A REPORT TO THE INDUSTRY

Are Formularies a Viable Solution for Controlling Prescription Drug Utilization and Cost in California Workers' Compensation?

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For more than a decade, prescription drug payments have been one of the fastest growing California workers' compensation medical benefits. Recent figures indicate that the trend is continuing. Average first-year prescription drug payments on a California work injury claim rose 28 percent between accident year 2012 and 2013, and prescription drug payments in 2013 comprised about one out of every eight medical benefit dollars paid on a claim. As workers' compensation prescription drug payments have increased, state lawmakers, regulators, and other stakeholders have taken notice and made various attempts to improve the delivery of pharmacy benefits, assure quality of care, and contain costs.

This analysis tests the viability of using drug formularies to manage workers' compensation pharmacy benefits by modeling the potential effect of applying a choice of inclusive and exclusive formularies to current pharmaceutical utilization and cost levels. In conducting this research, the authors used a large database of 1.6 million prescriptions provided to California injured workers in 2012 and 2013. The results show that additional controls provided by formularies currently in use in Texas and Washington State could reduce total pharmaceutical payments in the California workers' compensation system by an estimated 12 percent to 42 percent, or $124 – $420 million. Potential savings may in fact be greater, as the analysis did not account for any reductions in the absolute volume of prescriptions, nor did it estimate savings from reduced levels of affiliated services such as drug testing or reduced medical dispute resolution expenses for utilization review and independent medical review. Though formularies currently are used in the system, a mandated formulary would require formal adoption by statute or regulation.

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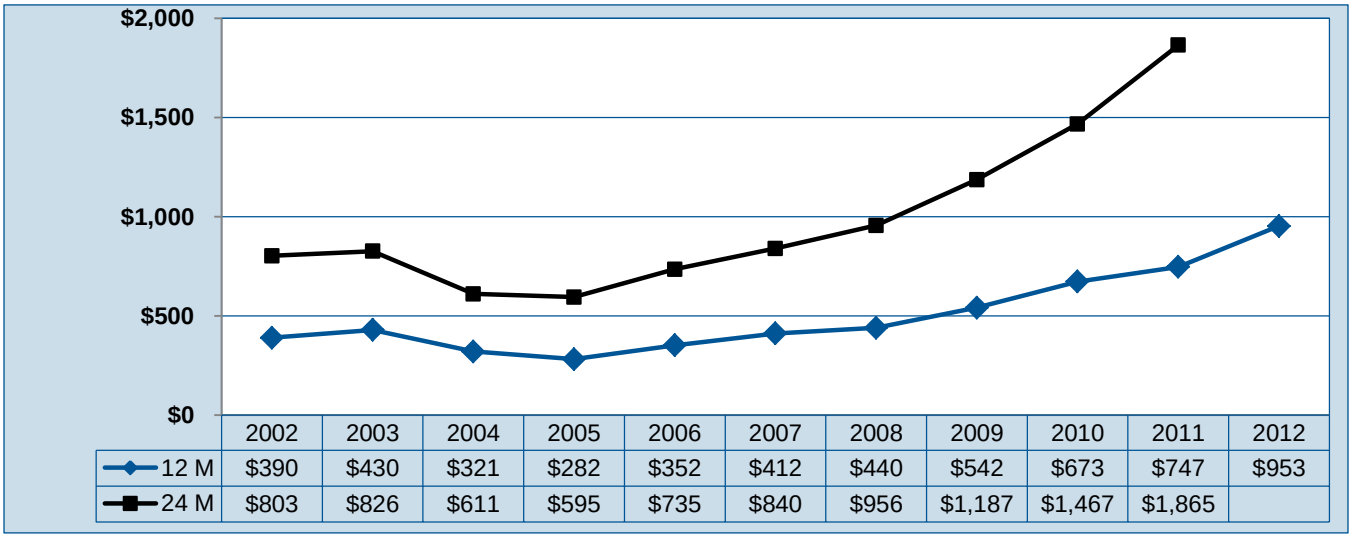
BACKGROUND

The increased use of prescription drugs to treat injured workers, and the associated cost of those drugs, have created growing concern within the California workers' compensation system and in other workers' compensation programs. The various stakeholders each have specific needs and concerns. Injured workers require access to appropriate medication to cure and relieve the effects of their work injuries and illnesses. Employers and payors seek to prevent unnecessary or deleterious treatment and assure the use of proven therapies that conform to evidence-based medicine guidelines, which in turn helps control costs. State regulators establish rules and regulations that augment evidence-based medicine guidelines and fee schedules. Physicians prescribe drugs based on a combination of science, education, medical practice customs, regulations and economic incentives.

Over the past 12 years, public policymakers in California have made several attempts to curb the growth in prescription drug expenditures. In 2002, state lawmakers passed AB 749, which included provisions to modify the delivery of pharmacy benefits and slow the escalating cost of prescription drugs used to treat injured workers. In January 2004, the Division of Workers' Compensation adopted a pharmacy fee schedule that capped maximum reimbursements for pharmacy services and drugs at 100 percent of Medi-Cal rates, which at the time were at least 10 percent below the average wholesale price (AWP) for prescription drugs, plus a dispensing fee. However, these legislative and regulatory adjustments, which focused on unit price controls, were only partially successful in containing the growth in workers' compensation prescription drug costs. Following the full implementation of the 2002-2004 reforms, California workers' compensation pharmacy costs began to rise again, with the average amount paid for pharmaceuticals on an indemnity claim within the first two years of injury tripling between accident years 2005 and 2012.[1]

Exhibit 1: Average Pharmaceutical Payment Per Indemnity Claim at 12 and 24 Months Post Injury[2]



	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
12 M	$390	$430	$321	$282	$352	$412	$440	$542	$673	$747	$953
24 M	$803	$826	$611	$595	$735	$840	$956	$1,187	$1,467	$1,865	

1 Ireland, J., Swedlow, A., Gardner, L. Analysis of Medical and Indemnity Benefit Payments, Medical Treatment and Pharmaceutical Cost Trends in the California Workers' Compensation System. CWCI, July 2014.

2 CWCI 2014 Claims Monitoring Study Claims Monitoring Report: Analysis of Medical and Indemnity Benefit Payments, Medical Treatment and Pharmaceutical Cost Trends in the California Workers' Compensation System. July 2014.

Multiple factors explain the rapid increase in pharmaceutical costs, including the expanding availability and array of drugs used to treat injured workers. Most alarming has been the dramatic increase in the use of pain management therapies, including Schedule-II opioids, which have become commonplace even in the treatment of relatively minor injuries.[3,4,5] In addition, prior to 2007, repackaged drugs dispensed from a physician's office were often paid according to a prior 2003 Official Medical Fee Schedule that set maximum prices at 140 percent of the AWP for generic drugs, and 110 percent of the AWP for brand drugs plus a dispensing fee, resulting in reimbursements well beyond levels established in 2004. This differential pricing paid physicians who dispensed repackaged drugs directly from their offices 500 percent more[6] than pharmacies for the same medications, or even more. By 2006, repackaged drugs dispensed by doctors accounted for more than half of all workers' compensation prescriptions dispensed in California, and nearly 60 percent of all workers' compensation prescription dollars. In April 2007, the Division of Workers' Compensation responded by revising the pharmacy fee schedule which, as of March of that year, largely eliminated the differential pricing. The effect was immediate, as both the volume of repackaged drugs and the amounts paid for these medications plummeted, declining more than 90 percent by 2013.[7]

Other examples show how nimble pharmaceutical manufacturers and distributors have been in responding to legislation. After the repackaged drug regulations took effect, some manufacturers began promoting compound drugs, medical foods and convenience packs (or "co-packs") that included prescription medications and "medical foods" to California workers' compensation medical providers. Ireland (2010) found that between the first quarter of 2006 and the first quarter of 2009, total payments for these products increased from 2.3 percent to 12.0 percent of all pharmaceuticals in the California workers' compensation system.[8] In 2012, lawmakers enacted AB 378 to cap the mark-up on the ingredients in compound drugs dispensed from physicians' offices. But subsequent research found that this change was followed by an increase in the average number of ingredients per compound drug and the use of higher cost ingredients, which led to a 68 percent increase in the average cost per compound drug between 2012 and 2013.[9] As pain management therapies have become more prevalent throughout workers' compensation, and as efforts to rein in their use have increased, other ancillary issues have surfaced. For example, a 2012 study found that drug testing had become a significant cost driver in workers' compensation.[10]

In 2009, the Division of Workers' Compensation added chronic pain medical treatment guidelines to the workers' compensation Medical Treatment Utilization Schedule (effective July 19, 2009). Initially, it was hoped that these guidelines would curb the use of opioids to treat chronic pain in workers' compensation, which had even become

3 Swedlow, A., Gardner, L., Ireland, J., Genovese, E. Pain Management and the Use of Opioids in the Treatment of Back Conditions in the California Workers' Compensation System. Report to the Industry. CWCI. June 2008.

4 Swedlow, A., Ireland, J., Johnson, G. Prescribing Patterns of Schedule II Opioids in California Workers' Compensation. Research Update, CWCI. March 2011

5 Ireland, J., Young, B., Swedlow, A. Part 1: Schedule II & Schedule III Opioids: Prescription and Payment Trends in California Workers' Compensation. CWCI Research Update. June 2014

6 Neuhauser, F., Swedlow, A.,Wynn, B. Impact of Physician-Dispensing of Repackaged Drugs on California Workers' Compensation, Employers Cost, and Workers' Access to Quality Care. Commission on Health and Safety and Workers' Compensation. July 2006

7 Ireland, J., Swedlow, A., Gardner, L. Analysis of Medical and Indemnity Benefit Payments, Medical Treatment and Pharmaceutical Cost Trends in the California Workers' Compensation System. California Workers' Compensation Institute. July 2014.

8 Ireland, J., & Swedlow, A.. The Cost and Utilization of Compound Drugs, Convenience Packs, and Medical Foods in California Workers' Compensation CWCI Research Notes: California Workers' Compensation Institute. (August 2010)

9 Swedlow, A., Auen, E. Current Trends in Compound Drug Utilization and Cost in the California Workers' Compensation System. CWCI Research Note. February 2013.

10 Swedlow, A., Young, B. Drug Testing Utilization and Cost Trends in California Workers' Compensation. CWCI Research Note, May 2012.

prevalent in cases involving relatively minor injuries such as sprains and strains where their use is not supported by clinical evidence. After the chronic pain treatment guidelines were finalized, however, there was concern in the workers' compensation community that they had been compromised by an ambiguous definition of chronic pain ("any pain that persists beyond the anticipated time of healing"). In addition, the pain management guidelines often lacked explicit recommendations and limits on opioid use, and were based on evidence and rating standards that conflicted with existing guidelines, so many claims administrators and pharmacy benefit managers believed that, contrary to their intent, the guidelines had lowered the threshold for opioid use, and that the number of claims involving these drugs would increase. A recent study confirmed that in 2009 and 2010, following adoption of the pain management guidelines, opioids as a percentage of California workers' compensation prescriptions did increase, and that after that increase, use of highly addictive and highly potent Schedule II drugs such as oxycontin, morphine and fentanyl, along with less potent, yet still potentially addictive Schedule III drugs (primarily Vicodin), remained at record levels from 2010 through the first half of 2013, with these drugs accounting for 26 to 28 percent of California workers' compensation prescriptions during that 3.5 year span.[11]

The California workers compensation system's experience is not unique, as research on other jurisdictions has documented similar patterns, as well as significant variation across jurisdictions.[12,13] As the number of injured workers who have become dependent on prescription opioids or died from overdoses of these drugs has increased, there has been growing concern among employers and other workers' compensation stakeholders about the long-term effects, costs and liabilities associated with these medications. Research spotlighting the dangers and costs related to the overuse and abuse of these medications has garnered the attention of the press, as well as state and federal regulators and legislators. This has fueled the debate surrounding the appropriate use of opioids and other therapeutic groups, such as psychotropics, in the treatment of workplace injuries. Concerns center on the efficacy and appropriateness of these drugs for the treatment of chronic pain, the long-term repercussions for injured workers who take them, the need for tighter controls, and the importance of physician education, monitoring programs and medical dispute resolution processes, such as utilization review and independent medical review.

In light of such concerns, various stakeholders in California have engaged in ongoing discussions about strengthening the state's prescription drug monitoring program (PDMP) to better monitor controlled substances such as Schedule II pharmaceuticals, and to provide doctors and pharmacists with quicker access to a patient's prescription drug history to identify and stop aberrant prescribing, doctor shopping and general abuse. California's PDMP is an internet-based tracking system known as the Controlled Substance Utilization Review and Evaluation System (CURES). Current regulations require doctors and pharmacies to report to CURES upon dispensing a controlled substance, but the program is limited in that medical providers are not required to check CURES before prescribing controlled substances, and third parties, including workers' compensation claims administrators or their agents, are not allowed access to CURES data to better manage the use of these drugs, even

11 Ireland, J., Young, B., Swedlow, A., Schedule II and Schedule III Opioids: Prescription and Payment Trends in California Workers' Compensation. CWCI, May 2014.

12 Wang, D., Mueller, K., Hashimoto D., Chen, J. Interstate Variations in Use of Narcotics. WC-11-01 WCRI, July 2011.

13 Laws, C. Narcotics in Workers' Compensation. NCCI Research Brief. May 2012.

though Institute research suggests that this access could significantly reduce inappropriate utilization and generate significant system-wide cost reductions.[14]

Formularies: A Viable Solution?

One approach to better managing the utilization and cost of prescription drugs in workers' compensation that is gaining attention from state regulators is to leverage an additional control that is common to group health plans and Medicare: the use of pharmaceutical formularies. Formularies are lists of approved drugs that define the scope, and in some cases, limit the variability in prices for specific therapeutic drug categories. Formularies can range from the inclusive, those which have extensive approved drug listings, to the more exclusive, those with fewer approved drugs. Some formularies allow wider choice of brand drugs, while others are more selective when generic substitutes are available. Three jurisdictions that currently have state-mandated workers' compensation formularies in place are Texas, Washington and Ohio, and many workers' compensation payors throughout the country use pharmacy benefit management organizations, which also use formularies.

Why consider a formulary? Both Texas and Washington adopted formularies in response to sustained, double-digit growth in their workers' compensation prescription drug costs. The Texas formulary was phased in beginning in September 1, 2011, with initial implementation for new injuries and subsequent expansion to legacy claims. It had an immediate impact. In the first year, non-formulary drug payments fell by 82 percent (from 17 percent to 4 percent of total drug expenditures) and the number of prescriptions fell 74 percent.[15] Washington implemented its formulary in 2004, and it, along with other measures, also had a significant effect on the utilization and cost of workers' compensation prescription drugs in that state. A 2011 Workers' Compensation Research Institute (WCRI) study found average prescription payments per claim in Washington were 40 percent below the median of 17 states.[16] According to WCRI, this was due to lower drug prices in Washington, which they attribute to several state programs and policies: a pharmacy fee schedule; mandatory generic substitution; and the formulary, which mandated substitution of generic alternatives when no generic equivalents are available. The WCRI study included benchmark data on prescription payments from California's insured population, which exceeded the median prescription payment per claim of the 17 states by 80 percent.

In California, efforts to control workers' compensation prescription drug utilization and costs have followed a somewhat different path. As noted earlier, in 2002, the Legislature enacted AB 749, which included provisions permitting claims administrators to use pharmacy benefit networks (PBNs) and pharmacy benefit managers (PBMs) to administer the delivery of medically necessary pharmaceuticals and medical supplies to injured workers (Labor Code §4600.2). Pharmacy networks may rely on specific drug formularies to manage the delivery of drugs and medical supplies, which impacts the drugs that are used and the amounts reimbursed, as the statute requires injured workers to use the pharmacy network, and payors are only liable for the network or contract rate for the reimbursement of pharmaceuticals.

14 A CWCI analysis, "Estimated Savings from Enhanced Opioid Management Controls Through Third Party Payer Access to CURES," published in January 2013, estimated that for accident year 2011 claims alone, allowing workers' compensation payors access to CURES data would have reduced paid losses by $57.2 million.

15 Texas Department of Insurance (TDI), Impact of the Texas Pharmacy Closed Formulary, A preliminary Report Based on 12-month Injuries with 12-month Services, March 2014, Workers' Compensation Research and Evaluation Group.

16 Wang, D., Liu, T. Prescription Benchmarks for Washington. Workers' Compensation Research Institute 2011, ISBN 978-1-935325-96-3.

Additional pharmaceutical controls that are also currently available in the California system include provisions within Labor Code §4600.1 that requires pharmaceutical dispensers to provide the generic drug equivalent unless a generic drug is unavailable or the prescribing physician specifies in writing that a non-generic drug must be dispensed. The claims administrator pays for dispensed medications in accordance with the Official Medical Fee Schedule, or the contract rate, if any.

While the treating physician is free to prescribe the necessary medications, the drugs must be consistent with the Medical Treatment Utilization Schedule and the use of formularies by PBMs/PBNs in the California system exists as part of the utilization review (UR) process. Pharmacy networks have been included in Medical Provider Networks (MPNs), or have modeled their programs on the MPN regulations with regard to employee notification, access, and contracts.[17] However, thus far California, unlike Texas and Washington, has no legislative or regulatory mandate supporting the use of a formulary applicable to all payors and pharmaceutical providers.

Objectives and Methods

This study modeled the outcomes of applying the Texas[18] and Washington State[19] formularies to the California Workers' Compensation system. The study investigated the following research questions regarding the impact of each formulary on the California system:

1. Which drugs would be restricted or eliminated entirely?
2. Which drugs would be prescribed in place of the restricted/eliminated ones?
3. What potential reduction or increase in pharmacy fees would result?

To answer these questions, the authors compiled a large dataset of California workers' compensation prescription drugs, then applied the two formularies to the dataset to determine which drugs would be restricted under the Washington State and Texas systems.

The next step was to create a model that would replicate the decision-making process of physicians—that is, to model their decisions in substituting formulary drugs for those identified as being outside the formulary. This part of the analysis not only identified those drugs that would be prescribed in place of those restricted by the formulary, but also helped reveal the strategies underlying each of the formularies.

The final step was to calculate the impact of the substitute drugs on the total amount paid. The authors compared the average payment for the non-formulary drug that was being replaced to the average payment for each substitute, then calculated the net savings or additional cost of the substitution. Because there were often many possible substitutes, the authors determined the average payment differential between the non-formulary drug and each potential substitute, then calculated a weighted average of the differentials for each non-formulary prescription. Total savings were then calculated by summing the average differential across all non-formulary drugs.

17 Labor Code §4600.2 calls for the creation of contractual standards that "seek to reduce pharmaceutical costs" and "provide for access to a pharmacy within a reasonable geographic distance from an injured employee's residence," contractual standards were not adopted in regulation by the Administrative Director.

18 The Texas formulary is accessible at: http://www.tdi.texas.gov/wc/dm/documents/appendixa.xls

19 The Washington State formulary is accessible at: http://www.lni.wa.gov/ClaimsIns/Providers/TreatingPatients/Presc/OutpatientDrug.asp

Source of Data for the Model

Each formulary was applied to a dataset of California workers' compensation prescriptions extracted from CWCI's Industry Claims Information System (ICIS) database. All prescriptions with January 1, 2012 through June 30, 2013 fill dates were included. The resulting dataset contained 1.6 million prescriptions representing payments of $179 million. Each prescription was identified by its National Drug Code (NDC), which allowed it to be matched to both the Texas and Washington drug formularies. The 1.6 million prescriptions in the dataset were categorized into 13,337 NDCs, and the dataset was enhanced with descriptive information available from a Medi-Span[20] database of all pharmaceuticals approved by the Federal Drug Administration (FDA). This descriptive information included drug group and class description, active ingredient name, strength, route of administration, availability as brand-name or generic, manufacturer name, and many other characteristics of the drugs. This allowed the authors to determine the potential impact of each formulary on drug utilization within the California workers' compensation system. Table 1 shows the proportion of all FDA-approved drugs that fall inside and outside the Texas and Washington formularies, based on NDC codes. This provides a general assessment of how restrictive each formulary is and allows for comparison of the formularies.

Table 1: Number of NDCs Inside and Outside of the Texas and Washington Formularies

Status	Texas Formulary	Washington Formulary
Inside Formulary	148,750	11,000
Outside Formulary	21,141	165,475
Other Drugs[1]	6,584	N/A
Total NDCs	**176,475**	**176,475**
% Outside Formulary	**12%**	**94%**

1. "Other Drugs" are technically inside the Texas formulary, however, preauthorization may be required depending on the injured worker's diagnosis. Providers in both states can request coverage for non-formulary drugs. Washington State estimates that 4 percent of all prescriptions are associated with requests for non-formulary drugs. It is unknown how many of those requests are approved.

The Texas formulary excludes 21,141 of the FDA-approved drugs (12 percent of NDCs). In comparison, the Washington formulary excludes 165,475 drugs (94 percent of NDCs). However, a formulary cannot be applied in a vacuum and the authors recognize that California physicians may adjust their prescribing patterns in response to a formulary.

Applying the Formularies to the California Dataset

To measure the potential impact of substitution behavior, the authors constructed a model based on the following assumptions:

1. the impact would be isolated to substitution;
2. the overall number of prescriptions would not change; and
3. all excluded drugs would be substituted with an approved formulary drug, as long as there was a match.

20 Master Drug Data Base (MDDB®) Version 2.5 Documentation Manual, Wolters Kluwer Health, Medi-Span.

To determine which formulary drug would replace each non-formulary drug, the authors developed a scoring system that ranked the formulary drugs based on how similar each was to a given non-formulary drug across seven characteristics. The scores ranged from one (1) to seven (7); the higher the score, the better the match. The scoring system used Medi-Span's Generic Product Identifier (GPI), a coding system which defines pharmaceutically equivalent drug products with the same active ingredients, dosage forms, and strength or concentration. This coding system consists of a hierarchy of seven subsets (2-digit codes), each providing increasingly more specific information about drug products. These seven subsets correspond to the characteristics outlined below.

Definitions of Components of Generic Product Identifier (GPI)

Level	Name	Description	Examples
1	Drug Group	99 broad Drug Groups (83 existing in the California dataset) classified based on the drug's therapeutic effect, chemical composition, and/or usage	Antidepressants Penicillins Analgesic Opioids Dermatologicals
2	Drug Class	The more specific therapeutic drug class, which is often used for clinical studies and business applications	The Dermatologicals Drug Group (above) includes topical Anti-inflammatory Agents, Corticosteroids, and Local Anesthetics Drug Classes
3	Drug Subclass	Provides more specific information about the drug	The Local Anesthetics Drug Class (above) is divided into Local Anesthetics and Anesthetic Combinations Subclasses
4	Drug Active Ingredient Name	Provides the name of the active drug ingredient(s)	The Anesthetic Combinations Subclass (above) includes Capsaicin, Menthol and Lidocaine Tetracaine Drug Names
5	Drug Name Extension	When used, this usually provides additional information about a drug's chemical composition	Distinguishes Lidocaine versus Lidocaine HCL or Hydrocortisone versus Hydrocortisone Acetate
6	Drug Dosage Form	Form in which the drug product is dispensed. There are ninety different dosage forms, ranging from aerosol to wafer	Common forms are: Tablets Capsules Delayed release capsules 12- or 24-hour tablets Creams Ointments
7	Drug Strength	Identifies the drug's strength and route of administration	Fentanyl trans-dermal patch is available in strengths ranging from 12 to 100 micrograms per hour

Substitution Rules

The matching process was designed to produce a list of formulary drugs that could be substituted for each non-formulary drug. Within Drug Groups, each non-formulary drug was compared to each formulary drug across all seven components of the GPI. If only the first component (i.e., Drug Group) matched, then the formulary drug

was assigned a score of one (1). If only the first two components (i.e., Drug Group and Drug Class) matched, the formulary drug was assigned a score of two (2). If only the first three components matched, then three (3), etc., until the maximum number of matching components (up to seven) was reached. After comparing the drugs across all seven GPI components, only the most specific/best matching formulary drugs were used as substitutes for a non-formulary drug.

Method for Calculating Net Savings

This section describes the calculation of net savings from the amount paid. Although the examples provided are for illustrative purposes, average amounts paid per prescription were derived from ICIS payment data, so the average payment differences that were calculated reflect amounts paid pursuant to the fee schedule and contract rates. Table 2 illustrates the payment calculation based on a level-seven match—one where the excluded drug and the substitute drugs are generic equivalents offered by different manufacturers at different prices.

Table 2: Example of Potential Savings Calculation for a Single Non-Formulary Drug: Tramadol Tab 50 MG (Ultram)

Status	Drug Description	Percent of Formulary Scripts	Avg Paid Per Script	Avg Payment Difference	Percent Difference
Non-Formulary	Tramadol 50 MG Tablets (Manufacturer #1)	N/A	$190	N/A	N/A
Formulary	Tramadol 50 MG Tablets (Manufacturer #2)	20%	$ 23	$167	88%
	Tramadol 50 MG Tablets (Manufacturer #3)	40%	$ 18	$172	91%
	Tramadol 50 MG Tablets (Manufacturer #4)	15%	$ 12	$177	94%
	Tramadol 50 MG Tablets (Manufacturer #5)	25%	$ 8	$181	96%
	Weighted Average of Alternatives	**100%**	**$ 16**	**$174**	**92%**

In this example, the excluded (non-formulary) drug, 50 milligram Tramadol, is made by manufacturer #1 with payments averaging $190 per prescription. Manufacturers #2 through #5 produce a generic equivalent product, with average payments ranging from $8 to $23. Based on the distribution of drugs within the formulary sample, the weighted average payment for these substitute drugs is $16. The average reduction ($174) reflects the weighted average of the payment reductions between the non-formulary drug and each formulary alternative. The weighted average percent difference is 92 percent ($174/$190).

Table 3 presents an example where the best available matches are between drugs in the same Subclass (Opioid Antagonists), but with different active ingredients. These are level-three matches.

Table 3: Example of Potential Savings Calculation for a Single Non-Formulary Drug: Oxymorphone (Opana)

Status	Drug Ingredient Name	Percent of Formulary Scripts	Avg Paid Per Script	Avg Payment Reduction	Percent Reduction
Non-Formulary	Oxymorphone	N/A	$600	$ 0	0%
Formulary	Levorphanol	1%	$180	$420	70%
	Morphine	12%	$130	$470	78%
	Oxycodone	13%	$100	$500	83%
	Codeine	3%	$ 80	$520	87%
	Hydromorphone	5%	$ 70	$530	88%
	Tramadol	66%	$ 60	$540	90%
	Weighted Avg of Alternatives	**100%**	**$ 75**	**$525**	**87%**

In this example, drugs with the ingredient name Oxymorphone are excluded from the formulary. The average fees paid for these formulary alternatives range from $60 to $180. Based on the distribution of drugs within the formulary sample, the weighted average fee for these alternatives is $75. On average, the estimated savings from using the Oxymorphone alternatives is $525 per prescription, which is the weighted average of the fee reductions between the non-formulary drug and each formulary alternative. The weighted average percent reduction is 87 percent ($525/$600).

Findings

As stated above, this study modeled the application of the Texas and Washington formularies to the California workers' compensation system in order to answer three key questions about the impact each formulary would have on California's system:

1. Which drugs would be restricted or eliminated entirely?
2. Which drugs would be prescribed in place of the restricted/eliminated ones?
3. What potential reduction or increase in prescription drug payments would result?

Clearly, the two formularies differ greatly in terms of their inclusivity; with Texas having a far more inclusive formulary than Washington. As was noted in Table 1, across the inventory of all NDCs in the Medi-Span database, the Texas formulary excluded 12 percent of all FDA-approved NDCs while the Washington formulary excluded 94 percent. Given that actual workers' compensation prescriptions are distributed unevenly across NDCs, the first step in measuring the potential impact of applying these two formularies in California was to determine how many prescriptions in the study dataset would be for formulary drugs and how many would be for non-formulary drugs.

Table 4: California Worker's Compensation Prescriptions and Payments Falling Inside and Outside of the Texas and Washington Formularies

Status	NDCs		Prescriptions		Payments	
	Texas	Wash.	Texas	Wash.	Texas	Wash.
Inside Formulary	10,235	4,012	1,260,561	967,863	$120,941,542	$ 54,208,616
Outside Formulary	2,428	9,325	268,134	615,791	$ 51,325,773	$124,301,249
Other Drugs	674	N/A	54,959	N/A	$ 6,242,550	N/A
Total	13,337	13,337	1,583,654	1,583,654	$178,509,865	$178,509,865
% Outside Formulary	**18%**	**70%**	**17%**	**39%**	**29%**	**70%**

Table 4 shows that, when applied to the California workers' compensation prescriptions in the study dataset, the Texas formulary would exclude 18 percent of the NDCs, 17 percent of the prescriptions, and 29 percent of the payments. In comparison, the Washington formulary would exclude 70 percent of all NDCs, 39 percent of prescriptions, and 70 percent of the payments in the California dataset.

These numbers provide a measure of the overall magnitude of the impact of each formulary on the California system. The next step was to drill down to identify which drug groups would be impacted, and how. There were three possible results:

1. No impact: The formulary includes all drugs in the drug group.
2. Total exclusion: The entire drug group was excluded (i.e., every NDC in the drug group was eliminated).
3. Partial exclusion: The drug group was included, but substitution of non-formulary drugs with formulary drugs by physicians is anticipated.

Which drugs would be restricted or eliminated entirely?

To determine which drugs would be restricted or eliminated by the Texas and Washington formularies, the authors applied the substitution model described above. This also provided insight into the strategies underlying the formularies - specifically, are they designed to eliminate entire classes of drugs or particular drug ingredients, or do they target high-cost brand drugs that have generic substitutes available?

The first step was to determine the extent to which drugs within the California system are included or excluded by the formularies. The Texas formulary excludes one or more drugs (i.e., NDCs) in 38 of the 84 drug groups (45 percent). The percentage of drugs excluded from these drug groups ranges from as low as 1 percent to as high as 80 percent. All of the remaining 46 drug groups (55 percent) were left completely intact. The Washington formulary excludes one or more drugs in all 84 drug groups (100 percent). Of these, all drugs are restricted from 41 drug groups (49 percent). These drug groups are not generally used to treat work-related injuries, or are typically used in in-patient settings and are not appropriate for outpatient dispensing. The exclusion of these non-workers' compensation drug groups (e.g. Antihyperlipidemics, Antidiabetics, Alternative Medicines, Cardiovascular Agents, Migraine Products, and Dietary Products) or non-outpatient drugs (e.g. Local Anesthetic and Hematological Agents) accounts for 15 percent of prescriptions outside of the Washington formulary. A

portion of the NDCs, ranging from 11 percent to 99 percent, is excluded from the remaining 43 drug groups, representing 51 percent of all drug groups. (See Exhibits A and B in the appendix.)

The next step was to explore several policy choices underlying each formulary by examining key design features and isolating their impact. For this part of the analysis, the authors determined the following features of the Texas and Washington formularies:

- The degree of substitution of brand-name drugs with generic drugs,
- Whether or not opioids are available, and
- Whether or not mental health related drugs are available.

The study dataset was then used to measure the potential impact of applying these policy choices in California workers' compensation.

Brand-Name Drugs

A common tactic in reducing prescription drug costs in group health plans is to provide incentives for providers to prescribe, and consumers to purchase, generic medications rather than brand-name drugs. It is not possible to incorporate incentives like these for workers' compensation. Instead formularies can be used to achieve generic substitution behavior by eliminating specific brand-name drugs from the formulary altogether.[21] The Texas and Washington formularies exclude brand drugs to varying degrees. Table 5 shows that applying the Texas formulary to the California dataset would eliminate 33 percent of brand-name prescriptions and 42 percent of their related payments. In contrast, applying the Washington formulary to the California dataset would eliminate 96 percent of the brand-name drugs and 95 percent of the associated payments. These percentages are much higher than the percentages for generic drugs. Further, while both formularies target a greater share of brand-name drugs, the Washington strategy is far more aggressive.

Table 5: Excluded Brand-Name and Generic Drugs

Brand/Generic	Percent of Prescriptions Excluded by:		Percent of Payments Excluded by:	
	Texas	Washington	Texas	Washington
Brand-Name	33%	96%	42%	95%
Generic	13%	27%	16%	41%
Total	**17%**	**39%**	**29%**	**70%**

21 To be an effective control in California, a state-mandated, closed formulary would need to be adopted within the Medical Utilization Treatment Schedule (MTUS), which the administrative director has the authority to do under LC §5307.27. Once in the MTUS, the formulary would be presumptively correct regarding the extent and scope of treatment (LC §4604.5) and medications not included in the formulary would not be reimbursable. State law requires persons or entities dispensing medicines and supplies to dispense the generic equivalents unless one is not available, and although a prescribing physician may specify in writing that a nongeneric drug be dispensed (LC §4600.1(b)(2), if a certain medication were to be specifically eliminated from a state-mandated formulary, its reimbursement would be precluded.

Opioids

As mentioned earlier, there is growing concern regarding the use of opioids in workers' compensation. A distinguishing feature of the Texas and Washington formularies is the extent to which they restrict controlled substances, and which of these drugs they restrict. There are several types of opioids, each associated with varying degrees of physical and psychological dependence. Schedule II pharmaceuticals are a class of drugs requiring the highest levels of control by the federal Drug Enforcement Agency (DEA). They are subject to the Controlled Substances Act (CSA) because of their high potential for abuse and their potential to lead to severe psychological and/or physical dependence. In comparison, Schedule III controlled substances are considered to have a potential for abuse; they are less likely to be abused than Schedule II drugs, yet they may still lead to low to moderate physical dependence and/or high psychological dependence. Schedule IV and V controlled substances have a low potential for abuse relative to Schedule II and III drugs.

The authors examined the impact of the Texas and Washington formularies on opioids, stratified by the different categories of controlled substances. Table 6 compares restriction rates of Schedule II opioids, other opioids (Schedule III, IV and V), and all other pharmaceutical drugs if the Texas and Washington formularies were applied to the California workers' compensation dataset.

Table 6: Excluded Opioids by Drug Enforcement Agency (DEA) Class

Classification	Percent of Prescriptions Excluded by:		Percent of Payments Excluded by:	
	Texas	Washington	Texas	Washington
Schedule II Opioids	36%	45%	65%	78%
Schedule III, IV and V Opioids	3%	17%	9%	35%
All Other Drugs	19%	44%	23%	72%
Total	**17%**	**39%**	**29%**	**70%**

As noted in Table 6, the Texas formulary would restrict 36 percent of the Schedule II opioids used in California, and 65 percent of the associated payments. In comparison, the Washington formulary would restrict 45 percent of the Schedule II opioid prescriptions, and 78 percent of the associated payments. Both formularies would restrict a relatively high percentage of the Schedule II opioids used in California; that is, the proportion of Schedule II opioids that would be restricted would be greater than the proportion of all drugs that would be restricted. In contrast to the results for Schedule II opioids, the Texas formulary would eliminate only 3 percent of the less potent Schedule III, IV and V opioid prescriptions used in California, and 9 percent of their related payments, while the Washington formulary would exclude 17 percent of these prescriptions and eliminate 35 percent of the associated payments. Thus, while both formularies would target a greater share of Schedule II opioids compared to other non-opioid drugs, they both would eliminate only a small percentage of the Schedule III, IV and V opioids.

Mental Health-Related Drugs

Mental health-related claims represent another area in which workers' compensation payments have grown significantly in recent years. In addition to treating mental health-related issues, a growing number of drugs in this class also are used in pain management to treat neuropathic pain. To determine the extent to which the Texas and Washington formularies would impact the use of mental health-related drugs in California, the authors determined the restriction rates for all NDCs in various mental health drug groups and compared them to the restriction rates for all other drugs. For the purposes of this study, the mental health drug groups were defined as all NDCs in the following drug groups: Antidepressants, Hypnotics, Antipsychotics/Antimanic Agents, Antianxiety Agents, ADHD/Anti-Narcolepsy/Anti-Obesity/Anorexiants, and Psychotherapeutic and Neurological Agents.

As shown in Table 7, both the Texas and Washington formularies restrict use of mental health related drugs. Interestingly, while both formularies would restrict a similar percentage of the mental health related prescriptions used in California, the Washington formulary would have a greater impact in restricting payments, which suggests that it targets higher cost drugs.

Table 7: Excluded Mental Health-Related Drugs

Type	Percent of Prescriptions Excluded by:		Percent of Payments Excluded by:	
	Texas	Washington	Texas	Washington
Mental Health	32%	35%	30%	67%
All Other Drugs	15%	40%	29%	70%
Total	**17%**	**39%**	**29%**	**70%**

Which drugs would be prescribed in place of the excluded drugs?

To identify the drugs that would be used as substitutes for the drugs in the California dataset that are not in the Texas and Washington formularies, the authors matched each non-formulary drug to the most similar formulary alternatives (the highest level match) based on Medi-Span's seven-component Generic Product Identifier (GPI). As discussed earlier, a level-one match denotes a drug from the same Drug Group, but different Drug Classes. This is the least specific match. At the other end of the spectrum, a level-seven match denotes a drug that matches across all seven components of the GPI. This is essentially an equivalent drug; it is the best possible match. The key differences between drugs that have a level-seven match are the manufacturer and the inactive ingredients used (e.g., binding materials and preservatives).

Table 8 shows the distribution of the non-formulary (i.e., excluded) drugs from the California dataset broken out across the seven levels, and a category of "no match." These results reflect the quality of the substitutions achieved by each formulary, ranging from "no match" to "best match" (Level seven). The percentages are based on the total number of non-formulary prescriptions and the associated payments in the California workers' compensation dataset.

Table 8: Distribution of Non-Formulary (Excluded) Drugs Across Substitution Levels

Substitution Level	Percent of Prescriptions		Percent of Payments	
	Texas	Washington	Texas	Washington
0-No Match	0%	15%	0%	15%
1-Drug Group	30%	24%	20%	27%
2-Drug Class	8%	6%	5%	7%
3-Drug Subclass	48%	25%	42%	21%
Subtotal, Levels 0-3	**86%**	**70%**	**67%**	**70%**
4-Drug Ingredient Name	2%	1%	2%	1%
5-Drug Name Extension	6%	10%	11%	19%
6-Drug Dosage Form	4%	3%	14%	3%
7-Drug Strength	3%	17%	7%	7%
Subtotal, Level 4-7	**14%**	**30%**	**33%**	**30%**
Total	**100%**	**100%**	**100%**	**100%**

A substitute drug with a Level seven match is a "generic product equivalent" of the non-formulary drug, as it has an identical active ingredient, dosage form (e.g., tablet/patch), and strength. As shown in Table 8, three percent of the California workers' compensation prescriptions excluded by the Texas formulary can be replaced with formulary drugs that match on all components of the GPI (level seven). In contrast, 17 percent of the California workers' compensation prescriptions excluded by the Washington formulary can be replaced with generic product equivalents. The subtotal row for substitute drugs across levels four to seven shows that about one out of seven (14 percent) of the California workers' compensation prescriptions excluded by the Texas formulary can be replaced with non-formulary drugs that have, at minimum, the same active ingredient (level four and above), while 30 percent of the prescriptions excluded by the Washington formulary can be replaced with drugs with equivalent active ingredient names (level four and above).

The top row of Table 8 shows that 15 percent of the California workers' compensation prescriptions excluded by the Washington formulary cannot be matched to a formulary drug at any level ("No Match"). As noted earlier, this is because the Washington formulary excludes every drug in 41 Drug Groups so the minimum matching criteria used for this study cannot be met for drugs in these groups because the formulary does not allow any substitutes.

What potential savings would result from the drug substitutions?

The calculation of potential savings from applying the Texas and Washington formularies in California workers' compensation was based on an estimate of the total pharmaceutical spend in the California system for 2013. This was derived from an estimate of system-wide medical and pharmaceutical payments of $7.8 billion[22] for 2013. CWCI estimates that pharmaceutical payments represented 13 percent, or $1.014 billion, of that total.

22 WCIRB estimates $5.2 billion for all 2013 medical benefits paid by California insureds. An adjustment factor of 1.5 was applied to expand the medical benefit estimate to include self insureds which raises the total to $7.8B.

The authors next created a series of savings scenarios by matching each non-formulary (excluded) drug to the most similar formulary alternatives using the seven-component Generic Product Identifier (GPI). Table 9 displays the potential range in payment reductions that could be realized by substituting drugs currently used in California workers' compensation with those allowed by the Texas and Washington formularies. The impact on payments was measured by calculating the following across all excluded drugs and their substitutes:

- **Mean savings across all substitutes.** This represents the average cost of all substitutes, and compares this to the cost of the excluded drugs.
- **Savings of the lowest cost substitute.** This is an estimate of the maximum savings possible. This assumes that in all cases, the lowest cost substitute replaces the excluded drug.
- **25th Percentile.** This is a lower range of substitution options, reflecting lower cost substitutes and greater savings.
- **50th Percentile.** This is the median cost of substitution options.
- **75th Percentile.** This is an upper range of substitution options, reflecting higher cost substitutes and lower savings.

Columns A and B show the projected savings under the Texas and Washington formularies as a percentage of non-formulary drug payments in California, Columns C and D show the savings as a percentage all California workers' compensation prescription costs, and Columns E and F show the potential savings in dollar terms.

Table 9: Estimated California Workers' Compensation Savings From Applying the Texas and Washington Formularies

Status	Projected Savings as a % of Excluded WC Drug Payments		Projected Savings as a % of All WC Drug Payments		Projected Savings (in $ Millions)	
	Texas (column A)	**Wash.** (column B)	**Texas** (column C)	**Wash.** (column D)	**Texas** (column E)	**Wash.** (column F)
Mean Savings	42%	60%	12%	41%	$124	$420
Lowest Cost Substitute	82%	77%	24%	53%	$239	$541
25th Percentile	77%	71%	22%	50%	$225	$503
50th Percentile	62%	65%	18%	45%	$182	$459
75th Percentile	35%	52%	10%	36%	$102	$364

By applying the Texas and Washington State formularies at the mean savings scenario, California workers' compensation payments for non-formulary drugs could be reduced between $124 and $420 million. However, the savings could vary depending on the cost of the drugs that providers prescribe as substitutes for non-formulary drugs. At the 50th (median) percentile, the potential reduction in payments by applying the Texas and Washington State would range from $182 and $459 million.

DISCUSSION

Research on California workers' compensation pharmaceutical use and cost trends shows that despite the implementation of fee schedules, pharmacy networks, chronic pain management guidelines and the optional use of private formularies, prescription drug payments have continued to increase and remain a significant and growing cost driver in the California workers' compensation system. For example, the Institute's most recent analysis, published in July of this year, showed that the average amount paid for workers' compensation prescription drugs in California increased by 28 percent between 2012 and 2013.[23]

Is a formulary a viable solution?

As this report shows, a formulary can provide clarity and consistency on drug selection and price. In addition, emerging research reveals a direct association between formularies and lower pharmacy costs. For example, a recent WCRI study on the potential impact of implementing a Texas-like formulary in workers' compensation programs in 24 other states found that California has the highest rate of non-formulary drugs prescribed by physicians (42 percent), and that the adoption of a Texas-like formulary in California could reduce workers' compensation pharmacy costs in the state by as much as 14 percent, depending on formulary use rules.[24]

Would implementing a formulary within the California workers' compensation system be disruptive? Much larger health care delivery systems including federal programs such as Medicare, Medicaid (Medi-Cal in California), and the Veterans' Administration, as well as most group health programs that offer a drug plan, use formularies. Physicians that see patients within these systems are well acquainted with the processes and rationale for formulary use. The adoption of a formulary also would be consistent with the Legislature's public policy decision to reduce differences between occupational and non-occupational reimbursement systems by implementing the Medi-Cal pharmacy fee schedule and Medicare fee schedules for other medical services, including the RBRVS-based physician fee schedule.

A number of public and social policy decisions must be resolved before the ideal formulary can be implemented. To begin with, lawmakers and regulators have many choices in formulary construction. As the exhibits above illustrate, the more inclusive design of the Texas formulary allows for a broader choice of drug groups and brand drugs, while Washington State's more exclusive design limits choice in certain drug groups and brand drugs. Both options would significantly reduce current pharmacy expenses in the California system. Within the spectrum and choice of formularies, when compared with California's current utilization patterns and costs, the additional controls provided by a formulary could reduce total pharmaceutical payments in the California workers' compensation system by 12 percent to 42 percent, or $124 – $420 million.

A formulary might also reduce administrative costs significantly, particularly in medical dispute resolution. David (2014) found that 44 percent of all utilization reviews and 35 percent of independent medical reviews are for

23 CWCI 2014 Claims Monitoring Study Claims Monitoring Report: Analysis of Medical and Indemnity Benefit Payments, Medical Treatment and Pharmaceutical Cost Trends in the California Workers' Compensation System. July 2014.

24 Thumula, V., Liu, T. Impact of a Texas-Like Formulary in Other States. Workers' Compensation Research Institute 2014, ISBN 978-1-61471-865-9.

pharmaceutical requests, and that the majority of those are for opioids and compound drugs.[25] A state-sponsored formulary could remove much of the confusion and many of the challenges that trigger medical dispute resolution. It could reduce the reliance on medical cost containment protocols by as much as one-third. The authors feel these estimates are conservative for two reasons: 1) the substitution models presented in this analysis do not assume any reduction in the volume of prescriptions; and 2) they assume that all restricted drug requests would be redirected to acceptable therapeutic substitutes. It is likely, however, that certain requests for restricted drugs would leave the system without substitution. In addition, to the extent that a formulary would reduce inappropriate prescribing of certain Schedule II opioid and compound drugs, payments for other ancillary services such as drug testing and detoxification programs would also be reduced.

Establishing the authority of the formulary

A state-mandated formulary would require formal adoption by statute or regulation. In terms of the California workers' compensation system**,** a state-mandated, closed pharmaceutical formulary could be adopted as part of the Medical Utilization Treatment Schedule (MTUS).[26] Because the MTUS is presumed correct in regard to the extent and scope of medical treatment,[27] medications not included in the state-mandated formulary would not be reimbursable. In addition, state law requires that persons or entities dispensing medicines and supplies dispense a generic equivalent unless one is not available. A prescribing physician may specify in writing that a non-generic drug be dispensed,[28] but if a certain medication is specifically eliminated from a closed, state-mandated formulary, its reimbursement would be precluded unless it was found to be appropriate following independent medical review.

There are quality-of-care, economic, and other social policy reasons that support the adoption of a formulary within the California workers' compensation system. There is enough choice and flexibility in formulary design to accommodate the priorities of almost all stakeholders. A state-mandated formulary would not have to preclude a payor from using an alternative formulary, yet it would provide the necessary standard to prevent or resolve many medical disputes. Combined with other tools, such as fee schedules, evidence-based medical treatment guidelines and the state's prescription drug monitoring program (CURES), formularies may be the missing piece that completes the pharmacy utilization and cost control puzzle.

25 David, R., Ramirez, B., Swedlow, A. Medical Dispute Resolution: Utilization Review and Independent Medical Review In the California Workers' Compensation System. CWCI Research Note. January 2014.

26 The Administrative Director has the statutory authority to implement a formulary under Labor Code section 5307.27

27 Labor Code section 4604.5

28 Labor Code section 4600.1(b)(2).

Appendix – Exhibit A: Texas and Washington Non-Formulary Drugs as a Percentage of Total Prescriptions

Drug Group	Texas	Wash.
Penicillins	0%	17%
Cephalosporins	0%	35%
Macrolides	0%	11%
Tetracyclines	0%	7%
Fluoroquinolones	0%	9%
Aminoglycosides	0%	100%
Sulfonamides	0%	100%
Antimycobacterial Agents	0%	3%
Antifungals	2%	18%
Antivirals	0%	40%
Antimalarials	0%	26%
Anthelmintics	0%	100%
Anti-Infective Agents - Misc.	1%	30%
Vaccines	0%	100%
Toxoids	0%	100%
Passive Immunizing Agents	0%	100%
Antineoplastics And Adjunctive Therapies	0%	100%
Corticosteroids	0%	78%
Androgens-Anabolic	0%	100%
Estrogens	0%	100%
Contraceptives	0%	100%
Progestins	0%	100%
Antidiabetics	41%	100%
Thyroid Agents	85%	100%
Endocrine And Metabolic Agents - Misc.	0%	100%
Cardiotonics	0%	100%
Antianginal Agents	0%	100%

Drug Group	Texas	Wash.
Beta Blockers	1%	99%
Calcium Channel Blockers	0%	100%
Antiarrhythmics	6%	100%
Antihypertensives	15%	96%
Diuretics	13%	100%
Vasopressors	0%	61%
Antihyperlipidemics	0%	100%
Cardiovascular Agents - Misc.	0%	100%
Antihistamines	0%	22%
Nasal Agents - Systemic And Topical	67%	41%
Cough/Cold/Allergy	0%	93%
Antiasthmatic and Bronchodilator Agents	19%	55%
Laxatives	0%	69%
Antidiarrheals	0%	100%
Antacids	0%	100%
Ulcer Drugs	19%	16%
Antiemetics	2%	90%
Digestive Aids	0%	100%
Gastrointestinal Agents - Misc.	1%	88%
Urinary Anti-Infectives	0%	14%
Urinary Antispasmodics	0%	40%
Vaginal Products	0%	100%
Genitourinary Agents - Miscellaneous	0%	97%
Antianxiety Agents	86%	7%
Antidepressants	7%	41%
Antipsychotics/Antimanic Agents	81%	15%
Hypnotics	30%	39%

Appendix – Exhibit A: Texas and Washington Non-Formulary Drugs as a Percentage of Total Prescriptions (continued)

Drug Group	Texas	Wash.
ADHD/Anti-Narcolepsy/ Anti-Obesity/Anorexiants	67%	100%
Psychotherapeutic and Neurological Agents - Misc.	32%	100%
Analgesics – Nonnarcotic	53%	42%
Analgesics – Opioid	10%	23%
Analgesics - Anti-Inflammatory	7%	22%
Migraine Products	3%	100%
Gout Agents	12%	100%
Local Anesthetics-Parenteral	46%	100%
General Anesthetics	4%	100%
Anticonvulsants	21%	42%
Antiparkinson Agents	48%	100%
Neuromuscular Agents	100%	100%
Musculoskeletal Therapy Agents	26%	47%
Antimyasthenic Agents	0%	100%
Minerals & Electrolytes	0%	100%
Dietary Products/Dietary Management Products	0%	100%
Hematopoietic Agents	0%	100%
Anticoagulants	0%	35%
Hemostatics	0%	100%
Hematological Agents - Misc.	0%	100%
Ophthalmic Agents	1%	43%
Otic Agents	0%	51%
Mouth/Throat/Dental Agents	4%	95%
Anorectal Agents	8%	77%
Dermatologicals	53%	94%
Antiseptics & Disinfectants	0%	71%
Antidotes	0%	100%
Alternative Medicines	0%	100%
Chemicals	8%	100%
Assorted Classes	0%	96%
Total	**17%**	**39%**

Appendix – Exhibit B: Texas and Washington Non-Formulary Drugs as a Percentage of Total Prescriptions and Payments

Drug Group	Total		Texas Percent of:		Wash. Percent of:	
	Scripts	Payments	Scripts	Payments	Scripts	Payments
Analgesics – Opioid	29.9%	28.5%	9.6%	40.7%	22.7%	61.7%
Dermatologicals	4.9%	10.8%	53.1%	60.0%	94.4%	98.9%
Analgesics - Anti-Inflammatory	15.6%	10.5%	7.5%	13.4%	21.9%	62.7%
Ulcer Drugs	6.2%	8.4%	19.4%	24.6%	16.5%	21.8%
Antidepressants	7.0%	7.7%	7.5%	1.5%	40.5%	74.6%
Musculoskeletal Therapy Agents	9.3%	6.3%	26.0%	16.8%	47.3%	87.0%
Anticonvulsants	5.9%	5.3%	21.1%	11.9%	42.0%	72.2%
Antipsychotics/Antimanic Agents	0.7%	2.4%	80.6%	84.4%	15.4%	14.8%
Hypnotics	3.2%	2.1%	29.5%	33.1%	39.3%	84.9%
Chemicals	0.6%	2.1%	8.5%	3.4%	100.0%	100.0%
Antihyperlipidemics	1.0%	1.2%	0.0%	0.0%	100.0%	100.0%
ADHD/Anti-Narcolepsy/ Anti-Obesity/Anorexiants	0.2%	1.0%	67.3%	92.2%	100.0%	100.0%
Migraine Products	0.3%	0.9%	2.7%	1.5%	100.0%	100.0%
Antihypertensives	1.3%	0.8%	14.6%	13.4%	95.6%	98.6%
Cardiovascular Agents - Misc.	0.3%	0.8%	0.0%	0.0%	100.0%	100.0%
Antiasthmatic And Bronchodilator Agents	0.4%	0.7%	19.3%	27.5%	55.1%	50.4%
Antiemetics	0.3%	0.7%	1.9%	5.2%	89.6%	99.6%
Antineoplastics And Adjunctive Therapies	0.0%	0.6%	0.0%	0.0%	100.0%	100.0%
Anti-Infective Agents - Misc.	0.3%	0.5%	0.8%	10.0%	30.1%	82.0%
Antidiabetics	0.5%	0.5%	41.1%	41.1%	100.0%	100.0%
Antianxiety Agents	2.4%	0.5%	86.3%	82.8%	7.0%	25.2%
Antifungals	0.0%	0.5%	1.7%	0.1%	18.1%	45.7%
Alternative Medicines	0.4%	0.4%	0.0%	0.0%	100.0%	100.0%
All Other	9.4%	6.4%	7.1%	9.0%	71.9%	82.8%
Total	**100.0%**	**100.0%**	**16.9%**	**28.8%**	**38.9%**	**69.6%**

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California Workers' Compensation Institute

The California Workers' Compensation Institute (CWCI), 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 web site (http://www.cwci.org).