A REPORT TO THE INDUSTRY

California Workers' Compensation Medical Care Reform & Access to Medical Care

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Foreword

Over the last 10 years, California's legislature and regulators have enacted various workers' compensation medical care reforms to ensure high-quality care for injured workers and to control against excessive medical cost inflation. Recently, some system stakeholders have asserted that workers' compensation managed care reforms such as fee schedules and utilization review procedures discourage providers from treating workers' compensation patients, thereby restricting access to medical care. This study considers the association between two managed care reforms – the adoption of the 1993 Medical Legal Fee Schedule and the 2004 Utilization Review Schedule – and changes in access to workers' compensation medical services.

Using a sample of more than 900,000 claims from injured workers treated between 1993 and 2005 -- before and after implementation of the medical reforms -- the study measures the workers' proximity to a choice of three active providers who saw injured workers in each corresponding calendar year. The findings show that implementation of managed care controls was not associated with a material change in access to a choice of medical providers. The study finds that both before and after the managed care reforms were implemented, at least 95 percent of all injured workers in California fell within the state-mandated access standards, which call for a choice of three primary care physicians within 15 miles of an injured worker's home, and a choice of three specialty providers within 30 miles.

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Background

Estimates from the California Workers' Compensation Insurance Rating Bureau show that between 1995 and 2004, the average ultimate medical cost per indemnity claim in California workers' compensation increased from $9,636 to $23,156 (WCIRB 2006). Though the growth in medical costs has subsided with the implementation of legislative reforms enacted between 2002 and 2004, today the medical cost of treating California's injured workers makes up over 60 percent of the ultimate benefit dollars spent in the state's workers' compensation system.

A number of factors fueled the surge in California workers' compensation medical costs. Several studies have documented significant increases in medical utilization – the average number of visits and procedures per claim – as well as the extent and duration of treatment during this period (Gardner 2002, Johnson 2002, CWCI 2003, WCRI 2003). Additional studies have found that increasing medical costs and utilization were associated with the enhanced role of the primary treating physician, which began with the passage of 1993 legislation. This legislation attached a rebuttable presumption of correctness to the primary treating physician's opinion for the purpose of calculating permanent disability. Subsequently, the 1996 Minniear decision expanded this presumption's application to all medical issues — including the appropriateness of any given medical treatment. The Minniear decision limited a payor's ability to question or object to medical utilization, allowing challenges to the primary treating physician's opinion only if it could be proved that the medical treater's opinion was not supported by the medical literature. This standard was rarely overcome in the appeals process, even when it was clear that a given treatment was not curative.

Reforming Medical Care Delivery

Between 2002 and 2004, the California Legislature enacted policies that included fundamental changes to the workers' compensation medical benefit delivery system. Assembly Bill 749 (2002), Senate Bill 228 (2003) and Senate Bill 899 (2004) eliminated the treating physician's rebuttable presumption of correctness, thus striking down the Minniear decision as operational law. In 2003, Senate Bill 228 sought to control medical cost and utilization and improve patient care by requiring the use of medical treatment utilization standards that incorporate evidence-based, peer-reviewed, nationally recognized standards of medical care (Harris 2004, 2005). Senate Bills 228 and 899 also sought to update and tighten fee schedule loopholes in regard to reimbursement for physician services, pharmacy costs and outpatient surgery facility fees. In addition, SB 899 sought to re-invigorate the use of medical networks as a tool to better manage medical treatment by expanding the networks' ability to control medical care from the first 30 days post-injury to the life of the claim. Preliminary indications suggest the reforms are associated with savings, as a recently published research series cites early evidence of reductions in medical costs immediately following implementation of the most recent medical reforms (Swedlow 2005).

Issues in Measuring Physician Satisfaction and Access to Medical Care

The implementation of the 2002 - 2004 legislative changes affecting workers' compensation medical care – especially the controls imposed on medical utilization and costs – has spurred a growing debate within the community over the quality and availability of treatment to injured workers. A recent report, "Hostile to Physicians, Harmful to Patients: The Workers' Compensation …Reform?," issued by the California Medical Association, a professional medical society with more than 35,000 members, asserts a high level of physician dissatisfaction with the current workers' compensation environment (CMA 2005). The report was based on 250 responses to a 2005 website survey that solicited opinions on physician job satisfaction within the workers' compensation system. The CMA survey indicated that 63 percent of the responding physicians would either leave or significantly limit workers' compensation patient care. This report was widely cited as evidence of a wide-spread access crisis for California's workers' compensation system.

The CMA's 2005 survey is one of the latest in a series of surveys conducted in recent years that have attempted to measure the relationship between physician satisfaction with patient care and patient access to medical care. In 2001, another CMA report, "And Then There Was None: The Coming Physician Supply Problem," analyzed 2,300 survey responses and found high levels of physician dissatisfaction with managed care. The report asserted that 43 percent of responding California physicians intended to leave practice within 3 years (CMA 2001). A similar report, conducted by the Massachusetts Medical Society in 2002, cited significant physician recruitment and retention issues (MMS 2002). Currently, UCLA, under contract with the

California Division of Workers' Compensation (DWC), is conducting a survey to assess physician attitudes about their current and future workers' compensation medical practices[1].

Such survey assessments have been shown to have significant methodological limitations and marginal predictive utility. Rittenhouse (2004) studied relationships between physician dissatisfaction and physician attrition. While her findings confirm that physicians who are dissatisfied are associated with a stated intention to leave patient care, they also showed an insignificant association between a physician's intention to leave practice and their actual exit from patient care.[2] Despite the CMA's 2001 survey measurement that 43 percent of physicians would leave patient care between 2001 and 2004, creating a physician supply problem, the Center for Health Workforce Studies (2004) reported a 3.3 percent net gain in California treating physicians between 2002 (90,470 physicians) and 2004 (93,462 physicians).

The following analysis seeks to add another approach to assessing the association between the implementation of workers' compensation managed care controls and changes in access to medical care. The research will focus on two historical periods of workers' compensation medical reform during which there were similar predictions of an access crisis:

- The period before and after the implementation of the 1993 medical legal schedule; and
- The period before and after the 2004 implementation of the Utilization Review Schedule and Medical Provider Networks.[3]

Data, Methods and Analysis

This study uses medical care and payment data compiled from the CWCI Industry Claims Information System (ICIS) Version 6.1 database, a transactional-level detail database of more than 3 million claims for injuries occurring between 1993 and 2005. The ICIS database contains information on California workplace injuries from domestic and national workers' compensation carriers who write more than 80 percent of California's direct written premium, as well as several large self-insured employers.

To quantify injured worker access to medical-legal and medical treatment services before and after implementation of the reforms, Institute analysts calculated the distance from an injured worker's home address (based on their ZIP code) to the three closest physicians who were concurrently providing services to California injured workers in a given calendar year, identified through payment records. In deriving these distances, the researchers used GeoAccess™ software, a mapping program commonly used by group health plans and workers' compensation payors to assess the goodness of fit between employees' homes and worksites and network physicians. The GeoAccess™ software converted the address information on injured workers and providers into latitude and longitude coordinates and calculated the distance between relevant combinations of workers and specific providers.

The physician data did not include the physician's license number, so physicians were identified through unique combinations of the provider/clinic tax identification (Tax ID) number and the medical office address. Provider access is likely better than indicated by this study as services of multiple physicians are frequently billed under one Tax ID number at a given location, though less frequently services of one physician are billed under more than one Tax ID number/location.

The researchers ran separate analyses for medical-legal report writers, primary care physicians, and specialty physicians. The analysis on access to med-legal report writers included physicians who were reimbursed for submitting medical-legal reports in a given calendar year; the analysis on access to primary care providers focused on family, general practice and occupational medicine providers; and the analysis on access to specialty care focused on specialists commonly used in treating occupational injuries, including orthopedists, internists, chiropractors and neurosurgeons. In each analysis, the physician who actually saw the injured worker may or may not have been among the three physicians closest to the injured worker's home, so the study was not limited to measuring the distance between the specific physician who actually provided services to a particular injured worker.

1 We were not able to review the survey instrument but were given a general description of the methodology. The survey is also sampling payors and injured workers about their experience with medical access. The study is due to be released during the fall of 2006.

2 A limited association was found between job dissatisfaction, intention to leave and actual exit for older, retirement-aged physicians.

3 Medical Provider Networks, as defined by Labor Code §4616, were implemented in 2005.

Location, Location, Location

Medical access depends on the availability of treating physicians within a reasonable distance to treat injured workers. California's injured workforce and the pool of treating physicians is much like the overall population of California in that injured workers are not distributed evenly across the state's 58 counties. California has both densely populated urban areas, such as Los Angeles County, home to more than 10 million people, as well as many sparsely populated rural areas, such as Alpine County, with a population of less than 1,300 people. This uneven distribution of the population is also reflected in Table 1, which shows the distribution of injured workers and workers' compensation treating physicians[4] from the 2004 sample in California's five largest and five smallest counties (based on the number of injured workers).

The top five California counties accounted for just under half of all injured workers in the 2004 claim sample, and more than half of all treating physicians. In contrast, the bottom 5 counties represented one-tenth of one percent of the sample's injured workers and a similar proportion of the treating physicians. These proportions reflect the population of all Californians and treating physicians. The 2004 sample distribution of injured workers and workers' compensation treating physicians across all 58 California counties can be found in Appendix A.

The following two-part analysis below will provide summary access measures for the whole state, as well as detailed, county-by-county access results.

Table 1: Distribution of Injured Workers and Workers' Compensation Treating Physicians Top 5 and Bottom 5 California Counties (2004 ICIS Sample)

County	Number of Injured Workers	Number of WC Treating Physicians	Percent of Injured Workers	Percent of WC Physicians
Top 5:				
Los Angeles	78,378	6,448	22.5%	25.0%
San Diego	26,326	1,924	7.5%	7.5%
Orange	21,557	2,694	6.2%	10.4%
San Bernardino	18,615	1,051	5.3%	4.1%
Riverside	16,367	1,046	4.7%	4.1%
Sub-total:	161,243	13,163	46.2%	51.1%
Bottom 5:				
Trinity	183	2	<0.1%	<0.1%
Modoc	129	6	<0.1%	<0.1%
Inyo	71	4	<0.1%	<0.1%
Sierra	60	1	<0.1%	<0.1%
Alpine	4	–	<0.1%	0.0%
Sub-total:	447	13	0.1%	<0.1%

4 California Labor Code Section 3209.3 and related sections define physicians to include "physicians and surgeons holding an M.D. or D.O. degree, psychologists, acupuncturists, optometrists, dentists, podiatrists, and chiropractic practitioners licensed by California state law and within the scope of their practice as defined by California state law." The sample of treating physicians in Table 1 includes both primary treating physicians (in family and general practice or occupational medicine) and specialty care physicians (in orthopedics, internal medicine, chiropractic and neurology/neurosurgery).

Medical Legal Reports

Medical legal reports are used to resolve various claims issues, including the extent of an injured worker's impairment. Prior to 1993, a workers' compensation claim could have multiple reports and, according to a recent study, in 1990 the average cost for medical legal reports per claim was $2,495. (CHSWC 2005)

Prior to late 1993, reimbursement rates for medical legal reports were not subject to a fee schedule. The legislature sought to control medical legal costs by establishing a set fee schedule price for such reports, and by limiting the number of reports per claim. During the debate over the adoption of the medical legal fee schedule in 1993, a survey conducted by the California Society of Industrial Medicine and Surgery reported that 90 percent of responding doctors felt that such a fee schedule would cause them to either see fewer workers' compensation claimants, or stop evaluating such injuries altogether (CWCR 1993). Following the implementation of the final fee schedule and rule changes in late 1993, medical legal report costs dropped sharply, and by 2002, average medical-legal costs per claim had fallen to $663, down 73 percent from the 1990 level of $2,495(CHSWC 2005).

The objective of this first section of the access analysis is to measure whether there was any change in access to a choice of physicians performing medical legal evaluations following the adoption of the California workers' compensation medical legal fee schedule.

Data & Methods

For the medical legal access analysis, the Institute compiled a sample of 135,885 California workers' compensation claims from the ICIS database, each of which contained at least one medical legal report. The claims were categorized into four groups based on the date of service:

- those in which medical legal services were rendered during the pre-fee schedule reform period of January through May 1993;
- those with medical legal services during the period immediately following reform (1994); and
- those with medical legal services from each of the two most recent years of activity (2004 and 2005).

The analysis also utilized information on physician location for providers submitting a medical legal report during each of those same four periods. As noted previously, the proximity analysis used GeoAccess™ software to identify the three forensic physicians whose offices were closest to each injured worker's home, though the physician who actually provided the medical legal services may not have been among the three most accessible forensic physicians. In order to measure the percentage of injured workers with adequate access to report-writing physicians, the analysis defined the access standard as a choice of three physicians within a 30-mile radius of the injured worker's home ZIP code[5].

Results

Table 2 shows the distribution of injured workers and forensic physicians from the study sample for each of the four time periods. The last column notes the average distance from an injured worker's home to a choice of three active workers' compensation forensic physicians.

Table 2: Access to Workers' Compensation Forensic Physicians
Pre– and Post– Med-Legal Fee Schedule

Year of Report	Number of Injured Workers w/ ML Reports	Number of Forensic Physicians	Average Distance to 3 Closest Forensic Physicians (miles)
Jan-May 1993 (Pre-MLFS)	13,215	15,036	2.1
1994-- 1st Yr. (Post-MLFS)	30,504	27,060	1.6
2004	43,012	31,710	1.5
2005	49,154	36,462	1.5

In the months before the fee schedule went into effect in late 1993, the average (mean) distance between an injured worker's home ZIP code and the closest three physicians actively writing medical legal reports was 2.1 miles. In the period immediately following the fee schedule implementation (1994), the average distance was 1.6 miles, a 23.8 percent reduction. For the 2004 and 2005 samples, access improved again to an average distance of 1.5 miles from the injured worker's home ZIP code, a 28.6 percent reduction from the pre-reform baseline period.

Access distances varied significantly in different parts of the state. Table 3 displays results for the top 5 and the bottom 5 counties (as ranked by number of injured workers with medical legal reports in the sample).

5 This standard is consistent with comparable standards in the California workers' compensation system for access to specialist providers.

Table 3: Pre–MLFS (1993) and Post–MLFS (2005) Access to WC Forensic Physicians (Top 5 and Bottom 5 California Counties based on number of claims with med-legal reports)

	Average Distance to 3 Closest Forensic Physicians (miles)		Percent of Injured Workers with 3 Forensic Physicians within 30 miles
California County	Pre–MLFS Jan–May 1993	Post–MLFS 2005	2005
Top Five Counties			
Los Angeles	1.0	0.9	99%
San Diego	1.8	1.4	99%
Orange	0.8	0.4	99%
San Bernardino	2.2	2.2	99%
Riverside	2.4	1.9	99%
Bottom Five Counties			
Trinity	8.9	11.3	89%
Mono	13.4	5.5	89%
Mariposa	17.7	4.3	99%
Inyo	31.0	20.6	80%
Sierra	20.0	19.6	85%

Among the five California counties with the most number of claims with medical legal reports, the average distance an injured worker needed to travel to find three medical-legal physicians showed little change following the implementation of the fee schedule. The results ranged from San Bernardino where there was no change in the average distance, to Riverside County, where average accessibility improved by a half a mile (20.8% closer than in the pre-reform period). In total, 99 percent of all 2005 injured workers in the sample had a choice of three report-writing physicians within a 30-mile radius of their home ZIP code.

In contrast to the urban areas, the arrival or departure of a relatively small number of physicians in sparsely populated rural regions has a much greater impact on medical provider access, as there are fewer physicians in those areas to start with. As a result, five of the least populated California counties experienced the most significant change in injured worker access to forensic physicians following the adoption of the med-legal fee schedule, with four of the five counties experiencing significant reductions in the average distance to a choice of three providers. The largest change between pre- and post- reform access was in Mariposa County (estimated 2006 population of 18,216 residents), where an increase of just seven forensic physicians between 1993 and 2005 led to a 13.4 mile reduction in the average distance an injured worker needed to travel to find three forensic physicians (76 percent closer than in the pre-reform period). On the other hand, Trinity County (with an estimated 2006 population of 14,024 residents) had four fewer forensic physicians in the 2005 sample than in the 1993 sample, so in order to find three med-legal providers, injured workers in this county needed to travel an additional 2.4 miles, or 27 percent farther in the post fee schedule reform period. The complete results of the medical-legal access analysis for all 58 California counties are in Appendix B.

Utilization and Medical Network Reforms

In August 2003, the Workers' Compensation Insurance Rating Bureau of California estimated that for work injuries and illnesses occurring in 2002, the average ultimate medical cost per indemnity claim would be $31,767 (WCIRB 2003). In May 2006, WCIRB estimated that for 2004 work injuries and illnesses, the average ultimate medical cost per indemnity claim would be $23,156 (WCIRB 2006), 37.2 percent less than the 2002 estimate, reflecting the projected effect of the recent workers' compensation medical reforms. Such anticipated reductions were touted by Governor Schwarzenegger and California Insurance Commissioner Garamendi as proof of the effectiveness and success of the 2002 – 2004 reforms.

As noted above, stakeholders such as the California Medical Association claimed that the reforms had "gone too far" and were resulting in wholesale physician dissatisfaction with the workers' compensation system. At the same time, they began to solicit anecdotal evidence, which was used to assert widespread denial of essential medical services to injured workers. Additional anecdotal speculation asserted that an exodus of physicians was removing a disproportionate share of the most experienced physicians from active patient care. Payors and managed care providers responded with their own anecdotal evidence questioning the validity of the access crisis.

The objective of this section of the study is to measure changes in access before and after the implementation of the UR guideline and network controls, and to track changes in levels of physician experience in treating injured workers.

Data & Methods

To objectively measure changes in injured worker access to workers' compensation medical providers and changes in physician experience, the Institute compiled data from a sample of injured workers who received medical services, and treating physicians who provided medical care to injured workers during four specific calendar years – two prior to the implementation of the reforms and two following the reform implementation:

- Calendar years 1996 & 1998: The period following the Minniear decision, which broadened the application of the primary treating physician's presumption of correctness to encompass all medical issues, including the appropriateness of any given medical treatment.
- Calendar years 2004 & 2005: The initial two-year period during which the SB 228 and SB 899 medical reforms were implemented — including mandatory utilization review, medical treatment guidelines, and beginning in January 2005, medical provider networks.

The study employed the access standards and physician practice groups consistent with the rules and regulations promulgated by the Division of Workers' Compensation (DWC) for evaluation of medical provider networks[6]:

- A choice of three primary care physicians within 15 miles of the injured worker.
- A choice of three specialists within 30 miles of the injured worker.

The primary care category included only physicians in Family Medicine, General Practice, and Occupational Medicine. The specialty care category was limited to specialty practices commonly found in workers' compensation, including Orthopedics, Internal Medicine, Chiropractic, and Neurology/Neurosurgery.

The analysis measured the distance from the home ZIP code of each injured worker receiving treatment within a calendar year to the three closest workers' compensation treating physicians. The Institute only included treating physicians in the sample for a calendar year if there were payment records showing that those providers had rendered services to injured workers in that year.

The Institute also ran an additional analysis to measure any change in the experience level of physicians rendering treatment to injured workers. For this analysis, the researchers counted the number of claims that each unique provider/clinic had in each calendar year of the study and categorized the results using the following scale:

Low Experience:	No more than 3 claims per year
Medium Experience:	Between 4 to12 claims per year
High Experience:	More than 12 claims per year

Distributions for the sample of treating physicians from each year, based on their level of workers' compensation experience, were then calculated and compared.

6 California Labor Code §9767.5. Medical Provider Network Access Standards (available at http://www.dir.ca.gov/t8/9767_5.html)

Table 4: Injured Worker Access to Choice of 3 Workers' Comp Primary Care and Specialist Physicians Pre-reform (1996 & 1998) vs. Post-reform (2004 & 2005)

	Access to Choice of 3 Closest Active WC Primary Care Physicians (3 physicians w/in 15 miles)					Access to Choice of 3 Closest Active WC Specialists (3 physicians w/in 30 miles)				
	Number of Injured Workers	Number of WC Primary Care Physicians	Injured Workers per Physician	Avg. Distance to Choice of 3 Primary Care Physicians	% of Injured Workers within Access Standard	Number of Injured Workers	Number of WC Specialty Physicians	Injured Workers per Physician	Avg. Distance to Choice of 3 Specialty Physicians	% of Injured Workers within Access Standard
1996	135,497	7,478	18.1	3.2	97%	135,497	18,702	7.2	2.7	98%
1998	220,776	8,098	27.3	3.0	97%	220,776	15,675	14.1	2.3	99%
2004	348,982	10,333	33.8	2.7	98%	348,982	15,447	22.6	2.3	99%
2005	196,381	8,278	23.7	3.0	95%	196,381	10,255	19.1	3.9	98%

Results

Table 4 shows injured workers' access to primary care and specialist physicians before and after the reforms.

In each of the four years studied, no less than 95 percent of the injured workers in the claim samples had a choice of three workers' compensation primary care physicians within 15 miles of their homes. Furthermore, the average distance a California injured worker needed to travel to access three primary care physicians ranged from 2.7 to 3.2 miles – well within DWC's 15-mile access standard. Similarly, in each of the four years, between 98 and 99 percent of the state's injured workers had access to a choice of three specialists within 30 miles of their homes. The average distance to access three specialists ranged from 2.3 to 3.9 miles from the injured worker's home, again well within the access standard of three specialists within 30 miles.

Due to database limitations, there were fewer claims and providers in the calendar year 2005 sample than prior study years. The 2005 claim and provider activity was limited to treatment days from January 1 – September 30, and there were fewer data contributors in 2005 than in the other three years of the study. A series of data validation tests confirmed that the claim characteristics of the 2005 sample were not materially different in policy, demographic or injury characteristics when compared to the 1996, 1998 or 2004 samples.

To assess whether or not there was a change in the number of injured workers relative to the number of treating physicians, the Institute calculated the ratio of injured workers to workers' compensation primary care providers for each of the four years. The ratio of injured workers to providers climbed between the primary treating physician presumption period of 1998 and implementation of mandatory utilization review in 2004, suggesting the start of a potential stress point on the medical care delivery model. However, in 2005, the first year that workers' compensation Medical Provider Networks became operational, the ratio fell nearly 30 percent from the 2004 level, and the ratio of injured workers to specialists fell 15.5 percent – both dropping back toward the pre-reform levels of 1996 and 1998.

Table 5 breaks down the overall access results for four of the most commonly utilized workers' compensation specialty categories: Chiropractic, Orthopedics, Neurosurgery and Internal Medicine.

Table 5: Injured Worker Access to Choice of 3 Workers' Comp Specialty Physicians by Specialty Category Pre-reform (1996 & 1998) and Post-reform (2004 & 2005)

Average Distance to 3 Closest Providers (miles)

	Chiropractic	Orthopedics	Neurosurgery	Internal Medicine	All Four Specialties Combined
1996	3.7	6.9	16.7	5.8	2.7
1998	3.1	5.2	10.1	5.1	2.3
2004	2.9	5.3	11.9	5.6	2.3
2005	3.6	7.8	16.6	6.9	3.9

Percent of all Injured Workers within Access Standard

	Chiropractic	Orthopedics	Neurosurgery	Internal Medicine	All Four Specialties Combined
1996	97%	96%	90%	97%	98%
1998	98%	98%	92%	98%	99%
2004	97%	97%	94%	97%	99%
2005	94%	95%	91%	96%	98%

In both the pre- and the post-reform years, at least 90 percent of all California injured workers were within the state's 30-mile access standard for these four medical specialties, and the average distance injured workers needed to travel to find three workers' compensation providers in each specialty was well within the standard. For example, Table 5 shows that during the four years studied, the percentage of injured workers with a choice of three chiropractors within 30 miles of their home ranged from 94 percent in 2005 to 98 percent in

1998, while the average distance to three chiropractors ranged from 2.9 miles in 2004 to 3.7 miles in 1996. Among these four specialties, access was most limited to neurosurgery, but even in this highly specialized field, the percentage of injured workers with access to three neurosurgeons within 30 miles of their homes ranged from 90 percent in 1996 to 94 percent in 2004, while the average distance to three providers ranged between 10.1 miles and 16.7 miles.

Appendix C & D offer detailed views of injured worker and physician counts across all 58 California counties. The appendices also show the percentage of injured workers in each county who fell within the DWC's primary and specialty care access standards, and the average driving distance to a choice of three providers for injuries occurring in 2004 and 2005.

As noted above, access distances varied significantly by region. Table 6 displays results for the top and bottom five counties (as ranked by number of injured workers in the sample).

Table 6: Injured Worker Access to Choice of 3 Primary Care and Specialty Physicians (Top 5 & Bottom 5 California Counties)

	Average Distance to 1st 3 Providers (miles)			
	Primary Care Providers		Specialists	
County	2004	2005	2004	2005
Top 5:				
Los Angeles	1.5	2.1	1.3	2.3
San Diego	2.3	3.4	1.7	2.9
Orange	0.9	1.4	0.7	1.4
San Bernardino	3.1	4.3	2.2	5.3
Riverside	2.8	4.6	3.1	5.6
Bottom 5:				
Trinity	31.5	32.9	31.8	31.6
Modoc	18.6	47.3	12.8	74
Inyo	24.2	69.8	36.6	60.7
Sierra	25.6	27.8	20.1	22.9
Alpine	3.7	3.5	6.5	6.1

Table 6 shows that for the largest counties, the average distance to the first three primary care and the first three specialty physicians did increase between 2004 and 2005, but in all five counties, access to primary treating doctors and to specialists remained well within the state's access standards. The five smallest counties, which account for about one tenth of one percent of all claims, generally showed sharper increases in average access distances, again illustrating the significant public policy issue of access to rural health care.

Physician Experience

Are managed care reforms associated with a change in the level of physician experience in treating injured workers? Research on volume-based outcome effects in the California workers' compensation system has shown that claims managed by physicians with greater levels of experience in treating workers' compensation injuries are associated with lower overall costs, faster return-to-work and less litigation (Swedlow 2003). Table 7 shows the breakdown of claims managed by physicians with low, medium and high levels of workers' compensation treatment experience by calendar year.

Table 7: Claim Distribution by Treating Physicians' Workers' Compensation Experience (1996 – 2005)

Physicians' Experience in Treating Injured Workers	1996	1998	2004	2005	Change From 1996 – 2005
Low	65.5%	61.4%	55.6%	56.7%	-13.4%
Medium	20.4%	20.7%	20.2%	19.9%	-2.5%
High	14.2%	18.0%	24.2%	23.4%	64.8%

The proportion of claims in which treatment was rendered by physicians with high levels of workers' compensation experience was 14.2 percent in calendar year 1996 and 18.0 percent in calendar year 1998 (pre-reform), then climbed to 24.2 percent in calendar year 2004 and 23.4 percent in calendar year 2005 (post-reform). That is a relative increase of 64.8 percent in the proportion of claims managed by physicians with high levels of workers' compensation experience between 1996 (when the physician presumption was expanded under Minniear) and 2005 (after the medical care delivery cost control requirements had been introduced).

Summary and Discussion

Is there a medical access crisis in the California workers' compensation system? The answer to this question, like so many public policy issues, depends on your point of view. A recent California State Senate informational hearing[7] on medical treatment issues provided a unique forum for stakeholders to express their appraisal of the current state of workers' compensation health care delivery. Among the many issues raised was whether or not recent medical reforms had affected access to high-quality medical care. The Senate hearing and the general debate to date have only produced personal testimony, anecdotes and unscientific, survey results, and little empirical, objective data or analysis.

This research is one of the first studies to objectively measure an injured worker's access to medical-legal services and medical care within the California workers' compensation system before and after reform implementation. The Institute used the ICIS database to compile detailed information on nearly 136,000 claims involving medical-legal reports and on more than 900,000 California work injury claims involving medical treatment rendered before and after the implementation of the workers' compensation reforms. The detail in the database allowed the researchers to analyze and interpret the results on a statewide basis; by county, city or ZIP code; or using urban, suburban and rural standards.

The analysis of access to forensic physicians found that, despite predictions to the contrary, injured worker access to medical-legal report writers improved in the years following the implementation of the state's first medical-legal fee schedule. Furthermore, the data on injured worker access to primary care and specialty physicians demonstrate that in 2005 — the period immediately following full implementation of the medical reforms — injured workers on average had a choice of three primary care physicians within a 3.0 mile radius of their homes, and access to a choice of three specialty care providers within a 3.9 mile radius of their homes. Across the four years studied, statewide figures show that between 95 and 99 percent of all injured workers were within the state's access standard, which calls for a choice of three primary care providers within 15 miles and a choice of three specialist providers within 30 miles. The study also noted a significant increase in the proportion of physicians with higher levels of workers' compensation experience treating injured workers in the post- reform years of 2004 and 2005.

Access to providers varied significantly based on the injured workers' county of residence. The most heavily populated counties (Los Angeles, San Diego, Orange, etc.), also had the highest concentration of providers and hence, the best access scores. Counties with low-density populations (Inyo, Sierra, Mariposa, etc.) had lower access scores. The scarcity of medical providers in rural areas is not a problem unique to workers' compensation – it is a core public policy issue for both group health and federal healthcare programs.

This study has limitations. The analysis was bound by the use of payment transaction data through September 2005 on injured workers who received medical treatment for their injuries and physicians who delivered medical services and were paid for treating injured workers within the same calendar year. Unfortunately there was no data to measure other aspects of access, such as days from request to actual physician appointment, or time spent in the waiting room. While there is some concern that such wait times have increased in the general healthcare system, the authors were unable to find any literature that compares workers' compensation medical appointment wait times in California (or other states) against the wait times experienced in group health or other medical delivery systems. Interestingly, in comments on the Canadian healthcare system, LeBourdais (1999) cites anecdotal information asserting that some physicians and hospitals provide workers' compensation patients with preferential treatment in the form of shorter waiting periods than the general public.

This analysis of medical access also did not distinguish between network and non-network physicians. As noted above, expanding the use of medical network providers was a core feature of the recent reforms. As of this writing, the Division of Workers' Compensation (DWC) has approved more than 1,100 Medical Provider Networks, each of which met the minimal access standard defined above. While the California workers' compensation system provides payors with the ability to use exclusive panels of physicians, the DWC requires that injured workers be allowed to utilize non-network physicians should there be inadequate access to care within a given network[8]. As providers can either opt out of all workers' compensation networks or join one or more networks, this study chose to include all providers who received payment for services regardless of network affiliation. The association of medical network use, access to care and other injured worker outcomes will be the topic of future research.

7 Medical Treatment Under Workers' Compensation Law, An Informational Hearing. Senator Richard Alarcon, Chairman of the Senate Committee on Labor and Industrial Relations, May 3, 2006, Sacramento CA.

8 California Labor Code §9767.5. Medical Provider Network Access Standards.

Finally, retrospective data-driven access studies are not designed to forecast future access standards due to as yet unknown events and system changes.

Notwithstanding these limitations, the results of this analysis stand in sharp contrast to the anecdotes and informal survey results that have dominated the discussion to date. Surveys based on a physician's intention to restrict or leave clinical practice have been shown to be unreliable predictors of a physician's ultimate decision. The literature cautions against the use of such "intention to…" studies: Rittenhouse (2002) concludes that "although physician intention to quit clinical practice is a reasonable marker of physician dissatisfaction, it should not be used to predict actual future attrition."

The perceived increase in physician dissatisfaction is associated with the new layers of medical controls within California's new Utilization Review schedule, which became necessary to curb the extraordinary medical growth rate of 240 percent over the most recent 10-year period (WCIRB 2006). In the fall of 2003, state lawmakers passed AB 227 and SB 228, the landmark legislation which, for the first time in California history, established a medical standard of care that centers on the application of high-grade medical evidence and the guidelines of the American College of Occupational and Environmental Medicine (ACOEM). It is understandable that such a fundamental transformation to mandated managed care principles in a relatively short period of time would cause disruption and dissatisfaction. Aside from the self-reporting physician-based satisfaction and intention surveys, however, other research has found little or no correlation between physician dissatisfaction with the implementation of group health managed care controls (or the increased participation in Medicare, Medicaid/MediCal and HMO enrollment), and significant physician attrition from clinical practice (O'Malley, 2006, Cunningham 2006).

Other Issues Affecting Access

The issue of workers' compensation medical access is especially complex due to the system's unique position in the overall healthcare economy. Workers' compensation medical care operates within the much larger context of the national and statewide healthcare economy--representing an estimated 3 to 7 percent of all healthcare costs in California and other states. To understand the larger question of access to healthcare in the California workers' compensation system, we should consider core macro-economic issues that workers' compensation inherits but cannot control. Three such issues are:

1. The cost of group healthcare and the uninsured
2. Physician supply
3. California population

The Cost of Healthcare and the Uninsured

Most Americans equate access to care with access to health insurance. The United States overall, and California in particular, has a growing percentage of citizens who have no group healthcare coverage. The Employee Benefit Research (EBRI) Institute stated that between 1994 and 2004, the percentage of uninsured, non-elderly Americans climbed from 16.1 to 19.1 percent, and that total per capita spending for healthcare in 2004 was 16.5 percent of the gross national product (GNP), or $1.9 trillion (EBRI 2005). EBRI projects that by 2015, healthcare costs will approach $4 trillion or 20 percent of the GNP. The Kaiser Family Foundation (2005) reported that the family premiums paid in 2005 for employer-sponsored group health plans jumped 11.2 percent, capping a four-year run of double-digit growth. As healthcare costs increase, the affordability of group health insurance premiums decreases. The authors of the Kaiser study also reported that the cumulative effect of rising health care costs was that there were at least 5 million fewer employees with health insurance in 2004 than there were in 2001.

The relevance of the overall cost of healthcare and the problem of the uninsured has been a discussion point for workers' compensation stakeholders for some time. Some have postulated a relationship between a rising uninsured rate and a higher likelihood of cost shifting into the workers' compensation sector. This, however, has not been adequately demonstrated in the research literature. Other stakeholders assert a domino-like theory of rising healthcare costs, leading to growing use of managed care programs such as HMOs and increasing physician dissatisfaction, culminating in a physician exodus from patient care. As noted above, the Institute was unable to locate any published studies that showed an association between the rise of managed care programs, Medi-Care/Medi-Caid or HMO plan enrollment and a physician exodus from patient care.

Physician Supply

Are there enough physicians in California to service injured workers and the population at large? The answer to this question lies in the data on the inventory of physicians and the productivity of the overall healthcare system.

Coffman (2004) reports a 92 percent increase in the number of physicians between 1978 and 2002. Also, despite the CMA's projection of a 43 percent reduction in physician availability due to managed care implementation, California experienced a 3 percent increase in the number of physicians between 2002 and 2004. Nevertheless, within these overall increases, Coffman found several ominous trends, including an increasing proportion of physicians 65 years of age and older, coupled with a declining proportion of physicians younger than 40 years of age, and a declining pool of specialists. As noted above, the distribution of physicians throughout California is disproportionately skewed toward urban areas, leaving several rural and suburban areas underserved. Finally, there have only been marginal increases in domestic medical school graduates over the last 10 years. The uncertainty of future US immigration policies makes it difficult to project whether foreign-trained immigrants will be permitted to continue to join domestic medical practices.

Another relevant factor to the issue of access to medical care is the productivity of the US healthcare system. The Institute of Medicine (IOM 2005) recently issued a national report suggesting that the US healthcare system is primed for a comprehensive reengineering of the "supply-chain" of patient and medical service delivery, leading to a transformation similar to that which has modernized manufacturing, retail, agriculture and other industries. The IOM report cited wholesale inefficiency in need of reengineering, including:

- Low physician productivity: up to one-third of a physician's workday is associated with non-patient care.
- Excessive administration costs: 25 percent of medical care costs are related to administrative tasks.
- Poor resource leverage: registered nurses and physician assistants are under-utilized.
- Lack of automation: there is a continued reliance on manual systems and paper files, as well as inadequate use of information technology and point-of-service medical treatment protocols.

If the reengineering of the medical delivery system is successful, physicians could spend considerably more time with patients. How any gains in productivity could affect California's changing physician supply and access to medical care will be the subject of future public policy research.

California Population

According to the US Census Bureau, California's population will significantly increase over the next three decades.

Table 8: California's Projected Population Growth (2000 to 2030)

	California's Projected Population (in Millions)		
Age Range	2000	2030	Projected Change 2000 to 2030
0-19	10.2	12.3	20.6%
20-69	21.0	28.2	34.3%
70+	2.6	6.0	131.0%
Total	33.9	46.4	36.9%

Table 8 shows that between the years 2000 and 2030, the overall population in California is projected to increase nearly 37 percent.[9] The growth rate of older Californians (70+) is projected to increase by 131 percent and the working population (ages 20-69) is projected to increase by 34 percent. This pattern of population growth will place stress not only on the healthcare delivery system, but on the state's entire infrastructure. The growing geriatric population, which typically consumes more healthcare resources than younger citizens, coupled with an increasingly diverse ethnic base, which can contribute a wider array of injuries and illnesses than more homogeneous populations, will create new demands for healthcare services.

While these demographic trends may affect medical care access in the future and should be monitored, there is little evidence of a medical care access crisis in the California workers' compensation system at this time. The task of managing future medical care access issues depends on monitoring a number of intervening variables, many of which are beyond the scope or influence of the workers' compensation system.

9 U.S. Census Bureau, Population Division, Interim State Population Projections, 2005.

Conclusion

While it is clear that recent and significant medical care reforms have created a new process of medical care delivery for California's injured workers, there is little objective evidence that these changes are associated with a material change in access to a choice of medical providers. Regardless, workers' compensation legislation or regulation that attempts to unilaterally "correct" a real or assumed access problem might target areas associated with raising physician satisfaction or granting injured workers the ability to self-procure medical treatment. These areas could include arbitrary changes to fee schedule reimbursement levels and reductions or elimination of Utilization Review and/or network controls — the very controls designed to contain the elements associated with the runaway medical loss development of the late 1990s and early 2000s. Public policymakers may wish to allow more time for a full trending assessment of the effects of the recent medical reforms, including further evaluation of the ebb and flow of practicing physicians in California, before considering additional changes to the California workers' compensation system.

Appendix A: Distribution of Injured Workers and WC Treating Physicians* (All California Counties – 2004 ICIS Sample)

County	Number of Injured Workers	Number of WC Treating Physicians	Percent of Injured Workers	Percent of WC Treating Physicians
Alameda	14,721	1296	4.2%	5.0%
Alpine	4	-	<0.1%	0.0%
Amador	355	29	0.1%	0.1%
Butte	2,819	194	0.8%	0.8%
Calaveras	574	19	0.2%	0.1%
Colusa	555	10	0.2%	0.0%
Contra Costa	9,756	766	2.8%	3.0%
Del Norte	318	30	0.1%	0.1%
El Dorado	1,637	151	0.5%	0.6%
Fresno	12,463	638	3.6%	2.5%
Glenn	561	9	0.2%	0.0%
Humboldt	2,255	99	0.6%	0.4%
Imperial	2,594	67	0.7%	0.3%
Inyo	71	4	<0.1%	<0.1%
Kern	7,943	371	2.3%	1.4%
Kings	1,521	58	0.4%	0.2%
Lake	1,037	42	0.3%	0.2%
Lassen	263	15	0.1%	0.1%
Los Angeles	78,378	6448	22.5%	25.0%
Madera	2,064	46	0.6%	0.2%
Marin	2,413	299	0.7%	1.2%
Mariposa	189	6	0.1%	<0.1%
Mendocino	1,679	80	0.5%	0.3%
Merced	3,978	133	1.1%	0.5%
Modoc	129	6	<0.1%	<0.1%
Mono	271	10	0.1%	<0.1%
Monterey	5,620	345	1.6%	1.3%
Napa	1,958	116	0.6%	0.4%
Nevada	1,134	90	0.3%	0.3%

Appendix A: Distribution of Injured Workers and WC Treating Physicians* (All California Counties – 2004 ICIS Sample)

County	Number of Injured Workers	Number of WC Treating Physicians	Percent of Injured Workers	Percent of WC Treating Physicians
Orange	21,557	2694	6.2%	10.4%
Placer	2,571	320	0.7%	1.2%
Plumas	435	15	0.1%	0.1%
Riverside	16,367	1046	4.7%	4.1%
Sacramento	14,363	899	4.1%	3.5%
San Benito	754	31	0.2%	0.1%
San Bernardino	18,615	1051	5.3%	4.1%
San Diego	26,326	1924	7.5%	7.5%
San Francisco	5,575	836	1.6%	3.2%
San Joaquin	8,115	430	2.3%	1.7%
San Luis Obispo	2,711	223	0.8%	0.9%
San Mateo	5,510	440	1.6%	1.7%
Santa Barbara	5,236	324	1.5%	1.3%
Santa Clara	13,577	1195	3.9%	4.6%
Santa Cruz	3,707	272	1.1%	1.1%
Shasta	2,838	250	0.8%	1.0%
Sierra	60	1	<0.1%	<0.1%
Siskiyou	675	60	0.2%	0.2%
Solano	4,732	188	1.4%	0.7%
Sonoma	7,485	487	2.1%	1.9%
Stanislaus	7,688	458	2.2%	1.8%
Sutter	1,373	62	0.4%	0.2%
Tehama	919	53	0.3%	0.2%
Trinity	183	2	0.1%	<0.1%
Tulare	7,493	233	2.1%	0.9%
Tuolumne	717	54	0.2%	0.2%
Ventura	9,301	751	2.7%	2.9%
Yolo	1,816	84	0.5%	0.3%
Yuba	1,023	20	0.3%	0.1%
Grand Total:	348,982	25,780	100.0%	100.0%

* This broad sample includes both primary treating physicians (in family and general practice or occupational medicine) and specialty care physicians (in orthopedics, internal medicine, chiropractic or neurology/neurosurgery).

Appendix B: Distribution of Injured Workers and WC Forensic Physicians/Access to WC Forensic Physicians (All California Counties – 1993 & 2005 ICIS Samples)

	Jan – May 1993 (Pre-Fee Schedule)				2005 (Post-Fee Schedule)				Average Distance to 3 WC Forensic Physicians (miles)	
County	Number of Workers w/ ML Reports	Number of WC Forensic Physicians	Percent of Workers w/ ML Reports	Percent of WC Forensic Physicians	Number of Workers w/ ML Reports	Number of WC Forensic Physicians	Percent of Workers w/ ML Reports	Percent of WC Forensic Physicians	Jan – May 1993	2005
Alameda	685	691	5.2%	4.6%	1,881	1,548	3.8%	4.2%	1.0	0.7
Amador	24	24	0.2%	0.2%	49	45	0.1%	0.1%	8.0	8.3
Butte	133	125	1.0%	0.8%	437	314	0.9%	0.9%	2.1	1.9
Calaveras	25	9	0.2%	0.1%	90	48	0.2%	0.1%	8.2	4.8
Colusa	18	10	0.1%	0.1%	63	12	0.1%	<0.1%	6.3	8.8
Contra Costa	372	416	2.8%	2.8%	1,260	860	2.6%	2.4%	1.5	1.1
Del Norte	20	17	0.2%	0.1%	58	42	0.1%	0.1%	4.3	3.6
El Dorado	72	62	0.5%	0.4%	228	213	0.5%	0.6%	3.6	1.9
Fresno	413	379	3.1%	2.5%	1,714	926	3.5%	2.5%	3.7	2.3
Glenn	27	7	<0.1%	0.0%	76	9	0.2%	<0.1%	7.8	4.6
Humboldt	103	115	0.8%	0.8%	374	225	0.8%	0.6%	3.7	2.1
Imperial	68	43	0.5%	0.3%	368	101	0.7%	0.3%	5.7	5.4
Inyo	5	3	<0.1%	<0.1%	11	7	<0.1%	<0.1%	31.0	20.6
Kern	338	251	2.6%	1.7%	1,100	513	2.2%	1.4%	5.1	4.0
Kings	56	35	0.4%	0.2%	230	86	0.5%	0.2%	5.6	2.7
Lake	49	23	0.4%	0.2%	200	77	0.4%	0.2%	4.9	4.2
Lassen	20	20	0.2%	0.1%	50	26	0.1%	0.1%	9.3	6.7
Los Angeles	3,207	4,398	24.3%	29.2%	12,978	9,901	26.4%	27.2%	1.0	0.9
Madera	109	31	0.8%	0.2%	284	60	0.6%	0.2%	4.5	3.6
Marin	171	160	1.3%	1.1%	302	485	0.6%	1.3%	1.9	1.1
Mariposa	9	3	0.1%	<0.1%	22	10	<0.1%	<0.1%	17.7	4.3
Mendocino	66	51	0.5%	0.3%	285	173	0.6%	0.5%	6.5	3.4
Merced	127	91	1.0%	0.6%	525	173	1.1%	0.5%	3.6	3.3
Modoc	8	6	0.1%	<0.1%	33	15	0.1%	<0.1%	1.8	6.8
Mono	8	16	0.1%	0.1%	23	19	<0.1%	0.1%	13.4	5.5
Monterey	224	220	1.7%	1.5%	1,092	535	2.2%	1.5%	2.9	2.4
Napa	77	68	0.6%	0.5%	213	198	0.4%	0.5%	2.2	1.4
Nevada	47	66	0.4%	0.4%	154	133	0.3%	0.4%	2.9	1.2
Orange	455	1143	3.4%	7.6%	3,423	3,999	7.0%	11.0%	0.8	0.4
Placer	90	111	0.7%	0.7%	321	402	0.7%	1.1%	4.3	1.6
Plumas	22	15	0.2%	0.1%	77	26	0.2%	0.1%	12.3	5.2
Riverside	412	422	3.1%	2.8%	2,052	1,259	4.2%	3.5%	2.4	1.9
Sacramento	510	561	3.9%	3.7%	1,688	1,239	3.4%	3.4%	1.4	1.0
San Benito	21	14	0.2%	0.1%	126	33	0.3%	0.1%	3.5	3.0
San Bernardino	590	511	4.5%	3.4%	2,339	1,123	4.8%	3.1%	2.2	2.2
San Diego	719	872	5.4%	5.8%	2,621	2,509	5.3%	6.9%	1.8	1.4
San Francisco	308	759	2.3%	5.0%	695	1,246	1.4%	3.4%	0.5	0.4
San Joaquin	303	278	2.3%	1.8%	987	547	2.0%	1.5%	2.1	1.6
San Luis Obispo	63	95	0.5%	0.6%	277	319	0.6%	0.9%	3.8	1.7
San Mateo	328	281	2.5%	1.9%	628	539	1.3%	1.5%	1.3	0.8
Santa Barbara	66	138	0.5%	0.9%	613	489	1.2%	1.3%	2.2	1.4
Santa Clara	721	668	5.5%	4.4%	1,749	1,509	3.6%	4.1%	1.2	0.9
Santa Cruz	164	153	1.2%	1.0%	657	373	1.3%	1.0%	1.7	1.3
Shasta	153	195	1.2%	1.3%	486	501	1.0%	1.4%	2.6	2.4
Sierra	2	3	<0.1%	<0.1%	11	2	<0.1%	<0.1%	20.0	19.6

Appendix B: Distribution of Injured Workers and WC Forensic Physicians/Access to WC Forensic Physicians (All California Counties – 1993 & 2005 ICIS Samples)

	Jan – May 1993 (Pre-Fee Schedule)				2005 (Post-Fee Schedule)				Average Distance to 3 WC Forensic Physicians (miles)	
County	Number of Workers w/ ML Reports	Number of WC Forensic Physicians	Percent of Workers w/ ML Reports	Percent of WC Forensic Physicians	Number of Workers w/ ML Reports	Number of WC Forensic Physicians	Percent of Workers w/ ML Reports	Percent of WC Forensic Physicians	Jan – May 1993	2005
Siskiyou	74	51	0.6%	0.3%	122	87	0.2%	0.2%	15.1	6.9
Solano	210	125	1.6%	0.8%	548	286	1.1%	0.8%	1.8	1.3
Sonoma	404	308	3.1%	2.0%	1,131	760	2.3%	2.1%	1.5	1.0
Stanislaus	296	359	2.2%	2.4%	1,097	704	2.2%	1.9%	2.1	1.6
Sutter	52	42	0.4%	0.3%	214	97	0.4%	0.3%	3.4	2.1
Tehama	52	27	0.4%	0.2%	166	74	0.3%	0.2%	2.9	2.5
Trinity	10	9	0.1%	0.1%	25	5	0.1%	<0.1%	8.9	11.3
Tulare	305	167	2.3%	1.1%	1,050	332	2.1%	0.9%	3.3	2.5
Tuolumne	36	26	0.3%	0.2%	101	71	0.2%	0.2%	4.0	4.1
Ventura	250	285	1.9%	1.9%	1,443	1,031	2.9%	2.8%	2.2	1.3
Yolo	68	56	0.5%	0.4%	218	111	0.4%	0.3%	3.1	2.6
Yuba	50	22	0.4%	0.1%	184	35	0.4%	0.1%	3.1	2.2
Total:	13,215	15,036	100.0%	100.0%	49,154	36,462	100.0%	100.0%	2.1	1.5

Appendix C: Distribution of Injured Workers and WC Primary Treaters/Access to WC Primary Care Treaters (All California Counties 2004 & 2005 ICIS Samples)

	Number of Injured Workers		Number of WC Primary Care Providers		Percent w/in 15 mile Access Standard		Average Distance to 1st 3 Providers (miles)	
	2004	2005	2004	2005	2004	2005	2004	2005
Alameda	14,721	6,386	451	298	100.0%	99.8%	1.5	2.4
Alpine	4	1	-	-	100.0%	100.0%	3.7	3.5
Amador	355	241	16	25	83.9%	82.6%	9	9.9
Butte	2,819	1,826	84	91	96.9%	90.8%	3.8	4.8
Calaveras	574	379	12	14	88.5%	89.7%	8.5	8.6
Colusa	555	353	6	4	86.7%	5.7%	10	20.7
Contra Costa	9,756	4,302	257	157	100.0%	100.0%	2.1	3.5
Del Norte	318	256	15	17	90.9%	85.2%	3.7	4.8
El Dorado	1,637	918	62	48	97.4%	89.5%	3.9	6.1
Fresno	12,463	8,178	258	217	89.6%	86.9%	5	7.4
Glenn	561	381	4	8	73.6%	80.1%	8	12.3
Humboldt	2,255	1,699	43	43	93.3%	92.7%	4.5	5.2
Imperial	2,594	1,745	41	29	87.9%	82.8%	5.9	9.4
Inyo	71	48	4	2	16.9%	0.0%	24.2	69.8
Kern	7,943	5,218	182	188	87.9%	82.9%	6.9	8.1
Kings	1,521	1,122	30	33	84.7%	83.8%	5.9	7.8
Lake	1,037	707	18	25	96.8%	95.3%	5.6	6.8
Lassen	263	202	10	10	71.5%	52.0%	9.5	14.8
Los Angeles	78,378	43,853	2,755	2,223	99.5%	99.4%	1.5	2.1
Madera	2,064	1,465	20	12	98.1%	75.4%	5.1	10.1
Marin	2,413	1,095	108	103	100.0%	98.6%	2.3	4
Mariposa	189	118	1	2	6.9%	0.0%	23.5	30.3
Mendocino	1,679	1,019	43	48	84.0%	83.5%	5.9	6.3
Merced	3,978	2,761	58	58	90.8%	73.7%	5.4	10.3
Modoc	129	96	3	4	64.3%	0.0%	18.6	47.3
Mono	271	169	5	2	28.4%	0.0%	28.7	67.3
Monterey	5,620	3,524	114	114	93.3%	77.8%	5	9.7
Napa	1,958	1,022	51	54	100.0%	100.0%	2.9	3.8
Nevada	1,134	694	28	27	98.8%	99.4%	3.7	5.4
Orange	21,557	12,105	1,121	871	100.0%	100.0%	0.9	1.4
Placer	2,571	1,320	105	79	95.7%	91.7%	3.5	5
Plumas	435	321	4	4	36.3%	6.5%	21.1	31.4
Riverside	16,367	9,536	446	385	98.9%	98.0%	2.8	4.6
Sacramento	14,363	6,924	327	207	100.0%	99.3%	2.1	3.1
San Benito	754	486	5	4	99.6%	31.9%	5.2	15.7
San Bernardino	18,615	9,999	441	306	97.5%	97.1%	3.1	4.3
San Diego	26,326	14,530	739	534	99.1%	98.5%	2.3	3.4
San Francisco	5,575	2,308	379	294	100.0%	100.0%	0.7	1.2
San Joaquin	8,115	4,557	134	128	100.0%	99.9%	2.7	3.5
San Luis Obispo	2,711	1,854	85	62	97.0%	96.2%	4.1	7.1
San Mateo	5,510	2,238	146	124	99.9%	99.7%	1.9	2.5
Santa Barbara	5,236	3,517	132	108	99.7%	99.5%	2.7	4.3
Santa Clara	13,577	6,069	382	232	100.0%	99.7%	1.8	3.3
Santa Cruz	3,707	2,317	92	50	100.0%	100.0%	2.4	3.9
Shasta	2,838	1,871	105	108	92.6%	91.1%	4.9	6.8
Sierra	60	40	-	-	0.0%	0.0%	25.6	27.8
Siskiyou	675	491	33	27	68.6%	69.5%	14.6	15.8
Solano	4,732	2,004	56	45	100.0%	98.6%	2.7	4.9
Sonoma	7,485	3,978	192	172	97.1%	96.5%	2.7	3.8
Stanislaus	7,688	4,803	201	209	98.3%	95.5%	3	3.8

Appendix C: Distribution of Injured Workers and WC Primary Treaters/Access to WC Primary Care Treaters (All California Counties 2004 & 2005 ICIS Samples)

	Number of Injured Workers		Number of WC Primary Care Providers		Percent w/in 15 mile Access Standard		Average Distance to 1st 3 Providers (miles)	
	2004	**2005**	**2004**	**2005**	**2004**	**2005**	**2004**	**2005**
Sutter	1,373	845	23	29	97.9%	98.1%	3.4	3.4
Tehama	919	658	16	12	99.1%	89.1%	6.1	10.1
Trinity	183	100	1	-	2.2%	2.0%	31.5	32.9
Tulare	7,493	5,312	91	108	99.6%	98.6%	4.8	5.7
Tuolumne	717	512	20	15	88.7%	89.5%	5	5.8
Ventura	9,301	6,220	322	252	99.7%	99.6%	2.1	3.3
Yolo	1,816	1,011	46	43	97.6%	96.6%	3.9	6.5
Yuba	1,023	677	10	15	99.7%	97.2%	4.3	4.2
Total:	**348,982**	**196,381**	**10,333**	**8,278**	**98.4%**	**95.2%**	**2.7**	**3.0**

Appendix D: Distribution of Workers and WC Specialty Physicians/Access to WC Specialty Physicians (All California Counties 2004 & 2005 ICIS Samples)

	Number of Injured Workers		Number of Specialists		Percent w/in 30 mile Access Standard		Average Distance to 1st 3 Providers (miles)	
	2004	2005	2004	2005	2004	2005	2004	2005
Alameda	14,721	6,386	845	530	100.0%	100.0%	1	1.8
Alpine	4	1	-	-	100.0%	100.0%	6.5	6.1
Amador	355	241	13	10	97.5%	94.2%	8.8	12.9
Butte	2,819	1,826	110	113	100.0%	99.6%	3.6	4.8
Calaveras	574	379	7	8	100.0%	97.9%	12.5	15.7
Colusa	555	353	4	3	100.0%	98.3%	9.9	24.6
Contra Costa	9,756	4,302	509	335	100.0%	100.0%	1.4	2.7
Del Norte	318	256	15	20	99.1%	99.2%	3.7	4.7
El Dorado	1,637	918	89	73	100.0%	99.3%	2.8	4.9
Fresno	12,463	8,178	380	310	99.9%	97.6%	3.7	6.6
Glenn	561	381	5	8	99.5%	99.5%	8.7	14.4
Humboldt	2,255	1,699	56	60	95.6%	95.9%	4.3	5.2
Imperial	2,594	1,745	26	20	94.9%	90.1%	8.4	12.1
Inyo	71	48	-	-	39.4%	0.0%	36.6	60.7
Kern	7,943	5,218	189	183	99.4%	97.1%	5.6	6.8
Kings	1,521	1,122	28	28	100.0%	88.7%	5.1	9.3
Lake	1,037	707	24	20	100.0%	100.0%	6.2	10.9
Lassen	263	202	5	8	89.4%	68.8%	14.4	32.8
Los Angeles	78,378	43,853	3,693	2,055	99.9%	99.9%	1.3	2.3
Madera	2,064	1,465	26	15	100.0%	98.1%	5.5	11.8
Marin	2,413	1,095	191	158	100.0%	100.0%	1.9	3.3
Mariposa	189	118	5	3	100.0%	16.1%	5.6	31.6
Mendocino	1,679	1,019	37	38	98.0%	97.5%	5.9	10.9
Merced	3,978	2,761	75	60	100.0%	100.0%	4.8	5.9
Modoc	129	96	3	3	82.9%	0.0%	12.8	74
Mono	271	169	5	8	61.6%	31.4%	25.5	38.1
Monterey	5,620	3,524	231	228	99.1%	87.2%	5.2	9
Napa	1,958	1,022	65	53	100.0%	100.0%	2.4	4.1
Nevada	1,134	694	62	48	100.0%	99.9%	2.6	3.9
Orange	21,557	12,105	1,573	908	100.0%	100.0%	0.7	1.4
Placer	2,571	1,320	215	183	100.0%	100.0%	2.6	3.9
Plumas	435	321	11	13	85.7%	68.5%	13.1	21.8
Riverside	16,367	9,536	600	303	98.8%	98.8%	3.1	5.6
Sacramento	14,363	6,924	572	415	100.0%	100.0%	1.4	2.3
San Benito	754	486	26	25	99.9%	99.4%	2.9	5
San Bernardino	18,615	9,999	610	268	99.7%	97.4%	2.2	5.3
San Diego	26,326	14,530	1,185	703	99.8%	99.7%	1.7	2.9
San Francisco	5,575	2,308	457	250	100.0%	100.0%	0.5	0.9
San Joaquin	8,115	4,557	296	208	100.0%	100.0%	2.1	3.4
San Luis Obispo	2,711	1,854	138	138	99.7%	99.2%	2.2	3.8
San Mateo	5,510	2,238	294	213	100.0%	100.0%	1	1.8
Santa Barbara	5,236	3,517	192	140	100.0%	99.8%	2.5	4.3
Santa Clara	13,577	6,069	813	665	100.0%	100.0%	1.1	2
Santa Cruz	3,707	2,317	180	175	100.0%	100.0%	1.8	2.7
Shasta	2,838	1,871	145	148	98.8%	93.7%	3.2	5.8
Sierra	60	40	1	-	100.0%	92.5%	20.1	22.9
Siskiyou	675	491	27	20	85.3%	87.0%	14.4	16.8
Solano	4,732	2,004	132	108	100.0%	100.0%	1.8	3.4
Sonoma	7,485	3,978	295	238	100.0%	100.0%	1.7	3.1
Stanislaus	7,688	4,803	257	213	100.0%	100.0%	2.4	4

Appendix D: Distribution of Workers and WC Specialty Physicians/Access to WC Specialty Physicians (All California Counties 2004 & 2005 ICIS Samples)

	Number of Injured Workers		Number of Specialists		Percent w/in 30 mile Access Standard		Average Distance to 1st 3 Providers (miles)	
	2004	**2005**	**2004**	**2005**	**2004**	**2005**	**2004**	**2005**
Sutter	1,373	845	39	38	100.0%	100.0%	3.1	3.5
Tehama	919	658	37	25	99.7%	99.7%	3.9	8.7
Trinity	183	100	1	3	47.5%	58.0%	31.8	31.6
Tulare	7,493	5,312	142	98	100.0%	100.0%	4	6.8
Tuolumne	717	512	34	40	99.2%	98.8%	4.5	5
Ventura	9,301	6,220	429	298	100.0%	100.0%	2	3.1
Yolo	1,816	1,011	38	30	100.0%	100.0%	3.8	5.7
Yuba	1,023	677	10	8	100.0%	100.0%	3.7	4.9
Total:	**348,982**	**196,381**	**15,447**	**10,255**	**99.6%**	**99.1%**	**2.3**	**3.9**

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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.

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