service detail for California injured workers with dates of injury between January 2002 and June 2008, and medical payment transactions through September 2008. The database was tested and validated as being representative of the California insured population of injured workers. The final data sets allowed the authors to analyze total medical benefit payment transactions and sub-categories of medical benefits (medical treatment, pharmaceuticals and durable medical equipment, medical/legal and medical management). The Institute limited the claim level analysis on issues such as average payments per claim to claims with dates of injury through June 2007 to allow for at least 12 months of development.

BACKGROUND

Workers' compensation medical reforms signed into law between 2002 and 2004 led to an immediate reduction in medical costs in the California workers' compensation system.^{4,5} It is commonly held that these declines resulted from several key reforms:

- the removal of the primary treating physician's presumption of correctness;
- the adoption of a mandatory medical treatment utilization schedule (MTUS);

4 WCIRB Summary of September 30, 2005 Insurer Experience, December 9, 2005

5 Swedlow, A., Ireland, J. Analysis of California Workers' Compensation Reforms Part 1: Medical Utilization & Reimbursement Outcomes Accident Years 2002 - 2006 Claims Experience. CWCI. December 2007

6 Analysis of California Workers' Compensation Reforms: Medical Utilization & Reimbursement Outcomes. CWCI. Jan. 2007

7 WCIRB Summary of September 30, 2008 Insurer Experience, December 9, 2008.

8 ICIS is a proprietary database maintained by the California Workers' Compensation Institute that contains detailed information, including employer and employee characteristics, medical service information, and benefit and other administrative cost information on more than 2.5 million workplace injuries with dates of injury between 1993 and 2008 (v10A).

RESULTS

Medical Development

Aggregate medical payments on a workers' compensation claim reflect a number of cost components. These include:

- medical treatment (by physicians, hospitals, ambulatory surgery centers, and other medical providers);
- pharmaceuticals and durable medical equipment;
- medical-legal evaluations to resolve treatment disputes; and
- medical management (utilization review, medical bill review, and fees to access medical provider networks).

Table 1 shows the steady decline in average aggregate medical payments, both for all claims and for indemnity claims, from AY 2003 through AY 2005 – years associated with the immediate impact of workers' compensation reform. Beginning in AY 2005, however, the trend reversed, and by AY 2007 aggregate medical payments per claim at the 12-month benchmark had risen from \$2,100 to \$2,582, (+23 percent), while on indemnity claims these payments climbed 30 percent from an average of \$5,465 to \$7,129. Increases in average medical payments also were observed at 24 months post injury. From AY 2005 through AY 2006, average medical payments for all claims at 24 months post injury increased from \$3,243 to \$3,655 (+12.7 percent), while for indemnity claims they went from \$9,048 to \$10,831 (+19.7 percent).

Table 1: Aggregate Medical Payments per Claim @ 12 and 24 Months AY 2002-2007 Claims - All Injuries

Accident Year	All Claims		Indemnity Claims	
	Avg Medical Paid at 12 Months	Avg Medical Paid at 24 Months	Avg Medical Paid at 12 Months	Avg Medical Paid at 24 Months
2002	\$2,719	\$4,217	\$6,346	\$10,358
2003	\$2,697	\$4,393	\$6,133	\$10,530
2004	\$2,256	\$3,331	\$5,635	\$8,836
2005	\$2,100	\$3,243	\$5,465	\$9,048
2006	\$2,337	\$3,655	\$6,437	\$10,831
2007	\$2,582	NA	\$7,129	NA

One of the most common injury categories in California workers' compensation from 2002 through 2007 was "Medical Back Problems without Spinal Cord Involvement." Table 2 shows that from AY 2003 to AY 2005 there were sharp declines in the average medical payments for all claims in this injury category, as well as for indemnity claims in the category, followed by significant increases in AY 2006 and AY 2007.

Table 2: Medical Payments Per Claim @ 12 and 24 Months AY 2002 –AY 2007 Claims - Medical Back Problems w/o Spinal Cord Involvement

Accident Year	All Claims		Indemnity Claims	
	Avg Medical Paid at 12 Months	Avg Medical Paid at 24 Months	Avg Medical Paid at 12 Months	Avg Medical Paid at 24 Months
2002	\$3,533	\$6,175	\$6,496	\$11,953
2003	\$3,609	\$6,581	\$6,395	\$12,249
2004	\$2,729	\$4,554	\$5,273	\$9,445
2005	\$2,209	\$3,888	\$4,415	\$8,600
2006	\$2,536	\$4,728	\$5,033	\$10,367
2007	\$2,745	NA	\$5,503	NA

Between AY 2005 and AY 2007, average medical payments for all medical back claims without spinal cord involvement at 12 months post injury increased from \$2,209 to \$2,745 (+24.7 percent), while average medical payments for indemnity claims involving this type of back injury increased from \$4,415 to \$5,503 (+24.6 percent). The data from the 24-month valuation tell a similar story. Aggregate medical payments for all claims in this category at 24 months post injury fell from an average of \$6,175 in AY 2002 to \$3,888 in AY 2005 (-37 percent), but then rose 21.6 percent to \$4,728 in AY 2006; while average medical payments for medical back indemnity claims fell from \$11,953 in AY 2002 to \$8,600 in AY 2005 (-28.1 percent) before rebounding to \$10,367 (+20.5 percent) in AY 2006.

A similar pattern was observed at different orders of magnitude for almost all high-volume injury categories. Additional tables showing the 12- and 24-month average payments for the high-volume injury categories are in an appendix at the end of this report.

Medical Development Sub-Categories

Workers' compensation medical payments reimburse a variety of services. To better understand which services had the greatest impact on the AY 2002 – 2007 medical cost trends, the analysts divided the medical payment data into sub-categories of 1) medical treatment, 2) pharmaceutical and durable medical equipment, 3) medical management, and 4) medical/legal reporting.

Table 3 shows the change in the average amount paid per claim associated with each of the medical payment subcategories for all claims. The growth in average payments for medical treatment and for the pharmaceuticals and durable medical equipment subcategories follow a pattern similar to the one noted for average medical payments overall. Average medical treatment payment per claim at 12 months post injury decreased from \$2,375 in AY 2002 to \$1,735 in AY 2005 (-26.9 percent), then increased to \$2,081 in AY 2007 (+19.9 percent). A 12.2 percent increase in medical treatment payments was observed at 24 months post injury between AY 2005 and AY 2006. Average payments for pharmaceutical and durable medical equipment changed along a similar timeline. At 12 months post injury, these payments decreased from

\$147 in AY 2002 to \$80 in AY 2005 (-45.6 percent), then rebounded to an average of \$112 by AY 2007 (+40 percent). At 24 months post injury, average pharmaceutical and DME payments fell 44.1 percent from \$288 in AY 2002 to \$161 in AY 2005, but then increased 18 percent to \$190 in AY 2006.

Payments for medical management and payments for medical/legal reports showed a more consistent and steady increase from AY 2002 through AY 2007, with only a small downturn in AY 2005. Average medical management payments per claim increased from \$127 to \$194 (+52.8 percent) between AY 2002 and AY 2005, and increased to \$279 (+43.8 percent) between AY 2005 and AY 2007. At 24 months post injury, the average payments increased from \$193 in AY 2002 to \$278 in AY 2005 (+44 percent), then rose to \$321 (+15.5 percent) between AY 2005 and AY 2006. The average cost of medical/legal reports on all claims at 12 months post injury increased from \$64 to \$80 (+25 percent) from AY 2002 to AY 2005, then increased from \$80 to \$126 between AY 2005 and AY 2007 (+57.5 percent). At 24 months post injury, the average payments for med-legal reports increased 28.1 percent from \$160 to \$205 between AY 2002 and AY 2005, then rose to \$259 (+26.3 percent) from AY 2005 to AY 2006.

Table 3: Average Medical Payments @ 12 and 24 Months by Medical Expense Sub-Category AY 2002-AY 2007, All Claims

Accident Year	Medical Treatment		Rx/DME		Medical Management		Medical Legal	
	12 Months	24 Months	12 Months	24 Months	12 Months	24 Months	12 Months	24 Months
2002	\$2,375	\$3,555	\$147	\$288	\$127	\$193	\$64	\$160
2003	\$2,260	\$3,564	\$161	\$299	\$158	\$255	\$96	\$252
2004	\$1,841	\$2,633	\$105	\$189	\$206	\$283	\$106	\$224
2005	\$1,735	\$2,591	\$80	\$161	\$194	\$278	\$80	\$205
2006	\$1,904	\$2,908	\$97	\$190	\$229	\$321	\$120	\$259
2007	\$2,081	NA	\$112	NA	\$279	NA	\$126	NA
AY 02-05 % Change @ 12 & 24 Mos	-26.9%	-27.1%	-45.6%	-44.1%	+52.8%	+44.0%	+25.0%	+28.1%
AY 05-07 % Change @ 12 Mos	+19.9%		+40.0%		+43.8%		+57.5%	
AY 05-06 % Change @ 24 Mos		+12.2%		+18.0%		+15.5%		+26.3%

Table 4 shows the change in average payments associated with each medical payment subcategory for indemnity claims. The average amount paid per indemnity claim for medical treatment at 12 months post injury decreased from \$5,448 in AY 2002 to \$4,443 in AY 2005 (-18.5 percent), but then increased back up to \$5,665 by AY 2007 (+27.5 percent). A similar pattern was observed at 24 months post injury. Pharmaceutical and durable medical equipment payments also showed a similar pattern of development. The average amount paid for pharmaceuticals and DME per indemnity claim at 12 months post injury fell from \$368 in AY 2002 to \$224 in AY 2005 (-39.1 percent) but then climbed back up to \$319 by AY 2007 (+42.4 percent). Average payments for pharmaceuticals and DME on indemnity claims at 24 months post injury also showed a similar pattern, falling from \$744 to \$475 (-36.2 percent) from AY 2002 to AY 2005, then climbing to \$586 (+23.4 percent) by AY 2006.

As with the findings for all claims (noted in Table 3), payments on indemnity claims for medical management and for medical/legal reports showed a more consistent and steady increase from AY 2002 through AY 2007, with the same small downturn in AY 2005. At the 12-month benchmark, the medical management payments increased from an average of \$312 per indemnity claim in AY 2002 to an average of \$519 in AY 2005 (+66.3 percent), then climbed another 51.1 percent to \$784 in AY 2007). At the 24-month benchmark, these payments increased from an average of \$487 in AY 2002 to \$780 in AY 2005 (+60.2 percent), then rose another 19.9 percent to an average of \$935 in AY 2006. Meanwhile, the average amount paid per indemnity claim for medical/legal reports at 12 months post injury increased from \$152 in AY 2002 to \$220 in AY 2005 (+44.7 percent) then rose another 58.6 percent to \$349 in AY 2007. At the 24-month benchmark, average medical-legal payments per indemnity claim increased from \$401 in AY 2002 to \$598 in AY 2005, then rose another 30.4 percent to \$780 by AY 2007.

Table 4: Medical Payments per Claim @ 12 and 24 Months by Medical Expense Sub-Category AY 2002 – AY 2007 – Indemnity Claims Only

Accident Year	Medical Treatment		Rx/DME		Medical Management		Medical Legal	
	12 Months	24 Months	12 Months	24 Months	12 Months	24 Months	12 Months	24 Months
2002	\$5,448	\$8,585	\$368	\$744	\$312	\$487	\$152	\$401
2003	\$5,076	\$8,453	\$398	\$759	\$373	\$625	\$218	\$612
2004	\$4,528	\$6,882	\$289	\$539	\$535	\$761	\$277	\$621
2005	\$4,443	\$7,107	\$224	\$475	\$519	\$780	\$220	\$598
2006	\$5,156	\$8,467	\$280	\$586	\$634	\$935	\$337	\$780
2007	\$5,665	NA	\$319	NA	\$784	NA	\$349	NA
AY 02-05 % Change @ 12 & 24 Mos	-18.5%	-17.2%	-39.1%	-36.2%	+66.3%	+60.2%	+44.7%	+49.1%
AY 05-07 % Change @ 12 Mos	+27.5%		+42.4%		+51.1%		+58.6%	
AY 05-06 % Change @ 24 Mos		+19.1%		+23.4%		+19.9%		+30.4%

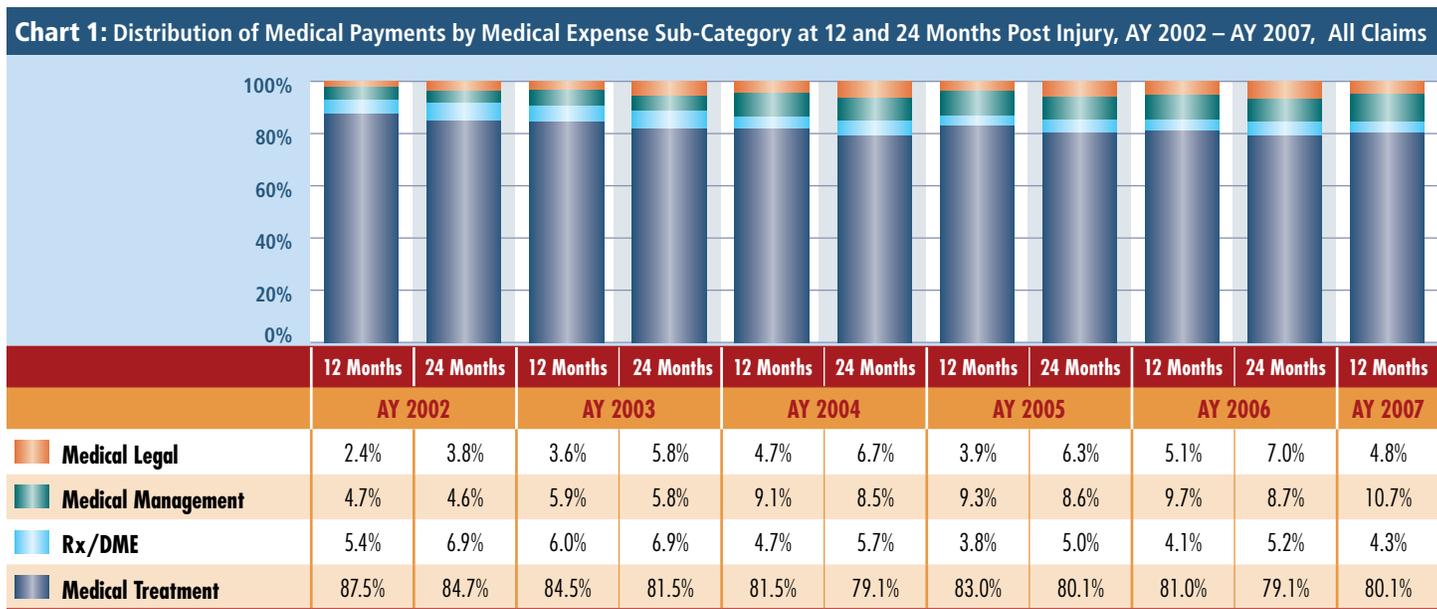


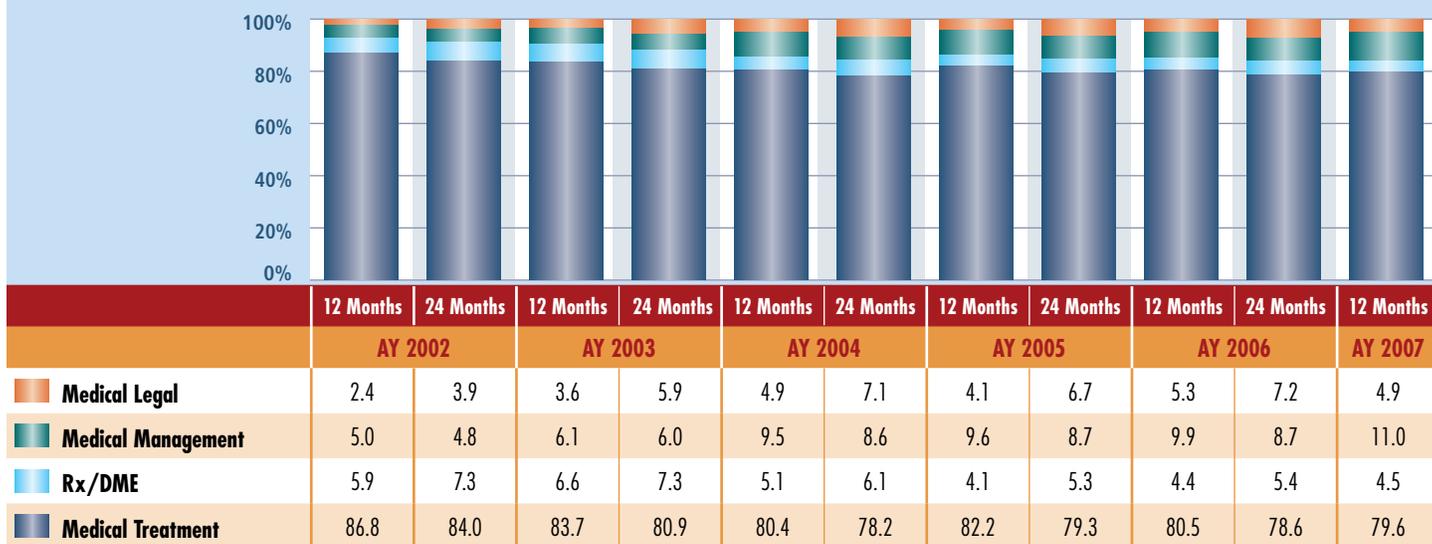
Chart 1 shows that medical management payments grew at a faster rate than medical treatment and pharmaceutical/DME expenditures during the study period, a result that is not surprising given that this was the period in which state lawmakers repealed the physician’s presumption of correctness and voluntary utilization review (UR) in favor of a mandatory UR model and authorized the development of Medical Provider Networks, which first began to operate in January 2005. Such medical management systems require significant ongoing expense and oversight, but to the extent that they were successful in controlling overutilization and questionable treatments, the effect should have been – and was -- to help contain the growth in medical treatment and pharmaceutical/DME expenditures. This, of course, resulted in a redistribution of aggregate medical costs among the subcategories. For all claims in the sample, the proportion of payments associated with medical management at 12 months post injury increased from 4.7 percent of medical payments on AY 2002 claims to 10.7 percent of payments on AY 2007 claims. The proportional increase also was observed at 24 months post injury, with medical management increasing from 4.6 percent of medical payments in AY 2002 claims to 8.7 percent of aggregate medical payments on AY 2006 claims.

Chart 1 also shows the proportion of medical payments associated with medical-legal reports increased almost as much as medical management payments over the study period. At the 12-month valuation, med-legal report payments increased from 2.4 percent of all medical payments on AY 2002 claims to 4.8 percent of medical payments on AY 2007 claims; while at 24 months, medical-legal report payments increased from 3.8 percent of total medical expenditures on AY 2002 claims to 7.0

percent of the medical payments on AY 2006 claims.

Similar proportional changes among subcategories of medical payments were observed for indemnity claims (Chart 2). For indemnity claims in the sample, the proportion of payments associated with medical management at 12 months post injury increased from 5.0 percent of medical payments on AY 2002 indemnity claims to 11.0 percent of payments on AY 2007 indemnity claims. The proportional increase was also observed at 24 months post injury with medical management increasing from 4.8 percent of medical payments on AY 2002 indemnity claims to 8.7 percent of payments on 2006 indemnity claims. The proportion of medical payments associated with medical/legal reports on indemnity claims increased almost as much over the study period. Medical/legal report payments were 2.4 percent of all medical payments on AY 2002 indemnity claims at 12 months post injury and increased to 4.9 percent of medical payments on AY 2007 indemnity claims. A proportional increase also was measured at 24 months post injury with medical/legal report payments increasing from 3.9 percent of all medical payments on AY 2002 indemnity claims to 7.2 percent of payments on 2006 indemnity claims. Conversely, proportional increases in medical management and medical/legal report payments were offset by decreases in the proportional contribution of payments for medical treatment (despite the absolute increase in medical treatment average payments). At 12 months post injury, payments for treatment fell from 86.8 percent of overall medical payments on AY 2002 indemnity claims to 79.6 percent on AY 2007 indemnity claims. At 24 months post injury treatment payments fell from 84 percent of the medical dollar in AY 2002 to 78.6 percent in AY 2006.

Chart 2: Distribution of Medical Payments by Medical Expense Sub-Category at 12 and 24 Months, AY 2002 – AY 2007, Indemnity Claims Only



Medical Management

To further understand the recent increase in medical management payments and their relative growth as a proportion of overall medical payments, the Institute broke out these payments into two primary subcategories: 1) medical bill review and access to medical providers; and 2) utilization review. Table 5 shows the distribution of medical management transactions between these two subcategories, and Table 6 shows the distribution of medical management payments associated with each subcategory.

Table 5: Distribution of Medical Management Transactions Transaction Years 2002-2007

	Transaction Year					
	2002	2003	2004	2005	2006	2007
Medical Bill Review/MPN Access	96.3%	95.4%	90.6%	89.1%	90.7%	91.0%
Utilization Review	3.7%	4.6%	9.4%	10.9%	9.3%	9.0%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Following the adoption of the Medical Treatment Utilization Schedule and the implementation of utilization review in 2004, UR as a percent of all medical management transactions immediately doubled to 9.4 percent, with medical bill review and MPN access fees accounting for the other 90 percent of the medical management transactions -- a percentage that remained fairly consistent through 2007.

Table 6: Distribution of Medical Management Payments Transaction Years 2002-2007

	Transaction Year					
	2002	2003	2004	2005	2006	2007
Medical Bill Review/MPN Access	91.1%	91.4%	81.2%	76.8%	68.4%	65.8%
Utilization Review	8.9%	8.6%	18.8%	23.2%	31.6%	34.2%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Table 6 shows the breakdown of the medical management payments associated with medical bill review/MPN access fees and utilization management. Following the implementation of the MTUS in 2004, the proportion of all medical management expenditures associated with utilization review more than doubled to 18.8 percent in the first year, then nearly doubled again over the next three years, rising to 34.2 percent of total medical management payments in 2007.

The Value of Medical Management & the 2002 – 2004 Reforms

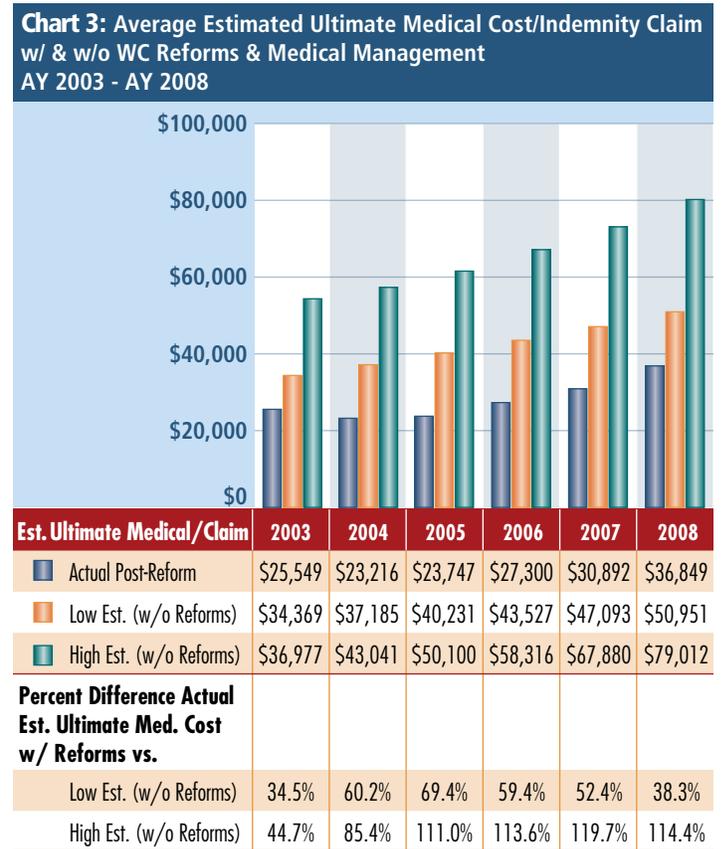
The increases in medical management costs have captured the attention of system stakeholders as well as the lay press,⁹ and have been interpreted by some as a proof statement of the limited success by the 2002-04 medical reforms to achieve the legislative intent of stabilizing, if not permanently reducing, medical costs. While there is an apparent association between the reforms which created mandatory utilization review and the growing presence and cost of case-management and utilization review (Table 5 and 6), little has been said about how medical costs might have developed without the comprehensive fee schedule changes, utilization review and network physicians: all elements of medical management controls.

The authors wanted to address the issue of medical management's overall value to post-reform outcomes by comparing pre- and post-reform costs for indemnity claims. Data on estimated ultimate medical costs per indemnity claim was collected from WCIRB's Summary of March 31, 2003 and March 31, 2009 Insurer Experience. The WCIRB March 31, 2003 report contained estimates of pre-reform claims through December 2002. Table 7 shows the estimated ultimate medical costs per indemnity claim for 1999 – 2002 (the years directly preceding the reforms); the annual percentage growth rate for California workers' compensation medical costs for each of those accident years; and the three-year average growth rate for those medical costs during this pre-reform period.

	1999	2000	2001	2002
Estimated Ultimate Medical	\$20,167	\$22,710	\$26,809	\$31,767
Pcnt Change from Prior Year		12.6%	18.0%	18.5%
3-Year Average Annual Growth Rate				16.4%

The WCIRB's estimate of the post-reform average ultimate medical cost for an insured indemnity claim was compared to both a low and a high estimate of what insurers would have paid absent the reforms. The low estimate assumed that without the reforms, California workers' compensation medical inflation would have continued at 8.2 percent per year (half the pre-reform rate), while the high estimate assumed workers' compensation medical inflation would have continued at

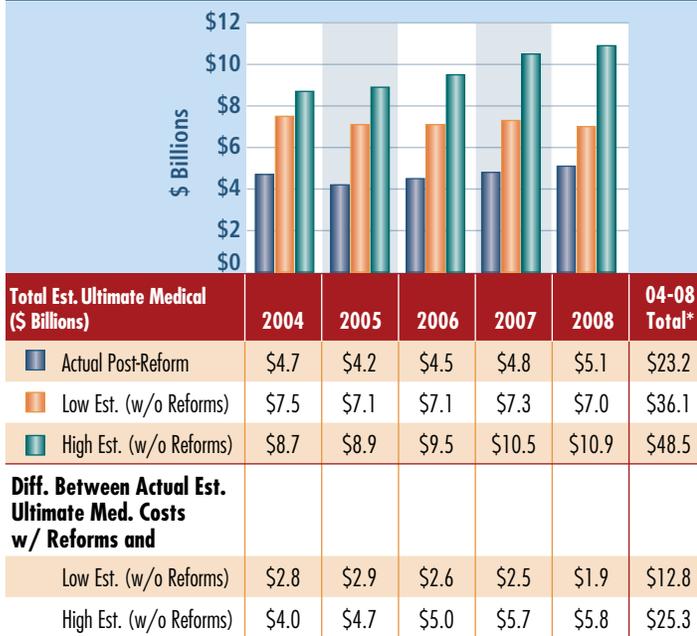
the pre-reform rate of 16.4 percent. The comparisons of the WCIRB March 31, 2009 estimated ultimate medical cost per indemnity claim to the low and the high estimates of medical costs without the reforms are displayed in Chart 3.



The high estimate used in this analysis showed that if pre-reform claims had continued to develop at the historic rate of 16.4 percent per year, the average cost per indemnity claim would have increased from \$31,767 in 2002 (Table 7) to \$79,012 in 2008 -- more than double the \$36,849 that the WCIRB now estimates as the ultimate medical cost for an AY 2008 indemnity claim under the reforms. It could be argued that the 16.4 percent annual growth rate for California workers' compensation medical costs is the more realistic of the two trend assumptions, as it is hard to rationalize a spontaneous reversal of such a persistent medical inflation trend. Even using the more conservative 8.2 percent medical inflation rate, however, the analysis projected that the average ultimate medical cost for indemnity claims would have grown to an estimated \$50,951 in AY 2008 -- which is \$14,102 (or 38.3 percent) more than the estimated average medical costs under the reforms.

9 Lifsher, M. "Souring Medical Insurance Cost Are A Sore Spot For Employers." The Los Angeles Times, April 6, 2009.

Chart 4: Total Est. Ultimate Medical Costs CA WC Insured Claims w/ & w/o WC Reforms & Medical Management AY 2004 - 2008



* Numbers are affected by rounding

Chart 4 compares WCIRB’s actual estimate of total ultimate medical costs for the post-reform years of AY 2004-2008 to the low and high estimates of what total workers’ compensation medical costs would have been without the reforms, again using the same inflation adjustment figures to derive the low and high estimates.

These projections show that without the benefit of the medical reforms and medical management processes, AY 2004-2008 estimated ultimate workers’ compensation medical costs in California would have totaled between \$36.1 billion and \$48.5 billion. In contrast, WCIRB projects that actual post-reform costs with the medical management and other reforms in place totaled \$23.2 billion. That translates to an estimated net savings of \$12.8 billion to \$25.3 billion in medical costs since 2004.

Changes in Injury Type

The authors used the Dyani Diagnosis Medical Grouping System to evaluate the diagnosis data in order to determine the primary, secondary and tertiary diagnosis. Table 8 shows the top 20 injury types by diagnostic group.

The results show that between AY 2002 and AY 2007, there were some significant shifts in the distribution of work injuries reported in the California workers' compensation system. "Minor Wounds and Injuries to the Skin," the most prevalent diagnostic group, increased from 19.3 percent of all injuries in AY 2002 to 25.6 percent in AY 2007. Correspondingly,

"Other Injuries, Poisonings and Toxic Effects" declined from 15.3 percent of all injuries in AY 2002 to 6.4 percent in AY 2007. In both cases, the greatest change occurred between accident years 2003 and 2004. "Medical Back Problems without Spinal Cord Involvement" accounted for a slightly smaller proportion of the AY 2007 claims (19.2 percent vs. 20.9 percent in AY 2002), while "Sprains of the Shoulder, Arm, Knee or Lower Leg" rose from 12.3 percent to 14.2 percent of the claims over the same time frame. There were no other proportional changes of greater than one percentage point to the mix of diagnostic groups between accident years 2002 and 2007.

Table 8: Distribution of Claim Sample by Diagnostic Group AY 2002 – AY 2007 All Claims

Diagnostic Group	AY 2002	AY 2003	AY 2004	AY 2005	AY 2006	AY 2007	Sub-Total
Minor Wounds & Injuries to the Skin	19.3%	17.6%	22.4%	24.2%	24.2%	25.6%	21.8%
Medical Back Problems w/o Spinal Cord Involvement	20.9%	22.3%	21.9%	20.5%	19.4%	19.2%	20.9%
Sprain of Shoulder, Arm, Knee, Lower Leg	12.3%	12.9%	14.1%	13.9%	13.6%	14.2%	13.5%
Other Injuries, Poisonings and Toxic Effects	15.3%	10.5%	5.4%	5.3%	6.1%	6.4%	8.8%
Ruptured Tendon, Tendonitis/Myositis/Bursitis	5.1%	5.5%	5.2%	5.1%	5.1%	4.8%	5.1%
Wound/Fracture of Shoulder, Arm, Knee, Lower Leg	3.3%	4.4%	4.3%	4.5%	4.4%	4.2%	4.1%
External Eye Disorders	3.6%	3.5%	4.2%	4.3%	4.3%	4.2%	4.0%
Trauma of Fingers & Toes	2.7%	3.8%	3.7%	3.6%	3.4%	3.3%	3.4%
Degenerative, Infective & Metabolic Joint Disorders	2.9%	3.3%	3.1%	3.2%	3.4%	3.0%	3.1%
Spine Disorders w/ Spinal Cord/Root Involvement	1.9%	2.2%	1.6%	1.4%	1.4%	1.2%	1.6%
Other Diagnoses of Musculoskeletal System	1.7%	1.7%	1.7%	1.5%	1.6%	1.5%	1.6%
Cranial & Peripheral Nerve Disorders	1.4%	1.5%	1.0%	0.8%	0.7%	0.6%	1.0%
Carpal Tunnel Syndrome	1.2%	1.3%	1.0%	0.9%	0.9%	0.7%	1.0%
Hernia	0.8%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%
Vaccination, Prophylaxis or History of Disease	0.3%	0.6%	1.0%	1.2%	1.2%	1.0%	0.8%
Cellulitis, Soft Tissue Infections	0.6%	0.6%	0.8%	0.9%	1.0%	0.9%	0.8%
Burn Injury, 2nd or 3rd Degree or >=20%	0.6%	0.7%	0.8%	0.8%	0.8%	0.8%	0.8%
Dermatitis, Diseases of Hair & Eczema	0.6%	0.6%	0.7%	0.7%	0.8%	0.8%	0.7%
Head & Spinal Injury w/o Spinal Cord Involvement	0.7%	0.8%	0.6%	0.6%	0.6%	0.6%	0.6%
Other Mental Disturbances	0.4%	0.5%	0.6%	0.7%	0.6%	0.5%	0.6%
Other Diagnostic Groups	4.4%	4.7%	5.0%	5.2%	5.7%	5.6%	5.0%
Grand Total	100%						

Geographic Region of Injured Workers

The authors noted that the location of injured workers by geographic region has been changing since the implementation of the reforms.

Table 9 shows the proportion of work injury claims occurring in 14 regions of the state. When the regions were grouped into Northern and Southern California locations (indicated by “N” and “S” in the table), the results show there was a declin-

ing proportion of claims in the study sample that originated in Southern California (52.4 percent in AY 2002 vs. 49.0 percent in AY 2007), with the only exceptions being the Riverside and Palm Springs regions. On the flip side, the proportion of claims originating in Northern California increased from 47.5 percent in AY 2002 to about 51 percent in AY 2007. Of the eight Northern California regions, only Sacramento had a declining proportion of claims.

Table 9: Distribution of Claim Sample by Geographic Region AY 2002 – AY 2007, All Claims

California Region (North/South)	AY 2002	AY 2003	AY 2004	AY 2005	AY 2006	AY 2007	Sub-Total
Los Angeles (S)	24.5%	24.7%	24.5%	23.2%	21.8%	21.9%	23.6%
San Joaquin, Stanislaus, Mariposa (N)	9.8%	10.5%	11.0%	11.5%	11.3%	10.9%	10.7%
San Diego (S)	8.7%	8.5%	8.0%	7.8%	7.8%	7.9%	8.2%
East Bay (N)	8.0%	7.2%	7.3%	7.6%	8.2%	8.2%	7.7%
San Francisco, Marin, Peninsula (N)	7.8%	7.4%	7.0%	7.1%	7.9%	8.0%	7.5%
Kern, Tulare, Inyo, Salinas (N)	6.2%	7.1%	7.6%	7.8%	8.4%	8.3%	7.4%
Riverside, San Bernardino, Imperial (S)	6.5%	6.9%	6.9%	7.2%	7.1%	7.1%	6.9%
Sacramento to Lake Tahoe (N)	6.4%	6.1%	6.2%	6.2%	6.2%	5.9%	6.2%
Orange (S)	6.3%	6.2%	6.1%	5.8%	5.5%	5.6%	6.0%
San Jose (N)	4.8%	4.5%	4.5%	4.4%	4.6%	4.8%	4.6%
Ventura, Santa Barbara, San Luis Obispo (S)	4.4%	4.6%	4.5%	4.5%	4.1%	4.2%	4.4%
Northern Cos and CA Offcs in Reno (N)	2.4%	2.3%	2.3%	2.5%	2.7%	2.6%	2.4%
Palm Springs (S)	2.0%	2.1%	2.1%	2.3%	2.3%	2.3%	2.2%
Butte, Sutter, Yuba, Chico Area (N)	2.1%	2.0%	2.1%	2.1%	2.2%	2.2%	2.1%
Grand Total	100%						

Comparison of Unadjusted and Case-Mix-Adjusted Medical Costs

In order to see if the observed increases in medical costs were due to changes in claim characteristics, the authors performed a case-mix-adjusted (CMA) analysis. A standard multivariate linear regression model was created to analyze claims after controlling for a comprehensive set of variables that included claimant demographics (e.g., age, gender, tenure, average weekly wage), injury characteristics (e.g., claim type, diagnosis category, inpatient flag) and employer characteristics (e.g., industry class, audited premium).

Two trendlines for average medical costs at 12 months post injury were created and plotted: one for actual (or unadjusted) costs and a second for the case-mix-adjusted average medical cost (Chart 5). Statistical tests were then performed to measure whether the differences between the two trendlines were statistically different.¹³

The results showed that on an unadjusted basis, aggregate medical payments per claim at 12 months post-injury increased steadily over the study period, rising an average of \$59.02 per quarter. In contrast, after controlling for changes in the case mix, medical payments at the 12-month valuation declined an average of \$7.52 per quarter. The fact that the unadjusted results showed a significant increase in medi-

cal payments while the case-mix-adjusted results showed a decrease in medical payments suggests that one or more of the independent case-mix variables in the regression model had a substantial and significant effect in fueling the increase in the unadjusted medical payments at 12 months post-injury.

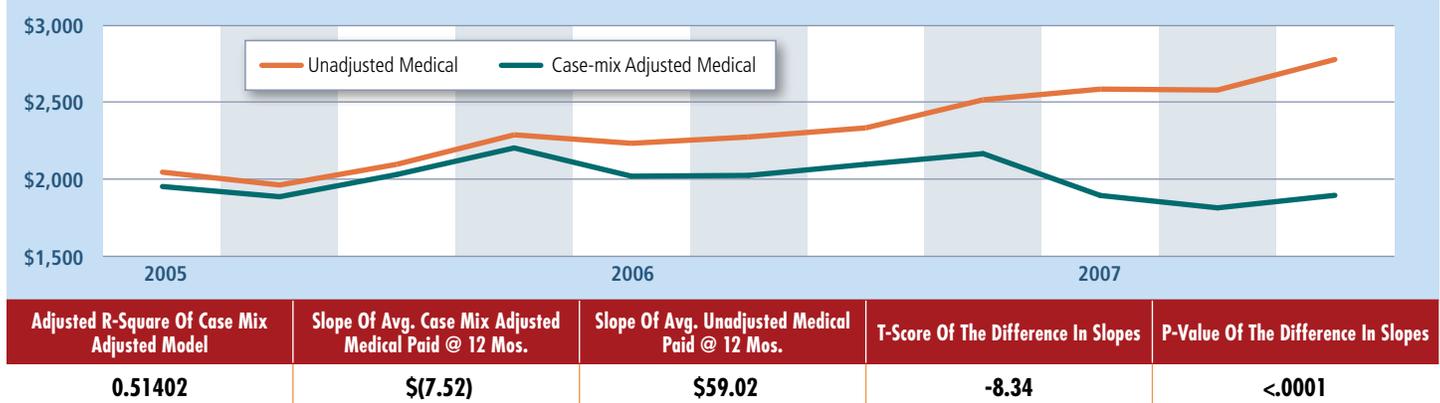
Among the variables associated with higher costs in the post-reform period were co-morbidities such as diabetes, inpatient admissions, earlier litigation and lost time from work, retirees, Southern California and out-of-state injured workers, and certain types of injuries.

Beyond itemizing the high-cost variables, future case-mix adjustment analysis can assess whether:

1. Factors with consistently higher costs are becoming more prevalent;
2. Factors with variable costs are becoming more costly over time; and
3. Factors with consistently lower costs are becoming less prevalent.

From a public policy standpoint, such an analysis will be useful in identifying and prioritizing those areas associated with medical inflation that can be influenced by legislation and regulation.

Chart 5: Avg. California W.C. Medical Payments at 12 Months Post-Injury Unadjusted vs. Case-Mix-Adjusted Payments, 3Q 2005 - 3Q 2007



¹³ The significance of the difference between their slopes was assessed using the t-score (p-value = <.001). This p-value corresponds to an almost negligible probability that the observed difference in the slopes was the result of chance alone. The adjusted r-square of the underlying regression model (.514) indicated that a significant proportion of the variability in claim payments at 12 months post-injury was explained by the model's set of independent variables.

DISCUSSION

This report confirms the prior preliminary findings which showed that despite a short-term decline in California workers' compensation medical costs immediately following implementation of the 2002-2004 reforms, those costs began trending up in accident year 2006, and continued to do so through the end of the study period (third quarter of 2008). The analysis documents increases in the average amounts paid per claim in all four medical categories (medical treatment, pharmaceuticals and durable medical equipment, medical legal, and medical management), suggesting that multiple, inter-related factors are pushing up costs. Within medical management, the most significant increases were in the amounts paid for utilization review, a finding likely associated with the adoption of utilization review requirements and the Medical Treatment Utilization Schedule. Yet the study estimates that the medical reforms and increased medical management efforts are associated with a cumulative net reduction of \$12.8 to \$25.3 billion from projected medical payments absent the reforms.

Concern over the recent California's workers' compensation medical cost increases joins a larger, more public discussion over the rising cost of group health and federal health care programs. It is, in fact, perceived as one of the most challenging public policy issues today. The percent of the Gross Domestic Product (GDP)¹⁰ spent on health care grew from 5.2 percent in 1960 to 9.1 percent in 1980, then increased to 13.8 percent in 2000 and to 16.6 percent in 2008 (an estimated \$2.4 trillion was spent on health care in 2008). By the year 2018, the Centers for Medicare and Medicaid project that health spending in the U.S. will increase to 20.3 percent of GDP. Over the last decade, health insurance premiums have increased 119 percent, far outstripping the overall inflation rate of 29 percent over the same period.¹¹

The primary drivers of medical inflation are fairly well understood. The Centers for Medicare and Medicaid Services report that 55.3 percent of the growth in spending from 2007 – 2008 was a result of medical price inflation; spending more for the same services. Utilization (using more services or different, more expensive high-tech services) accounted for another 25.1 percent of growth. The general population increase (13.4 percent) and the aging of the population (6.2 percent) showed less influence. Other factors driving medi-

cal inflation include high administrative costs, the absence of definitive cost containment measures, the political influence of special interest groups, and the weakness of a competitive free market within the health care system.¹²

There is less agreement over what changes are needed to best bring medical inflation under control in any particular system, be it group health, Medicare, MediCaid(Cal) or workers' compensation. California workers' compensation is a first-dollar coverage program that provides medical treatment to "cure and relieve" the effects of occupational injuries and illnesses, and while it does operate with some supply-side controls (e.g., fee schedules, utilization management), it has almost none of the demand-side controls (co-payments, deductibles, contractual-based services) found in most group health and federal programs. Furthermore, both the course – and therefore the cost – of treatment in California workers' compensation are increasingly subject to and dependent upon judicial interpretation, as the California workers' compensation system relies upon Appeals Board judges as the arbiters of medical disputes rather than a more common "medical board" approach used by most group health plans.

The legislative and administrative intent of the 2002-2004 California medical reforms was to improve the quality of care, control costs and facilitate return-to-work for injured workers. The results of this study indicate that these reforms are showing signs of compromise. Part 2 of the study will focus on identifying specific areas of medical treatment associated with increasing medical costs.

RESEARCH SERIES

This research update is part of an annual series of analyses initiated by CWCI in 2006 to track changes in various aspects of the California workers' compensation system following the implementation of the 2002-2004 legislative reforms. The current series is based on AY 2002-2007 claims data, and this is the fourth report in the series. The complete series covers the following topics:

- **Medical Cost Containment**
- **Medical Provider Networks**
- **Temporary Disability**
- **Medical Payments**
- **Medical Bill Review**

¹⁰ Source: Centers for Medicare and Medicaid Services, Office of the Actuary, National Health Statistics Group, at <http://www.cms.gov.NationalHealthExpandData/>

¹¹ Health Care Costs, A Primer, Key Information on Health Care Costs and Their Impact, The Henry J. Kaiser Family Foundation, March, 2008

¹² Bodenheimer T, High and Rising Health Care Costs. Part 1: Seeking an Explanation, *Annals of Internal Medicine*, Vol 14, Issue 10, May, 2005

APPENDIX A

**Table A1: Medical Payments Per Claim @ 12 and 24 Months
AY 2002 –AY 2007 Claims - Minor Wounds & Injuries to the Skin**

Accident Year	All Claims		Indemnity Claims	
	Avg Medical Paid at 12 Months	Avg Medical Paid at 24 Months	Avg Medical Paid at 12 Months	Avg Medical Paid at 24 Months
2002	\$709	\$841	\$2,422	\$3,286
2003	\$787	\$966	\$2,579	\$3,620
2004	\$698	\$842	\$2,285	\$3,194
2005	\$662	\$794	\$2,028	\$2,845
2006	\$736	\$907	\$2,340	\$3,397
2007	\$831	NA	\$2,748	NA

From AY 2002 to AY 2007, the number one injury category in the California workers' compensation system was "Minor Wounds and Injuries to the Skin." Table A1 shows decreasing average medical payments per claim for all minor wound injuries and for minor wound indemnity claims from AY 2003 through AY 2005 followed by an increase in medical payments beginning with accident year 2006 claims. From AY 2005 through AY 2007, the trend in average medical payments for all minor wound claims at 12 months post injury increased by 25.5 percent (from \$662 to \$831), while average medical payments for minor wound indemnity claims increased by 35.5 percent (from \$2,028 to \$2,748). Increases in average medical payments were also observed at 24 months post injury. From AY 2005 through AY 2006, average medical payments for all minor wound injuries at 24 months post injury increased 14.2 percent (from \$794 to \$907), while average medical payments for indemnity claims increased 19.4 percent (from \$2,845 to \$3,397).

**Table A2: Medical Payments Per Claim @ 12 and 24 Months
AY 2002 –AY 2007 Claims - Sprain of Shoulder, Arm, Knee, Lower Leg**

Accident Year	All Claims		Indemnity Claims	
	Avg Medical Paid at 12 Months	Avg Medical Paid at 24 Months	Avg Medical Paid at 12 Months	Avg Medical Paid at 24 Months
2002	\$2,251	\$3,292	\$5,195	\$8,145
2003	\$2,409	\$3,741	\$5,311	\$8,847
2004	\$2,038	\$2,881	\$4,777	\$7,311
2005	\$1,868	\$2,729	\$4,331	\$6,934
2006	\$2,204	\$3,345	\$5,120	\$8,506
2007	\$2,410	NA	\$5,696	NA

Table A2 shows average medical payments per claim for all "Sprains of Shoulder, Arm, Knee and Lower Leg" injuries and for indemnity claims involving these injuries decreased from AY 2003 through AY 2005, then increased beginning with accident year 2006 claims. From AY 2005 through AY 2007, average medical payments for all sprain claims at 12 months post injury increased 29.0 percent (from \$1,868 to \$2,410), while average medical payments for sprain indemnity claims increased 31.5 percent (from \$4,331 to \$5,696). Increases in average medical payments were also observed at 24 months post injury. From AY 2005 through AY 2006, average medical payments for all sprain injuries at 24 months post injury increased 22.6 percent (from \$2,729 to \$3,345), while average medical payments for indemnity claims increased 22.7 percent (from \$6,934 to \$8,506).

**Table A3: Medical Payments Per Claim @ 12 and 24 Months
AY 2002 –AY 2007 Claims - Other Injuries, Poisonings & Toxic Effects**

Accident Year	All Claims		Indemnity Claims	
	Avg Medical Paid at 12 Months	Avg Medical Paid at 24 Months	Avg Medical Paid at 12 Months	Avg Medical Paid at 24 Months
2002	\$2,727	\$4,016	\$6,660	\$10,273
2003	\$2,478	\$3,793	\$5,691	\$9,138
2004	\$2,773	\$3,975	\$6,883	\$10,293
2005	\$2,553	\$4,020	\$6,746	\$11,178
2006	\$3,736	\$6,224	\$10,149	\$17,639
2007	\$3,553	NA	\$9,945	NA

Table A3 shows average medical payments per claim for "Other Injuries, Poisonings and Toxic Effects" by accident year. The pattern of medical payment development for this category of injury is different from other injury categories. For this injury type, all claims and indemnity claims showed a slight increase in average medical payments at 12 months post injury from AY 2003 through AY 2005. From AY 2005 through AY 2007, the trend of increasing average medical payments accelerated for all "Other Injuries, Poisonings and Toxic Effects" claims at 12 months post injury. Medical payments for all claims increased 39.2 percent (from \$2,553 to \$3,553), while average medical payments for other injuries, poisonings and toxic effects indemnity claims increased 47.4 percent (from \$6,746 to \$9,945). Increases in average medical payments also were observed at 24 months post injury. From AY 2005 through AY 2006, average medical payments for all other injuries, poisonings and toxic effects claims at 24 months post injury increased 54.8 percent (from \$4,020 to \$6,224), while

average medical payments for indemnity claims increased 57.8 percent (from \$11,178 to \$17,639).

**Table A4: Medical Payments Per Claim @ 12 and 24 Months
AY 2002 –AY 2007 Claims - Ruptured Tendon, Tendonitis,
Myositis & Bursitis**

Accident Year	All Claims		Indemnity Claims	
	Avg Medical Paid at 12 Months	Avg Medical Paid at 24 Months	Avg Medical Paid at 12 Months	Avg Medical Paid at 24 Months
2002	\$3,446	\$5,376	\$6,387	\$10,515
2003	\$3,132	\$5,235	\$5,621	\$9,996
2004	\$3,032	\$4,723	\$5,904	\$9,818
2005	\$2,773	\$4,478	\$5,546	\$9,699
2006	\$3,327	\$5,402	\$6,626	\$11,505
2007	\$3,430	NA	\$7,139	NA

Table A4 shows average medical payments per claim for all “Ruptured Tendon, Tendonitis, Myositis and Bursitis” injuries and for indemnity claims involving these types of injuries decreased from AY 2003 through AY 2005, then increased beginning with accident year 2006 claims. From AY 2005 through AY 2007, the trend in average medical payments for all ruptured tendon, tendonitis, myositis and bursitis claims at 12 months post injury increased 23.7 percent (from \$2,773 to \$3,430), while average medical payments for indemnity claims increased 28.7 percent (from \$5,546 to \$7,139). Increases in average medical payments also were observed at 24 months post injury. From AY 2005 through AY 2006, average medical payments for all ruptured tendon, tendonitis, myositis and bursitis injuries at 24 months post injury increased 20.6 percent (from \$4,478 to \$5,402), while average medical payments for indemnity claims increased 18.6 percent (from \$9,699 to \$11,505).

**Table A5: Medical Payments Per Claim @ 12 and 24 Months
AY 2002 –AY 2007 Claims - Wound/Fracture of Shoulder,
Arm/Knee/Low Leg**

Accident Year	All Claims		Indemnity Claims	
	Avg Medical Paid at 12 Months	Avg Medical Paid at 24 Months	Avg Medical Paid at 12 Months	Avg Medical Paid at 24 Months
2002	\$5,573	\$7,225	\$8,122	\$10,672
2003	\$5,124	\$6,975	\$8,160	\$11,285
2004	\$5,101	\$6,690	\$7,901	\$10,504
2005	\$5,552	\$7,419	\$8,090	\$10,941
2006	\$6,125	\$8,638	\$8,583	\$12,285
2007	\$6,875	NA	\$9,693	NA

Table A5 shows average medical payments per claim for “Wound/Fracture of Shoulder, Arm, Knee and Lower Leg” by accident year. The pattern of medical payment development for this category of injury is similar to other injury categories. However, the change in trend from decreasing to increasing average medical payments is observed on AY 2005 claims rather than the more common AY 2006 trend reversal. For wound/fracture of shoulder, arm, knee and lower leg injuries, all claims and indemnity claims show a decrease in average medical payments at 12 months post injury from AY 2003 to AY 2004. Between AY 2004 and AY 2007, however, the trend of increasing average medical payments accelerated for all claims at 12 months post injury. Medical payments for all wound/fracture of shoulder, arm, knee and lower leg claims increased 34.8 percent (from \$5,101 to \$6,875), while average medical payments for indemnity claims increased 22.7 percent (from \$7,901 to \$9,693). Increases in average medical payments also were observed at 24 months post injury. From AY 2004 through AY 2006, average medical payments for all wound/fracture of shoulder, arm, knee and lower leg claims at 24 months post injury increased 29.1 percent (from \$6,690 to \$8,638), while average medical payments for indemnity claims increased 17.0 percent (from \$10,504 to \$12,285).

**Table A6: Medical Payments Per Claim @ 12 and 24 Months
AY 2002 –AY 2007 Claims – External Eye Disorders**

Accident Year	All Claims		Indemnity Claims	
	Avg Medical Paid at 12 Months	Avg Medical Paid at 24 Months	Avg Medical Paid at 12 Months	Avg Medical Paid at 24 Months
2002	\$407	\$446	\$1,915	\$2,351
2003	\$429	\$494	\$1,788	\$2,435
2004	\$387	\$428	\$1,658	\$2,152
2005	\$413	\$454	\$2,031	\$2,414
2006	\$458	\$525	\$2,602	\$3,327
2007	\$463	NA	\$2,157	NA

Table A6 shows average medical payments per claim for all “External Eye Disorder” injuries and for external eye disorder indemnity claims decreased from AY 2002 through AY 2004, followed by an increase beginning with AY 2005 claims. Between AY 2004 and AY 2007, average medical payments for all external eye disorder claims at 12 months post injury increased 19.6 percent (from \$387 to \$463), while average medical payments for external eye disorder indemnity claims increased 30.1 percent (from \$1,658 to \$2,157). Increases in average medical payments also were observed at 24 months

post injury. From AY 2004 through AY 2006, average medical payments for all external eye disorder injuries at 24 months post injury increased 22.7 percent (from \$428 to \$525), while average medical payments for indemnity claims increased 54.6 percent (from \$2,152 to \$3,327).

Table A7: Medical Payments Per Claim @ 12 and 24 Months AY 2002 –AY 2007 Claims - Trauma of Fingers and Toes

Accident Year	All Claims		Indemnity Claims	
	Avg Medical Paid at 12 Months	Avg Medical Paid at 24 Months	Avg Medical Paid at 12 Months	Avg Medical Paid at 24 Months
2002	\$2,649	\$3,088	\$5,305	\$6,344
2003	\$2,291	\$2,835	\$4,992	\$6,420
2004	\$2,320	\$2,730	\$4,824	\$5,848
2005	\$2,398	\$2,925	\$4,633	\$5,848
2006	\$2,903	\$3,609	\$5,328	\$6,800
2007	\$2,966	NA	\$5,819	NA

Table A7 shows average medical payments per claim for all “Trauma of Fingers and Toes” injuries and for trauma of finger and toes indemnity claims decreased from AY 2002 through AY 2005, then increased beginning with accident year 2006 claims. Between AY 2005 and AY 2007, the trend in average medical payments for all trauma of fingers and toes claims at 12 months post injury increased 23.7 percent (from \$2,398 to \$2,966), while average medical payments for trauma of fingers and toes indemnity claims increased 25.6 percent (from \$4,633 to \$5,819). Increases in average medical payments also were observed at 24 months post injury. From AY 2005 through AY 2006, average medical payments for all trauma of fingers and toes injuries at 24 months post injury increased 23.4 percent (from \$2,925 to \$3,609), while average medical payments for indemnity claims increased 16.3 percent (from \$5,848 to \$6,800).

Table A8: Medical Payments Per Claim @ 12 and 24 Months AY 2002 –AY 2007 Claims - Degenerative, Infective & Metabolic Joint Disorder

Accident Year	All Claims		Indemnity Claims	
	Avg Medical Paid at 12 Months	Avg Medical Paid at 24 Months	Avg Medical Paid at 12 Months	Avg Medical Paid at 24 Months
2002	\$5,165	\$8,180	\$7,810	\$12,606
2003	\$4,955	\$8,436	\$7,294	\$12,707
2004	\$4,643	\$7,330	\$7,345	\$11,870
2005	\$4,253	\$6,907	\$7,066	\$11,801
2006	\$5,107	\$8,753	\$8,233	\$14,499
2007	\$5,570	NA	\$9,170	NA

Table A8 shows average medical payments per claim for all “Degenerative, Infective and Metabolic Joint Disorder” injuries and for indemnity claims involving these injuries decreased from AY 2002 through AY 2005, then increased beginning with accident year 2006 claims. From AY 2005 through AY 2007, the trend in average medical payments for all degenerative, infective and metabolic joint disorder claims at 12 months post injury increased 31.0 percent (from \$4,253 to \$5,570), while average medical payments for degenerative, infective and metabolic joint disorder indemnity claims increased 29.8 percent (from \$7,066 to \$9,170). Increases in average medical payments also were observed at 24 months post injury. From AY 2005 through AY 2006, average medical payments for all degenerative, infective and metabolic joint disorder injuries at 24 months post injury increased 26.7 percent (from \$6,907 to \$8,753), while average medical payments for indemnity claims increased 22.9 percent (from \$11,801 to \$14,499).

**Table A9: Medical Payments Per Claim @ 12 and 24 Months
AY 2002 –AY 2007 Claims - Spine Disorder w/ Spinal Cord or
Root Involvement**

Accident Year	All Claims		Indemnity Claims	
	Avg Medical Paid at 12 Months	Avg Medical Paid at 24 Months	Avg Medical Paid at 12 Months	Avg Medical Paid at 24 Months
2002	\$8,470	\$15,405	\$9,975	\$18,300
2003	\$8,003	\$15,502	\$9,301	\$18,221
2004	\$6,754	\$12,452	\$8,184	\$15,331
2005	\$7,879	\$16,566	\$9,884	\$21,131
2006	\$7,285	\$15,537	\$9,078	\$19,713
2007	\$10,890	NA	\$14,439	NA

Table A9 shows average medical payments per claim for all “Spine Disorder with Spinal Cord or Root Involvement” injuries and for indemnity claims involving these injuries decreased from AY 2002 through AY 2004, then increased beginning with accident year 2005 claims. From AY 2004 through AY 2007, the trend in average medical payments for all spine disorder with spinal cord or root involvement claims at 12 months post injury increased 61.2 percent (from \$6,754 to \$10,890), while average medical payments for spine disorder with spinal cord or root involvement indemnity claims increased 76.4 percent (from \$8,184 to \$14,439). Increases in average medical payments also were observed at 24 months post injury. From AY 2004 through AY 2006, average medical payments for all spine disorder with spinal cord or root involvement injuries at 24 months post injury increased 24.8 percent (from \$12,452 to \$15,537), while average medical payments for indemnity claims increased 28.6 percent (from \$15,331 to \$19,713). For this injury category, there was a noticeable spike in average medical payments 12 months post injury for claims in accident year 2007. It is unknown if this

large single year increase is an anomaly or the beginning of a significant change.

**Table A10: Medical Payments Per Claim @ 12 and 24 Months
AY 2002 –AY 2007 Claims - Other Diagnoses of Musculoskeletal
System**

Accident Year	All Claims		Indemnity Claims	
	Avg Medical Paid at 12 Months	Avg Medical Paid at 24 Months	Avg Medical Paid at 12 Months	Avg Medical Paid at 24 Months
2002	\$2,919	\$4,626	\$6,015	\$10,066
2003	\$3,054	\$5,222	\$5,923	\$10,650
2004	\$2,291	\$3,312	\$5,012	\$7,642
2005	\$2,080	\$3,128	\$4,891	\$7,869
2006	\$2,452	\$3,917	\$5,803	\$9,894
2007	\$2,365	NA	\$6,049	NA

Table A10 shows average medical payments per claim for all “Other Diagnoses of Musculoskeletal System” injuries and for indemnity claims involving these injuries decreased from AY 2002 through AY 2005, then increased beginning with accident year 2006 claims. From AY 2005 through AY 2007, the trend in average medical payments for all other diagnoses of musculoskeletal system injuries claims at 12 months post injury increased 13.7 percent (from \$2,080 to \$2,365), while average medical payments for other diagnoses of musculoskeletal system injuries indemnity claims increased 23.7 percent (from \$4,891 to \$6,049). Increases in average medical payments also were observed at 24 months post injury. From AY 2005 through AY 2006, average medical payments for all other diagnoses of musculoskeletal system injuries at 24 months post injury increased 25.2 percent (from \$3,128 to \$3,917), while average medical payments for indemnity claims increased 25.7 percent (from \$7,869 to \$9,894).

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ABOUT CWCI

The California Workers' Compensation Institute, incorporated in 1964, is a private, non-profit organization of insurers and self-insured employers conducting and communicating research and analyses to improve the California workers' compensation system. Institute members include insurers that collectively write more than 87 percent of California workers' compensation direct written premium, as well as many of the largest public and private self-insured employers in the state.



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