

The Insurance Federation of Pennsylvania, Inc.

**1600 Market Street
Suite 1720
Philadelphia, PA 19103
Tel: (215) 665-0500 Fax: (215) 665-0540
E-mail: smarshall@ifpenn.org**

February 15, 2017

To: The Honorable Members of the House Labor and Industry Committee

From: Samuel R. Marshall

Re: HB 18 - Confronting the opioid problem in workers compensation

The opioid problem needs no introduction. We appreciate the actions the General Assembly and the Governor have taken so far, and we appreciate everyone's recognition that this problem will take years to address, and will need different approaches that reflect both the complicated nature of opioid prescription and addiction and the complicated nature of our health care system.

You've heard it from us and others: If the goal is curbing opioid addiction, the focus has to be on inappropriate or excessive prescribing of opioids at the outset. We're grateful that you are considering this in the context of the workers compensation system.

In doing so, you are recognizing there is a unique problem of opioid abuse in workers compensation that demands a unique solution. Here are the facts, as documented by the Workers Compensation Research Institute in its June, 2016 study; we've shared the full study with the committee, and I've included its key findings as part of this testimony.

- Workers compensation sees a uniquely high percentage of opioid prescriptions, as compared with health insurance generally. And Pennsylvania is one of the highest states - so we are the outlier of the outlier, not the title injured workers want.
- Sadly, injured workers aren't getting better treatment here because they are getting more opioids than in other states. Injured workers are no different than other patients: The problem is with over-, not under-, prescription of opioids.

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Rep. Mackenzie has sponsored a bill to address this problem by improving the provision and oversight of medical care – and particularly drug prescribing - in Pennsylvania's workers compensation system.

- **First, the bill requires the Department of Labor and Industry to select, after public comment, a nationally recognized, evidence-based drug formulary for evaluating the reasonableness prescriptions.**

This is being done across the country – hence the reference to a nationally recognized formulary. You'll hear more from the later panel; our experience in other states with good drug formularies is that opioid prescriptions have dropped, but not the quality of medical care in getting injured workers better.

- **Second, the bill requires that Utilization Review Organizations be certified by the Health Department – meaning they meet the standards set by URAC, the Utilization Review Accrediting Council, which the Health Department requires of health insurers.**

The workers compensation system provides that questions about necessary care – whether with prescribed drugs or generally – go to utilization review organizations approved by the Department and randomly assigned by it to remove the possible bias of either the employer or the patient choosing “its” URO.

The bill upgrades this: It requires that the UROs assigned by the Department match the quality of those required by the Health Department for all health insurers. This recognizes that a drug formulary is only as strong as the URO system reviewing it. Otherwise, you have a great text book but a bad teacher.

So this bill addresses the two weaknesses that make our workers compensation uniquely susceptible to opioid abuse: It establishes a meaningful drug formulary and high-quality UROs, so we'll be able to identify and stop the abuses that confront the system.

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We recognize there are always going to be questions surrounding any change to a long-established system, and we'll try to answer any you have. And we thank Chairmen Kauffman and Galloway for making this the first item for the committee's consideration this session, which we hope reflects your collective commitment to addressing this problem.

Still, this is neither a newly identified problem, nor a new proposal to address it: Rep. Mackenzie has offered this both in this committee and before last year's hearings of the Senate and House Policy Committees on opioid abuse, and he's had an open-door policy to hear all perspectives.

So I'll close with a question for others: If you don't support this, what do you propose? Others may disagree about this as a solution, and I'm interested in addressing their concerns. But I'm also interested in what ideas they have, because the time for action is now, and we have yet to hear any other solutions.



INTERSTATE VARIATIONS IN USE OF OPIOIDS, 3RD EDITION

*Vennela Thumula
Dongchun Wang
Te-Chun Liu*

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WORKERS COMPENSATION RESEARCH INSTITUTE
CAMBRIDGE, MASSACHUSETTS

EXECUTIVE SUMMARY

The dangers of opioid¹ misuse resulting in death and addiction constitute a top priority public health problem in the United States. The growing public concerns regarding opioid overuse and abuse are shared by the workers' compensation community. In recent years, numerous efforts have been made at the federal, state, and organization levels to reduce opioid overuse.² This study is an update of previous studies,³ examining the interstate variations and trends in the use of opioids and prescribing patterns of pain medications across 25 states, using data through March 2014.⁴ We observed noticeable decreases in opioid utilization in the majority of states over the latest study period.⁵ With a few exceptions, the qualitative findings on interstate variations have not changed.

This information should be useful for (1) state officials who wonder if the use of opioids is unusual in their state, (2) payors and managed care companies looking to set priorities for targeting opioid management programs, (3) injured workers and worker advocates looking to understand the extent of the problem in their state, and (4) providers who wonder what the prescribing norms in their state may be and if the state norms are unusual.

SUMMARY OF MAJOR FINDINGS

INTERSTATE VARIATIONS IN OPIOID USE

- Opioid use was prevalent among nonsurgical claims with more than seven days of lost time. In 2012/2014,⁶ about 65 to 80 percent of these injured workers with pain medications received opioids in most states. A slightly higher proportion of injured workers with pain medications in Arkansas (86 percent) and Louisiana (85 percent) received opioids. Frequency of opioid use was high even in states with lower prevalence among the 25 study states, with at least half of the claims with pain medications receiving opioids in New Jersey (54 percent) and Illinois (56 percent).
- The average amounts of opioids received by injured workers in Louisiana, New York, and Pennsylvania were the highest among the 25 study states for 2012/2014 claims with opioids (see Figure A).⁷ In

¹ The term *opioids* used in this report refers to prescription opioids for pain relief, including natural (codeine, morphine), semisynthetic (hydrocodone, oxycodone, etc.), and synthetic (methadone, fentanyl) opioids.

² See Technical Appendix A for a discussion of the legislative, regulatory, and industry changes that address opioid misuse.

³ See Wang, Mueller, and Hashimoto (2011) and Thumula, Wang, and Liu (2014).

⁴ The 25 states are Arkansas, California, Connecticut, Florida, Georgia, Illinois, Indiana, Iowa, Kansas, Louisiana, Maryland, Massachusetts, Michigan, Minnesota, Missouri, New Jersey, New York, North Carolina, Oklahoma, Pennsylvania, South Carolina, Tennessee, Texas, Virginia, and Wisconsin. These states represent over two-thirds of the workers' compensation benefits paid in the United States.

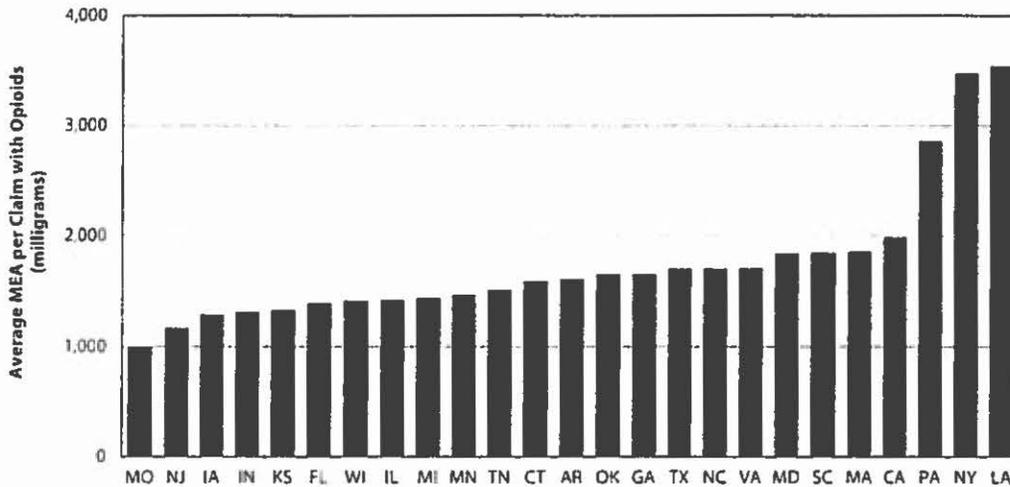
⁵ While finding key factors attributable to the changes we observed in this study needs more rigorous analysis, we note policy changes that occurred over the study period, which provides context to the readers in interpreting the results.

⁶ 2012/2014 refers to nonsurgical claims with more than seven days of lost time with injuries from October 1, 2011, through September 30, 2012, and prescriptions filled through March 31, 2014. The average 24 months of experience used in this study may not capture the full utilization of opioids because certain types of opioids are typically used more often at a later stage of medical treatment.

⁷ Throughout the report, we use the term *average amount of opioids received by an injured worker or average amount of opioids per claim* to refer to the average morphine equivalent amount of opioids per claim with opioids. For each claim, a cumulative morphine equivalent amount was calculated across the different opioid prescriptions they received, taking into account the strength in milligrams of the prescribed opioid medication, the analgesic potency ratio between the specific opioid and morphine, and the quantity of the prescription.

Louisiana and New York, the average injured worker received over 3,400 milligrams of morphine equivalent opioids per claim,⁸ which was double that in the median state and more than three times the number in the states with the lowest use (Missouri, for example).⁹ To illustrate, a morphine equivalent amount of 3,400 milligrams per claim is equivalent to an injured worker taking a 5-milligram Vicodin[®] tablet every four hours for nearly four months continuously, or a 120-milligram morphine equivalent daily dose for four weeks. Pennsylvania also had an unusually higher amount of opioids per claim of 2,860 milligrams, which was 78 percent higher than the median state. Considering our underlying sample of nonsurgical claims, the amount of opioids used by the average injured worker in Louisiana, New York, and Pennsylvania is striking.¹⁰

Figure A Average Morphine Equivalent Amount per Claim with Opioids,^a 2012/2014



Notes. The underlying data include nonsurgical claims with more than seven days of lost time that had prescriptions filled by injured workers over the defined period and paid for by a workers' compensation payor. 2012/2014 refers to claims with injuries occurring in October 1, 2011, through September 30, 2012, and prescriptions filled through March 31, 2014.

^a Reported are the mean values of MEA per claim with opioids after excluding a small percentage of claims that had unusually high amounts of opioids. See Chapter 2 for a description of how we identified claims with unusually high amounts of opioids.

Key: MEA: morphine equivalent amount.

⁸ The results reported are based on the amount of opioids per claim after excluding a small percentage of claims with unusually high amounts of opioids (also referred to as *claims with extreme values* in the report). Interstate variations are comparable with and without excluding these cases. See Table TA.B1 for details.

⁹ One may suspect that these states may have more serious injuries or a different mix of cases. In previous Workers Compensation Research Institute studies, we found little interstate difference in the average injury severity, and the impact of case mix appeared to be small (Belton and Liu, 2009; Yang et al., 2009).

¹⁰ Louisiana, New York, and Pennsylvania adopted reforms addressing opioid use in recent years. The data presented in this report are prior to the effective dates of some of these changes. In Louisiana, the revised Workers' Compensation Act in 2009 by the state legislature resulted in the creation of medical guidelines, including guidelines for chronic pain disorders, effective January 2011. Louisiana adopted several other changes related to controlled substance use in the 2014 legislature including Senate Bill (SB) 496 and SB 556, which became effective in August 2014. SB 496 set a standard for prescribing Schedule II drugs, including no refills, expiry of prescriptions in 90 days, and prescribers accessing the PDMP before writing the first Schedule II prescription for a patient for non-cancer pain. SB 556 required dispensers to report to the state PDMP by the next business day. In New York, the Internet System for Tracking Over-Prescribing (I-STOP) legislation was passed to mandate that physicians check the prescription drug monitoring program (PDMP) database prior to prescribing opioids starting in August 2013. The New York State Workers' Compensation Board adopted non-acute pain medical treatment guidelines effective December 2014. Pennsylvania passed a law to enhance the state PDMP in October 2014.

- We saw substantial interstate variation in both frequency and amount of opioid use. Combining these two measures, we observed that among the 25 study states, Louisiana, New York, and Pennsylvania were higher and Illinois, Missouri, and New Jersey were lower than the median state. Many factors may be associated with the interstate variations we observed, including workers' compensation policies for pharmaceuticals (e.g., pharmacy fee schedule, physician dispensing, provider choice, and treatment guidelines for pain management), policies outside workers' compensation (e.g., state prescription drug monitoring programs and state pain policies), and industry practices. While analyzing the impact of these factors is beyond the scope of this study, we provide some background information about these possible factors that may help the reader interpret the results (see Technical Appendix A).

TRENDS IN OPIOID USE

- Between 2010/2012 and 2012/2014, noteworthy reductions were seen in the number of injured workers receiving opioids for pain relief in Florida and New York (4 percentage point drop). The Florida trend may be associated with the series of changes aimed at reducing unnecessary opioid use in the state, including the comprehensive legislation House Bill 7095, which went into effect in July 2011, and the state prescription drug monitoring program (PDMP), which became operational in September 2011.^{11,12} The study period also saw several reforms in New York at the state level¹³ as well as reforms specific to workers' compensation.¹⁴ Examples include mandatory PDMP use, up-scheduling hydrocodone-containing products, and adoption of guidelines. Contrary to the general trend, the percentage of claims with pain medications receiving opioids increased in Iowa from 72 to 77 percent.¹⁵
- Over the study period from 2010/2012 to 2012/2014, the amount of opioids received by injured workers decreased in the majority of the study states. Three states (Massachusetts, Michigan, and Oklahoma) had larger reductions in the range of 24–31 percent, which is more than a 500-milligram decrease in the average amount of opioids per claim. In three more states (Maryland, North Carolina, and Texas) the

¹¹ Other reforms in Florida that occurred during the study period include: (1) Florida required all pain clinics treating patients with controlled substances to register with the state by January 2010; and (2) in the same year, the state law enforcement along with the Drug Enforcement Administration began Operation Pill Nation, an undercover operation to crack down on pill mills. This resulted in closure of some pain clinics in February 2011.

¹² House Bill (HB) 7095, referred to as the "Florida pill mill bill," regulates entities involved in the controlled substances supply chain, including physicians, pain management clinics, pharmacists, pharmacies, wholesalers, and manufacturers. For example, the bill banned physicians from dispensing Schedule II and III controlled substances effective July 2011, required physicians prescribing controlled substances to treat chronic pain to register as controlled substance prescribing entities with their licensing boards effective January 2012, created a standard of care for chronic pain management by registered controlled substance prescribers, and limited community pharmacies that can dispense Schedule II and Schedule III controlled substances to those that meet specific standards. Pharmacies were required to be re-licensed under the new standards by July 2012. The bill also defined and set operating procedures for pain management clinics and made minor changes to the PDMP. HB 7095 can be accessed at http://flsenate.gov/Session/Bill/2011/7095/Bill_Text/ct/PDF.

¹³ In New York, the Internet System for Tracking Over-Prescribing (I-STOP) legislation was passed to mandate that physicians check the PDMP database prior to prescribing opioids starting in August 2013. New York also rescheduled hydrocodone-containing products to Schedule II in February 2013, which led to a decrease in the hydrocodone-acetaminophen prescribing rate, as discussed later in Chapter 5.

¹⁴ In 2010, the New York State Workers' Compensation Board adopted guidelines that include recommendations for opioid use for treating injuries by body part, which contain quantity limits. For example, the maximum duration of opioid use recommended for the treatment of neck pain is two weeks. The guidelines indicate that extended use is acceptable in appropriate cases but requires documentation of medical necessity. The Board also adopted non-acute pain medical treatment guidelines effective December 2014, the effect of which may be observed as we update the study with more recent data.

¹⁵ This increase is consistent with the increase in controlled substance utilization reported in Iowa's prescription monitoring program's 2014 annual report. The 2014 annual report to the governor and Iowa legislature can be found at <https://pharmacy.iowa.gov/document/2014-annual-report-governor-and-iowa-legislature>.

average amount of opioids per claim decreased by 20 to 21 percent.¹⁶ Note that other studies also noted a reversal in trends of opioid prescribing over this period, after a consistent and rapid increase in opioid utilization starting in the 1990s.¹⁷ This turning point could be because of the numerous changes made at the federal, state, and organization levels in recent years to combat opioid overuse and abuse. The reductions we observed in the latest study period could be the start of a longer-term trend and should be closely monitored as more recent data become available.

- **Michigan:** We saw decreases in the average and median amount of opioids per claim (31 percent and 20 percent, respectively) in Michigan over the two-year period.¹⁸ The 31 percent drop followed an increase in the average opioid use between 2008/2010 and 2010/2012, as reported in the previous edition of this study. The decrease in the amount of opioids per claim in the latest study period was due to drops in the average number of prescriptions and pills per claim across the different types of opioids and dispensers.

The decrease in Michigan appears to be consistent with a policy initiative that provides private payors, including workers' compensation payors, access to the state PDMP for the purpose of ensuring patient safety and investigating fraud and abuse.^{19,20}

- **Oklahoma:** We saw a 29 percent decrease in Oklahoma in the average amount of opioids received by an injured worker. A 13 percent drop was seen at the median, and larger drops were seen among injured workers receiving higher amounts of opioids. The decrease in the average amount of opioids per claim was due to fewer prescriptions and a smaller number of pills per claim, as well as fewer stronger Schedule II prescriptions.²¹ Larger drops were seen in the average number of pills and prescriptions per claim for stronger Schedule II opioids compared with all other opioids. We observed drops in opioids dispensed at both physicians' offices and pharmacies.

The decrease in opioid use coincides with two changes in Oklahoma—(1) Oklahoma strengthened its PDMP over this time by requiring real-time reporting of scheduled opioids to the PDMP beginning January 1, 2012; and (2) effective March 2012, Oklahoma adopted Oklahoma treatment guidelines (OTG), which include recommendations for pain management.

- **Massachusetts:** Over the study period, the average amount of opioid usage by an injured worker in Massachusetts dropped by 24 percent while the median amount decreased by 14 percent. More significant drops were seen among claims with higher use of opioids (top 10 percent). The drops

¹⁶ In this study, we highlight states where the average amount of opioids per claim changed by more than 20 percent over the two-year study period and the change was statistically significant at the 10 percent level (see Table SA.2). California, Florida, Georgia, and New Jersey had statistically significant reductions in the average amount of opioids per claim in the range of 10 to 20 percent.

¹⁷ Dart et al. (2015) and Ahmedani et al. (2014).

¹⁸ We report two sets of measures because the distribution of morphine equivalent amounts per claim is skewed by relatively few claims with very high use of opioids.

¹⁹ In Michigan, health care payment or benefit providers are allowed to access the state PDMP until December 2016, as per the public health code, Act 368. Although this provision has been effective since 2002, the use of the state PDMP by workers' compensation payors and benefit providers may have increased over the study period due to increasing attention to the risks associated with opioid use.

²⁰ The decreasing trend may continue in Michigan in subsequent years as Michigan's Workers' Compensation Agency amended reimbursement rules requiring that opioid treatment beyond 90 days for non-cancer related chronic pain should not be reimbursed unless detailed physician reporting requirements and other processes are met. The new rules also provide incentive for compliance with the requirement.

²¹ Stronger Schedule II opioids prescribed to injured workers across the 25 study states include oxycodone, oxycodone-acetaminophen, fentanyl, morphine, oxymorphone, hydromorphone, tapentadol, and methadone. Hydrocodone-combination products, such as hydrocodone-acetaminophen, were not classified as stronger Schedule II opioids in this study because they were considered Schedule III opioids at the federal level during the time period covered by this study.

occurred between 2011/2013 and 2012/2014. A possible factor for this trend is the significant drop in the number of both pills (23 percent) and prescriptions (16 percent) for Schedule II opioids per claim.

The changes we observed may be associated with the many reforms enacted in Massachusetts to address overuse of opioids over this period—(1) the chronic pain treatment guidelines, which went into effect in March 2013; (2) mandatory physician education in pain management and opioid prescribing (effective February 2012); and (3) the enhancement of the utility of the state PDMP by providing unsolicited reports of patient controlled substance use history to prescribers (pilot effective July 2013; fully effective December 2013).

- **Other noteworthy trends:** The average amount of opioids received by injured workers in Maryland, North Carolina, and Texas decreased by 20 to 21 percent between 2010/2012 and 2012/2014. A sizable reduction was also seen in the median amount of opioids received by Texas injured workers (20 percent). At the same time, there was no significant change in the median amount of opioids per claim in Maryland (0 percent drop) and North Carolina (5 percent drop). These results indicate that the Maryland and North Carolina trend was driven by large reductions among claims with high use of opioids. Two changes coincided with the trend we observed in Texas—(1) the Texas Division of Workers' Compensation phased in a closed pharmacy formulary based on Official Disability Guidelines (ODG) starting in September 1, 2011; the formulary was fully effective on September 1, 2013;²² and (2) Texas passed legislation, effective September 2010, that requires pain management clinics that supply 50 percent of their patients with controlled substances to register with the state medical board and be more highly regulated.^{23,24} We are not aware of major policy changes that occurred in Maryland and North Carolina during the study period.²⁵ We also observed an unexpected increase in the average amount of opioids per claim in Wisconsin, although there was no significant change in the median.²⁶ Despite the increase, Wisconsin continued to be among the states with a lower amount of opioid use than the median state.

NOTEWORTHY PRESCRIBING PATTERNS

- There was substantial interstate variation in the mix of opioid drugs that were prescribed in the 25 study states. Physicians in some states were more likely to prescribe stronger opioids, such as oxycodone, over other opioids, like hydrocodone and tramadol, compared with their counterparts in other states. Pain

²² According to a recent study by the Texas Department of Insurance (TDI), fewer opioids and other not-recommended drugs are being prescribed after the reform (TDI, Texas Workers' Compensation Research and Evaluation Group, 2013).

²³ Several other states also passed similar laws in recent years to address improper prescribing and dispensing of opioid medications in some pain management clinics and physicians' offices (in states that allow physician dispensing of opioids). This type of law is often referred to as a "pill mill" legislation.

²⁴ Lyapustina et al. (2016) reported that Texas's pill mill law was associated with declines in average morphine equivalent dose (MED) per transaction and monthly opioid prescriptions. The reductions were more pronounced among prescribers and patients with higher rates of prescribing and utilization at baseline.

²⁵ The trend in North Carolina coincided with an increase in PDMP use by prescribers in the state. An evaluation of the North Carolina PDMP by the University of North Carolina showed a steady increase in the prescribers that registered and queried the state PDMP between 2009 and 2011.

²⁶ Over the two-year period, the median amount of opioids received by Wisconsin injured workers decreased by 7 percent and the average amount of opioids increased by 17 percent. The change in the average amount of opioids was driven by the top 5 percent of opioid users in Wisconsin. Note that the change in average amount of opioids received by Wisconsin injured workers was not statistically significant at the 5 percent level, although it was statistically significant at the 20 percent level.

medication prescriptions that were written for oxycodone (Percocet® and OxyContin®) varied from 1 to 2 percent in California, Illinois, and Texas to 29 percent in Massachusetts. Over 1 in 10 pain medication prescriptions were for oxycodone in several other states, including Connecticut, Maryland, Minnesota, New Jersey, New York, North Carolina, Pennsylvania, Virginia, and Wisconsin.

- Among injured workers using opioids, we observed concomitant use of other drugs like benzodiazepines (e.g., Valium® and Xanax®) and muscle relaxants (Soma® and Flexeril®). One in 15 injured workers with opioids in four states (Connecticut, Massachusetts, Michigan, and Wisconsin) also filled a benzodiazepine prescription within one week of the opioid fill. By contrast, less than 1 percent of injured workers with opioids received benzodiazepines in Texas, where preauthorization has been required prior to prescribing benzodiazepines since the implementation of the Texas formulary. We observed that opioids and muscle relaxants were frequently used concurrently by injured workers across study states. Among injured workers with opioids, 30 percent (in Massachusetts, Missouri, New Jersey, and Wisconsin) to 45 percent (in Florida and Louisiana) also filled a muscle relaxant prescription within one week of filling an opioid prescription. All three medications were concurrently filled by injured workers less frequently across the study states. We found that 1 to 2 percent of injured workers filled all three classes of medications within one week of each other in 2012/2014 in the majority of states.
- Prescribing patterns of the different types of pain medications changed between 2010/2012 and 2012/2014. We noticed an increase in the prescribing of non-opioid pain medications in most states.
 - The percentage of pain medication prescriptions that were written for non-opioid pain medications increased over the study period, i.e., pain medication prescriptions for opioids decreased in most states. Arkansas, Maryland, Massachusetts, and New York had the highest increases in use of non-opioid pain medications (5–6 percentage points). In Iowa, prescribing of non-opioid pain medications decreased over the study period by 5 percentage points.
 - Over the two-year period, there was a noticeable decrease in prescribing of oxycodone in Massachusetts. Physicians wrote 29 percent of pain medication prescriptions for oxycodone products in Massachusetts in 2012/2014, a 6 percentage point decrease over the two-year period. As discussed earlier, this drop in oxycodone prescribing may have contributed to the decrease in the amount of opioids received by the average injured worker in the state.
 - A notable drop of 7 percentage points was seen in the proportion of pain medications for hydrocodone-acetaminophen (Vicodin®) in New York, a state with a significant increase in the prescribing of non-opioid pain medications. This change may be partly explained by the up-scheduling of hydrocodone-acetaminophen from Schedule III to Schedule II in New York, effective February 2013.

DATA AND APPROACH

This study uses data comprising 337,424 nonsurgical workers' compensation claims with more than seven days of lost time that received at least one prescription for pain medications paid under workers' compensation in 25 states.²⁷ There were nearly 1.9 million paid prescriptions for pain medications, which

²⁷ We chose to focus on nonsurgical claims (claims that did not have a surgery during the study period) to make sure that the results of the interstate comparisons of the use of opioids are meaningful. See Chapter 2 and Technical Appendix B for a discussion on this choice.

include both opioid and non-opioid pain relievers, associated with these claims.²⁸ The claims represent injuries arising from October 1, 2009, to September 30, 2012, with prescriptions filled through March 31, 2014. The underlying data reflect an average 24 months of experience. The data included in this study represent 40–75 percent of workers' compensation claims in each state.

In order to aggregate diverse opioid medications, we converted each opioid to the morphine equivalent amount in milligrams that it represented. Stronger opioids represented a greater morphine equivalent amount. We compared the states based on the average morphine equivalent amount of opioids per claim. We also analyzed a variety of metrics that signal the use of opioids per claim, including the average number of opioid prescriptions per claim, the average number of opioid pills per claim, and the mix of stronger and weaker opioids prescribed.

LIMITATIONS AND CAVEATS

Several limitations should be noted. First, the claims used for this study may not be representative of all claims in some states. For a few states, we did not obtain data from some payors with relatively large market shares.²⁹ Second, the data used for this analysis are based on an average 24 months of experience, which is not necessarily sufficient to capture the full utilization of opioids. Certain types of opioids, especially long-acting opioids, are typically used more often at a later stage of medical treatment. Third, the reader should be reminded that we report measures for nonsurgical claims with more than seven days of lost time that had prescriptions paid under workers' compensation at the time of evaluation.³⁰ These results cannot be simply extrapolated to all nonsurgical claims in a state because the reported measures may overstate the prevalence of opioid use and amount of opioid use per claim to some extent. Lastly, the interstate comparisons in this study were not adjusted for interstate differences in the mix of cases and injury severity. However, the differences in these factors are unlikely to be large enough to affect the results, based on other Workers Compensation Research Institute studies that adjusted for these factors. A more detailed discussion on these limitations can be found in Chapter 2 of this report.

²⁸ Pain medications refer to prescription and over-the-counter strength medications indicated for pain relief, including opioids, non-steroidal anti-inflammatory drugs (NSAIDs), acetaminophen, and corticosteroids.

²⁹ We do not provide more detailed information regarding the states and data sources because of confidentiality concerns.

³⁰ There was substantial variation across states in the percentage of nonsurgical workers' compensation claims with more than seven days of lost time that received at least one prescription paid under workers' compensation across the study states, from 29 percent in Massachusetts to 73 percent in California in 2012/2014. See Chapter 2 of this report for a discussion of the reasons underlying this variation and how this measure affects the interstate comparisons of prescription utilization.

AMOUNT OF OPIOIDS PER CLAIM HIGHEST IN LOUISIANA, NEW YORK, AND PENNSYLVANIA

We found substantial interstate variation in the amount of opioids received by injured workers. Among the 25 states included in the study, Louisiana, New York, and Pennsylvania were the highest on the average morphine equivalent amount of opioids per claim, among injured workers with more than seven days of lost time who did not have surgery but received opioids.

Considering our underlying sample of nonsurgical claims, the results for New York and Louisiana were particularly striking. With an amount of opioids per claim of 3,473 and 3,540 milligrams of morphine equivalents, the per-claim utilization of opioids in these two states was more than double the median of the 25 study states and more than three times the average amount of opioids received per claim in the states with lower utilization (Figure 3.3).^{5,6} A morphine equivalent amount of over 3,400 milligrams per claim is fairly high. To illustrate, a morphine equivalent amount of 3,400 milligrams per claim is equivalent to an injured worker taking a 5-milligram Vicodin® tablet every four hours for three and half months continuously, or a 120-milligram morphine equivalent daily dose for a four-week period. Pennsylvania also had an unusually higher amount of opioids per claim of 2,860, which was 78 percent higher compared with the 25-state median.

Certain patterns were associated with the higher use of opioids in these three states. In Louisiana, physicians wrote and injured workers filled more opioid prescriptions for more opioid pills. As Table 3.1 shows, on average there were 6.9 prescriptions for opioids, totaling 405 opioid pills per claim, compared with 3.8 prescriptions and 189 pills per claim for opioids in the median state. Injured workers in New York and Pennsylvania who had opioids received 4.5 and 4.7 prescriptions on average, totaling 312 and 292 opioid pills per claim, respectively. The average number of pills per prescription for opioids was higher in New York and Pennsylvania than in other study states, contributing to the higher utilization of opioids in these two states. New York and Pennsylvania also had higher frequency of use of stronger Schedule II opioids⁷ compared with most states, which contributed to the higher average morphine equivalent amount per claim (Table 3.1).

The average amount of opioids received by California injured workers was 1,982 milligrams of morphine equivalents per claim, 23 percent higher than the 25-state median. In Maryland, Massachusetts, and South Carolina, the amount of opioids per claim was 1,837 to 1,856, 14–16 percent higher than the median state.⁸ See Figure 3.3 and Table 3.1. Compared with one of the states with the lowest use of opioids (Missouri), the average amount of opioids received by injured workers in these four states was about 86–100 percent higher (Figure 3.3).

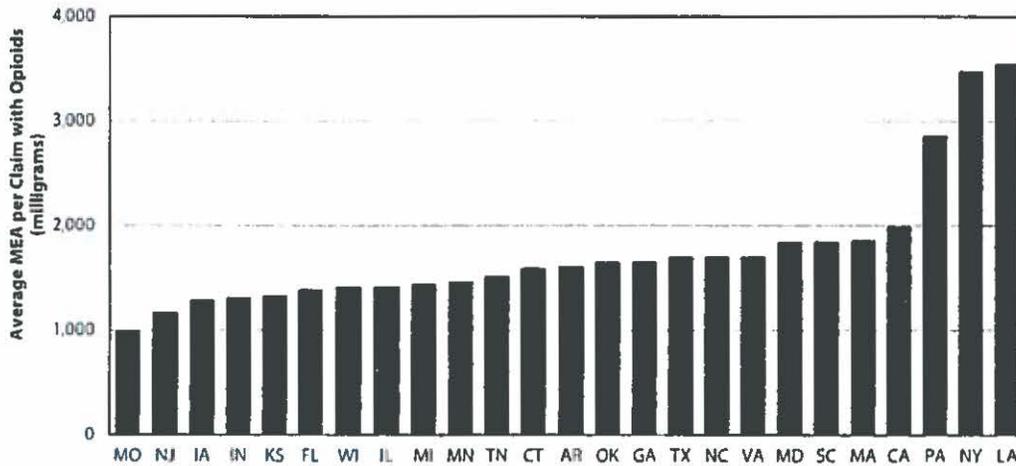
⁵ New York and Louisiana were also among the highest when we looked at the median values of the same measure and at different percentiles above the median (see Table TA.B3 in Technical Appendix B).

⁶ One may suspect that these states may have more serious injuries or a different mix of cases. However, in several previous WCRI studies, we found little interstate difference in the average injury severity, and the impact of case mix appeared to be small (Belton and Liu, 2009; Yang et al., 2009).

⁷ Stronger Schedule II opioids prescribed to injured workers across the 25 study states include oxycodone, fentanyl, morphine, oxymorphone, hydromorphone, tapentadol, and methadone. These drugs are available in long-acting or extended-release formulations and in higher strengths. All the Schedule II drugs listed above, with the exception of morphine, have a higher morphine conversion factor compared with other opioids frequently prescribed to injured workers, like hydrocodone-acetaminophen and tramadol. We do not classify hydrocodone-combination products, like Vicodin® and Lortab®, as stronger Schedule II opioids in this study because hydrocodone-combination products were considered Schedule III at the federal level during our study period, October 2009 through March 2014.

⁸ Massachusetts was different from the 25-state median at the 10 percent significance level (see Table SA.1). Maryland and South Carolina were not significantly different from the 25-state median at the 10 or 20 percent level. Note that differences that are not statistically significant in this analysis might become significant in an analysis with a larger sample size.

Figure 3.3 Average Morphine Equivalent Amount per Claim with Opioids,^a 2012/2014



Notes: The underlying data include nonsurgical claims with more than seven days of lost time that had prescriptions filled by injured workers over the defined period and paid for by a workers' compensation payor. 2012/2014 refers to claims with injuries occurring in October 1, 2011, through September 30, 2012, and prescriptions filled through March 31, 2014.

^a Reported are the mean values of MEA per claim with opioids after excluding a small percentage of claims that had unusually high amounts of opioids. See Chapter 2 for a description of how we identified claims with unusually high amounts of opioids.

Key: MEA morphine equivalent amount.

In three of the four states (California, Massachusetts, and South Carolina), injured workers received more prescriptions and more pills for opioids on average, compared with the median of the 25 states, which explains why the amount of opioids per claim was higher in these states (Table 3.1). A major factor contributing to the higher amount of opioids per claim in Massachusetts is the frequent prescribing of stronger Schedule II opioids in the state. Almost half of opioids prescribed in Massachusetts were for stronger Schedule II opioids, which was the highest among the 25 study states.

We saw a geographic pattern of prescribing more stronger Schedule II opioids like OxyContin® and Percocet® by physicians in the Northeast states (Connecticut, Massachusetts, New Jersey, New York, and Pennsylvania) and in two Midwest states (Minnesota and Wisconsin). Physicians in the Mid- and South-Atlantic states of Maryland, North Carolina, and Virginia also appeared to be more likely to write opioid prescriptions for stronger Schedule II opioids. However, more frequent prescribing of Schedule II opioids is not necessarily associated with higher amounts of opioids per claim. For instance, physicians in New Jersey prescribed Schedule II opioids more often, but the amount of opioids per claim in New Jersey was among the lowest of the 25 study states.

In Missouri and New Jersey, the average amount of opioids per claim was nearly 30 percent lower than the median state. In these two states, injured workers received fewer prescriptions per claim and fewer pills per prescription on average. In seven other states (Florida, Illinois, Indiana, Iowa, Kansas, Michigan, and Wisconsin) the average morphine equivalent amount was at least 10 percent lower than the median state. The amount of opioids per claim was more or less around the median (± 10 percent of the median state) for all other states.

Table 3.1 Interstate Comparisons of Utilization of Opioids, 2012/2014

	NJ	IL	CT	MD	MI	CA	PA	FL	MO	NY	MA	KS	TN	IN	GA	TX	IA	MN	NC	VA	WI	SC	OK	LA	AR	25-State Median	
% of claims with pain medications that had opioids																											
Mean value	54%	56%	62%	62%	64%	67%	67%	67%	68%	69%	73%	74%	74%	74%	74%	76%	77%	77%	77%	78%	79%	79%	81%	85%	86%	74%	
% point above/below median	-20	-18	12	-12	-10	-7	-7	-7	-6	-5	-1	0	0	1	1	2	3	3	4	4	5	6	8	11	12		
	NJ	IL	CT	MD	MO	MI	FL	PA	NY	CA	MA	MN	VA	IA	KS	TN	GA	TX	IN	WI	NC	SC	OK	AR	LA	25-State Median	
% of claims with pain medications that had 2 or more opioid prescriptions																											
Mean value	27%	32%	34%	34%	35%	36%	40%	40%	41%	41%	41%	43%	44%	44%	44%	45%	45%	46%	46%	46%	49%	51%	53%	54%	59%	44%	
% point above/below median	-17	-12	-10	-10	-9	-8	-4	-4	-3	-3	-2	-1	0	0	0	1	1	2	2	3	5	7	9	10	15		
Among claims that had opioids																											
	MO	NJ	IA	IN	KS	FL	WI	IL	MI	MN	TN	CT	AR	OK	GA	TX	NC	VA	MD	SC	MA	CA	PA	NY	LA	25-State Median	
Average MEA per claim with opioids in milligrams																											
Mean value	989	1,167	1,282	1,309	1,324	1,384	1,409	1,412	1,435	1,461	1,506	1,584	1,605	1,646	1,649	1,698	1,698	1,700	1,837	1,842	1,856	1,982	2,860	3,473	3,540	1,605	
% above/below median	-38%	-27%	-20%	-18%	-17%	-14%	-12%	-12%	-11%	-9%	-6%	-1%	0%	3%	3%	6%	6%	6%	14%	15%	16%	23%	78%	116%	121%		
	CT	NJ	MN	IA	MI	MO	WI	MA	VA	FL	TN	GA	IN	KS	TX	AR	PA	IL	MD	SC	CA	NC	OK	NY	LA	25-State Median	
Median MEA per claim in milligrams																											
Mean value	300	300	310	325	330	338	350	360	375	375	375	390	390	400	400	449	450	450	450	450	450	450	525	600	800	390	
% above/below median	-23%	-23%	-21%	-17%	-15%	-13%	-10%	-8%	-4%	-4%	-4%	0%	0%	3%	3%	15%	15%	15%	15%	15%	15%	15%	35%	54%	105%		
	NJ	MO	MI	IL	WI	IA	FL	MD	KS	VA	CT	IN	MN	TN	AR	MA	GA	NC	SC	TX	OK	NY	CA	PA	LA	25-State Median	
Average number of opioid Rx per claim with opioids																											
Mean value	2.8	3.0	3.3	3.4	3.5	3.5	3.5	3.5	3.7	3.7	3.7	3.7	3.8	3.8	3.9	4.1	4.1	4.2	4.3	4.3	4.3	4.5	4.6	4.7	6.9	3.8	
% above/below median	-26%	-21%	-13%	-11%	-8%	-8%	-8%	-8%	-3%	-3%	-3%	-3%	0%	0%	3%	8%	8%	11%	13%	13%	13%	18%	21%	24%	82%		
	NJ	MO	IA	TN	MI	KS	AR	CT	WI	FL	IN	MN	IL	MD	VA	GA	OK	NC	MA	SC	TX	CA	PA	NY	LA	25-State Median	
Average number of opioid pills per claim with opioids																											
Mean value	127	137	168	168	169	171	172	173	174	178	181	185	189	191	194	202	205	207	208	216	228	248	292	312	405	189	
% above/below median	33%	28%	-11%	-11%	-11%	-10%	-9%	-8%	-8%	-6%	-4%	-2%	0%	1%	3%	7%	8%	10%	10%	14%	21%	31%	54%	65%	114%		
	AR	TN	MO	NJ	KS	CT	IA	OK	IN	MN	GA	WI	MA	NC	FL	SC	MI	VA	TX	CA	MD	IL	LA	PA	NY	25-State Median	
Average number of pills per Rx for opioids																											
Mean value	44	44	45	46	46	47	48	48	48	49	49	50	50	50	51	51	51	52	53	54	55	56	59	62	70	50	
% above/below 25-state median	-12%	-12%	-10%	-8%	-8%	-6%	-4%	-4%	-4%	-2%	-2%	0%	0%	0%	2%	2%	2%	4%	6%	8%	10%	12%	18%	24%	40%		
	TX	IL	CA	LA	OK	MI	IN	GA	IA	MO	FL	AR	SC	KS	TN	NC	VA	WI	MN	NY	MD	PA	NJ	CT	MA	25-State Median	
% of opioid Rx that were for stronger Schedule II opioids*																											
Mean value	2%	6%	6%	10%	10%	10%	12%	13%	16%	16%	16%	18%	18%	19%	20%	25%	28%	30%	31%	35%	37%	38%	38%	41%	49%	18%	
% point above/below median	-16	-13	-12	-9	-8	-8	-7	-6	-3	-3	-2	-1	0	0	1	6	10	12	12	17	18	20	20	22	31		

Notes: The underlying data include nonsurgical claims with more than seven days of lost time that had prescriptions filled by injured workers over the defined period and paid for by a workers' compensation payor. 2012/2014 refers to claims with injuries occurring in October 1, 2011, through September 30, 2012, and prescriptions filled through March 31, 2014. For readers interested in this information sorted alphabetically by state, please see Table SA.3.

* Schedule II opioids prescribed to injured workers across the 25 study states include oxycodone, fentanyl, morphine, oxymorphone, hydromorphone, tapentadol, and methadone. Hydrocodone-combination products like hydrocodone-acetaminophen were not classified as stronger Schedule II opioids in this study because they were considered Schedule III opioids at the federal level during the time period covered by this study.

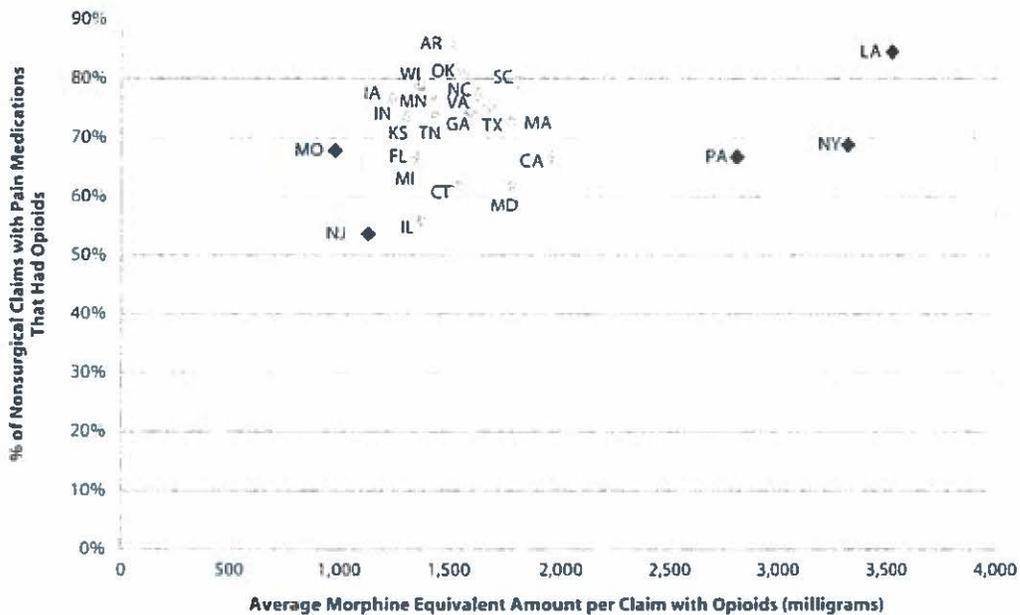
Key: MEA: morphine equivalent amount; Rx: prescriptions.

OVERALL, FREQUENCY OF OPIOID USE AND/OR AMOUNT OF OPIOIDS PER CLAIM HIGHER IN LOUISIANA, NEW YORK, AND PENNSYLVANIA

As we have discussed, we saw substantial interstate variations in both frequency and amount of opioid use. Combining these two measures, we observed that among the 25 study states, Louisiana, New York, and Pennsylvania appeared to have higher opioid use than other states. By contrast, injured workers in Missouri and New Jersey had a lower use of opioids among the study states. In New Jersey, frequency of opioid use was 20 percentage points lower than typical, and injured workers with opioids received a 27 percent lower-than-typical amount of opioids. In Missouri, frequency of use was typical, but injured workers received a 38 percent lower-than-typical amount of opioids (Table 3.1 and Figure 3.4).

In some study states, a higher-than-typical amount of opioids might be associated with relatively fewer injured workers receiving opioids. If opioids are prescribed less often in a state, one could hypothesize that opioids are prescribed only for more serious cases and, therefore, the amount of opioids per claim would be higher in the state. For example, Maryland had a higher-than-typical amount of opioids per claim, but fewer nonsurgical claims with pain medications had opioids (62 percent) compared with the median state (74 percent). Therefore, one could reason that the higher-than-typical amount of opioids per claim in Maryland was because more severe claims received opioids in Maryland. By the same logic, one would expect that in states where injured workers are very likely to be prescribed opioids, opioid use per claim might be lower. But Louisiana had the second highest percentage of claims with pain medications that received opioids, and the amount of opioids per claim and the average number of prescriptions per claim for opioids were among the highest of the 25 states. By contrast, Arkansas had the highest frequency of opioid use, but the amount of opioids per claim with opioids was similar to the median state (Table 3.1).

Figure 3.4 Frequency and Amount of Opioid Use, 2012/2014



Notes: The underlying data include nonsurgical claims with more than seven days of lost time that had prescriptions filled by injured workers over the defined period and paid for by a workers' compensation payor. 2012/2014 refers to claims with injuries occurring in October 1, 2011, through September 30, 2012, and prescriptions filled through March 31, 2014.

It should be noted that area variation studies such as this one do not provide indications of whether or not the observed level of opioid use is medically necessary; however, they do highlight the states that have higher or lower opioid use than the median state. The large interstate variations we see in opioid utilization among injured workers are not likely to be solely a reflection of differences in case mix across states. However, we examined the differences in demographics and injury/industry mix and did not find material differences between the states or over time within a state. Also, based on several WCRI studies previously published, we believe that the usually small differences across states in the case mix and the severity of injury would not affect the comparative results in a material way.⁹

There are many factors that may explain the interstate variations we observed, including workers' compensation policies for pharmaceuticals (e.g., pharmacy fee schedule, physician dispensing, provider choice, and treatment guidelines for pain management), policies outside workers' compensation (e.g., state PDMPs and state pain policies), and industry practices. While analyzing the impact of these factors is beyond the scope of this study, we provide some background information about these possible factors that may help the reader to interpret the results (see Technical Appendix A).

Since the workers' compensation benefit structure and claim administration may influence claim development differently among the states, these may also explain some of the interstate differences in opioid use among the states. We found that among the states studied, a greater amount of opioids received per claim was associated with a higher proportion of claims that had longer disability duration (Table TA.B5). Among the states studied, Louisiana, Massachusetts, Michigan, Pennsylvania, and Virginia are wage-loss states,¹⁰ where the average duration of temporary disability was longer than in the other states (except in Michigan and Virginia). In New York, claims usually stay open for a longer period of time. One possible explanation for the higher utilization of opioids per claim in these states may be because more claims stayed open and still received medical services as claims became more mature. Alternately, injured workers receiving opioids may be staying out of work longer. For instance, a study reported that, after controlling for low back injury severity, injured workers receiving opioids in the first 15 days had longer disability duration and continued opioid use compared with injured workers who did not receive early opioids.¹¹ However, we found that Louisiana, New York, and Pennsylvania continued to be the states with the highest amount of opioids per claim even after controlling for disability duration.¹² While a more rigorous analysis is needed to analyze the precise impact of longer disability duration on the use of opioids in these states, the sensitivity analysis suggests that it is unlikely to change how the states are characterized as higher or lower states in the use of opioids.

We also analyzed the patterns of opioid utilization at the end of each quarter postinjury and found that the amount of opioids per claim in the states with high use of opioids (Louisiana, New York, and Pennsylvania) was already higher at the end of the second quarter postinjury (see Table TA.B4).

⁹ See Belton and Liu (2009) and Yang et al. (2009), which we discuss in Technical Appendix B.

¹⁰ Under a wage-loss benefit system, workers typically continue to receive temporary disability benefits so long as they experience wage loss because of the work-related injury. States with a wage-loss benefit structure are expected to have longer duration of temporary disability because most indemnity benefits are paid as temporary disability benefits.

¹¹ Webster, Verma, and Gatchel (2007).

¹² For more details, refer to the section "How Do States Compare on the Use of Opioids by Duration of Temporary Disability?" in Technical Appendix B