



Research Update

Independent Medical Review Decisions January 2014 through December 2017

By Robby Bullis and Rena David

March 2018

Executive Summary

Key Findings

- After a large ramp up in 2014, the volume of Independent Medical Review (IMR) determination letters and individual treatment decisions stabilized in 2015 and 2016, and the latest results show slight reductions in 2017. There were 172,194 letters sent this year, down 2.2 percent from 2016, and the number of primary individual services reviewed declined 1.2 percent to 310,415.¹
- Overall, IMR physicians upheld Utilization Review (UR) modifications and denials 91.2 percent of the time in 2017, matching the 91.2 percent uphold rate for 2016. IMR uphold rates by medical service category ranged from 79.2 percent for evaluation and management service requests (primarily for consultations) to 94.0 percent for physical therapy requests.
- In 2017, IMR volume in the Los Angeles region and in the Bay Area was disproportionately high relative to medical service volume in those regions, while IMR volume in the rest of the state was disproportionately low.
- A small number of physicians continue to drive a high percentage of IMR requests, with the top 1 percent of requesting physicians (115 providers) accounting for 45 percent of the disputed service requests in the twelve months ending December 2017, with the top 10 individual physicians accounting for 12 percent of the disputed service requests. Furthermore, 9 of the 10 individual physicians associated with the highest number of IMR requests in 2016 were also on the top 10 list for 2017.
- Requests for pharmaceuticals continue to top the list of services submitted for IMR, accounting for nearly half of the services reviewed in 2017. Of those pharmaceuticals requested, 29 percent were opioids. Similar to 2016, IMR physicians upheld 92 percent of the UR denials and modifications of pharmaceutical requests, and more than 90 percent of the requests for opioids.

1. Individual service refers here to 'primary' decisions. Decisions that are 'associated' (and subservient) to a primary decision are not counted, as the 'uphold/overturn' choice made on the primary service determines the result of the ancillary service.

Background/Objective

California law requires workers' compensation claims administrators to have a (UR) program overseen by a medical director to ensure that treatment provided to injured workers is supported by clinical evidence outlined in the Medical Treatment Utilization Schedule (MTUS) guidelines adopted by the state or other applicable guidelines. While most treatment reviewed in UR is approved, there must be a mechanism for dispute resolution when treatment requests are modified or denied. Prior to the enactment of SB 863 in 2012, which included the adoption of IMR, disputes over treatment requests were settled by workers' compensation administrative law judges. The intent of IMR is to allow injured workers to dispute a UR modification or denial decision by requesting an independent medical opinion on whether the service is medically necessary under evidence-based medicine standards, and to preclude unproven, unnecessary, and potentially harmful treatment.

The IMR process first took effect in January 2013, and a year later CWCI initiated a series of studies that examined IMR outcomes based on data gleaned from IMR determination letters through June 2017.^{2,3,4} This report continues the IMR outcomes series by generating summary statistics compiled from IMR determination letters issued from January 2014 through December 2017.

The report examines:

- the total number of Independent Medical Review (IMR) determination letters issued during the 4-year study period, as well as the processing time by month
- the average number of medical service decisions per letter issued in 2017
- the total number of IMR decisions and the uphold rates (percentage of UR denials or modifications upheld or overturned by the independent medical reviewer) by:
 - Type of service
 - Drug type (for pharmaceutical IMRs)
 - Provider concentration
 - Accident year
 - Region
 - High-volume providers
- the percentage of IMR requests initiated by the injured worker rather than their attorney or other representative

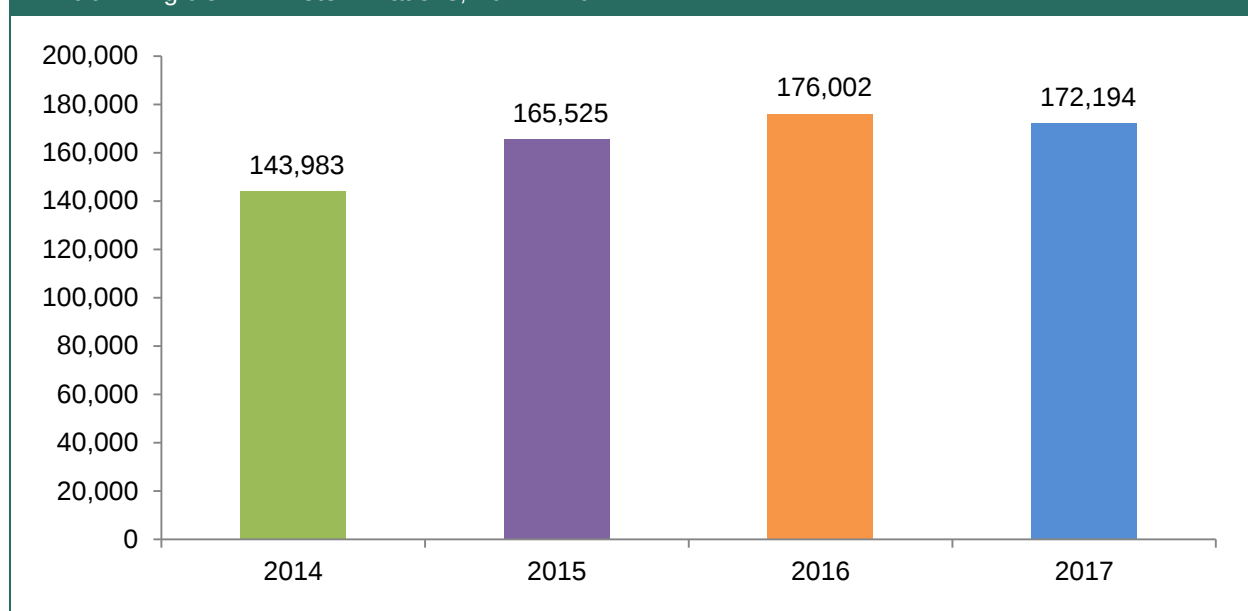
-
2. David, R., Jones, S., Ramirez, B., and Swedlow, A. "Independent Medical Review Outcomes in California Workers' Compensation," CWCI Research Update," April 2015.
 3. David, R., Jones, S., Ramirez, R., and Swedlow, A. "Medical Review and Dispute Resolution in the California Workers' Compensation System," CWCI Research Update, December 2015.
 4. David, R. "IMR Decisions, January through December 2015, CWCI Spotlight Report, February 2016; David, R., 1st Quarter 2016 IMR Outcomes," CWCI Spotlight Report, June 2016; David, R. and Bullis, R., "IMR Outcomes: January 2014 Through June 2017." CWCI Spotlight Report, September 2017.

Results

Number of IMR Determination Letters

For this study, the authors reviewed the 2014-2017 IMR determination letters generated by Maximus Federal Services (Maximus), the Independent Medical Review Organization that is under contract with the California Division of Workers' Compensation (DWC) to manage the IMR process. The total number of IMR determination letters issued by Maximus grew from 143,983 in 2014 to 165,525 in 2015 (+15.0 percent), then increased to 176,002 in 2016 (+6.3 percent) before edging down by 2.6 percent to 172,194 letters in 2017.⁵

Exhibit 1: Eligible IMR Determinations, 2014 – 2017



5. The numbers for 2014-2016 shown on this page are from the Division of Workers' Compensation IMR update presented by Acting Administrative Director, George Parisotto at the DWC 2017 Annual Conference in February 2017. The Institute analysis for 2014-2016 reflects data derived from 477,045 Final Determination Letters provided by Maximus. The letters were issued from 2014-2016 and comprise a 98.3 percent subset of the 485,510 letters reported by the DWC for this period and 99.3 percent of the letters reported for 2015 and 2016. For 2017, the data is derived from 171,405 letters provided by Maximus, which accounts for 99.5% of the 172,194 letters reported by the DWC on the Department of Industrial Relations website.

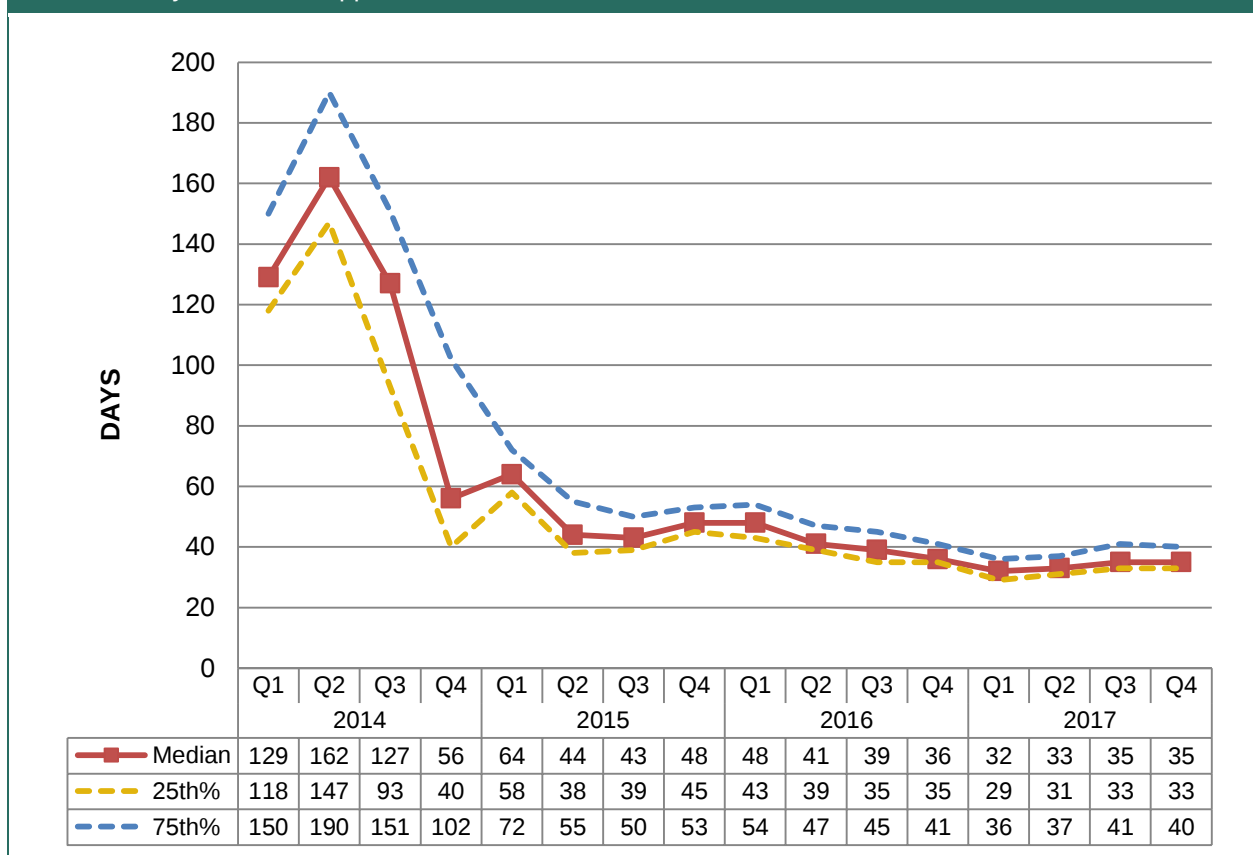
IMR Response Time

Each IMR determination letter shows the date of the UR denial or modification, the date the IMR application was received, and the date of the determination letter, which is used as the review completion date.

After Maximus receives an IMR application, it must confirm the eligibility of the application; request, receive, and process the medical records; and assign the case to a reviewing physician to complete the review. State law requires that Maximus issue an IMR determination letter within 30 days of receiving the application and all necessary records (up to 20 days are allowed for the receipt of necessary records, so Maximus has up to 50 days to issue the determination letter). Exhibit 2 shows the median time elapsed between Maximus' receipt of an IMR application and the date it issued the decision letter, with results broken out by the quarter in which the decision was issued.

As shown, the median IMR response time peaked at 162 days in the second quarter of 2014. Decision times declined precipitously in 2015 and continued to improve in 2016 and 2017, with the median number of days from Maximus' receipt of the application to the issuance of the decision letter ranging between 32 and 35 days in 2017. In addition, the 25th and 75th percentile figures noted in Exhibit 2 indicate that the lower variation between the median and the first and third quartile values achieved in 2016 have continued in 2017.

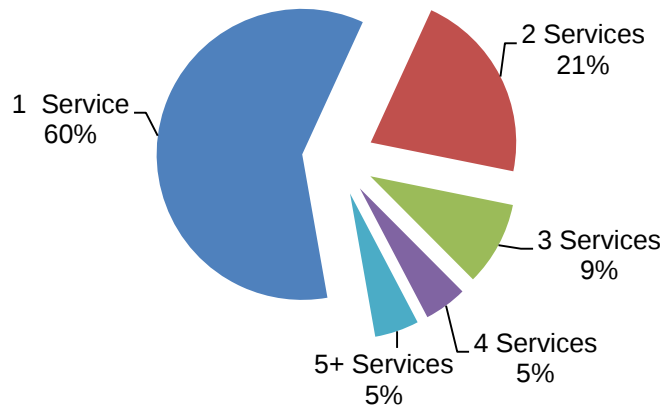
Exhibit 2: Days from IMR Application Date to Date of Decision Letter, 2014 – 2017



Number of Decisions per Determination Letter

IMR applications and determination letters often involve requests for multiple medical services. Exhibit 3 shows the distribution of the 2017 IMR letters by the number of requested medical services covered in the determination letter. Of the IMR determination letters issued in 2017, 60 percent involved a decision on a single medical service request, while the other 40 percent had decisions on multiple services, as noted below. The 2017 distribution shows almost no change from the prior year.⁶

Exhibit 3: Number of IMR Decisions per IMR Determination Letter, 2017



IMR Uphold Rates

Each medical service within an IMR letter is adjudicated separately by the IMR reviewer except when the decision is linked to the necessity of a primary service, such as surgery. As in prior analyses, the authors did not include those associated services in the study results. In 2017, about 9 percent of the requested services in the decision letters were identified as associated services. Of the 310,415 primary service requests included in the 2017 letters, 283,026 (91.2 percent) had the UR modification or denial upheld by the IMR physician, the same uphold rate as in 2016. This consistently high uphold rate shows that the vast majority of disputed modifications and denials made by UR physicians are found to be appropriate.

Exhibit 4: IMR Uphold and Overturn Rates, Primary Services in 2014 – 2017 Determination Letters								
	Number of Primary Service Decisions				Percent of Decisions			
Result	2014	2015	2016	2017	2014	2015	2016	2017
Upheld UR	233,598	257,285	286,726	283,026	91.2%	88.4%	91.2%	91.2%
Overturned UR	22,417	33,600	27,548	27,389	8.8%	11.6%	8.8%	8.8%
Total	256,015	290,885	314,274	310,415	100.0%	100.0%	100.0%	100.0%

6. In 2016, 60 percent of the IMR decision letters covered one service, 20 percent covered 2 services, 10 percent covered 3 services, 5 percent covered 4 services, and 5 percent covered more than 5 services.

IMR Distribution and Uphold Rates by Medical Service Category

Medical service requests that are modified or denied by a UR physician and then submitted for IMR are heavily concentrated in just a few medical service categories, led by pharmaceutical requests, which, as in the Institute's studies of 2014 to 2016 IMR outcomes, accounted for nearly half of all IMR reviewed services in 2017. Physical therapy; injections; durable medical equipment, prosthetics, orthotics and supplies; and MRI/CT/PET scans rounded out the top five categories of medical services that underwent IMR. Combined, these five categories of services accounted for more than three quarters of the 2017 IMR determinations.

The uphold rates were also fairly consistent across most service categories, for the most part falling between 85 percent and 95 percent. As in previous years, the IMR uphold rate was lowest (79.2 percent) for Evaluation and Management (E/M) service requests, which consisted primarily of referrals for consultations, though E/M requests continued to account for a very small share (1.6 percent) of IMR reviewed services in 2017.

The overall IMR uphold rate across all categories was 91.2 percent in both 2016 and 2017. Uphold rates were fairly stable across all categories, with Surgery showing the greatest increase (up 2.2 percentage points from 89.0 percent in 2016 to 91.2 percent in 2017) while Laboratory services showed the largest decrease (down 2.2 percentage points from 88.8 percent to 86.6 percent) over the same time frame.

Exhibit 5: IMR Distribution & Uphold Rates by Medical Service Category, 2014 – 2017								
	2014	2015	2016	2017	2014	2015	2016	2017
Service Requested	% of Service Requests				% Upheld			
Pharmaceuticals	44.5%	49.1%	47.9%	46.0%	91.9%	89.7%	92.6%	92.0%
Physical Therapy	9.4%	8.8%	9.3%	10.2%	93.9%	92.5%	93.5%	94.0%
Injections	6.9%	6.8%	7.3%	7.9%	91.8%	87.3%	89.4%	89.5%
DME/Prosth/Ortho/Supplies	9.3%	7.8%	7.3%	7.1%	93.5%	90.0%	91.7%	92.2%
MRI/CT/PET	3.7%	4.1%	4.4%	4.4%	89.1%	86.4%	88.6%	89.3%
Surgery	4.3%	3.6%	3.6%	3.8%	87.9%	85.9%	89.0%	91.2%
Diagnostic Test / Measure	4.5%	3.5%	3.5%	3.2%	87.8%	84.6%	91.4%	91.4%
Laboratory Services	2.6%	2.7%	3.2%	3.1%	86.9%	82.9%	88.8%	86.6%
Acupuncture	2.1%	2.2%	2.2%	2.4%	94.1%	91.6%	93.6%	94.0%
Evaluation and Management	1.7%	1.7%	1.7%	1.6%	78.7%	68.2%	79.0%	79.2%
Chiropractic Manipulation	1.8%	1.6%	1.7%	1.6%	95.3%	90.7%	91.9%	93.8%
Psych Services	2.1%	1.7%	1.7%	1.6%	85.0%	79.6%	83.3%	82.7%
Other	7.2%	6.4%	6.4%	7.2%	89.9%	85.5%	88.1%	88.7%
Total	100.0%	100.0%	100.0%	100.0%	91.2%	88.4%	91.2%	91.2%

Prescription Drug IMR Distribution and Uphold Rates by Drug Category

Disputes involving prescription drug requests can arise over a number of factors, including the appropriateness and strength of the drug, the quantity and duration of the prescription, and contra-indications with other prescribed medicines, all of which are considered by UR and IMR physicians. About 142,800 prescription drug requests went through IMR in 2017. In 92.0 percent of those cases, the Independent Medical Review physicians upheld the UR physicians' modification or denial.

Exhibit 6 shows the distribution of the pharmaceutical IMR decisions by drug category, as well as the percentage in which the UR physician's modification or denial of the pharmaceutical request was upheld by IMR. As in the past, requests for opioid painkillers topped the list in 2017, accounting for 29.1 percent of all pharmacy IMR decisions – up slightly from 28.3 percent in 2016, though the UR decision to modify or deny these requests was upheld in 90.3 percent of the IMR determinations – the same uphold rate as in 2016. Uphold rates for all drug categories remained relatively stable from 2016 to 2017. Antidepressants (often used in occupational medicine for neuropathic pain) continue to have the highest IMR overturn rates, with 18.1 percent of the UR denials or modifications for antidepressants overturned in 2017.

Exhibit 6: Distribution & Outcomes of Rx IMR Decisions by Drug Type, 2015 – 2017						
	% of Rx Drug Requests			% Upheld		
Rx Drug Category	2015	2016	2017	2015	2016	2017
Analgesics-Opioid	29.7%	28.3%	29.1%	88.1%	90.3%	90.3%
Musculoskeletal Therapy	11.8%	12.6%	12.8%	96.1%	96.9%	97.2%
Dermatologicals	9.8%	10.7%	11.4%	94.4%	96.1%	96.4%
Anti-Inflammatory	7.2%	8.3%	9.4%	80.4%	89.1%	88.2%
Ulcer Drugs	7.2%	7.2%	7.0%	89.0%	93.0%	91.8%
Anticonvulsants	5.1%	5.5%	6.0%	80.9%	87.0%	87.7%
Compounded	8.1%	6.5%	4.2%	99.4%	99.5%	99.2%
Antidepressants	3.6%	3.9%	3.9%	73.0%	83.3%	81.9%
Hypnotics/Sedatives	3.9%	3.7%	3.0%	97.5%	98.3%	97.7%
Antianxiety	2.7%	2.7%	2.6%	96.4%	97.2%	95.1%
Analgesics - Non-Narcotic	0.9%	1.2%	1.6%	86.3%	91.4%	91.3%
Other	10.1%	9.5%	9.0%	87.9%	90.9%	90.0%
Total	100.0%	100.0%	100.0%	89.8%	92.6%	92.0%

The use of compounded drugs has been a major source of concern and scrutiny in workers' compensation. Compounded drugs are not FDA approved and are individually formulated in physician offices through kits or other means, or in compounding pharmacies. For the purposes of this study, the authors separated requested pharmaceuticals into FDA-approved and over-the-counter drugs versus compounded drugs (typically creams or gels) as identified in Exhibit 6, with further detail shown in Exhibit 7.⁷ Requests for these compounded drugs accounted for 4.2 percent of the 2017 IMRs, down from 6.5 percent of the IMRs in 2016, and had very low IMR overturn rates in both years: 0.5 percent in 2016; 0.8 percent in 2017.

7. The refined search logic applied to the prescription drug data in the study sample allowed the authors to more accurately identify compounded medications, so the proportions of 2014 – 2017 IMRs that involved compounded drug requests, as shown in Exhibit 6, represent more precise results than in CWCI's prior studies.

Dermatological IMR Distribution and Uphold Rates by Category

Dermatologicals are characterized primarily by their method of application. It can be helpful to examine the underlying drug that is being applied. Approximately 91 percent of (non-compounded) dermatological drugs are from the following three drug groupings: Local Anesthetics, Anti-Inflammatory Agents, and a group of drugs the authors have labeled as “Manufactured Topicals.” Manufactured topicals are over-the-counter (OTC) topical medications which have one NDC (as opposed to the multiple ingredient NDCs associated with pharmacy-compounded drugs); are marketed through exclusive channels for physician dispensing; are often re-labeled with a different NDC; and are not FDA-approved. These topicals are not found in drug stores, and bear a significantly higher price than similar, readily-available, OTCs.

Like compounded drugs, manufactured topicals have represented a declining share of the dermatological drugs over the past two years, falling from 31.8 percent of the dermatologicals in 2015 to 23.5 percent in 2017. Also, as with compounded drugs, IMR uphold rates for UR denials or modifications of manufactured topical drug requests are consistently very high, with the latest results showing independent medical reviewers upheld the UR determination 98.4 percent of the time in 2017.

Exhibit 6a: Distribution & Outcomes of Dermatological IMR Decisions by Drug Category, 2015 – 2017

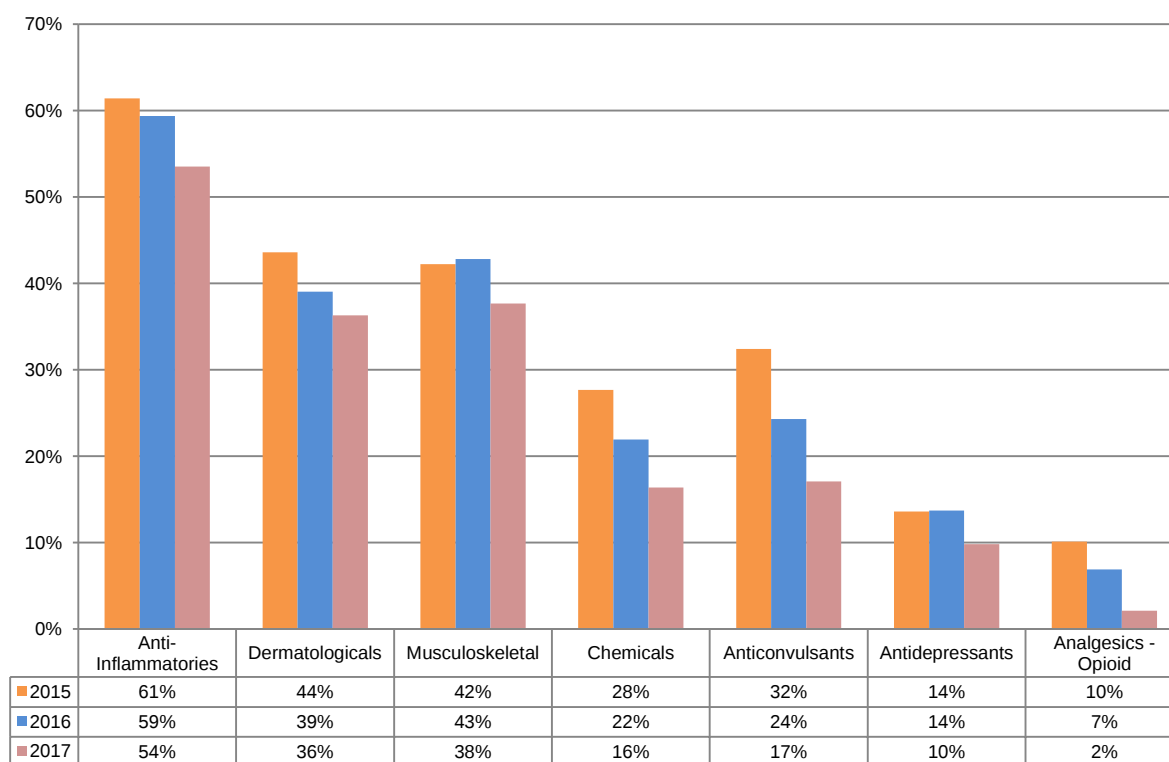
	2015	2016	2017	2015	2016	2017
Drug Class	% Derm	% Derm	% Derm	% Upheld	% Upheld	% Upheld
Local Anesthetics – Topical	31.5%	32.9%	34.2%	95.0%	96.6%	97.1%
Anti-inflammatory Agents – Topical	26.5%	29.9%	33.2%	91.0%	93.8%	94.7%
Manufactured Topical	31.8%	28.7%	23.5%	97.7%	98.6%	98.4%
Corticosteroids – Topical	0.2%	0.3%	2.0%	84.0%	82.9%	98.4%
Liniments	3.6%	2.1%	1.5%	87.8%	91.3%	92.8%
Glabellar Lines (Frown Lines) Agents	0.8%	0.6%	0.6%	88.5%	88.0%	89.9%
Opioid Agonists	0.3%	0.1%	0.2%	100.0%	100.0%	100.0%
Antipruritics – Topical	0.1%	0.0%	0.2%	100.0%	100.0%	100.0%
Other	5.2%	5.4%	4.5%	93.4%	96.3%	94.5%
Total	100.0%	100.0%	100.0%	94.4%	96.1%	96.4%

Analysis of Ingredients Within Compounded Drugs

The anti-inflammatory drug category (e.g., Flurbiprofen, Ketoprofen, and Diclofenac) was the most common drug type requested for compounded drugs that went through IMR in 2017, with 54 percent of the disputed compounded drug requests containing an anti-inflammatory.

Analgesic opioids were included in 10 percent of the compounded drug requests that went through IMR in 2015, but that percentage dropped to 7 percent in 2016 and to 2 percent in 2017, with Tramadol being the most common opioid in the disputed compound drug requests.

Exhibit 7: Percent of Compounded Rx Requests Containing Select Ingredient, 2015 – 2017



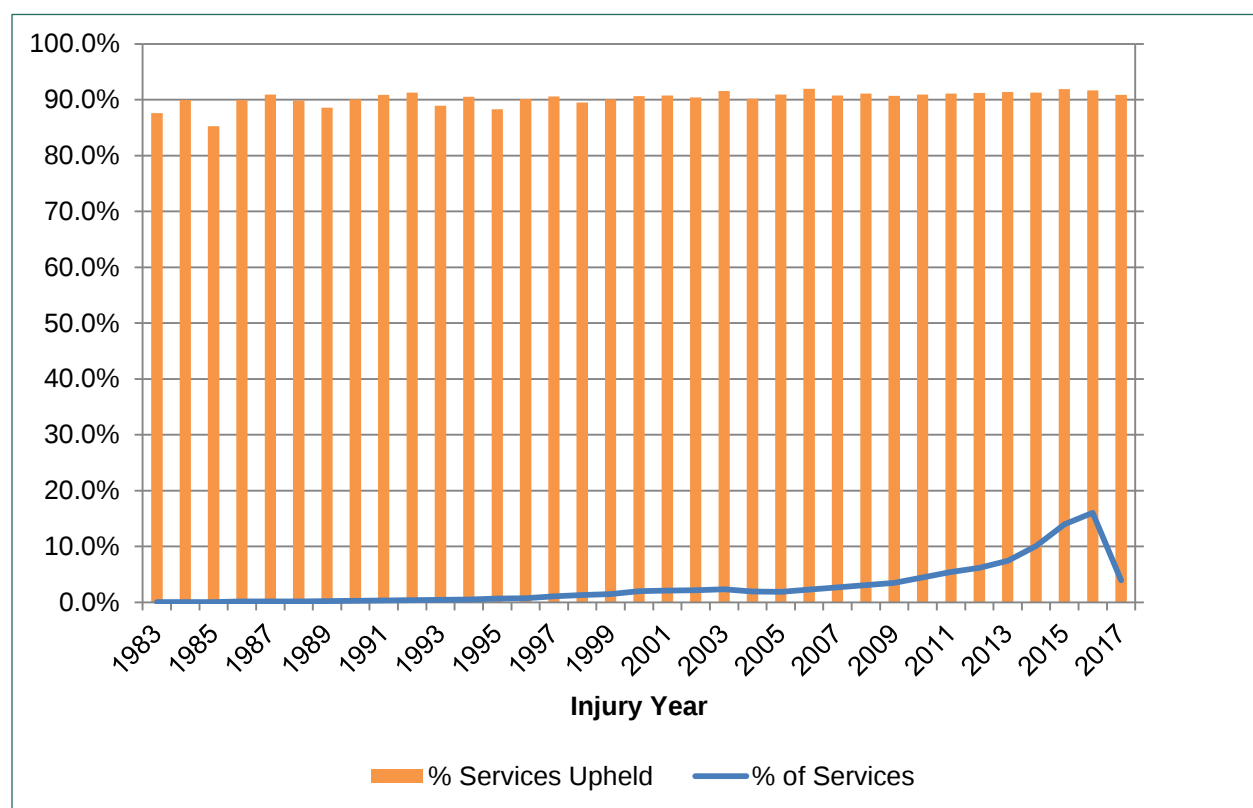
2017 IMR Letters, Services and Uphold Rates by Injury Year

Each IMR determination letter includes the date of injury on the underlying claim, so the authors used this information to group the 2017 IMR determinations by accident year. Exhibit 8 shows the distribution of the 2017 IMR medical service requests and uphold rates for claims from AY 1983 to AY 2017.⁸

In 2017, 80 percent of the disputed medical services resolved through IMR came from claims that were at least two years old, as illustrated by the long left tail on the distribution shown in Exhibit 8. In general, the earlier the accident year, the smaller the share of the medical disputes that went through IMR, while the more recent the accident year, the higher the share (the prime exception being the current year, 2017). Just over half of the medical service disputes resolved by IMR in 2017 came from AY 2013 to 2017 claims.

As in the prior studies, however, the age of the claim has only a minor influence on the IMR outcome, as the uphold rates for all accident years studied ranged from 85.3 percent to 92.0 percent. Among the 2017 IMR decisions, 92 percent involved medical disputes from AY 2000 to 2017 claims, and the uphold rate following IMR was 91.3 percent, while the uphold rate for medical disputes from AY 1983 to AY 1999 claims was 89.8 percent.

Exhibit 8: 2017 IMR Services and Outcomes by Injury Years



8. Approximately 0.3 percent of the disputed medical services that went through IMR in 2017 involved pre-1983 accident year claims.

Distribution of IMR Decisions and Uphold Rates by Region

An address for the injured worker or his or her representative is noted on each IMR determination letter, which enabled the authors to use the ZIP codes from the 2017 letters to determine the prevalence of IMR in different regions of the state. The proportion of IMR decisions for each region was then compared to the percentage of all paid medical services from that region as identified by CWCI's Industry Research Information System⁹ to see where IMR was disproportionately high or low relative to service volume.

When compared to the percentage of services in each region, the volume of IMR decisions in 2017 was disproportionately high in Los Angeles and the Bay Area, which together accounted for 54.3 percent of the decisions, but only 37.0 percent of all medical services.

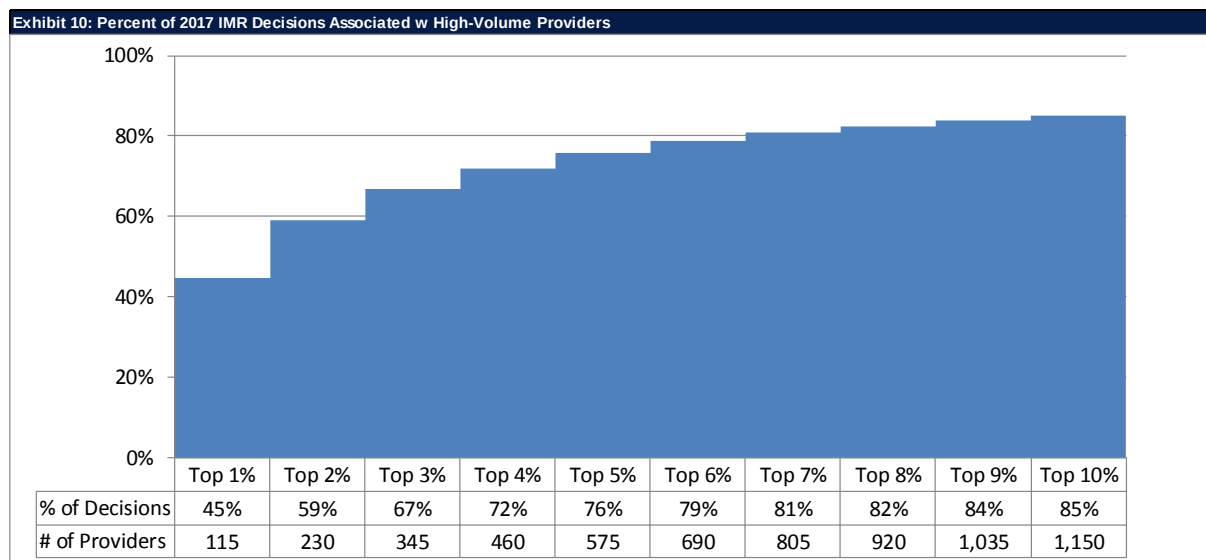
The regional breakdown shows slight variations in uphold rates among different areas of California, ranging from a low of 89.5 percent in San Diego and the Central Coast to a high of 93.1 percent in Los Angeles.

Exhibit 9: Distribution of 2017 IMR Decisions and Uphold Rates by Region			
	% of Decisions	% of Services	% Upheld
Los Angeles	32.5%	20.7%	93.1%
Bay Area	21.8%	16.3%	89.7%
Valleys	17.3%	26.1%	90.8%
Inland Empire/Orange	15.0%	17.7%	91.2%
Central Coast	6.2%	7.9%	89.5%
San Diego	5.4%	6.8%	89.5%
Northern Counties	0.9%	2.4%	90.4%
Sierras	0.9%	2.1%	89.7%
Total	100.0%	100.0%	91.2%

9. The IRIS database is a proprietary database maintained by CWCI that contains detailed information, including employee and employer characteristics, medical service data, and benefit and other administrative cost detail on more than 5.3 million California workers' compensation claims. The regional medical service distribution was based on data from January 1, 2017 to June 30, 2017.

Concentration of IMR Determinations Among High-Volume Providers

IMR determination letters also include the names of the medical providers who requested the disputed medical services. The IMR letters issued in 2017 produced 11,500 unique provider names. As in the prior research, the latest data show that a small number of providers accounted for a disproportionate share of the medical service requests that went through IMR in the 12 months ending December 2017. Exhibit 10 shows that the 115 physicians who comprised the top 1 percent of medical providers named in the 2017 IMR letters were linked to 45 percent of the disputed medical service requests that went through IMR, while the 1,150 physicians who comprised the top 10 percent were named in 85 percent of the requests.



Concentration of IMR Determinations Among Top 10 Providers

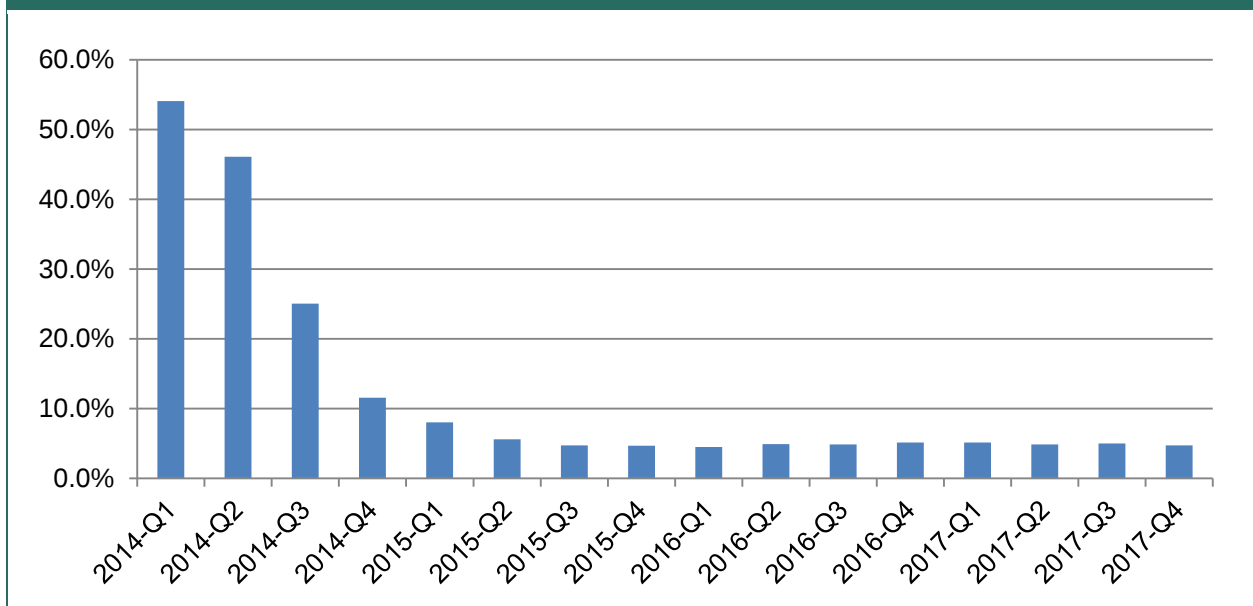
The high concentration of disputed medical services associated with a small number of high-volume medical providers is further evidenced by Exhibit 11, which shows the percentage of IMR determination letters, disputed services, and claims linked to the 10 individual physicians with the highest number of IMR decision letters in 2017. Together, these 10 physicians – primarily orthopedists, rehab, and pain management specialists – were associated with 37,691 IMR service decisions rendered in 2017, or 12.1 percent of all IMR determinations. Furthermore, comparing the top 10 provider lists from 2016 and 2017 shows that 9 of the 10 individual providers with the highest number of IMR requests in 2016 remained on the top 10 list in 2017.

Exhibit 11: 2017 IMR Letters and Decisions – Top 10 Providers							
Requesting Provider	# of IMR Decision Letters	# of Medical Service Decisions	% of Total Medical Service Decisions	% of UR Decisions Upheld by IMR	Rank in 2016	Requesting Physician Specialty	Requesting Provider Region
Provider 1	1,207	6,773	2.2%	98.9%	2	General Practice	SCAL
Provider 2	2,568	4,157	1.3%	86.3%	3	Phys Med & Rehab	NCAL
Provider 3	2,407	3,964	1.3%	87.2%	6	Phys Med & Rehab	NCAL
Provider 4	2,042	3,891	1.3%	90.1%	1	Orthopedist	SCAL
Provider 5	1,251	3,778	1.2%	97.3%	4	Orthopedist	SCAL
Provider 6	1,478	3,504	1.1%	96.4%	7	Orthopedist	SCAL
Provider 7	1,107	3,140	1.0%	95.5%	5	Orthopedist	NCAL
Provider 8	1,884	2,919	0.9%	83.7%	9	Pain Management	NCAL
Provider 9	1,548	2,841	0.9%	93.9%	21	Pain Management	NCAL
Provider 10	1,347	2,724	0.9%	89.1%	8	Pain Management	SCAL
Top 10	16,839	37,691	12.1%	92.4%			

Initiation of Requests for Independent Medical Review

Independent Medical Review can be requested directly by the injured worker or by their representative (most commonly an applicant attorney). Although the full implementation of IMR started in July 2013, the decision letters were not generated in great volume until after January 2014. Just over half of the decision letters sent in the first quarter of 2014 were in response to IMR requests made directly by injured workers. This percentage dropped rapidly during 2014, falling from 54.1 percent in the first quarter to 11.6 percent in the fourth quarter. By the third quarter of 2015, the percentage of decision letters responding to IMR requests generated by an injured worker rather than a representative declined to about 5 percent, a proportion that has remained stable through 2017.

Exhibit 12: Percent of IMR Requests Initiated by Injured Workers



Summary

In 2017, the volume of IMR determination letters and treatment decisions declined slightly from the 2016 level, with the number of letters falling 2.2 percent and the number of service decisions falling 1.2 percent. The volume of IMR letters and the volume of treatment decisions both appear to have plateaued, albeit at a high level. At the same time, the latest results show that the uphold rates remain fairly consistent, with IMR physicians concurring with the UR decisions in about 9 out of 10 cases. As in the Institute's earlier analyses of 2014, 2015, and 2016 IMR data, nearly half of the requested medical services that went through an Independent Medical Review in 2017 were prescription drug requests, with over a quarter of those being requests for opioid analgesics. Recent legislation, SB 1160 (Utilization Review) and AB 1124 (Drug Formulary), will drive changes in the services eligible for prospective utilization review, so these initiatives have the potential of aligning more treatment to the Medical Treatment Utilization Schedule and lowering IMR volume in the future. CWCI will continue to monitor IMR activity in order to assess the impact of these and other changes to the workers' compensation medical dispute resolution system.

Acknowledgements

The authors would like to thank the following CWCI staff members for their input and contributions in the drafting and preparation of this report:

- **Stacy L. Jones**, Senior Research Analyst, California Workers' Compensation Institute.
- **Denise Niber**, Claims and Medical Director, California Workers' Compensation Institute.
- **Bob Young**, Communications Director, California Workers' Compensation Institute.

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 83 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 Research Updates are published by the California Workers' Compensation Institute.

1333 Broadway, Suite 510

Oakland, CA 94612

<http://www.cwci.org>

Copyright ©2018 California Workers' Compensation Institute. All rights reserved.