

Changes in Utilization of Chiropractic Care in California Workers' Compensation, 1993-2000

The Industry Claims Information System (ICIS) is a transactional level data warehouse developed by the California Workers' Compensation Institute to meet the changing and expanding research and analysis requirements of the workers' compensation industry and CWCI's membership. ICIS currently encompasses data on more than 2.1 million 1993-2000 California workers' compensation claims contributed by 9 insurers representing about 70 percent of the California workers' compensation market.

The value of data depends on its practical applications. The Institute often relies on ICIS to generate "hard numbers" that can be used to advance the public policy debate on a wide variety of workers' compensation issues and concerns. In many cases, ICIS is the first and only source for this much needed empirical data. The following ICIS Says Report analyzes the utilization and costs of chiropractic care in California workers' compensation.

Background

The Workers' Compensation Insurance Rating Bureau's 2002 annual report to the legislature and governor on workers' compensation costs showed that in calendar year 2001, insurers paid \$3.17 billion for California workers' compensation medical services (WCIRB 2002). Of that amount, almost \$1.8 billion, or nearly 57 percent was paid to physicians for treatment of injured workers. That means workers' compensation insurers' annual payments to treating physicians increased more than \$800 million between 1996 and 2001, even though insured claim frequency declined nearly 20 percent during that same period (CWCI, 2002).

The Bureau's breakdown of physician payments by provider specialty shows the proportion of classified physician payments going to chiropractors rose steadily from 11.4 percent in calendar year 1996 to 17 percent in calendar year 2001. In terms of dollars paid, insurers' annual payments to chiropractors jumped from \$77 million to \$195 million during this period, a 153 percent increase in five years. As a result, chiropractors surpassed clinics, orthopedists, and physical therapists to become the number one classified medical specialty group rendering treatment in California workers' compensation. In addition, a recent interstate study by the Workers' Compensation Research Institute reported that in California, chiropractor-treated claims utilize significantly higher levels of physical medicine than physician-directed claims (WCRI, December 2002).

Notably, between 1993 and the April 1999 revision of the chiropractic codes in the Official Medical Fee Schedule, the amounts allowed for chiropractic care in California workers' compensation changed very little, and prior Institute research (CWCI Research Note, May 2002) showed that changes in case mix made an immaterial contribution to workers' compensation medical cost growth following enactment of 1993 legislative reforms. With claim frequency down, little change in the unit price for chiropractic services, and negligible shifts in case mix, it appears that growing utilization has been a key factor behind the dramatic increase in worker's compensation payments for chiropractic care.

The Institute's May 2002 research showed that the dramatic increases in medical costs and utilization that began in 1996 were associated with the statutory and judicial expansion of the primary treaters' presumption of correctness, a change that made it virtually impossible for workers' compensation payers to control over-utilization or manage medical costs. In that study, CWCI documented a 96.4 percent increase in average monthly treatment costs for physical medicine services (including chiropractic services) between 1994 and 2000.

This research uses ICIS data derived from nearly 134,000 claims from accident years 1993 through 2000 to explore the utilization growth hypothesis by measuring changes in the volume of services and the level of payments for chiropractic care in California workers' compensation.

Questions

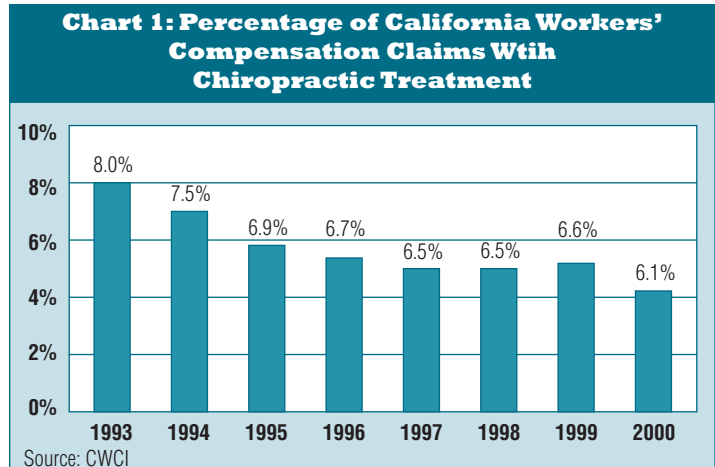
1. What was the change in the proportion of workers' compensation claims involving treatment by a chiropractor between accident years 1993 and 2000?
2. What are the most common types of work injuries (defined by diagnostic code) that involved chiropractic care?
3. Comparing claims involving chiropractic care across accident years:
 - A) How much did the average amount paid per claim to the chiropractor change?
 - B) What was the change in the average amount paid for chiropractic care within the first 12 and 24 months of injury?
 - C) How much did the average number of chiropractic visits per claim change?
 - D) What was the change in the average number of unique chiropractic procedures per claim?

The Claim Sample

Using the ICIS database, the Institute culled through nearly 1.5 million open and closed work injury claims from accident years 1993 to 2000 compiled from eight insurers that together accounted for more than two-thirds of California statewide premium during this 8-year span. The Institute isolated a sub-sample of 134,312 cases in which a chiropractor was identified as a medical provider on the claim. Payments to chiropractors on these claims amounted to \$268 million.

To determine changes in the proportion of claims involving treatment by a chiropractor, for each accident year the Institute calculated the percentage of claims in which a chiropractor was identified as a treater. The results are shown in Chart 1.

Between AY 1993 and AY 2000, the proportion of California workers' compensation claims involving chiropractic care dropped sharply, falling from 8.0 percent of all claims in AY 1993 to 6.1 percent in AY 2000. Thus, the surge in workers' compensation chiropractic payments occurred even though overall claim frequency and the percentage of claims involving chiropractic treatment were declining. This suggests that increases in the average amount paid per claim had become a key factor driving up total chiropractic costs in the system.



Injuries Involving Chiropractic Care

ICIS uses a proprietary algorithm to determine a claim's primary, secondary and tertiary diagnoses, and to group claims into one of 500 diagnostic categories. After dividing the chiropractic claim sample into diagnostic categories, the Institute found that chiropractic care in California workers' compensation is heavily concentrated among a relatively small number of diagnoses. The distribution by diagnostic category shows only 11 injury categories with at least 1 percent of the chiropractic claims (Table 1).

Altogether, the top 11 diagnostic categories accounted for 90 percent of the claims in which chiropractic treatment was rendered. By far, the largest proportion of chiropractic claims were back problems without spinal cord involvement, which alone accounted for nearly half the claims.

Of the claims in the top 11 diagnostic categories, the average amount paid for chiropractic treatment between AY 1993 and AY 1998 was lowest for cases involving minor wounds and injuries to the skin (\$1,452). Claims in this category also had the shortest length of chiropractic treatment, the fewest number of visits, and the fewest number of chiropractic procedures. At the other end of the spectrum, cases involving spine disorders with spinal cord or root involvement had the highest average chiropractic payments (\$2,897), as well as the longest duration of chiropractic care, the greatest number of visits, and the most procedures.

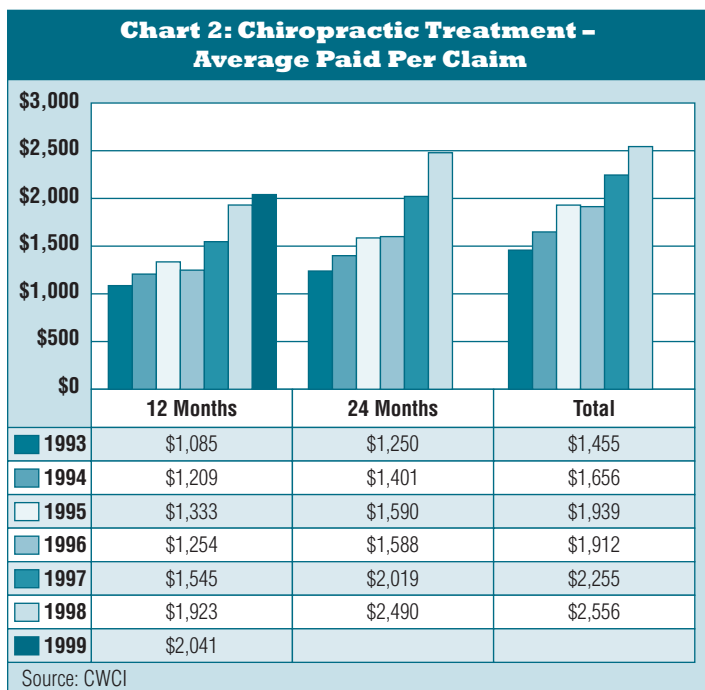
Table 1: Top California Workers' Compensation Injuries Involving Chiropractic Care (AY 1992-2000)

Diagnostic Category	Number	% of Chiro Claims	Average TX Duration (days)	Average Paid	Average Visits	Average Procedures
Back Injuries w/o Spinal Cord Involvement	63,346	47.16%	243.6	\$1,966	25.8	95.7
Other Injuries, Poisonings & Toxic Effects	14,360	10.69%	214.5	\$2,076	24.0	94.7
Spine Disorders w/ Spinal Cord or Root Involvement	9,697	7.22%	356.7	\$2,897	37.9	141.9
Sprain of Shoulder, Arm, Knee, Lower Leg	7,754	5.77%	193.0	\$1,697	21.3	84.3
Carpal Tunnel Syndrome/Nerve Disorders	7,449	5.50%	330.4	\$2,499	32.7	116.3
Other Diagnoses of Musculoskeletal System	5,036	3.75%	288.2	\$2,125	28.7	98.0
Ruptured Tendon, Tendonitis, Myositis & Bursitis	4,067	3.03%	245.7	\$1,729	21.9	81.0
Minor Wounds & Injuries to the Skin	3,029	2.26%	152.4	\$1,452	16.1	70.5
Head & Spinal Injury w/o Spinal Cord Involvement	2,630	1.96%	285.0	\$2,308	32.9	97.9
Degenerative, Infective & Metabolic Joint Disorders	2,105	1.57%	229.5	\$1,805	19.4	83.9
Wound, Fracture of Shoulder, Arm, Knee, Lower Leg	1,641	1.22%	171.7	\$1,620	19.1	73.3
Top 11 Injuries Involving Chiropractic Care	121,114	90.13%	250.6	\$2,055	26.4	98.3
All Injuries	134,312	100.00%	238.7	\$1,980	25.3	94.3

Source: CWCI

Growth in Chiropractic Payments

To track changes in average chiropractic payments per claim, the Institute divided the aggregate chiropractic payments for each accident year by the total number of claims in which a chiropractor was involved. The results are shown in Chart 2:



The total chiropractic payments per claim, noted on the far right of Chart 2, were calculated as of December 2000, so AY 1999 and AY 2000 claims data were excluded as there was less than two years' worth of payment data on those claims. Except for a slight decline in AY 1996, average payments to chiropractors climbed steadily from \$1,455 in accident year 1993 to \$2,556 in accident year 1998 – a 76 percent increase.

The Institute also took snapshots of average chiropractic payments at 12 and 24 months post injury, providing a sense of how chiropractic costs unfold within the life of the claim and creating a uniform measure to benchmark chiropractic costs across various accident years. For each accident year, between two-thirds and three-quarters of the chiropractic expense was paid in the first year following the injury, though the data indicate that payments often continued well beyond a year. For example, among claims for which more than three years of payment data were available – the AY1993-1996 claims – 14 to 18 percent of the chiropractic payments were made more than two years after the date of injury.

Chart 2 also highlights the dramatic growth in the amount paid for chiropractic care within the first 12 and 24 months following injury, suggesting more aggressive chiropractic treatment during the early stages of a claim. Comparing the snapshots of paid data from each accident year shows average chiropractic payments at 12 months post injury increased 88 percent from \$1,085 for AY 1993 claims to \$2,041 for AY 1999 claims, while average chiropractic payments within 24 months nearly doubled from \$1,250 for AY 1993 claims to \$2,490 for AY 1998 claims.

A closer look at the chiropractic payment data reveals that three types of musculoskeletal injuries (sprains and strains, back injuries without spinal cord involvement, and back injuries with spinal cord involvement) accounted for more than 60 percent of the total payments.

Chart 3: Average Chiropractic Treatment Payments – Musculoskeletal Injuries

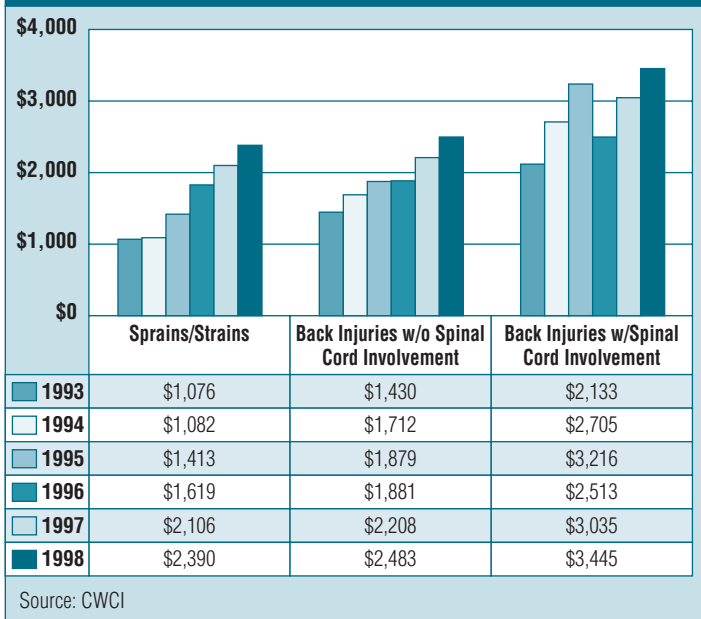


Chart 4: California Workers' Compensation Chiropractic Treatment Average Visits Per Claim

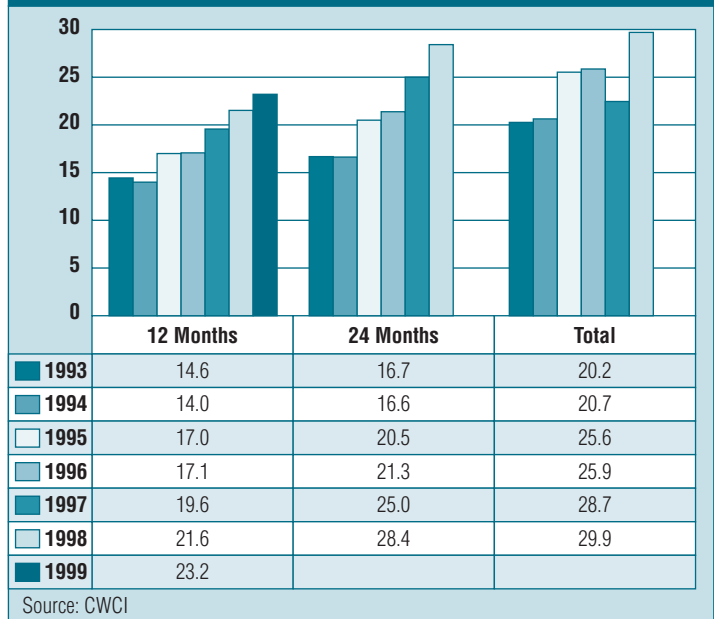


Chart 3 breaks down average chiropractic payments across the 1993 to 1998 accident years for these musculoskeletal injury categories and shows the most dramatic increase in chiropractic expense was in claims involving sprains and strains, which jumped 122 percent over the 6-year period. In contrast, chiropractic payments on claims involving back injuries with no spinal cord involvement rose 74 percent, while back claims with spinal cord involvement registered a 62 percent increase. Though back cases with spinal cord involvement consistently incurred the highest chiropractic expense among the musculoskeletal injuries, the big increase in chiropractic payments in sprain and strain injuries means the spread between average payments for sprain and strain claims and other musculoskeletal claims narrowed considerably.

Measuring Chiropractic Utilization

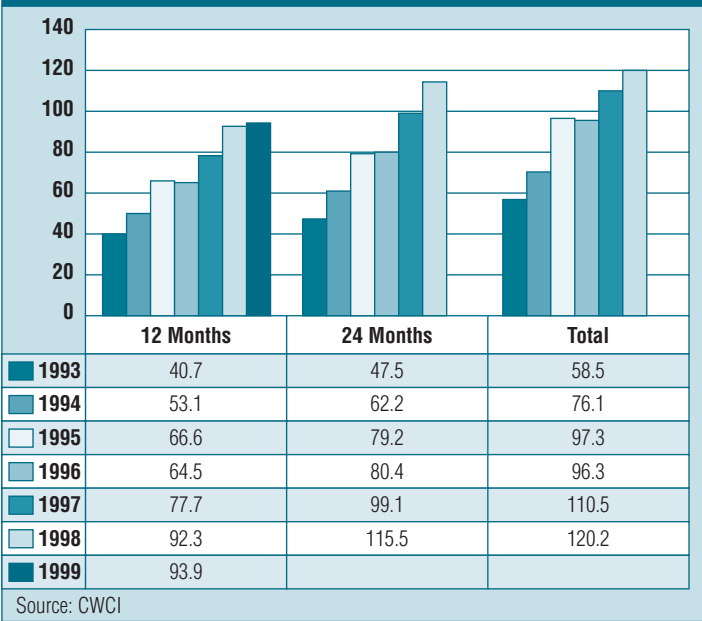
There are several ways to measure utilization of medical services in workers' compensation. To test the notion that increased utilization of chiropractic services was driving up costs, the Institute started by determining the number of chiropractic visits per claim for each accident year. For each accident year, the Institute calculated the average total number of visits from the date of injury through December 2000, as well as the average number of visits at two benchmark points — 12 and 24 months post-injury. The results were then compared across accident years (Chart 4).

The data confirm a sharp increase in the total number of chiropractic visits per claim. As noted on the far right of Chart 4, the total number of chiropractic visits climbed from an average of 20.2 for AY 1993 claims to 29.9 for AY 1998 claims – a 48 percent increase across those six years. Furthermore, comparing the number of visits per claim at 12 and 24 months traces much of the increase in utilization to growth in the volume of chiropractic appointments early in the life of the claim. The average number of chiropractic visits within the first year rose 59 percent (from 14.6 for AY 1993 claims to 23.2 for AY 1999 claims), while the number of visits within the first two years was up 70 percent (from 16.7 for AY 1993 claims to 28.4 for AY 1998 claims).

After quantifying the growth in the number of chiropractic visits per claim, the Institute next measured changes in the average number of procedures per claim across accident years. For each accident year, the researchers tallied and compared the total number of procedures per claim from the date of injury through December 2000, as well as the average number of procedures at 12- and 24-months post injury.

Chart 5 shows that the total procedure count per chiropractic claim more than doubled from 58.5 procedures on AY 1993 claims to 120.2 procedures on AY 1998 claims. Once again, the 12- and 24-month benchmark analyses across accident years help pinpoint when the growth occurred, tracing most of the increased utiliza-

Chart 5: Chiropractic Treatment: Average Procedures Per Claim



tion of procedures to the early stages of the claim. The average number of procedures paid within the first year climbed 130 percent between AY 1993 and AY 1999 (from 40.7 to 93.9 procedures), while the average number of procedures paid within the first two years soared 143 percent (from 47.5 on AY 1993 claims to 115.5 on AY 1998 claims).

Prior to the restructuring of the fee schedule’s chiropractic manipulation codes in April 1999, the schedule contained one code for the primary region manipulated, and another for each additional region. Beginning in April 1999, four new chiropractic codes were introduced:

- ❑ 98940 - Spinal Manipulation; 1-2 Regions
- ❑ 98941 - Spinal Manipulation; 3-4 Regions
- ❑ 98942 - Spinal Manipulation; 5 Regions
- ❑ 98943 - Extraspinal Manipulation

While prior to the restructuring, a claim involving manipulation of three regions required three procedure codes (a primary region code plus two of the additional region codes), after April 1999, the same treatment would result in only one procedure code. Even though it is reasonable to expect that the introduction of the new chiropractic manipulation codes in April 1999 would have reduced the average number of procedures for manipulation after that date, the number of procedures per claim continued to increase through the end of the decade.

Chart 6: Chiropractic Manipulation Treatment Code Utilization

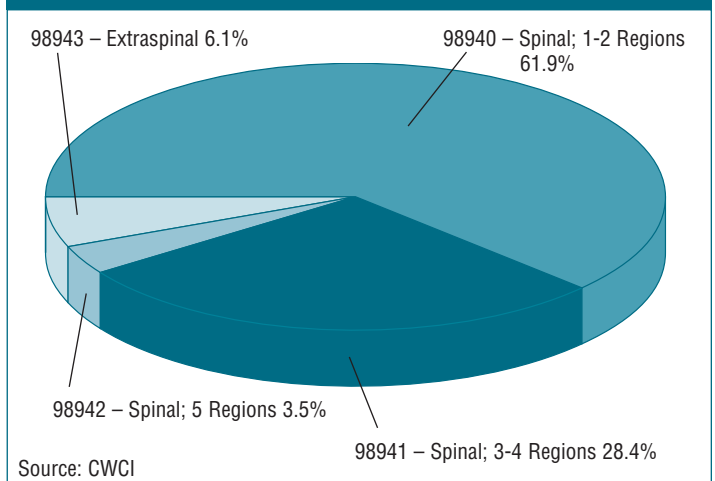
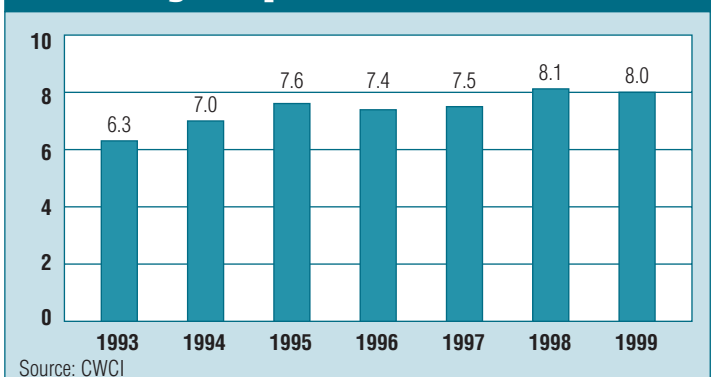


Chart 6 shows the frequency distribution of the four new chiropractic manipulation codes for the April 1999 through December 2000 period.

A review of claims involving chiropractic care after April 1999 shows that of the four new manipulation codes, spinal manipulation of one to two regions was the most heavily utilized – accounting for nearly 62 percent of the new manipulation codes used on these claims. In addition, the code for spinal manipulation of three to four regions accounted for another 28 percent, while just under 10 percent of the new codes were for extraspinal manipulations and spinal manipulations of five regions.

After measuring the increase in the number of procedures per chiropractic claim, the Institute took a closer look to see how many different types of procedures per claim were paid to chiropractic providers. ICIS captures specific procedure codes for which payments are made on each claim, so the average number of unique procedure codes on chiropractic claims was calculated for each accident year (Chart 7).

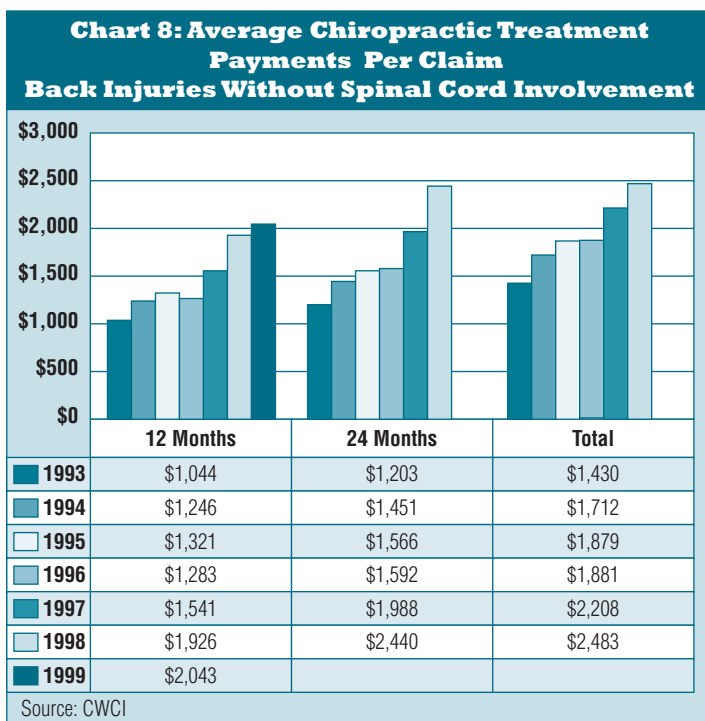
Chart 7: Chiropractic Treatment: Average Unique Procedures Per Claim



The data show the number of unique procedures paid by workers' compensation insurers to chiropractors increased 27 percent from an average of 6.3 procedures on AY 1993 claims to an average of 8.0 procedures on AY 1999 claims. Thus, the study confirms that in recent years, chiropractic providers have not only utilized a greater volume of procedures, but a broader array of procedures as well.

Spotlighting the Top Chiropractic Injury Category

Because back injuries without spinal cord involvement comprised nearly half of all chiropractic claims in California workers' compensation, the Institute ran a separate analysis focusing on just those claims within this diagnostic category. As shown earlier, total average chiropractic payments on these claims increased 74 percent between AY 1993 and AY 1998, and Chart 8 shows most of that growth occurred in the first year after the injury.



Data on the average number of chiropractic visits in back injury claims with no spinal cord involvement further confirm that utilization growth was key to rising chiropractic costs. Chart 9 notes that injured workers treated by a chiropractor for a back injury with no spinal cord involvement averaged fewer than 22 visits in 1993, but by 1998, claims in this injury category averaged nearly 30 chiropractic visits.

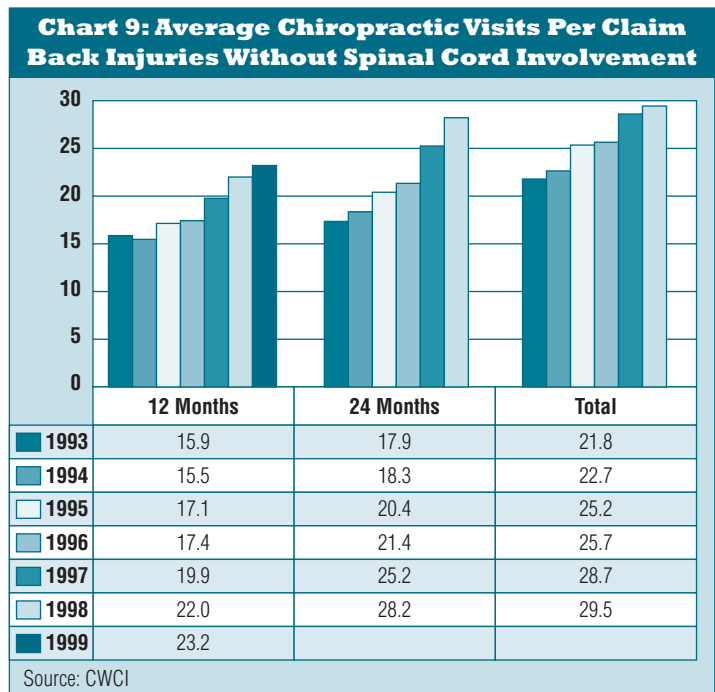


Chart 9 also pinpoints when the increase in chiropractic utilization took place. A comparison of back claims without spinal cord involvement from AY 1993 and AY 1999 shows the average number of chiropractic visits in the first 12 months after injury jumped by seven, while the average number of visits within the first 24 months climbed by more than 10 between AY 1993 and AY 1998.

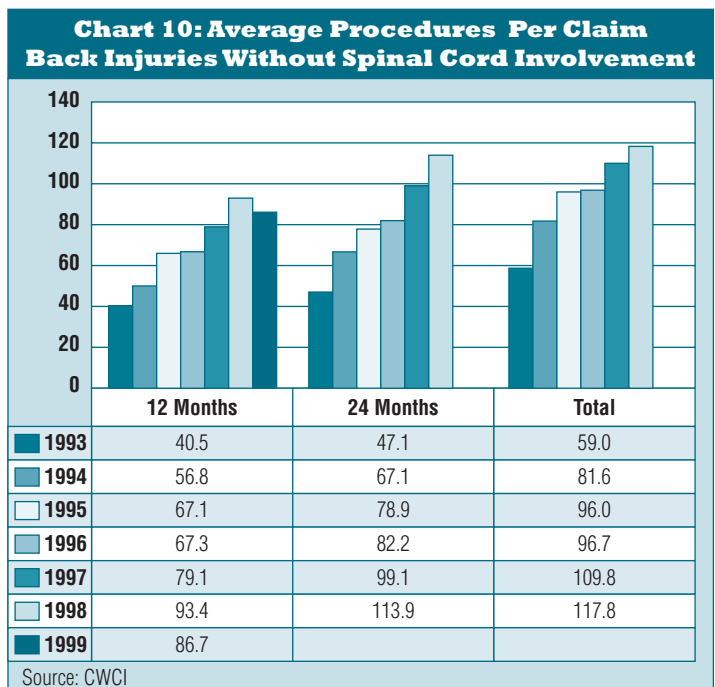


Chart 10 takes the analysis a step further, by tracking the growth in the average number of procedures by chiropractors treating back injuries without spinal cord involvement.

The bars on the far right of Chart 10 show that the total number of procedures by chiropractors on these claims doubled from 59 in AY 1993 to nearly 118 in AY 1998. Again, the 12 and 24 month benchmark data show most of the surge in utilization occurred early in the life of the claim, with an additional 53 procedures in the first 12 months of a 1998 claim compared to a 1993 claim, and an additional 67 procedures within the first two years.

Summary

More than one out of every six California workers' compensation treatment dollars paid to classified medical providers now pays for chiropractic care, but the results of this study show a declining proportion of claims in the system involve chiropractic services (6.1 percent in AY 2000 vs. 8.0 percent in AY 1993). On the other hand, the ICIS data also show the average amount paid for chiropractic care on these claims climbed more than 75 percent or \$1,100 between AY 1993 and AY 1998, as the average number of visits per claim rose 48 percent, the average number of procedures per claim more than doubled, and the average number of unique procedures performed by chiropractors during the course of each claim increased 27 percent.

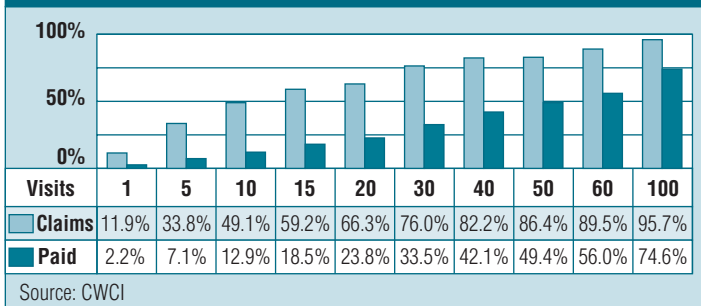
Furthermore, snapshots of the average payments, average number of visits, and average number of procedures per claim at 12 and 24 months post injury illustrate that the increased utilization of chiropractic services started early in the life of the claim, indicating that chiropractic providers have become more aggressive in the way they treat injured workers. The result has been a significant increase in chiropractic costs in California workers' compensation, with more dollars now spent on chiropractic services than on any other classified medical specialty.

Twenty-five years ago, Stanford University economist Dr. Victor Fuchs helped define the health economic principle of physician-induced demand with research that showed "if the physician/population ratio should increase...the result will probably be higher rather than lower fees and also more operations" (Fuchs 1978). In many ways, the California workers' compensation system supports the physician-induced demand theory. To some extent, the increase in chiropractic payments may reflect the growth in the number of providers. The California Chiropractic

Association reports that between 1995 and 2000, the number of licensed chiropractors in California grew from 9,879 to 12,600, a 27.5 percent increase. At the same time, however, workers' compensation claim frequency was declining and the number of injured workers in California fell from 825,000 to 787,000—a 4.6 percent drop (California Division of Labor Statistics and Research, 2002). Thus, the ratio of chiropractors to injured workers increased by one-third from 1.2 per 100 in 1995 to 1.6 per 100 in 2000. Bottom line: the combined effect of an increase in the number of chiropractic providers servicing fewer injured workers with higher levels of chiropractic services per claim has increased both the average cost per claim and the overall cost of chiropractic care in California workers' compensation.

This analysis focused on changes in the cost and utilization of chiropractic services. Some stakeholders assert that increases in utilization can be explained by corresponding increases in the clinical severity of the pool of injured workers. Others suggest that increased utilization could be associated with "better outcomes" as expressed in faster return to work or patient satisfaction. Various organizations continue to research these issues. As mentioned earlier, WCRI has shown claims with chiropractic services have higher costs than "physician-based" physical medicine services, along with mixed outcomes in lost time or indemnity duration and cost. Prior CWCI research showed that the case mix of injuries did not change in a material way in the eight years following implementation of the 1993 workers' compensation reforms, and that the workers' compensation reform activities in the 1990's were strongly associated with increases in medical treatment cost and utilization, longer claim length, higher indemnity costs and longer durations of lost time. Research from the UC Data Center (Neuhauser, 2002) suggests that with the repeal of the primary treating physician's presumption of correctness under AB749, medical inflation and high utilization will return to lower levels, though many payers and employers believe that without implementation of strict utilization controls, high medical costs will continue and the system will return to the "dueling docs" scenario of the early 1990s. The Institute is conducting follow-up research that will monitor utilization in chiropractic and other medical specialties, and further explore the associations between increases in utilization and other claim outcomes such as indemnity costs, litigation, and permanent disability ratings and costs.

Chart 11: Cumulative Percentage of Chiropractic Claims & Payments by # of Visits



Data Applications

Debate over the cost and utilization of chiropractic care in California workers' compensation is likely to heat up in the 2003 legislative session, as a bill (SB 354, Speier) has been introduced that would amend the insurance code by placing a policy limit of 15 chiropractic visits per claim unless additional visits are approved by a doctor.

The potential impact of such a measure could be enormous. Chart 11 shows that just over 40 percent of all California workers' compensation claims that involve chiropractic care utilize more than 15 visits, and payments on these claims account for 81.5 percent of all chiropractic payments in the system.

Note: The Institute will soon post the ICIS Chiropractic Utilization data cube used in this research in the Members Only section of our website for Institute members who would like to access the cube for additional data or analysis.

References

California Department of Industrial Relations, Division of Labor Statistics and Research, *Industry Incidence (Frequency) and Case Counts, Number of Nonfatal Occupational Injuries and Illnesses by Industry and Selected Case Types, 2000*, Dec 2001

California Workers' Compensation Institute, *Claim Frequency Survey*. CWCI Bulletin 02-11. July 2002.

Fuchs, V. The Supply of Surgeons and the Demand for Operations. *Journal of Human Resources*, V13-35. 1978.

Gardner L., Swedlow A. *The Effect of 1993 – 1996 Legislative Reform Activity on Medical Cost, Litigation and Claim Duration in the California Workers' Compensation System*. California Workers Compensation Institute Research Note. May 2002.

Neuhauser, F. *Doctors and Courts: Do Legal Decisions Affect Medical Treatment Practice? An Evaluation of Treating Physician Presumption in the California Workers' Compensation System*. Prepared for the Commission on Health and Safety and Workers' Compensation by the Survey Research Center, UC Berkeley. November 2002.

Victor, R., Wang, D. *Patterns and Costs of Physical Medicine: Comparison of Chiropractic and Physician-Directed Care*. Workers' Compensation Research Institute. December 2002.

Workers' Compensation Insurance Rating Bureau of California, *2001 California Workers' Compensation Losses and Expenses*. June 2002.

Workers' Compensation Insurance Rating Bureau of California, *Summary of September 30, 2002 Experience*. WCIRB Bulletin No. 2003-01. January 2003.

About CWCI

The California Workers' Compensation Institute, incorporated in 1964, is a private, nonprofit organization of insurers and self-insured employers conducting and communicating research and analyses to improve the California workers' compensation system. Most CWCI research is unique, as it is based on operating data collected from member companies specifically for the Institute.

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