



Spotlight Report

California Workers' Comp Pharmaceutical Utilization & Reimbursement Part 2: Emerging Outcomes Under the MTUS Formulary

Steve Hayes and Alex Swedlow

March 2019

Background

In October 2015, Governor Brown signed Assembly Bill 1124, authorizing the California Division of Workers' Compensation (DWC) to create and implement a prescription drug formulary for the California workers' compensation system. AB 1124's legislative intent was to:

- Improve the quality of care for injured workers by ensuring that the prescription drugs they receive meet the Medical Treatment Utilization Schedule (MTUS) evidence-based medicine standards in terms of frequency, duration, strength and appropriateness.
- Reduce the total drug spend in the system, which studies by CWCI and the Workers Compensation Research Institute estimated would decline between 8 and 42 percent depending on how the formulary was structured and implemented.^{1,2}
- Decrease frictional costs by reducing pharmaceutical disputes, which prior studies showed accounted for 40 to 50 percent of all utilization review (UR) and independent medical review (IMR) decisions.^{3,4}

The key aspects of the formulary include:

- Two defined drug categories, Exempt and Non-Exempt, identifying the need for prospective UR. Drugs not specifically listed as either Exempt or Non-Exempt (*i.e.*, Not Listed) are available as long as the treating physician can show how use of the drug is supported by the MTUS or other acceptable treatment guidelines for the condition or injury being treated.
- Adjustments to the number and types of drugs on the Formulary Drug List associated with new MTUS guidelines as they are adopted.⁵

¹ Swedlow, A. and Hayes, S. "Are Formularies a Viable Solution to Controlling Prescription Drug Utilization and Cost in California Workers' Compensation." CWCI Report to the Industry. October 2014.

² Thumala, V. and Liu, T. "Impact of a Texas-Like Formulary in Other States." June 2014.

³ David, R., Ramirez, B., Swedlow, A. Medical Dispute Resolution: UR & IMR in California Workers' Comp. CWCI, January 2014.

⁴ David, R., Young, B. California Workers' Comp Independent Medical Review: Q1 2015 Outcomes. CWCI Spotlight Report, July 2015.

⁵ Adoption of the ACOEM Eye Disorders Guideline led to the addition of Ophthalmic medications, while the adoption of the Traumatic Brain Injury Guideline led to the addition of drugs used to treat traumatic brain injuries.

- Two special subcategories of drugs for specific situations:
 - 15 “Special-Fill” drugs for which an initial prescription for a 4-day supply of the medication may be dispensed within seven days of the injury; and
 - 14 “Perioperative Drugs” for which a 4-day supply of the medication may be dispensed from 4 days prior to a surgery to 4 days after the surgery without prospective UR.
- Placeholder data fields within the formulary drug list to allow for the future inclusion of information on drug strength, formulation, and unique product identifiers.
- A provision that all pharmaceutical requests, regardless of drug list category, may be subject to retrospective UR.
- A mandate that treating physicians provide claims administrators with treatment plans for transitioning injured workers with legacy claims from non-exempt drugs (particularly opioids) to exempt drugs within four months of the implementation of the formulary.

Objective of this Research

As California moved past the first anniversary of the MTUS formulary’s January 2018 “go-live” date, the authors employed a representative sample of workers’ compensation prescription data to examine the emerging impact of the formulary on the utilization and cost of prescription drugs⁶ in California workers’ compensation. To measure the extent of the changes that have occurred, they compared pre- and post-formulary data on the following metrics:

1. The percentage of prescriptions and payments associated with drugs classified by the formulary as Exempt and Non-Exempt, as well as drugs that are not listed in the formulary;
2. The proportion of “Special-Fill” and “Perioperative” drugs dispensed to injured workers; and
3. The percentage of leading drug ingredient names within each formulary category.

Data Sources and Methods

To examine the impact of the formulary, the authors used CWCI Industry Research Information System (IRIS)⁷ data on a sample of 658,057 prescriptions with fill dates of January 1 through June 30 of 2016, 2017, and 2018, and the associated payments. Prescriptions in the sample were compared to the MTUS Formulary Drug List of Drug Ingredients and grouped into the Exempt, Non-Exempt, and Not Listed drug categories.⁸ In addition, to estimate perioperative utilization, the authors used the Centers for Medicare & Medicaid Services (CMS) Medicare National Physician Fee Schedule Relative Value File for surgical procedures⁹ to identify specific surgeries within the IRIS database, and to flag Perioperative prescriptions under the terms of the regulations.

⁶ Although the Formulary addresses over-the-counter (OTC) drugs as well as drugs that must be prescribed by a licensed medical professional, the authors have used the term “prescriptions” in a more generic sense -- encompassing both OTC and prescribed drugs.

⁷ IRIS is CWCI’s proprietary database containing data on employee and employer characteristics, medical service data, benefits, and administrative costs on approximately 6.3 million California workers’ compensation claims.

⁸ Title 8, California Code of Regulations section 9792.27.15. <https://www.dir.ca.gov/dwc/MTUS/MTUS-Documents/Drug-List/DRUG-LIST-V2-Addendum-One.pdf>.

⁹ <https://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/PhysicianFeeSched/PFS-Relative-Value-Files-Items/RVU17A.html?DLPage=1&DLEntries=10&DLSort=0&DLSortDir=descending>: File PPRRVU17_V1219.xls

Findings

Distribution of Prescriptions and Payments by Formulary Category

To identify the impact of the formulary on utilization and payment trends, the authors first grouped the prescriptions in the study sample based on their formulary category: Exempt, Non-Exempt, and Not Listed drugs. Within the Non-Exempt category, drugs prescribed under the Special Fill and Perioperative provisions were also identified and included in subcategories, as shown in Exhibit 1.

Specifically, the Formulary Drug List includes 15 Special-Fill drugs that are exempt from utilization review when prescribed or dispensed at the initial visit following the workplace injury when the visit occurs within seven days of the date of injury. Under the Special-Fill provision, a physician may prescribe or dispense a 4-day supply of the drug.

The formulary also includes 14 Perioperative drugs that may be dispensed under certain conditions to the injured worker without requiring prospective review. To qualify, the drug must be prescribed during the perioperative period (defined as from 4 days prior to surgery to 4 days after surgery), the supply must not exceed the number of days indicated for the particular drug, and the drug must be prescribed in accordance with the MTUS Treatment Guidelines. (The supply must not exceed 14 days for anticoagulant drugs and 4 days for all other Perioperative drugs).

Exhibit 1 compares the distributions of prescriptions across these formulary categories in the pre-implementation time frame (2016 and 2017) with that of the post-implementation time frame (2018).

| Exhibit 1: Percent of Prescriptions by Formulary Category | | | | | |
|---|--------------------------|---------------|---------------|--------------|--------------|
| Formulary Category | Percent of Prescriptions | | | Net Change | |
| | 2016 | 2017 | 2018 | 2016/17 | 2017/18 |
| Exempt | 33.2% | 35.2% | 38.5% | 2.0% | 3.3% |
| Non-Exempt Total | 54.3% | 52.9% | 45.1% | -1.4% | -7.8% |
| Non-Exempt/Special Fill | 1.8% | 2.0% | 1.1% | 0.2% | -0.9% |
| Non-Exempt/Perioperative | 1.1% | 1.2% | 1.0% | 0.1% | -0.2% |
| Non-Exempt/Other | 51.5% | 49.8% | 43.0% | -1.7% | -6.8% |
| Not Listed | 12.4% | 11.9% | 16.4% | -0.6% | 4.5% |
| Total | 100.0% | 100.0% | 100.0% | 0.0% | 0.0% |

As shown in Exhibit 1, Exempt drugs as a percentage of all drugs dispensed to California injured workers increased by 2.0 percentage points during the pre-implementation time frame. This trend continued in the post-implementation period, when Exempt drugs' share of the prescriptions increased by 3.3 percentage points.

Non-Exempt drugs' share of all prescriptions decreased by 1.4 percentage points during the pre-implementation time frame and decreased even more (by 7.8 percentage points) during the post-implementation time frame. This decrease is consistent with the implicit goals of the formulary.

Special Fill drugs increased slightly during the pre-implementation time frame, from 1.8 to 2.0 percent of all prescriptions. However, during the post-implementation period, Special Fill drugs share of the prescriptions decreased by nearly half, from 2.0 to 1.1 percent, even though these drugs were exempt from utilization review.

Perioperative drugs' share of the prescriptions was virtually flat, increasing from 1.1 to 1.2 during the pre-implementation time frame, and decreasing to 1.0 percent during the post-implementation time frame.

Not Listed drugs decreased slightly during the pre-implementation time frame, falling from 12.4 to 11.9 percent of the prescriptions; but after the formulary took effect these drugs increased to 16.4 of the prescriptions, a net increase of 4.5 percentage points.

Exhibit 2 compares the distributions of prescription drug payments across formulary categories during the pre- and post-implementation time frames.

| Exhibit 2: Percent of Payments by Formulary Category | | | | | |
|---|----------------------------|---------------|---------------|-------------------|----------------|
| Formulary Category | Percent of Payments | | | Net Change | |
| | 2016 | 2017 | 2018 | 2016/17 | 2017/18 |
| Exempt | 22.2% | 21.8% | 18.8% | -0.4% | -3.0% |
| Non-Exempt Total | 53.4% | 50.8% | 42.3% | -2.7% | -8.4% |
| Non-Exempt/Special Fill | 0.3% | 0.4% | 0.2% | 0.0% | -0.2% |
| Non-Exempt/Perioperative | 0.4% | 0.4% | 0.3% | 0.0% | -0.2% |
| Non-Exempt/Other | 52.7% | 50.0% | 41.9% | -2.7% | -8.1% |
| Not Listed | 24.3% | 27.4% | 38.9% | 3.1% | 11.5% |
| Total | 100.0% | 100.0% | 100.0% | 0.0% | 0.0% |

The 2016 and 2017 data show that Exempt drugs' share of the workers' compensation drug spend was nearly flat during the pre-implementation time frame, and even though they represented an increasing percentage of the prescriptions dispensed after the formulary took effect (as shown in Exhibit 1), their share of pharmaceutical payments decreased by 3.0 percentage points as the average paid per prescription for Exempt drugs declined. Special Fill and Perioperative drugs represented less than 0.5 percent of the prescription dollars in both the pre- and post-formulary periods, reflecting their small share of total prescriptions and their low average cost per prescription, due in part to the 4-day supply limitation.

While the percent of total payments represented by the Exempt and Non-Exempt drugs decreased in both the pre- and post-implementation time frames, the percent of payments for Not Listed drugs increased by 3.1 and 11.5 percentage points, respectively. This was driven by the increase in the percent of total prescriptions represented by Not Listed drugs during the post-implementation time frame, as shown in Exhibit 1, and the higher average payments per prescription. Average amounts paid for Not Listed drugs registered 2.3 to 3.3- fold increases after the formulary took effect, while the average payments per prescription for Exempt and Non-Exempt drugs declined.

Distribution of Prescriptions by Formulary Category and Drug Ingredient Name

Exhibit 3 expands on the data from Exhibit 1 by including the drug ingredient name for each of the top 20 drugs prescribed during the post-implementation (2018) time frame. Nine of the top 20 drugs are Exempt drugs and the remaining eleven are Non-Exempt. None of the Not Listed drugs are on the top 20 list.

| Exhibit 3: Percent of Prescriptions by Formulary Category and Top 20 Drug Name | | | | | | |
|--|-----------------|--------------------------|---------------|---------------|--------------|--------------|
| Drug Name | Drug Group | Percent of Prescriptions | | | Net Change | |
| | | 2016 | 2017 | 2018 | 2016/17 | 2017/18 |
| Exempt Total | | 33.2% | 35.2% | 38.5% | 2.0% | 3.3% |
| Ibuprofen | NSAID | 7.9% | 8.7% | 10.3% | 0.7% | 1.7% |
| Naproxen | NSAID | 5.4% | 6.5% | 6.6% | 1.1% | 0.1% |
| Omeprazole | Ulcer Drug | 4.2% | 3.0% | 2.7% | -1.2% | -0.2% |
| Meloxicam | NSAID | 2.0% | 2.0% | 2.6% | 0.0% | 0.6% |
| Diclofenac Sodium* | Dermatological | 1.1% | 1.4% | 2.6% | 0.2% | 1.2% |
| Celecoxib | NSAID | 2.2% | 2.0% | 2.1% | -0.2% | 0.1% |
| Etodolac | NSAID | 0.7% | 1.2% | 1.5% | 0.5% | 0.3% |
| Nabumetone | NSAID | 3.0% | 1.0% | 1.2% | -1.9% | 0.2% |
| Diclofenac Potassium | NSAID | 1.6% | 1.1% | 1.1% | -0.4% | -0.1% |
| Exempt/All Other | | 5.1% | 8.3% | 7.8% | 3.2% | -0.5% |
| Non-Exempt Total | | 54.3% | 52.9% | 45.1% | -1.4% | -7.8% |
| Hydrocodone/APAP** | Opioid | 11.3% | 10.0% | 7.8% | -1.3% | -2.2% |
| Gabapentin | Anticonvulsant | 5.8% | 6.6% | 6.4% | 0.8% | -0.2% |
| Cyclobenzaprine HCL | Muscle Relaxant | 4.8% | 5.2% | 3.5% | 0.5% | -1.7% |
| Tramadol HCL | Opioid | 4.9% | 5.0% | 3.3% | 0.1% | -1.7% |
| Duloxetine HCL | Antidepressant | 1.9% | 1.9% | 2.0% | -0.1% | 0.1% |
| Pregabalin | Anticonvulsant | 1.7% | 1.7% | 1.8% | 0.0% | 0.1% |
| Lidocaine | Dermatological | 1.9% | 2.0% | 1.8% | 0.1% | -0.2% |
| Oxycodone/APAP | Opioid | 2.1% | 1.9% | 1.6% | -0.2% | -0.3% |
| Oxycodone HCL | Opioid | 1.5% | 1.2% | 1.1% | -0.4% | -0.1% |
| Tizanidine HCL | Muscle Relaxant | 1.1% | 1.1% | 1.1% | 0.0% | -0.1% |
| Codeine/APAP | Opioid | 1.2% | 1.2% | 0.9% | 0.0% | -0.3% |
| Non-Exempt/All Other | | 16.1% | 15.1% | 14.0% | -1.1% | -1.1% |
| Not Listed Total | | 12.4% | 11.9% | 16.4% | -0.6% | 4.5% |
| Total | | 100.0% | 100.0% | 100.0% | 0.0% | 0.0% |

* Data reflect classification through the June 2018 study period. Diclofenac Sodium was reclassified as a Non-Exempt drug as of October 1, 2018.

** Acetaminophen is also known as APAP (used in the tables), an abbreviation of its chemical name, acetyl-para-aminophenol.

As noted earlier, Exempt drugs as a percent of all drugs increased by 2.0 percentage points during the pre-formulary period, and by 3.3 percentage points after the formulary took effect. Exhibit 3 shows that seven of the top nine Exempt drugs are Nonsteroidal Anti-inflammatory Drugs (NSAIDs), and six of these accounted for an increasing share of the prescriptions after the formulary was implemented. The most frequently prescribed NSAID, Ibuprofen, (Advil, Motrin) accounted for just over half of the 3.3 percent increase of Exempt drugs in 2018. The top 20 Exempt drugs as a percent of all Exempt drugs are listed in Appendix A.

California Workers' Comp Pharmaceutical Utilization & Reimbursement Part 2: Emerging Outcomes Under the MTUS Formulary

Non-Exempt drugs' share of all prescriptions decreased by 1.4 percentage points in the pre-implementation period, and by 7.8 percentage points in the post-implementation period. As shown in Exhibit 3, five of the top Non-Exempt drugs are opioids, and each of these drugs accounted for a decreased share of the total prescriptions after the formulary took effect. Together, opioids accounted for well over half of the 7.8 percent decrease of Non-Exempt drugs in 2018. The most frequently prescribed opioid, Hydrocodone/Acetaminophen, accounted for more than a quarter (2.2 percentage points) of the decrease in Non-Exempt drugs. The top 20 Non-Exempt drugs as a percent of all Non-Exempt drugs are listed in Appendix B.

Not Listed drugs' share of all prescriptions decreased by 0.6 percentage points during the pre-implementation time frame and increased by 4.5 percentage points during the post-implementation period. As stated above, none of the Not Listed drugs were among the top 20 prescribed drugs. The top 20 Not Listed drugs as a percent of all Not Listed drugs are provided in Appendix C.

Special-Fill Provisions

The formulary includes 15 Special-Fill drugs that are exempt from prospective utilization review when prescribed or dispensed at the initial visit if that visit occurs within seven days of the date of injury. Under the Special-Fill provision, a physician may prescribe or dispense a 4-day supply of the drug.

| Exhibit 4: Special Fill Drug Utilization | | | | | | | |
|--|-----------------|--|--------------|--------------|---|-------------|-------------|
| Drug Name | Drug Group | Special-Fill Eligible Drugs Filled at Any Point as a % of All WC Scripts | | | Special Fill-Eligible Drugs Filled w/in 7 days of Injury as a % of All WC Scripts | | |
| | | 2016 | 2017 | 2018 | 2016 | 2017 | 2018 |
| Hydrocodone/APAP | Opioid | 11.3% | 10.0% | 7.8% | 0.4% | 0.4% | 0.2% |
| Cyclobenzaprine HCL | Muscle Relaxant | 4.8% | 5.2% | 3.5% | 0.8% | 1.0% | 0.6% |
| Tramadol HCL | Opioid | 4.9% | 5.0% | 3.3% | 0.2% | 0.2% | 0.1% |
| Oxycodone/APAP | Opioid | 2.1% | 1.9% | 1.6% | 0.0% | 0.0% | 0.0% |
| Oxycodone HCL | Opioid | 1.5% | 1.2% | 1.1% | 0.0% | 0.0% | 0.0% |
| Tizanidine HCL | Muscle Relaxant | 1.1% | 1.1% | 1.1% | 0.0% | 0.1% | 0.0% |
| Baclofen | Muscle Relaxant | 0.7% | 0.7% | 0.7% | 0.0% | 0.0% | 0.0% |
| Morphine Sulfate | Opioid | 0.7% | 0.6% | 0.5% | 0.0% | 0.0% | 0.0% |
| Methylprednisolone | Corticosteroid | 0.4% | 0.4% | 0.4% | 0.0% | 0.0% | 0.0% |
| Tramadol HCL/AC | Opioid | 1.0% | 0.7% | 0.3% | 0.2% | 0.2% | 0.0% |
| Prednisone | Corticosteroid | 0.2% | 0.3% | 0.2% | 0.0% | 0.1% | 0.0% |
| Dexamethasone | Corticosteroid | 0.1% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Hydrocortisone | Corticosteroid | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Prednisolone | Corticosteroid | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Cortisone | Corticosteroid | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Total | | 28.8% | 27.3% | 20.4% | 1.8% | 2.0% | 1.1% |

Exhibit 4 shows prescriptions for Special Fill-eligible drugs dispensed at any point during the course of treatment as a percentage of all California workers' compensation prescriptions, and the percentage of those drugs that were dispensed at the initial visit within the first seven days following the date of injury.

As shown in the first column of Exhibit 4, prescriptions for Special Fill drugs dispensed at any point in the course of treatment declined from 28.8 and 27.3 percent of all prescriptions in the pre-formulary period to 20.4 percent after the formulary took effect. This overall decline is also evidenced by the decreasing number of Special Fill-eligible drugs dispensed at the first visit within the first seven days as a percentage of all drugs, which fell from 1.8 percent and 2.0 percent in the pre-formulary period to 1.1 percent after the formulary took effect. Data limitations prevent an estimate of the average number of days' worth of these drugs that were supplied at the first fill.

Perioperative Drugs

The formulary lists 14 drugs that may be dispensed as Perioperative drugs to injured workers without prospective review under certain conditions. To be prescribed for Perioperative purposes, these drugs must be prescribed during the Perioperative period (4 days prior to surgery to 4 days after surgery), the supply must not exceed the number of days indicated for the drug, and the drugs must be prescribed in accordance with MTUS Guidelines.

| Exhibit 5: Perioperative-Eligible Drug Utilization | | | | | | | |
|--|-----------------|--|--------------|--------------|--|-------------|-------------|
| Drug Ingredient | Drug Group | Periop Eligible Drugs as Percent of All WC Scripts | | | Periop-Eligible Drugs Prescribed w/in 4 Days of Surgery as % of All WC Scripts | | |
| | | 2016 | 2017 | 2018 | 2016 | 2017 | 2018 |
| Hydrocodone/APAP | Opioid | 11.3% | 10.0% | 7.8% | 0.7% | 0.8% | 0.6% |
| Gabapentin | Anticonvulsant | 5.8% | 6.6% | 6.4% | 0.0% | 0.0% | 0.0% |
| Tramadol HCL | Opioid | 4.9% | 5.0% | 3.3% | 0.1% | 0.1% | 0.1% |
| Oxycodone/APAP | Opioid | 2.1% | 1.9% | 1.6% | 0.2% | 0.2% | 0.2% |
| Oxycodone HCL | Opioid | 1.5% | 1.2% | 1.1% | 0.1% | 0.1% | 0.0% |
| Baclofen | Muscle Relaxant | 0.7% | 0.7% | 0.7% | 0.0% | 0.0% | 0.0% |
| Morphine Sulfate | Opioid | 0.7% | 0.6% | 0.5% | 0.0% | 0.0% | 0.0% |
| Tramadol HCL/AC | Opioid | 1.0% | 0.7% | 0.3% | 0.0% | 0.0% | 0.0% |
| Rivaroxaban | Anticoagulant | 0.1% | 0.1% | 0.2% | 0.0% | 0.0% | 0.0% |
| Apixaban | Anticoagulant | 0.0% | 0.0% | 0.1% | 0.0% | 0.0% | 0.0% |
| Warfarin Sodium | Anticoagulant | 0.1% | 0.1% | 0.1% | 0.0% | 0.0% | 0.0% |
| Enoxaparin Sodium | Anticoagulant | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Fondaparinux Sodium | Anticoagulant | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Heparin Sodium | Anticoagulant | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Total | | 28.3% | 27.0% | 22.1% | 1.1% | 1.2% | 1.0% |

The Perioperative list includes some of the most heavily prescribed drugs in workers' compensation. They are primarily used in nonsurgical cases. Exhibit 5 shows that in the pre-formulary period, Perioperative-eligible drugs represented 28.3 percent of all prescriptions in 2016 and 27.0 percent in 2017, but they fell to 22.1 percent after the formulary took effect. Most of that decline reflected decreased use in nonsurgical cases as Perioperative fills represented only 1.1 to 1.2 percent of the 2016 and 2017 prescriptions, and 1.0 percent of the 2018 prescriptions.

Discussion

Prescription drug utilization, and the associated costs, are among the most dynamic components of California workers' compensation medical care. Even before the formulary was implemented in January 2018, significant reductions in pharmaceutical utilization and cost were evident, as was a shift in the mix of drugs used to treat injured workers, largely due to the ongoing decline in the use of opioids. Between 2009 (the high point for opioid utilization) and 2017, opioid use in the California workers' compensation system fell by 34 percent, while opioid payments fell by 36 percent. The decline in opioid use has continued since the implementation of the formulary, with a recent CWCI study showing opioids as a percent of workers' compensation prescriptions and overall drug spend down 41 percent over the past decade.¹⁰ In addition to the declines noted for opioids, in an analysis of workers' compensation prescription payments across all therapeutic drug groups, David (2018) documented a 17 percent reduction in the average amount paid per prescription, due in large part to changes to the Medi-Cal Fee Schedule, the basis of the California Workers' Compensation Pharmacy Fee Schedule.¹¹

Accumulating, albeit preliminary, data show that the formulary is on track to achieve its legislative goal of reducing frictional costs. This study shows that Exempt drugs, which under specified conditions are free from mandatory prospective UR, represent an increasing share of workers' compensation prescriptions, accounting for 38.5 percent of the pharmaceuticals dispensed after the formulary took effect, compared to 33.2 and 35.2 percent in the pre-implementation periods. Likewise, Non-Exempt drugs, which require UR, fell from 54.3 percent and 52.9 percent of workers' compensation prescriptions in the pre-formulary periods to 45.1 percent in the post-implementation period. Furthermore, a preliminary review of IMR determinations through the end of 2018 shows that in the period since the formulary was implemented decisions involving prescription drug requests declined to 46.3 percent of the 2018 service decisions, down from 49.5 percent in 2015, a relative decline of 6.5 percent.¹²

There are ongoing efforts to enhance the formulary. Most formularies control excess variability of drug utilization by limiting the number of drugs available to patients, which helps control the use of questionable drug formulations and improper use of expensive drugs when cheaper versions are available. Compared to other workers' compensation formularies, the California formulary remains essentially open to any drug as long as the treating physician can document that treatment complies with the MTUS, California's standard of care. That said, the formulary is a work in progress, and the DWC has assembled a Pharmacy and Therapeutics (P&T) Committee to address formulary issues and suggest improvements. For example, at the P&T Committee's January 23, 2019 meeting, the DWC Administrative Director clarified that all drugs, regardless of Exempt/Non-Exempt status, require a Request for Authorization to allow for retrospective utilization review. At the same meeting, the committee made a recommendation in regard to some of the blank placeholder boxes that DWC included on the Formulary Drug List to allow for the addition of information about Unique Product Identifiers (UPIs), as well as appropriate dosages and strengths, which could help control drug selection in the future.¹³ Future CWCI research will examine the impact that refinements to the Drug List and the addition of drugs related to new MTUS guidelines have on California workers' compensation pharmaceutical utilization and costs.

¹⁰ Young, B. and Hayes, S. California Workers' Compensation Prescription Drug Utilization & Payment Distributions, 2009-2018: Part 1 CWCI Research Update. February 2019.

¹¹ David, R. Research Update. A Report to the CWCI Annual Meeting. CWCI, March 2018.

¹² Pre-publication from a forthcoming CWCI study.

¹³ At its January 2019 meeting, the P&T Committee voted to adopt the RxNorm Concept Unique Identifier (RxCUI) system, which provides a standardized nomenclature for clinical drugs, and is produced by the National Library of Medicine.

<https://www.nlm.nih.gov/research/umls/rxnorm/overview.html>

Appendix A.

| Top 20 Exempt Drugs as a Percent of All Exempt Drugs | | | | | | |
|--|----------------|--------------------------|--------------|--------------|--------------|-------------|
| Drug Name | Drug Group | Percent of Prescriptions | | | Net Change | |
| | | 2016 | 2017 | 2018 | 2016/17 | 2017/18 |
| Ibuprofen | NSAID | 23.9% | 24.7% | 26.9% | 0.8% | 2.2% |
| Naproxen | NSAID | 16.3% | 18.4% | 17.0% | 2.2% | -1.4% |
| Omeprazole | Ulcer Drug | 12.7% | 8.5% | 7.1% | -4.2% | -1.3% |
| Meloxicam | NSAID | 6.0% | 5.8% | 6.8% | -0.3% | 1.1% |
| Diclofenac Sodium* | Dermatological | 3.5% | 4.0% | 6.6% | 0.5% | 2.7% |
| Celecoxib | NSAID | 6.5% | 5.6% | 5.4% | -0.9% | -0.2% |
| Etodolac | NSAID | 2.0% | 3.3% | 3.9% | 1.3% | 0.6% |
| Nabumetone | NSAID | 8.9% | 2.9% | 3.1% | -6.0% | 0.2% |
| Diclofenac Potassium | NSAID | 4.8% | 3.2% | 2.8% | -1.5% | -0.4% |
| Cephalexin | Antibiotic | 1.8% | 2.0% | 2.2% | 0.1% | 0.2% |
| Lansoprazole | Ulcer Drug | 0.6% | 1.4% | 2.2% | 0.8% | 0.8% |
| Pantoprazole Sodium | Ulcer Drug | 2.6% | 2.9% | 2.1% | 0.4% | -0.9% |
| Acetaminophen | Analgesic | 1.6% | 1.7% | 1.8% | 0.1% | 0.1% |
| Ranitidine HCL | Ulcer Drug | 0.9% | 2.1% | 1.6% | 1.2% | -0.5% |
| Famotidine | Ulcer Drug | 0.4% | 1.3% | 1.3% | 0.8% | 0.0% |
| Esomeprazole Magnesium | Ulcer Drug | 0.8% | 0.9% | 1.0% | 0.1% | 0.1% |
| Albuterol Sulfate | Asthma Drug | 0.4% | 0.4% | 0.9% | 0.0% | 0.5% |
| Amoxicillin/Clavulanate P | Antibiotic | 0.7% | 0.8% | 0.8% | 0.1% | 0.0% |
| Sulfamethoxazole/Trimethoprim | Anti-Infective | 0.6% | 0.7% | 0.8% | 0.1% | 0.1% |
| Oxaprozin | NSAID | 0.1% | 0.0% | 0.6% | 0.0% | 0.5% |
| Subtotal | | 95.0% | 90.5% | 94.8% | -4.5% | 4.3% |

* Data reflect classification through the June 2018 study period. Diclofenac Sodium was reclassified as a Non-Exempt drug as of October 1, 2018.

Appendix B.

| Top 20 Non-Exempt Drugs as a Percent of All Non-Exempt Drugs | | | | | | |
|--|--------------------|--------------------------|--------------|--------------|-------------|--------------|
| Drug Name | Drug Group | Percent of Prescriptions | | | Net Change | |
| | | 2016 | 2017 | 2018 | 2016/17 | 2017/18 |
| Hydrocodone/APAP | Opioid | 20.8% | 18.9% | 17.3% | -1.9% | -1.6% |
| Gabapentin | Anticonvulsant | 10.6% | 12.5% | 14.2% | 1.9% | 1.7% |
| Cyclobenzaprine HCL | Muscle Relaxant | 8.8% | 9.9% | 7.9% | 1.1% | -2.0% |
| Tramadol HCL | Opioid | 9.0% | 9.4% | 7.2% | 0.4% | -2.2% |
| Duloxetine HCL | Antidepressant | 3.5% | 3.5% | 4.4% | 0.0% | 0.8% |
| Pregabalin | Anticonvulsant | 3.1% | 3.3% | 4.0% | 0.1% | 0.7% |
| Lidocaine | Dermatological | 3.4% | 3.7% | 3.9% | 0.3% | 0.2% |
| Oxycodone/APAP | Opioid | 3.8% | 3.6% | 3.5% | -0.3% | -0.1% |
| Oxycodone HCL | Opioid | 2.8% | 2.2% | 2.3% | -0.6% | 0.1% |
| Tizanidine HCL | Muscle Relaxant | 2.1% | 2.1% | 2.3% | 0.0% | 0.2% |
| Codeine/APAP | Opioid | 2.2% | 2.4% | 2.0% | 0.1% | -0.4% |
| Baclofen | Muscle Relaxant | 1.2% | 1.4% | 1.6% | 0.2% | 0.3% |
| Bupropion HCL | Antidepressant | 1.2% | 1.2% | 1.5% | 0.0% | 0.3% |
| Trazodone HCL | Antidepressant | 1.3% | 1.4% | 1.5% | 0.1% | 0.1% |
| Methocarbamol | Muscle Relaxant | 1.1% | 1.3% | 1.4% | 0.1% | 0.2% |
| Amitriptyline HCL | Antidepressant | 1.1% | 1.3% | 1.3% | 0.2% | 0.0% |
| Carisoprodol | Muscle Relaxant | 1.8% | 1.3% | 1.2% | -0.6% | -0.1% |
| Nortriptyline HCL | Antidepressant | 0.8% | 0.9% | 1.1% | 0.1% | 0.2% |
| Amlodipine Besylate | Calcium Antagonist | 0.3% | 0.3% | 1.1% | 0.0% | 0.7% |
| Morphine Sulfate | Opioid | 1.2% | 1.1% | 1.0% | -0.1% | -0.1% |
| Subtotal | | 80.5% | 81.7% | 80.9% | 1.2% | -0.8% |

Appendix C.

| Top 20 Not Listed Drugs as a Percent of All Not Listed Drugs | | | | | | |
|--|-------------------------|--------------------------|--------------|--------------|--------------|--------------|
| Drug Name | Drug Group | Percent of Prescriptions | | | Net Change | |
| | | 2016 | 2017 | 2018 | 2016/17 | 2017/18 |
| Zolpidem Tartrate | Hypnotic/Sedative | 7.7% | 6.7% | 4.1% | -1.1% | -2.6% |
| Atorvastatin Calcium | Antihyperlipidemic | 1.0% | 1.1% | 3.0% | 0.1% | 1.8% |
| Tetanus Toxoid (TDAP) | Toxoid | 1.8% | 3.4% | 2.7% | 1.6% | -0.7% |
| Losartan Potassium | Antihypertensive | 0.7% | 0.8% | 2.4% | 0.1% | 1.6% |
| Alprazolam | Antianxiety | 4.0% | 3.0% | 2.3% | -0.9% | -0.8% |
| Lisinopril | Antihypertensive | 1.4% | 1.4% | 2.1% | 0.0% | 0.6% |
| Metoprolol Succinate | Beta Blocker | 0.6% | 0.4% | 1.9% | -0.1% | 1.4% |
| Diclofenac Epolamine | Dermatological | 2.7% | 2.7% | 1.9% | 0.1% | -0.9% |
| Ondansetron* | Antiemetics | 2.4% | 2.8% | 1.9% | 0.3% | -0.9% |
| Bupirone HCl | Antianxiety | 1.3% | 1.6% | 1.6% | 0.3% | 0.0% |
| Tadalafil | Cardiovascular | 1.3% | 1.4% | 1.5% | 0.1% | 0.1% |
| Quetiapine Fumarate* | Antipsychotic/Antimanic | 1.7% | 1.6% | 1.5% | -0.2% | -0.1% |
| Rosuvastatin Calcium | Antihyperlipidemics | 0.3% | 0.3% | 1.4% | 0.0% | 1.1% |
| Metformin HCl | Antidiabetics | 1.2% | 1.3% | 1.3% | 0.1% | 0.0% |
| Eszopiclone | Hypnotic/Sedative | 3.2% | 2.5% | 1.3% | -0.6% | -1.2% |
| Docusate Sodium | Laxative | 3.1% | 2.1% | 1.3% | -1.0% | -0.8% |
| Polyethylene Glycol | Laxative | 1.6% | 1.7% | 1.2% | 0.1% | -0.5% |
| Mirtazapine* | Antidepressant | 1.4% | 1.7% | 1.2% | 0.3% | -0.4% |
| Sildenafil Citrate | Cardiovascular | 1.2% | 1.2% | 1.2% | -0.1% | 0.1% |
| Atenolol | Beta Blocker | 0.7% | 0.7% | 1.1% | 0.0% | 0.5% |
| Subtotal | | 39.3% | 38.4% | 36.9% | -0.9% | -1.5% |

* Data reflect classifications through the June 2018 study period. These drugs were reclassified as Non-Exempt drugs as of October 1, 2018.

About the Authors

Steve Hayes is a Senior Research Associate at the California Workers' Compensation Institute.

Alex Swedlow is the President of the California Workers' Compensation Institute.

Acknowledgments

The authors would like to thank Bob Young, Stacy L. Jones, and Rena David of CWCI for their input and contributions in the drafting and preparation of this report.

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 81 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).

The California Workers' Compensation Institute is not affiliated with the State of California. This material is produced and owned by CWCI and is protected by copyright law. No part of this material may be reproduced by any means, electronic, optical, mechanical, or in connection with any information storage or retrieval system, without prior written permission of the Institute. To request permission to republish all or part of the material, please contact CWCI Communications Director Bob Young (byoung@cwci.org).

CWCI Spotlight Reports are published by the California Workers' Compensation Institute.

1333 Broadway, Suite 510

Oakland, CA 94612

<http://www.cwci.org>

Copyright ©2019 California Workers' Compensation Institute. All rights reserved.