



# Spotlight Report

## Inpatient Hospital Utilization in California Workers' Compensation: 2008 - 2014

By Stacy Jones

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### Background/Objective

Inpatient hospitalizations historically account for a only a small share of California workers' compensation medical services, but by their very nature these services represent treatment that is intended to address more serious injuries or illnesses. In a December 2014 study CWCI used data compiled by the state on 21.5 million inpatient stays with 2008 to 2013 discharge dates to measure and compare the volume and distribution of specific hospital inpatient services and procedures paid by California workers' compensation to those paid under Medicare, Medi-Cal and private coverage plans. The study noted that over that six-year span the number of inpatient hospital discharges fell for all four payer categories, with the greatest reductions noted in hospitalizations covered by private insurance (16.7 percent) and workers' compensation (15.6 percent).<sup>1</sup>

The 2014 study also documented a declining number of spinal fusions in workers' compensation, even as these procedures were becoming more prevalent among patients covered by Medicare (+38.6 percent) and Medi-Cal (+29.5 percent).<sup>2</sup> An analysis of Medicare and Medi-Cal enrollment and cost trends was outside the scope of the study, but it should be noted that with the introduction of the Affordable Care Act (ACA) and the absorption of other programs covering minors, Medi-Cal enrollment increased by more than half in fiscal year 2012-2013.<sup>3</sup> At the conclusion of the 2014 study Jones and David posited that the trend of decreasing implant-eligible spinal surgeries in workers' compensation would continue due to the elimination of separate reimbursements for implantable devices under the California workers' compensation Inpatient Hospital Fee Schedule. This report revisits the issue of inpatient hospitalizations in California using information from service year 2014 to generate updated data that identifies:

- The distribution of inpatient hospital discharges across payer groups.
- The total volume of inpatient discharges by payer group.
- The top 10 Medicare severity-adjusted inpatient diagnosis-related group codes (MS-DRGs) used to describe workers' compensation inpatient discharges.
- Carve-out data analyzing the volume of discharges for spinal fusion surgery.
- Average charge and payment data for the top 10 workers' compensation MS-DRGs.

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1. Jones, S. and David, R. *Inpatient Utilization in the California Workers' Compensation System*. CWCI Research Update, December 2014.

2. *ibid*

3. Graves, S. *Medi-Cal and the Governor's Proposed 2015-16 Budget: Health Care Reform Boosts Enrollment and Federal Funding*. California Budget & Policy Center. January 23, 2015.

## Data and Methods

For this study the author used discharge data obtained from the California Office of Statewide Health Planning and Development (OSHPD)<sup>4</sup> for calendar year 2014 inpatient discharges. The public-use database compiled by OSHPD includes detailed information submitted under the Health Data and Advisory Council Consolidation Act by health care facilities providing inpatient services in California. The data is grouped by service year and includes patient characteristics (age, gender, type of health plan) and hospitalization information (MS-DRG, major diagnosis and procedure codes, length of stay and charges), as well as hospital information (name, identification number and location by county).

The 2014 OSHPD discharge data was used in conjunction with the service year 2008 to 2013 OSHPD data that was analyzed in CWCI's December 2014 study. As in the prior study, the data was sorted by payer category (Medicare, Medi-Cal, private coverage and workers' compensation). Approximately 6 percent of all inpatient discharges in California fell into payer categories other than the four analyzed in this report (e.g., self-pay, other government, etc.), but each of those other sub-categories represented a very small proportion of discharges, so those records were excluded from the analysis.

The resulting data set included a total of 3,562,963 inpatient discharges for calendar year 2014 reported by 448 different California hospitals. There were 755 different MS-DRG codes used to describe the inpatient hospitalizations. Among those 755 MS-DRGs were 14 codes for implant-eligible spinal surgeries, which were categorized into two groups:

1. surgeries related to the nervous system which do not always involve vertebral fusion (MS-DRGs 028, 029 and 030); and
2. musculoskeletal spinal disorders which do involve vertebral fusion (MS-DRGs 453, 454, 455, 456, 457, 458, 459, 460, 471, 472 and 473).

While the OSHPD data includes detailed information submitted by the hospitals, it does not include payment information, so to identify the payments associated with MS-DRGs and hospitals, the author extracted discharge data from CWCI's Industry Research Information System (IRIS) database.<sup>5</sup> The IRIS database does not include every discharge record represented in the OSHPD data, but comparisons of charge data between the two systems showed little difference for the sampled MS-DRGs.

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4. OSHPD Patient Discharge Data File (<http://www.oshpd.ca.gov/>)

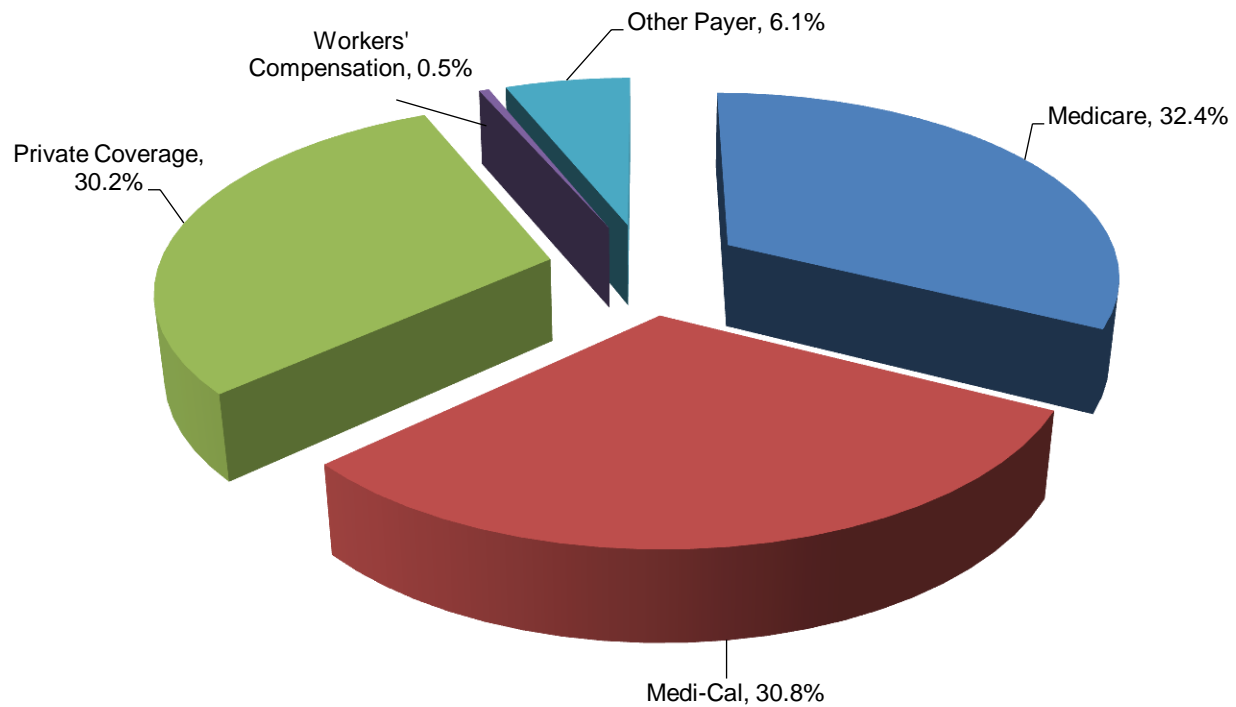
5. The IRIS database is a proprietary database maintained by CWCI that contains detailed information, including employee and employer characteristics, medical service data, and benefit and other administrative cost detail on more than 4 million California workers' compensation claims.

## Results

### Distribution and Volume of Inpatient Discharges by Payer Groups

The distribution of inpatient discharges by payer category for service year 2014 aligns closely with the aggregated distribution for the 2008 – 2013 discharges, with workers' compensation representing 0.5 percent of total discharges as shown in Exhibit 1. For comparison, the 2008–2013 distribution showed Medicare accounted for 32.4 percent of all inpatient hospitalizations; Medi-Cal 26.1 percent; private coverage 32.5 percent; other payers 8.5 percent, and workers' compensation 0.6 percent.<sup>6</sup>

**Exhibit 1: Distribution of 2014 Inpatient Hospital Discharges by Payer**



6. Jones, S. and David, R. *Inpatient Utilization in the California Workers' Compensation System*. CWCI Research Update, December 2014.

Exhibit 2 shows the total volume of discharges by payer category for 2008 – 2014. The data reveal an overall decline in the number of discharges for each payer group except Medi-Cal, where the number of inpatient hospitalizations rose 13.6 percent over the seven-year period, with nearly all of the Medi-Cal growth coinciding with the rollout of many of the ACA programs and provisions in 2014 and the absorption of California’s Healthy Families Program into Medi-Cal.<sup>7</sup> Over the 7-year span of the study, workers’ compensation registered the biggest percentage decline in the number of hospital inpatient discharges (-22.8 percent), followed by private coverage plans (-17.8 percent).

Workers’ compensation also registered the biggest decline in hospital stays in the most recent year, with the number of workers’ compensation inpatient discharges dropping by 8.6 percent between 2013 and 2014, while the number of Medicare discharges fell 2.4 percent, the number of private coverage hospitalizations fell 1.3 percent, and the number of inpatient discharges paid under Medi-Cal increased 16.8 percent.

<b>Discharge Year</b>	<b>Medicare</b>	<b>Medi-Cal</b>	<b>Private Coverage</b>	<b>Workers' Comp</b>
<b>2008</b>	1,250,549	1,027,877	1,397,452	24,093
<b>2009</b>	1,256,097	1,036,376	1,351,040	22,410
<b>2010</b>	1,286,035	1,035,387	1,288,686	22,416
<b>2011</b>	1,285,300	1,022,199	1,257,356	22,165
<b>2012</b>	1,267,634	1,013,248	1,222,199	21,532
<b>2013</b>	1,257,843	1,000,269	1,163,669	20,336
<b>2014</b>	1,227,999	1,167,930	1,148,441	18,593
<b>2008 - 2014 Net Change</b>	-1.8%	13.6%	-17.8%	-22.8%
<b>2013 - 2014 Change</b>	-2.4%	16.8%	-1.3%	-8.6%

7. In 2012 state policymakers decided to eliminate the Healthy Families Program (HFP), and by November 2013, California had shifted hundreds of thousands of low-income and moderate-income children who previously received health, vision, and dental care through the HFP into Medi-Cal. As a result, more than 900,000 children who otherwise would have been enrolled in the HFP now receive services through Medi-Cal.

### Predominant Discharge Types in Workers' Compensation

Using the MS-DRG codes included in the OSHPD data, the author identified the most prevalent diagnostic categories associated with the inpatient hospital discharges for the different payer groups. There was little overlap in the top 10 MS-DRGs between workers' compensation and other payer groups – MS-DRG 470 ranked number one in workers' compensation, second under Medicare and sixth under private coverage. Patient population differences are apparent in the predominant services for each payer group, where 6 of the top 10 MS-DRGs under private coverage and Medi-Cal were related to childbirth. Inpatient hospitalizations for psychoses were predominant in each of the payer groups except workers' compensation.

The top 10 MS-DRGs for California workers' compensation payers in 2014, shown in Exhibit 3, represented 46.7 percent of their total inpatient discharges for the year, which was down slightly from 48.5 percent in 2013, as spinal fusions, cervical fusions, and back and neck procedures except spinal fusions without complications or comorbidities all accounted for a declining share of workers' compensation hospital stays. The remaining 53.3 percent of the 2014 workers' hospitalizations were spread across 542 other MS-DRGs. Although the top 10 MS-DRGs under private coverage and Medicare showed a different mix of discharges than workers' compensation, they accounted for a similar proportion of the discharges for those payers (47.4 percent and 46.4 percent, respectively). On the other hand, the MS-DRGs found in Medicare were far less concentrated than in the other systems, with the top 10 representing 26.7 percent of total Medicare discharges.

<b>Exhibit 3: Top 10 Workers' Compensation MS-DRG Discharges</b>			
<b>MS-DRG</b>	<b>Description</b>	<b>2013 Pct of Total WC</b>	<b>2014 Pct of Total WC</b>
470	Major joint replacement or reattachment of lower extremity w/o MCC <sup>8</sup>	13.1%	14.5%
460	Spinal fusion except cervical w/o MCC	10.1%	9.4%
473	Cervical spinal fusion w/o CC <sup>9</sup> /MCC	5.9%	5.6%
491	Back & neck procedure except spinal fusion w/o CC/MCC	6.9%	4.6%
945	Rehabilitation w CC/MCC	2.7%	2.8%
494	Lower extremity & humerus procedure except hip, foot, femur w/o CC/MCC	2.5%	2.5%
552	Medical back problems w/o MCC	1.8%	2.1%
455	Combined anterior/posterior spinal fusion w/o CC/MCC	1.9%	1.8%
603	Cellulitis w/o MCC	1.5%	1.7%
490	Back & neck procedure except spinal fusion w CC/MCC or disc device/neurostimulator	2.1%	1.5%
<b>Cumulative Percentage</b>		<b>48.5%</b>	<b>46.7%</b>

8. MCC: major complications or comorbidities

9. CC: complications or comorbidities

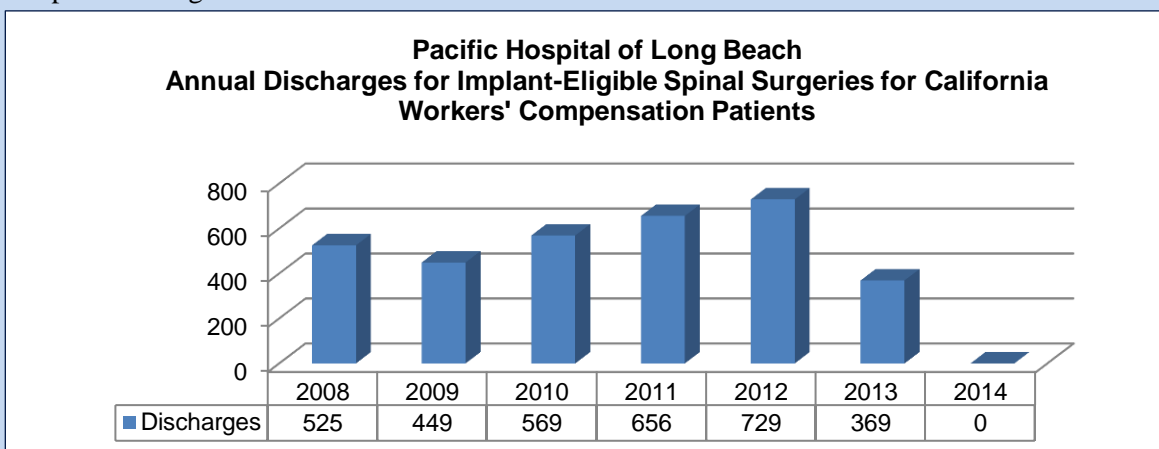
Though the volume of implant-eligible spinal surgeries in workers' compensation has decreased over time, with the biggest drop coinciding with the sale of the scandal-plagued Pacific Hospital of Long Beach (see sidebar), Exhibit 4 shows that these discharges have represented a fairly stable share of all discharges within each payer group. In 2014, 21.2 percent of workers' compensation discharges were for implant-eligible spinal surgeries, which is within the 21.0 to 23.2 percent range seen in the 7-year study period.

**Exhibit 4: Volume of Discharges for Implant-Eligible Spinal Surgeries and Implant-Eligible Spinal Surgeries as a Percent of All Discharges by Payer Group**

Discharge Year	Medicare	Medi-Cal	Private Coverage	Workers' Comp
2008	10,749 (0.9%)	2,108 (0.2%)	16,106 (1.2%)	5,070 (21.0%)
2009	12,093 (1.0%)	2,227 (0.2%)	16,784 (1.2%)	4,866 (21.7%)
2010	12,670 (1.0%)	2,417 (0.2%)	16,787 (1.3%)	5,193 (23.2%)
2011	13,402 (1.0%)	2,479 (0.2%)	16,240 (1.3%)	4,999 (22.6%)
2012	14,246 (1.1%)	2,593 (0.3%)	16,412 (1.3%)	4,978 (23.1%)
2013	14,903 (1.2%)	2,730 (0.3%)	16,175 (1.4%)	4,559 (22.4%)
2014	15,714 (1.3%)	3,956 (0.3%)	15,844 (1.4%)	3,938 (21.2%)
'08 – '14 Net Change	46.2%	87.7%	-1.7%	-22.3%

**The Pacific Hospital of Long Beach and Workers' Compensation Spinal Surgeries**

Changes in business models adopted by hospitals sometimes affect the inpatient discharge distributions. The most high-profile example is the Pacific Hospital of Long Beach, which prior to a series of scandals related to implantable hardware used in back surgeries (including a 2013 Wall Street Journal exposé),<sup>10</sup> had been the number one hospital in California for workers' compensation spinal fusions. Following the media exposure and the indictment of the former head of the hospital, it was sold to College Health Enterprises in October 2013, which led to an overhaul of its operations. As a result, the hospital now focuses on treating low-income patients rather than injured workers. The chart below shows the inpatient discharge trend for workers' compensation implant-eligible spinal surgeries at the Pacific Hospital of Long Beach before and after it was sold.



10. Carreyrou, J. *Kickbacks Alleged at Spine Hospital*. The Wall Street Journal, April 16, 2013.

Exhibit 5 compares the percent change in the volume of all MS-DRGs and spinal fusion MS-DRGs between 2013 and 2014 for Medicare, Medi-Cal, private coverage and workers' compensation. Workers' compensation payers experienced the biggest declines, with an overall decrease of 8.6 percent in all inpatient discharges and a 13.6 percent decrease in discharges for spinal fusions. This continues the downtrend in inpatient discharges in general and in spinal fusion discharges in particular, that were discussed by Jones and David in their 2014 study.

**Exhibit 5: Percent Change in Implant-Eligible Discharges and Total Discharges by Payer Group (2013 to 2014)**

<b>Discharge Year</b>	<b>Medicare</b>	<b>Medi-Cal</b>	<b>Private Coverage</b>	<b>Workers' Comp</b>
Spinal Fusion MS-DRGs	5.4%	44.9%	-2.0%	-13.6%
All MS-DRGs	-2.4%	16.8%	-1.3%	-8.6%

Although the January 1, 2014 repeal of the pass-through payments that had allowed separate reimbursement for implantable hardware used in spinal fusions reduced hospital payments for this subset of surgical discharges, the California Workers' Compensation Inpatient Hospital Fee Schedule allowances for spinal fusions continue to exceed those allowed by Medicare and Medi-Cal – the only payer groups that are experiencing an increase in implant-eligible spinal surgeries.

### Average Charges and Payments for the Top 10 Workers' Comp Inpatient Hospitalizations

Using payment data extracted from the IRIS database the author calculated the average amounts paid for the 10 most common hospital inpatient discharges in California workers' compensation. Exhibit 6 shows the average charged amounts based on the OSHPD data, and the average paid amounts based on the IRIS data for the top 10 California workers' compensation MS-DRGs in 2014.

MS-DRG 945 represents inpatient rehabilitation services, which are not covered by a California workers' compensation fee schedule and therefore have the lowest reduction from billed charges. The differences between the average charged and the average paid amounts noted in the table reflect a combination of fee schedule reductions and PPO reductions, and are consistent with historical values.

<b>Exhibit 6: Average Charged and Paid Amount: Top 10 2014 California Workers' Compensation Inpatient Discharges by MS-DRG</b>			
<b>MS-DRG</b>	<b>Description</b>	<b>Average Charge</b>	<b>Average Paid</b>
470	Major joint replacement or reattachment of lower extremity w/o MCC	\$ 93,356	\$24,067
460	Spinal fusion except cervical w/o MCC	\$161,469	\$42,292
473	Cervical spinal fusion w/o CC/MCC	\$ 96,878	\$22,941
491	Back & neck procedure except spinal fusion w/o CC/MCC	\$ 60,503	\$13,147
945	Rehabilitation w CC/MCC	\$ 91,919	\$88,978
494	Lower extremity & humerus procedure except hip, foot, femur w/o CC/MCC	\$ 77,532	\$17,190
552	Medical back problems w/o MCC	\$ 42,136	\$11,413
455	Combined anterior/posterior spinal fusion w/o CC/MCC	\$250,609	\$22,941
603	Cellulitis w/o MCC	\$ 32,418	\$ 9,078
490	Back & neck procedures except spinal fusion w CC/MCC or disc device/neurostimulator	\$ 95,089	\$26,013

### Average Length of Stay

Exhibit 7 compares the average durations of the 2014 inpatient hospitalizations for each of the four payer groups, using the top 10 workers' compensation MS-DRGs for the comparison. The average length of stay varies little between private coverage patients and workers' compensation patients, but the average length of stay for Medi-Cal patients is often considerably longer, likely a result of overall poorer health among this patient population when compared to the health of injured workers.

<b>Exhibit 7: Average Length of Stay (in Days) by Payer Group: Top 10 2014 California Workers' Compensation Inpatient Hospital Discharges</b>				
<b>MS-DRG</b>	<b>Medicare</b>	<b>Medi-Cal</b>	<b>Private Coverage</b>	<b>Workers' Compensation</b>
470	3.3	3.8	2.9	3.0
460	4.0	5.1	3.7	3.8
473	2.3	3.0	1.9	1.8
491	2.4	2.8	1.9	1.8
945	20.0	57.0	18.6	17.9
494	2.9	2.7	2.3	2.5
552	3.8	9.2	3.1	3.2
455	4.2	4.7	4.0	4.1
603	4.7	4.7	5.1	3.8
490	4.3	6.7	3.5	3.2
<b>Weighted Average</b>	<b>4.4</b>	<b>7.4</b>	<b>3.9</b>	<b>3.8</b>

### Summary

The most recent statewide data from OSHPD shows the number of inpatient hospital discharges has continued to decline across all major payer groups with the exception of Medi-Cal, where enrollment surged following the adoption of the health care mandate included in the Affordable Care Act and the absorption of the Healthy Families Program. Among the four payer systems included in this study, the greatest percentage decline in inpatient hospitalizations was in workers' compensation, where the number of inpatient discharges declined 8.5 percent in the most recent year, and 22.8 percent over the 7-year span of the study. The declining volume in workers' compensation hospitalizations was noted across all of the major diagnostic categories, so the top 10 MS-DRGs showed little change, with medical and surgical back and lower extremity surgical procedures accounting for eight of the top 10 procedures; and rehabilitation and cellulitis rounding out the top 10 workers' compensation inpatient discharges.

The Institute's 2014 Inpatient Utilization study suggested that the 8.4 percent reduction in the number of implant-eligible spinal surgeries noted in 2013 would continue in 2014, and that has been the case, as the latest figures show a year-over-year decline of 13.6 percent from 2013 to 2014. Independent Medical Review (IMR) also was implemented in 2013 as part of the SB 863 reform package and is likely an additional factor in the decline of this type of surgery. Future research on spinal fusion trends and the utilization review and IMR process will enable us to analyze this, as well as other factors that may have contributed to the decline in implant-eligible spinal surgeries.

Despite warnings to the contrary, the elimination of the allowances for separate pass-through payments for spinal fusion implants from the Inpatient Hospital Fee Schedule does not appear to have resulted in an access issue for injured workers who need this type of surgery. The 2014 data shows that there are several hospitals with reported inpatient discharges for workers' compensation patients where 74 percent to 100 percent of their workers' compensation discharges are for spinal fusions. Access to care is also evidenced by the relative stability in the proportion of spinal fusion discharges to total discharges across time, as was shown in Exhibit 4.

### Key Findings

- California workers' compensation inpatient hospitalizations declined 8.6 percent between 2013 and 2014. In contrast, much smaller reductions in the number of inpatient hospital discharges were noted in Medicare (2.4 percent) and under private coverage (1.3 percent), while Medi-Cal hospitalizations increased by 16.8 percent as the number of Medi-Cal enrollees expanded dramatically under the ACA and following the absorption of the Healthy Families Program.
- MS-DRG 470, the code for a major joint replacement or reattachment of a lower extremity continues to be the highest volume inpatient hospital discharge in California workers' compensation.
- Medical back problems (8.2 percent of total) and spinal fusions (16.8 percent of total) continue to account for six of the top 10 workers' compensation discharges in California.
- The number of workers' compensation implant-eligible spinal surgeries declined 8.4 percent in 2013 and 13.6 percent in 2014.
- Although the number of workers' compensation implant-eligible spinal surgeries has declined, spinal fusions as a proportion of all workers' compensation inpatient hospitalizations has shown little change. Over the 7-year span of the study, MS-DRGs for implant-eligible spinal surgeries have ranged between 21.0 percent and 23.2 percent of all workers' compensation inpatient discharges, and in 2014 they accounted for 21.2 percent.

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### California Workers' Compensation Institute

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. Institute members include insurers that collectively write more than 70 percent of California workers' compensation direct written premium, as well as many of the largest public and private self-insured employers in the state. Additional information about CWCI research and activities is available on the Institute's website ([www.cwci.org](http://www.cwci.org)).

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