



# **INTERSTATE VARIATIONS IN USE OF NARCOTICS**

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## EXECUTIVE SUMMARY

There have been growing public concerns about the escalating problems associated with prescription narcotics, such as overdose, addiction, and diversion, which too often lead to emergency room visits, and even death (Okie, 2010). This is also an important concern for injured workers and their employers—approximately 55–85 percent of injured workers (who had more than seven days of lost time and received at least one prescription paid under workers' compensation) received narcotics.<sup>1</sup>

This study examines interstate variations in the use of narcotics across 17 larger states.<sup>2</sup> Large interstate variations in medical practices might be indicators of unnecessary care or problems with access to care. The study also examines longer-term use of narcotics and how often the recommended monitoring has occurred.

The information in this study is intended for state officials and system stakeholders who may be concerned about narcotics use in their states. It may help public officials to identify needs to strengthen the design or implementation of certain public policies. It may help payors to target efforts to better manage the use of narcotics in order to provide appropriate care to injured workers and reduce unnecessary risks to patients and unnecessary costs to employers.

### SUMMARY OF MAJOR FINDINGS

- ***Four states (Louisiana, Massachusetts, Pennsylvania, and New York) stood out as states where injured workers received significantly more narcotics per claim than in the other 13 study states.*** The amount of narcotics received by the average injured worker in these four states was 80–125 percent higher than that in the median of the 17 states studied (Figure A).<sup>3</sup> These states *may* have more issues with overtreatment with narcotics than typical states. 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.<sup>4</sup>
- ***Among the other 13 states, injured workers in California, Maryland, North Carolina, and Texas who received narcotics had nearly twice the amount of narcotics per claim as injured workers in states with a lower use of narcotics—Iowa, Michigan, and Minnesota.***

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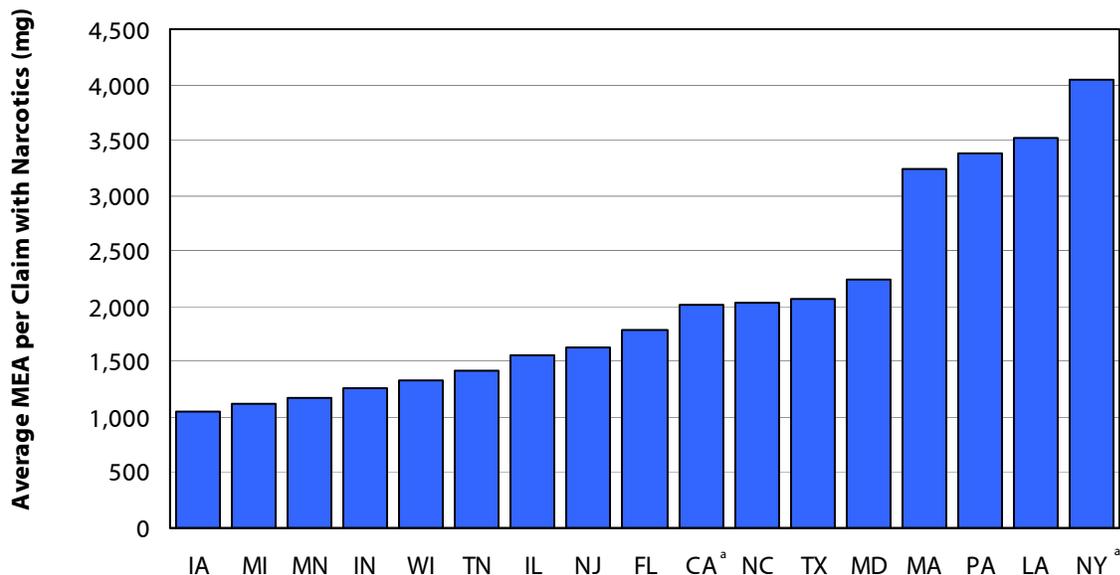
<sup>1</sup> The frequency of narcotics use was estimated based on the results discussed in Chapter 3 of this report and the WCRI *Prescription Benchmarks, First Edition* (Wang and Victor, 2010).

<sup>2</sup> The 17 states are California, Florida, Illinois, Indiana, Iowa, Louisiana, Maryland, Massachusetts, Michigan, Minnesota, New Jersey, New York, North Carolina, Pennsylvania, Tennessee, Texas, and Wisconsin. These states represent over two-thirds of the workers' compensation benefits paid in the U.S.

<sup>3</sup> Throughout the report, we used the term *amount of narcotics per claim* (received by the average injured worker) as a shorthand to refer to the average morphine equivalent amount of narcotics per claim for nonsurgical claims with more than seven days of lost time that had narcotics paid under workers' compensation.

<sup>4</sup> Belton and Liu (2009) compared the average injury severity across 11 of the 17 states and found little difference in injury severity. Yang et al. (2009) adjusted the mix of cases across states and found the case-mix adjustment had minimum impact.

**Figure A Average MEA per Claim with Narcotics, Nonsurgical Cases with More Than 7 Days of Lost Time**



Note: Underlying data include nonsurgical claims with more than 7 days of lost time that had injuries arising from October 1, 2005, to September 30, 2006, and prescriptions filled through March 31, 2008.

<sup>a</sup> California and New York had statutory changes in 2007 which impacted the reimbursements for prescription drugs including narcotics in workers' compensation. In California, the statutory changes lowered the prices paid for physician-dispensed prescriptions to the level received for pharmacy-dispensed prescriptions, which impacted the prices paid for physician-dispensed narcotics. The data in this study reflect a mix of experience before and after the changes.

Key: MEA: morphine equivalent amount; mg: milligrams.

- **Massachusetts physicians prescribed stronger, Schedule II narcotics much more often than those in other states.** Among nonsurgical cases with prescription pain medications, 43 percent of Massachusetts workers received stronger, Schedule II narcotics, compared with 26 percent in the next highest states (New Jersey and North Carolina). Schedule II narcotics accounted for 33 percent of all pain medication prescriptions in Massachusetts, 12–13 percentage points higher than in New Jersey and Pennsylvania (the next highest states on the same measure). By contrast, Schedule II narcotics were used in less than 10 percent of cases, accounting for less than 5 percent of pain medication prescriptions, in California, Illinois, Michigan and Texas.<sup>5</sup>
- **Narcotics abuse and diversion is an important public health problem. We found that injured workers in 7 states were more likely to be receiving narcotics on a longer-term basis than in most states.** The figure for Louisiana was particularly striking—15 percent of workers who received narcotics were identified as longer-term users of narcotics.<sup>6</sup> In California, Massachusetts, New York, North Carolina, Pennsylvania, and Texas, the numbers were 8–12 percent. Longer-term receipt of narcotics was less frequent in the other states—3–6 percent of workers in 10 of the 17 states studied.

<sup>5</sup> In these four states, the amount of narcotics per claim was higher in California and Texas, but lower in Illinois and Michigan, compared with the median of the 17 states.

<sup>6</sup> We defined *longer-term users of narcotics* as those that had narcotics within the first 3 months after the injury, and had 3 or more visits to fill narcotic prescriptions between the seventh and twelfth month after the injury. This is an empirical definition and we assumed that one narcotic prescription likely represents at least 30 days of supply for narcotics. See Chapter 2 for more details.

- ***Few longer-term users of narcotics received the monitoring services that medical guidelines recommend.*** For patients with occupational injuries, more frequent and longer-term use of narcotics may lead to addiction and increased disability or work loss (Kidner et al., 2010), and even to death (Franklin et al., 2005). Once the patient is selected for longer-term narcotic therapy, guidelines recommend safeguards, such as periodic urine tests for drug screening and psychiatric evaluation and treatment.<sup>7</sup> In the median state studied, only 7 percent of cases had urine drug screening tests. Even in the state with the highest use, only 1 in 5 injured workers had this service. Psychological services were also used rarely—only 3–4 percent of the cases had such services in most states, 11–13 percent in the states with the highest use of the services.

## **DATA AND APPROACH**

The study uses data comprised of approximately 75,000 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.<sup>8</sup> There were 360,000 prescriptions for pain medications associated with these claims. The claims represent injuries arising from October 1, 2005 to September 30, 2006, with prescriptions filled through March 31, 2008—an average of 24 months' experience.

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

To examine longer-term use of narcotics, we identified a subset of cases that had narcotics within the first three months after the injury and had three or more visits to fill narcotic prescriptions between the seventh and twelfth month after the injury. We also identified, using the current procedural terminology (CPT) codes, several services recommended by medical guidelines for chronic opioid management.<sup>9</sup>

## **LIMITATIONS AND CAVEATS**

Several limitations should be noted. First, the data used for this analysis were based on an average 24 months of experience, which is not necessarily sufficient to capture the full utilization of narcotics. Certain types of narcotics, especially long-acting narcotics, are typically used more often at a later stage of medical treatment. As a result, we expect that in some states, the use of narcotics would increase as claims age, especially in those states with higher proportions of longer-term narcotics users compared with the typical state. The reverse would be true for states with a lower than typical share of longer-term users. This may affect the ultimate rankings for some states. Second, unlike other WCRI benchmark reports (the CompScope™ series for example), the claims used for this study may not be representative of all claims in several states. Third, the interstate comparisons in this study were not adjusted for interstate differences in the mix of cases and injury severity. A more detailed discussion on these limitations can be found in the Introduction section of the report.

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<sup>7</sup> Technical Appendix C provides a summary of guideline recommendations for chronic opioid management.

<sup>8</sup> We chose to focus on the nonsurgical claims to make sure that the results of the interstate comparison in the use of narcotics are meaningful. See Chapter 2 for a discussion of this choice.

<sup>9</sup> See Chapter 2 and Technical Appendix C for more details. Also Technical Appendix B provides a summary of guideline recommendations for chronic opioid management.

# 1

## INTRODUCTION

Narcotics<sup>1</sup> have been widely prescribed for and filled by injured workers—about 55–85 percent of injured workers (who had more than seven days of lost time and had at least one prescription paid under workers’ compensation) received narcotics.<sup>2</sup> The growing public concerns, many of which are shared by the workers’ compensation health care community, are regarding the dangers of narcotics overuse and abuse, especially in the context of treating patients with chronic pain. These concerns relate to the escalating problems associated with prescription narcotics, such as overdose, addiction, and diversion, leading to emergency room visits, and even death. These have been increasingly important public policy issues, given the limited evidence of the effectiveness of narcotics in treating chronic pain. While interstate variations in the use of narcotics help highlight which states may be likely to have issues related to the overuse and misuse of narcotics, there have been few studies in this area.

This study examines interstate variations in the use of narcotics in workers’ compensation healthcare across 17 states.<sup>3</sup> We found:

- A substantial interstate variation in the amount of narcotics per claim among the 17 states. For nonsurgical cases with more than seven days of lost time that received narcotics, the average amount of narcotics per claim<sup>4</sup> was the highest in Louisiana, Massachusetts, New York, and Pennsylvania—80–125 percent higher than the median of the 17 states and nearly three or four times the amount of narcotics per claim than in the states with the lowest amount of narcotics (Iowa, Michigan, and Minnesota).
- Among the other 13 states, injured workers in California, Maryland, North Carolina, and Texas who received narcotics had nearly twice the amount of narcotics per claim as injured workers in states with lower use of narcotics—Iowa, Michigan, and Minnesota
- A substantial difference was seen among states in prescribing stronger, Schedule II narcotics. We found that more frequent use of narcotics and stronger, Schedule II narcotics may not always signal an overuse of narcotics. For example, physicians in Minnesota and Wisconsin used stronger, Schedule II narcotics in a higher percentage of cases, but the average amount of narcotics per claim was lower than typical of the 17 states. In contrast,

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<sup>1</sup> The term *narcotics* used in the report refers to prescription narcotics for pain relief. See the Glossary for a more detailed description of the term.

<sup>2</sup> A vast majority (94–98 percent) of injured workers with more than seven days of lost time who had prescriptions paid by a workers’ compensation payor received pain medications, which accounted for more than two-thirds of all workers’ compensation prescriptions (Wang and Victor, 2010). Among those who received pain medications, 57–85 percent received narcotics, as shown in Chapter 3.

<sup>3</sup> The 17 states included in the study are: California, Florida, Illinois, Indiana, Iowa, Louisiana, Maryland, Massachusetts, Michigan, Minnesota, New Jersey, New York, North Carolina, Pennsylvania, Tennessee, Texas, and Wisconsin.

<sup>4</sup> Throughout the report, we used the term *amount of narcotics per claim* to refer to the average morphine equivalent amount of narcotics per claim for nonsurgical claims with more than seven days of lost time that had narcotics paid by workers’ compensation payors.

physicians in Massachusetts, for example, were also more likely to use Schedule II narcotics, and the amount of narcotics per claim in the state was among the highest.

- Longer-term use of narcotics was much more frequent in Louisiana, compared to most other study states. It was also more frequent in California, Massachusetts, New York, North Carolina, Pennsylvania, and Texas, compared with what was typical of the 17 states.
- Few of those longer-term narcotic users received the recommended services for monitoring and managing longer-term narcotic use.

By documenting interstate variations in the use of narcotics, this study will help state officials and stakeholders to better target their efforts to address potential problems associated with such use. It also lays the groundwork for future studies in this area.

## SCOPE OF THE REPORT

This study describes interstate variations in the utilization and prescribing patterns of narcotics in workers' compensation healthcare across 17 states (California, Florida, Illinois, Indiana, Iowa, Louisiana, Maryland, Massachusetts, Michigan, Minnesota, New Jersey, New York, North Carolina, Pennsylvania, Tennessee, Texas, and Wisconsin).<sup>5</sup> It answers the following questions:

- To what extent does the utilization of narcotics vary across the study states?
- Which states had the highest utilization of narcotics and what might be driving the higher utilization?
- How do prescribing patterns vary across the states? How are prescribing patterns related to the overall utilization of narcotics?
- Which states had a higher proportion of injured workers who received narcotics on a longer-term basis?
- How was longer-term narcotic use being managed compared to medical guideline recommendations for chronic narcotic management?

These questions are addressed by examining the use of narcotics among approximately 75,000 nonsurgical claims with more than seven days of lost time that received at least one prescription for pain medications paid under workers' compensation, and the 360,000 pain medication prescriptions associated with those claims.<sup>6,7</sup> The data cover injuries arising from October 1, 2005 to September 30, 2006, with prescriptions filled through March 31, 2008.

The utilization measures include:

- Utilization of narcotics per claim for claims that received narcotics
  - Average morphine equivalent amount per claim for narcotics

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<sup>5</sup> We chose the 17 states included in this study in part because they are geographically diverse. Together they represent a significant share of the U.S. population, a wide range of industries, and a variety of benefit structures and other system features. The 17 states also represent a wide range of states where medical costs per claim were lower, medium, or higher compared to the national average. See *CompScope™ Benchmarks, 10th Edition* for a more detailed discussion (Yang et al., 2009).

<sup>6</sup> In this study, we focus on nonsurgical claims because the reasons for use and prescribing of narcotics are very different for patients who had surgery, especially for post-surgical care, compared with patients who did not have surgery. By doing so, we make sure that the results of interstate comparison are meaningful. We will consider including surgical claims in a future study to provide a more complete picture for policymakers and the medical community about the use of narcotics, especially for patients with chronic pain.

<sup>7</sup> Prescriptions for pain medications in our analysis include prescription narcotics and prescription non-narcotic pain medications. Although non-prescription pain medications were not included in the data, we believe that this omission is unlikely to affect the comparative results. See Chapter 2 for a detailed discussion.

- Average number of prescriptions per claim
- Average number of pills per claim (for orally-administered narcotic medications)
- Frequency of narcotic use
  - Percentage of cases with pain medications that had narcotics
  - Percentage of cases with narcotics that have stronger, Schedule II narcotics
  - Percentage of cases with narcotics that were identified as longer-term users of narcotics

Several important policy questions are not addressed in this report. First, policymakers and stakeholders will want to know how many injured workers with seven days of lost time received narcotics. We do not directly address this question because our analysis is based on claims with more than seven days of lost time that had at least one prescription for pain medications paid under workers' compensation.<sup>8</sup>

Second, we identified several states where the amount of narcotics prescribed per claim was unusually high, compared with the median study state. Policymakers and stakeholders will want to know what factors explain why these states are higher than typical. In particular, it is important to understand the impact of state prescription monitoring programs and pain policies, guidelines for prescribing narcotics, and workers' compensation policies for pharmaceuticals on the use of narcotics, which helps to address potential improper use through regulation, claim management, and provider education. In this report, we do not analyze the impact of those possible factors, but provide some background information that may help the reader to interpret the results in a state context.<sup>9</sup>

Third, we found a higher proportion of longer-term users of narcotics in some states, compared with the median state. There has been limited evidence that the heavy use of narcotics may be isolated to a relatively small number of heavy prescribers and/or a small number of users, possibly with multiple prescribers of narcotics.<sup>10</sup> This study does not analyze these issues, nor does it analyze whether the heavy prescribers are treating patients with more severe and chronic pain, or are contributing to the abuse and diversion of narcotics.

Fourth, it is important to know how the use of narcotics relates to other medical services, especially surgery. Some questions of policy interest include whether narcotics are used, along with active physical therapy, to avoid more invasive surgery or are an add-on cost after surgery failed. This report focuses on nonsurgical cases to make the interstate comparisons more meaningful. Subsequent studies may address these issues by examining patterns of narcotic use, including pre-surgical and post-surgical use, among surgical cases.

Lastly, we did not analyze prescribing patterns over time, such as switching between different types of narcotics, escalating dosage, and weaning patients off narcotic therapy. Findings in this area may help elucidate prescribing practices in different states and promote provider education.

## LIMITATIONS AND CAVEATS

Several limitations should be noted. First, the data used for this analysis were based on an average 24 months of experience, which is not necessarily sufficient to capture the full utilization of narcotics. This is because certain types

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<sup>8</sup> In the *WCRI Prescription Benchmarks, First Edition* (Wang and Victor, 2010), we reported that 94–98 percent of injured workers who had more than seven days of lost time and at least one prescription paid under workers' compensation received prescription pain medications. Among those who received prescription pain medications, 57–85 percent had narcotics, as shown in this report. However, we do not estimate the percentage of claims with more than seven days of lost time that had at least one prescription for the reason explained in Wang and Victor (2010).

<sup>9</sup> See Technical Appendix A.

<sup>10</sup> California Workers Compensation Institute (CWCI) recently published a study that illustrated this problem in the California workers' compensation system (Swedlow et al., 2011).

of narcotic drugs, especially long-acting narcotics, are typically used at a later stage of medical treatment.<sup>11</sup> As a result, we expect that in some states, the use of narcotics would increase as claims age, especially in those states with higher proportions of longer-term narcotic users compared to the typical state. The reverse would be true for states with a lower than typical share of longer-term users. This may affect the ultimate rankings for some states.

Second, unlike other WCRI benchmark reports (the CompScope™ series for example), the claims used for this study may not be necessarily representative of all claims in some states. This may occur because the reporting of pharmacy data, although improving, was less complete for several data sources, resulting in additional exclusions.<sup>12</sup> Our data cover the voluntary market, the self-insured market, and state funds where they exist, but do not cover the small residual market in states with distinctive residual markets. For several states, we were missing data from some large regional insurers.

Third, also unlike other WCRI benchmark reports (the CompScope™ series for example), the interstate comparisons in this study did not make certain statistical adjustments to adjust for interstate differences in case mix. However, based on several WCRI studies previously published, we believe that the differences across states in the case mix and the severity of injury will not affect the comparative results in a material way.<sup>13</sup> Nonetheless, the reader should keep this in mind when interpreting the results.

## **ORGANIZATION OF THE REPORT**

This report is organized into five chapters. Chapter 2 describes the data and methods used in the analysis. Chapter 3 discusses major findings that cut across the 17 states studied, focusing on interstate variations in the utilization and prescribing patterns of narcotics and longer-term use of narcotics. Chapter 4 highlights key findings for individual states. Chapter 5 discusses the implications of the results and the need for future studies.

We also include four Technical Appendices to further discuss methodological issues. Technical Appendix A provides some background information about several factors that may influence physicians' prescribing of narcotics, including federal and state laws on controlled substances and state policies for intractable pain management. Technical Appendix B provides a summary of medical guideline recommendations for chronic pain management. The identification of longer-term users of narcotics and the services recommended by guidelines for chronic opioid management can be found in Technical Appendix C. We discuss several sensitivity issues and results of our analysis in Technical Appendix D.

The Glossary at the end of the main report is intended for readers who are less familiar with relevant terminology.

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<sup>11</sup> In an NCCI study, the authors found that the narcotics share of all prescriptions increased steadily when claims became more mature until about the eighth year postinjury (Lipton, Laws, and Li, 2009). The same study also looked at the narcotics share by costs per narcotic prescription, where the high-cost group would presumably include more prescriptions for stronger and long-acting narcotics. The study found that the high-cost narcotic prescriptions grew from 9 percent of all narcotic prescriptions in the first year to 45 percent in the twelfth year postinjury.

<sup>12</sup> Although we made sure that the claims included for this study represented all claims from the same data sources, the additional exclusions (of data sources in some states) may affect the representativeness if the claims from those data sources were different or had different experience. The percentage of claims in the population of each state that were represented by the claims included in our study ranged from 20 to 50 percent, depending on the state, for all states except Florida and Maryland (16 percent). See Chapter 2 for a more detailed discussion.

<sup>13</sup> See Belton and Liu (2009) and Yang et al., (2009), which we discussed in Technical Appendix D.

# 2

## DATA AND METHODS

This chapter describes the data and methods we used for this study. For the reader who is interested in more detailed information about some specific aspects associated with our study, the Technical Appendices provide more details.

### DATA AND REPRESENTATIVENESS

In this study, we included approximately 75,000 nonsurgical claims with more than seven days of lost time that received at least one prescription for pain medications paid under workers' compensation, and the 360,000 pain medication prescriptions associated with those claims.<sup>1</sup> Those claims are from 17 states,<sup>2</sup> covering work-related injuries arising from October 1, 2005 to September 30, 2006, with prescriptions filled through March 31, 2008. The analysis data were extracted from the WCRI DBE database, in which we have detailed prescription transaction data that were collected from the medical bill review and payment systems of payors and their pharmacy benefit managers. Table 2.1 provides the number of prescriptions and claims by state that were included in the study. It also shows the percentage of all claims (with more than seven days of lost time) in each state that were represented by the claims in our analysis.

The data available for each prescription identify the specific medication prescribed, the date on which the prescription was filled, amounts charged and paid, the number of pills (for orally-administered narcotics), and the strength of the medication in milligrams. The specific medication prescribed was identified by National Drug Code (NDC).

Unlike in other WCRI benchmark reports, the claims included in this study may not necessarily be representative of the total population of claims in some states for several reasons. First, the reporting of pharmacy data, although improving, was less complete for several data sources, resulting in additional exclusions. For example, the NDC data were less complete, especially for physician-dispensed prescriptions, for some data sources (Table 2.2).<sup>3</sup> To ensure the accuracy of the utilization metrics used in our analysis, we excluded several data sources in some states where the data source did not have sufficiently complete NDC data. Although we adjusted the data to make sure that the claims included are representative of all claims from the same data sources, the additional exclusions (of

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<sup>1</sup> In this study, we focus on nonsurgical claims because narcotics may be prescribed to patients with surgery for different reasons, especially for post-surgical care. By focusing on nonsurgical cases, we make sure that the results that describe the use and prescribing of narcotics are meaningful. Future studies may examine the use of narcotics among surgical cases to provide a more complete picture.

<sup>2</sup> The 17 states are California, Florida, Illinois, Indiana, Iowa, Louisiana, Maryland, Massachusetts, Michigan, Minnesota, New Jersey, New York, North Carolina, Pennsylvania, Tennessee, Texas, and Wisconsin.

<sup>3</sup> Some physicians write prescriptions and dispense the prescriptions they write at their offices directly to the patients. When dispensing, the physicians are usually paid higher prices than pharmacies for same prescription.

**Table 2.1 Claims and Prescriptions Included in the Study**

	CA <sup>a</sup>	FL	IA	IL	IN	LA	MA	MD	MI	MN	NC	NJ	NY <sup>a</sup>	PA	TN	TX	WI
% of cases with Rx that had no surgery	69%	68%	48%	54%	52%	60%	62%	69%	59%	55%	58%	61%	60%	59%	52%	63%	54%
% of all claims with 7 days of lost time in each state included in our analysis	30%	16%	25%	21%	37%	30%	50%	16%	31%	26%	31%	30%	25%	34%	34%	49%	22%
<b>Number of nonsurgical claims with &gt; 7 days of lost time that received Rx for ...</b>																	
Pain medications	22,832	6,205	808	2,507	1,970	832	2,243	1,377	2,493	1,697	2,800	2,040	4,231	5,710	2,597	13,144	1,723
Narcotics	14,455	4,665	596	1,586	1,599	717	1,725	823	1,413	1,318	2,200	1,163	3,102	3,907	2,065	10,432	1,416
<b>Among nonsurgical claims with &gt; 7 days of lost time, number of prescriptions for ...</b>																	
Pain medications	118,722	21,051	2,694	9,373	8,194	7,653	10,430	4,107	6,561	6,217	13,167	5,807	23,448	33,896	11,582	73,212	6,274
Narcotics	56,103	11,990	1,659	5,168	5,434	5,396	6,832	2,207	3,172	3,941	8,497	3,088	14,177	20,920	7,261	43,677	4,096

Note: Underlying data include nonsurgical claims with more than 7 days of lost time that had injuries arising from October 1, 2005, to September 30, 2006, and prescriptions filled through March 31, 2008.

<sup>a</sup> California and New York had statutory changes in 2007 which impacted the reimbursements for prescription drugs including narcotics in workers' compensation. In California, the statutory changes lowered the prices paid for physician-dispensed prescriptions to the level received for pharmacy-dispensed prescriptions, which impacted the prices paid for physician-dispensed narcotics. The data in this study reflect a mix of experience before and after the changes.

*Definitions:*

Pain medications: Prescription medications for pain relief, including narcotic and non-narcotic medications. Over-the-counter pain medications are not included.

Narcotics: Opioid analgesics that are often prescribed by physicians for pain relief. Unlike other non-narcotic pain medications, narcotics are classified at both the federal and state level as controlled substances because they have a potential for producing psychological or physical dependence.

Key: RX: prescriptions.

data sources in some states) may affect the representativeness of the data if the claims from those excluded data sources were very different in some way, or had difference experience. The percentage of all claims in the population for each state that was represented by the claims included in our study ranged from 20 to 50 percent for all states except Florida and Maryland (16 percent). Second, our data cover the voluntary market, the self-insured market, and state funds where they exist. We do not cover the residual market in the states with a distinctive residual market. Fortunately, these residual markets were small in the study states over the period we analyzed. Third, we did not include data from one or more important data sources in New Jersey and New York, which may affect the representativeness of our data for these two states.

We chose to use claims with more than seven days of lost time for the analysis for several reasons. First, because these claims provided a similar set of cases across states in terms of disability for work-related injuries, it helped to make the interstate comparisons in the utilization and prescribing patterns more meaningful. Second, these claims received more prescriptions and experienced a wider range of narcotic therapy, compared with those that had only seven or fewer days of lost time. Focusing on these claims helped identify more meaningful interstate variations in the utilization and prescribing patterns of narcotics. Third, the claims with more than seven days of lost time also accounted for the majority of the workers' compensation medical costs, an area of greater policy implications.

**Table 2.2 Percentage of Prescriptions with an NDC**

	<b>All Prescriptions</b>	<b>Prescriptions Dispensed by Physicians</b>	<b>Prescriptions Dispensed by Pharmacies</b>
California <sup>a</sup>	88%	86%	95%
Florida	83%	63%	94%
Illinois	90%	68%	98%
Indiana	91%	62%	97%
Iowa	94%	75%	97%
Louisiana	92%	54%	97%
Maryland	89%	74%	97%
Massachusetts <sup>b</sup>	99%	n/a	99%
Michigan	90%	77%	96%
Minnesota	85%	76%	93%
New Jersey	94%	79%	98%
New York <sup>a, b</sup>	97%	n/a	97%
North Carolina	96%	72%	98%
Pennsylvania	95%	79%	99%
Tennessee	94%	76%	97%
Texas <sup>b</sup>	86%	n/a	86%
Wisconsin	95%	88%	97%

*Note:* Underlying data include nonsurgical claims with more than 7 days of lost time that had injuries arising from October 1, 2005, to September 30, 2006, and prescriptions filled through March 31, 2008.

<sup>a</sup> California and New York had statutory changes in 2007 which impacted the reimbursements for prescription drugs including narcotics in workers' compensation. In California, the statutory changes lowered the prices paid for physician-dispensed prescriptions to the level received for pharmacy-dispensed prescriptions, which impacted the prices paid for physician-dispensed narcotics. The data in this study reflect a mix of experience before and after the changes.

<sup>b</sup> In Massachusetts, New York, and Texas, physician dispensing is not allowed.

Key: n/a: not applicable; NDC: National Drug Code.

It is possible that selecting claims with more than seven days of lost time may filter in a subset of claims that may be more serious for some states and less serious for others. If that occurs, the results of interstate comparison on the utilization of narcotics may be biased. For example, for two states with similar utilization of narcotics, the claims included in the analysis may be more serious for state A that had a lower percentage of claims with more than seven days of lost time than state B with a higher percentage. As a result of this selection, the utilization of narcotics for state A may appear to be higher than that in state B. However, we did not see clear evidence suggesting that this is likely to occur in our data.<sup>4</sup>

## **IDENTIFYING AND GROUPING NARCOTIC PRESCRIPTIONS**

We identified narcotic prescriptions based on the NDC information and the therapeutic classification scheme developed by Medi-Span.<sup>5</sup> There are five schedules of controlled substances, classified by the Drug Enforcement Administration under federal law, which are based on a drug's medical usefulness and abuse potential. For example, oxycodone HCL (OxyContin®) and oxycodone-acetaminophen (Percocet®) are classified as Schedule II narcotics and hydrocodone-acetaminophen (Vicodin®) is a Schedule III narcotic. We identified the schedules associated with individual narcotic prescriptions using an indicator in the Medi-Span database. Table 2.3 provides the definitions of the five schedules and examples of specific drugs classified in each schedule.

Based on analgesic potency and formulation, we categorized narcotic prescriptions into three categories—long-acting Schedule II, short-acting Schedule II, and weaker strength (or lower than Schedule II) narcotics.<sup>6</sup> Long-acting Schedule II narcotics are typically in the form of sustained or controlled release with a higher dosage or strength that lasts longer for consistent pain relief, while short-acting Schedule II narcotics are indicated for immediate relief of acute pain, or intermittent or breakthrough pain. Weaker strength narcotics are those that have a lower analgesic potency than the Schedule II narcotics and are often used in combination with acetaminophen and aspirin, although they are increasingly prescribed without acetaminophen due to its side effects.<sup>7</sup>

Among all narcotics included in this study, tramadol (Ultram® and Ultracet®) is the only one that is not scheduled at the federal level. This drug was initially marketed as pain medication with little potential for abuse, but recent research has shown that this medication works primarily through morphine-like activity and its abuse potential is higher than initially reported. Because of this, some states may classify it as a controlled substance even though it is not controlled at the federal level.<sup>8</sup> For this reason, we included tramadol in our analysis as a part of the weaker strength narcotics.

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<sup>4</sup> See Technical Appendix D for a more detailed discussion.

<sup>5</sup> According to Medi-Span's Therapeutic Classification System, a hierarchical classification scheme, the first two digits of the 10-digit generic product indicator classifies general drug products. We identified narcotic prescriptions based on drug group 65 for opioid analgesics. See Medi-Span (2005).

<sup>6</sup> The three categories are consistent with the categories used by other studies regarding the use of narcotics; see Sullivan et al. (2008).

<sup>7</sup> The side effects of acetaminophen include liver damage if used for a long term.

<sup>8</sup> It is possible that tramadol will be reclassified as a controlled substance at the federal level. See <http://pain.emedtv.com/tramadol/is-tramadol-a-narcotic.html>.

**Table 2.3 Federal Classification of Controlled Substances**

Schedule	Criteria for Classification	Examples of Specific Drugs
Schedule I	The drug or other substance that has high potential for abuse and has no currently accepted medical use in treatment in the U.S.	Heroin, marijuana, lysergic acid diethylamide (LSD), and methaqualone
Schedule II	The drug or other substance that has high potential for abuse, which may lead to severe psychological or physical dependence, and has a currently accepted medical use in treatment in the U.S.	Morphine (Avinza®), fentanyl (Duragesic®), oxycodone HCL (OxyContin®), oxycodone-acetaminophen (Percocet®), and methadone <sup>a</sup>
Schedule III	The drug or other substance that has less potential for abuse than the drugs or substances in Schedules I and II and has a currently accepted medical use in treatment in the U.S. Abuse of the drug or substance may lead to moderate or low physical dependence or high psychological dependence.	Codeine with acetaminophen, hydrocodone with acetaminophen (Vicodin®, Lortab®), <sup>b</sup> hydrocodone with aspirin, Tylenol®
Schedule IV	The drug or substance that has a low potential for abuse relative to drugs in Schedule III and has a currently accepted medical use in treatment in the U.S. Abuse of the drug or substance may lead to limited physical or psychological dependence relative to the drugs or other substances in Schedule III.	Propoxyphene-N w/ APAP (Darvon®), codeine in smaller dosages
Schedule V	The drug or substance that has a low potential for abuse relative to the drugs or other substances in Schedule IV and has a currently accepted medical use in treatment in the U.S. Abuse of the drug or substance may lead to limited physical dependence relative to the drugs or substances in Schedule IV.	Cough medicine with codeine

<sup>a</sup> Methadone may be prescribed as a Schedule II analgesic in most states. The drug can also be used for weaning the patient from high dosed narcotics, but is less likely to be present in our data because under the Controlled Substances Act it is not lawful to prescribe narcotic drugs for the purpose of detoxification of narcotic addiction without being registered as a Narcotic Treatment Program (NTP). NTPs may only use drugs approved for this purpose, such as methadone, and must comply with federal and state methadone program regulations.

<sup>b</sup> The Drug Enforcement Administration has expressed interest in moving hydrocodone, which includes Vicodin® and Lortab®, to Schedule II, the category of medically accepted drugs with the highest potential for abuse, mainly because of the rise in hydrocodone abuse and trafficking in the last several years. See Kraman (2004).

Sources:

Pain & Policy Studies Group. *Resource Guide: Information about Regulatory Issues in Pain Management*. Available at <http://www.painpolicy.wisc.edu/domestic/pain101.htm>.

Drug Enforcement Administration, U.S. Department of Justice. *Drugs of Abuse*. Chapter 1. Available at <http://www.justice.gov/dea/pubs/abuse/doa-p.pdf>.

**MEASURING UTILIZATION OF NARCOTICS**

The overall utilization of narcotics is measured by the average morphine equivalent amount per claim with narcotics, which is referred to as the amount of narcotics per claim throughout the report. This measure was constructed by applying a morphine equivalent equianalgesic conversion (described in the next section). Several utilization metrics developed in WCRI’s *Prescription Benchmarks, First Edition* were also used in this report.

The utilization measures include

- Utilization of narcotics per claim for claims that received narcotics
  - Average morphine equivalent amount per claim for narcotics
  - Average number of prescriptions per claim
  - Average number of pills per claim (for orally-administered narcotic medications)
- Frequency of narcotic use
  - Percentage of cases with pain medications that had narcotics
  - Percentage of cases with narcotics that have stronger, Schedule II narcotics
  - Percentage of cases with narcotics that were identified as longer-term users of narcotics

These measures are constructed for narcotics overall and for each type of narcotics as follows:

- Long-acting Schedule II narcotics
- Short-acting Schedule II narcotics
- Weaker strength narcotics

It is important to note that we used the morphine equivalent amount of narcotics per claim as the ultimate measure to compare the utilization of narcotics across states, because this measure helps standardize both quantity and strength of different narcotic medications. Several other utilization metrics were also included in the analysis to help explain why a state might have higher or lower utilization of narcotics. For example, since the higher utilization of narcotics in a state could be due to more prescriptions filled per claim, or more pills per narcotic prescription, we include both measures in this study, although they are imperfect measures for a comparative analysis.<sup>9</sup> Together with the frequency of using narcotics and stronger, Schedule II narcotics, these measures help identify some possible reasons why a state had higher utilization of narcotics per claim, such as: (1) physicians wrote and injured workers filled more prescriptions per claim, (2) prescriptions were written for a higher number of pills, or (3) physicians were more likely to prescribe certain stronger, Schedule II narcotics.

Some of the metrics were based on prescriptions for pain medications, which consist of narcotics and prescription non-narcotic pain medications. It should be noted that the over-the-counter non-prescription pain medications are not included in our data. Because of this, one may be concerned that if practice patterns varied widely across the states in the use of prescription versus non-prescription pain medications, it might imply a variable level of severity in the claims included in the study. However, the use of prescription and non-prescription pain medications should not be considered as a marker for severity for several reasons. First, non-prescription pain medications can be taken at varying dosages, depending upon the degree of pain. Second, a physician, without regard to the injury severity, may prescribe a pain medication to a patient who is less able to pay the out of pocket cost of a non-prescription pain medication. Third, physicians may prescribe and dispense pain medications at their offices for economic reasons, also regardless of injury severity. In addition, we do not believe that variations in the use of non-prescription pain medications should be a serious concern because a vast majority of the claims with more than seven days of lost time that had prescriptions received prescriptions for pain medications (94–98 percent).<sup>10</sup>

The utilization metrics were constructed based on a weighting method so the results reflect the claim experience in each state for all market segments included.<sup>11</sup> In addition to the conventional frequency and utilization measures, we describe timing and persistent use of narcotics based on a cohort analysis, in which we focused on the cases that received narcotics in the first three months after the injury and followed this group of cases over time on a quarter-by-quarter basis. We also examined the utilization of narcotics at different maturities to see how states compare as claims become more mature.

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<sup>9</sup> Conceivably, physicians in different states prescribe with different quantities of narcotics and/or prescribe the same quantities of narcotic medications but at different strengths. If states vary systematically in these aspects, neither the average number of prescriptions nor the average number of pills per claim would accurately depict the level of use of narcotics in a comparable way.

<sup>10</sup> See Wang and Victor (2010).

<sup>11</sup> We included the voluntary market, the self-insured market, and state funds where they exist. We did not include any distinctive residual market for states where such a market exists. We discuss this in the Limitation and Caveats section of Chapter 1.

## MORPHINE EQUIVALENT EQUIANALGESIC CONVERSION

Narcotic medications vary in their effectiveness of relieving pain (i.e., *analgesic potency* in medical terms). The same number of milligrams in the dosage for different narcotics may indicate different strengths. For example, 1 milligram of oxycodone is equivalent to 1.5 milligrams of morphine, while 1 milligram of hydrocodone is equivalent to 1 milligram of morphine. The effectiveness of narcotic medications also depends on the route of administration. A medication will have a quicker onset action if given intravenously or by intramuscular injection than if administered orally. Once a narcotic drug is determined to be beneficial for a patient, the physician often uses a morphine equivalent dose conversion table to determine proper dose and administrative route for the patient.

We measured the utilization of narcotics based on morphine equivalent amount for specific narcotic medications, which takes into account the differences in strength as well as quantity of narcotic medications received by injured workers. This way, the interstate difference in the utilization of narcotics will not be affected by the difference in the strength of specific narcotic medications.

An injured worker may receive the same narcotic medication with different strengths, or different narcotic medications, for pain relief. We first applied a morphine equivalent equianalgesic conversion at the prescription level to compute the morphine equivalent dose in milligrams for individual prescriptions.<sup>12</sup> A variable was created for each individual claim to capture the cumulative morphine equivalent amount across different narcotic medications received by the injured worker. The cumulative morphine equivalent amount was further aggregated to the state level across all claims in the state that received narcotics.

The morphine equivalent equianalgesic conversion method was initially developed by Webster et al. (2007).<sup>13</sup> We modified it to match the individual drug product names in our data. The modified version of the morphine equivalent equianalgesic conversion table was reviewed by a pain specialist<sup>14</sup> to ensure the accuracy of the categorization and conversion. As a result of that review, we modified the conversion table to further improve the accuracy in classification and morphine equivalent conversions. The final conversion table classified all narcotics into 10 categories based on the active ingredients and analgesic potency. Table 2.4 lists the 10 categories, examples of specific narcotic medications in each category, and the potency ratio or conversion factor which shows how many milligrams of morphine are equivalent to one milligram of a specific narcotic medication.

## IDENTIFYING LONGER-TERM USERS OF NARCOTICS

To examine chronic opioid use and management, we defined the *longer-term users of narcotics* as those that had narcotics within the first 3 months after the injury and had 3 or more visits to fill narcotic prescriptions between the seventh and twelfth month after the injury. This is an empirical definition and we assumed that one narcotic

<sup>12</sup> The morphine equivalent dose for each oral narcotic prescription was calculated as a product of the strength in milligrams of the prescribed narcotic medication and the analgesic potency ratio between the specific narcotic and morphine, multiplied by the number of pills (or quantity) of the prescription.

<sup>13</sup> The authors used NDC information to identify opioid medications and the specific types of medication, which were used for the conversion. Equianalgesic dose information for each opioid type was obtained either from the American Pain Society's *Principles of Analgesic Use in the Treatment of Acute Pain and Cancer Pain* (2003) or from the Oregon Health and Science University handbook (Oregon Health and Science University, 2006).

<sup>14</sup> Dr. Gilbert Fanciullo reviewed the morphine equivalent conversion table and made several recommendations that improved the quality of the conversion methods. Dr. Fanciullo is a professor of anesthesiology at Dartmouth Medical School, in Lebanon, NH. He is board certified in pain management and previously served as the co-chair of the Opioid Clinical Practice Guidelines Committee for the American Academy of Pain Medicine. He is also on the editorial board of several journals including *Pain Medicine*, *Pain Physician*, *Journal of Pain*, and *Journal of Opioid Management*.

prescription likely represents at least 30 days of supply for narcotics.<sup>15</sup> This subset of nonsurgical claims was identified based on the detailed transaction data for narcotic prescriptions filled over the specified period of time.

Since the longer-term users of narcotics were identified based on the number of narcotic prescriptions, not daily dose, we might have identified proportionally more cases as longer-term users of narcotics for the states where stronger narcotics were used rarely but weaker strength narcotics were more often prescribed. However, even for weaker strength narcotics, 3 or more prescriptions over a 6-month period, following the initial 6 months of treatment, would normally be considered clinically as longer-term use of narcotics. To many clinicians, it would seem very unusual to give a nonsurgical case 30 days of narcotics beyond the initial 6-month period of treatment.

It is worth noting that we also identified a smaller percentage of nonsurgical cases with narcotics that showed the same pattern of narcotic use in the second 6-month period as those identified above, except that they did not receive narcotics within the first 3 months postinjury. Several reasons may explain this. Some of the cases might have received non-narcotic pain medications or over-the-counter painkillers while others might have tried other types of services that may be helpful for pain relief before being considered for longer-term narcotic use.

**Table 2.4 Narcotics Categories and Morphine Equivalent Equianalgesic Conversion**

Narcotics Category	Example of Drug Products	Morphine Equivalent in Milligrams
Fentanyl	Fentanyl, Duragesic®, Actiq®	12.5 <sup>a</sup>
Levorphanol	Levorphanol	7.5
Hydromorphone	Dilaudid®	4
Methadone	Methadone	3
Oxycodone	OxyContin®, Percocet®, Endocet®	1.5
Morphine	Avinza®, Kadian®, MS-Contin®, morphine sulfate	1
Hydrocodone	Vicodin®, Lortab®, hydrocodone with acetaminophen	1
Codeine	Aspirin with codeine, codeine sulfate, butalbital-aspirin-caffeine with codeine, Vopac®	0.15
"Weak agonists" <sup>b</sup>	Meperidine, pentazocine, propoxyphene, tramadol	0.1
Buprenorphine	Subutex®, Suboxone®	0.033

Note: The 10-type categorization used in our study is a modified version of the categorization in Webster et al. (2007), and is the result of expert review of the morphine equivalent equianalgesic conversion method.

<sup>a</sup> Fentanyl strength is in micrograms (mcg); 1 mcg fentanyl is equivalent to 0.0125 milligrams of morphine.

<sup>b</sup> The *weak agonists* include several types of narcotics that can be grouped with the same potency ratio.

<sup>15</sup> This seems to be a reasonable assumption based on what we saw in the quantities of the prescriptions filled after six months postinjury. Several studies outside workers' compensation have examined long-term or high dose use of narcotics, which identified cases with long-term use similarly to this study in terms of timing and duration of narcotic use (Sullivan et al., 2008; Morasco et al., 2010; Braden et al., 2011).

We also identified several services recommended by medical guidelines for chronic opioid management, and described how often longer-term users of narcotics received these services. A list of procedure codes and a detailed description can be found in Technical Appendix C.

### **HOW SENSITIVE THE RESULTS ARE TO THE SELECTION OF NONSURGICAL CLAIMS WITH MORE THAN SEVEN DAYS OF LOST TIME THAT RECEIVED NARCOTICS**

The interstate comparisons in this report were made based on nonsurgical claims with more than seven days of lost time that received narcotics. Since the selection was based on three variables reflecting the differences across states in claim type and how medical services were being delivered to injured workers, one may be concerned that such a selection may bias the results of interstate comparisons, if more severe cases were selected for some states and less severe cases were selected for others.

One way to assess the existence and extent of this potential selection issue is to examine how a selection variable is correlated with key utilization measures among the subset of cases selected. The notion is that if the selection variable resulted in a different percentage of cases being selected for each state and the varying percentage is correlated with the utilization variable, this may suggest a potential bias. If this occurs, one has to assess how sensitive the results are to potential selection.

We looked at the correlation at three different points of selection: (1) claims with more than seven days of lost time, (2) nonsurgical cases, and (3) cases that received narcotics. The results of our analysis suggested that the potential bias due to the selection of the subset of cases was unlikely to be a serious concern. We discuss this in detail in Technical Appendix D.<sup>16</sup>

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<sup>16</sup> In the same Technical Appendix, we also discuss how sensitive the results of the interstate comparison on the amount of narcotics per claim are to “outlier” cases and varying maturity of claims or duration of treatment.

## 3

**MULTISTATE RESULTS**

This chapter presents the key findings from our study that cut across the 17 study states. It highlights a substantial interstate variation in the utilization of narcotics and which states had the highest amount of narcotics received per claim.<sup>1</sup> It describes the interstate variation in the frequency of prescribing narcotics and stronger strength narcotics for pain relief and how that was related to the utilization of narcotics. It also documents how prevalent the longer-term use of narcotics was among the 17 states, and how often longer-term narcotic users received some of the services recommended by medical guidelines for chronic opioid management.

**AMOUNT OF NARCOTICS PER CLAIM VARIED SUBSTANTIALLY—HIGHEST IN LOUISIANA, MASSACHUSETTS, NEW YORK, AND PENNSYLVANIA**

Overall, we found a substantial interstate variation in the utilization of narcotics among injured workers who received narcotics. Among the 17 states included in the study, Louisiana, Massachusetts, New York, and Pennsylvania stood out with the highest amount of narcotics per claim. We used the average morphine equivalent amount of narcotics per claim with narcotics to measure the overall per-claim utilization of narcotics, taking into account the differences across states in both quantities and strength of narcotic prescriptions.<sup>2</sup> We also looked at the average number of prescriptions and the average number of pills per claim for narcotics as well as the frequency of prescribing weaker versus stronger strength narcotics to see what patterns were related to the higher amount of narcotics per claim. In this report, we choose to use nonsurgical cases with more than seven days of lost time to compare the utilization of narcotics across the states to make the interstate comparison more meaningful.<sup>3</sup>

Figure 3.1 shows the average morphine equivalent amount of narcotics per claim among the nonsurgical cases that received narcotics. Among the 17 study states, Louisiana, Massachusetts, New York, and Pennsylvania had the highest per-claim utilization of narcotics—the average injured worker had over 3,000 milligrams of morphine equivalent narcotics (Figure 3.1). New York was the highest with 4,000 milligrams of morphine equivalent narcotics per claim. Remember that these are the claims of injured workers who did not have surgery and received narcotics for pain relief.

A substantial variation in the per-claim amount of narcotics is also evident in Figure 3.1. Injured workers in

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<sup>1</sup> The amount of narcotics per claim refers to the average morphine equivalent amount of narcotics per claim for nonsurgical claims with more than seven days of lost time that had narcotics paid by workers' compensation payors.

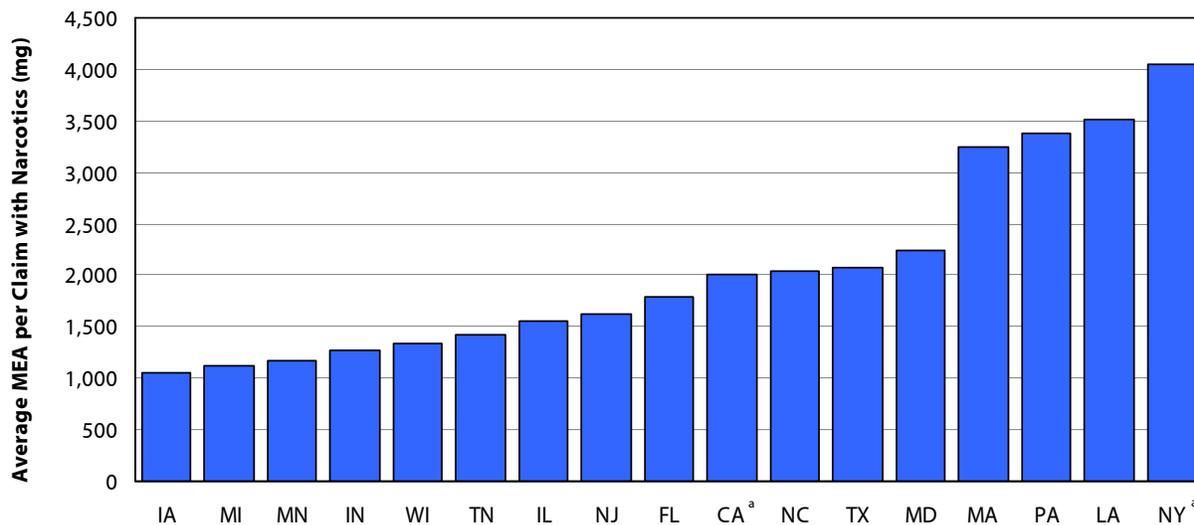
<sup>2</sup> See the Data and Methods section for a detailed description of how the amount of narcotics per claim was constructed.

<sup>3</sup> While selecting nonsurgical cases for the analysis makes the results more meaningful clinically, one may be concerned that states with higher surgery rates would have fewer serious cases among nonsurgical claims, thus distorting the comparisons. If this issue is present and significant, the potential selection bias would adversely affect the comparability of the results. We assessed the extent of this potential issue and concluded that selecting nonsurgical cases is unlikely to affect the severity of the cases across the states to the extent that it would bias the results of interstate comparison in the utilization of narcotics. See the Data and Methods section and Technical Appendix D for a more detailed discussion.

New York who received narcotics had nearly 4 times the amount of narcotics per claim as injured workers in the lowest states (Iowa, Michigan, and Minnesota).<sup>4</sup> The amount of narcotics received by the average injured worker in Louisiana, Massachusetts, and Pennsylvania was nearly triple the amount of narcotics per claim in the lowest states.

There may be several reasons why the amount of narcotics per claim was highest in these four states. In Louisiana and New York, physicians wrote and injured workers filled more narcotic prescriptions for more narcotic pills (Figures 3.2 and 3.3, and Table 3.1). The average injured worker in Louisiana (who did not have surgery but received narcotics for pain relief) had 7 prescriptions for narcotics, compared with 4 prescriptions per claim in the typical states. Injured workers in New York who had narcotics received nearly 400 narcotic pills per claim, 120 percent higher than the 17-state median.

**Figure 3.1 Average MEA per Claim with Narcotics, Nonsurgical Cases with More Than 7 Days of Lost Time**



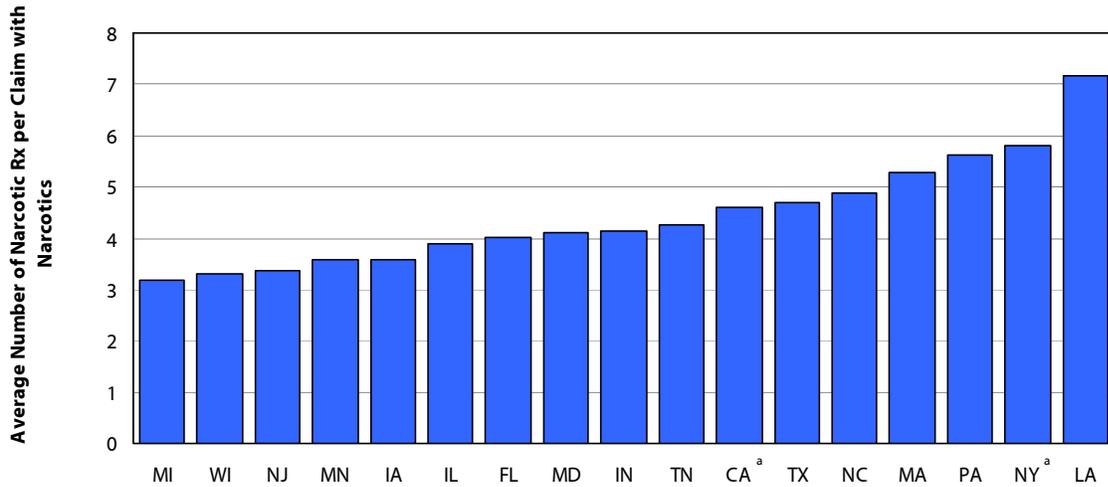
Note: Underlying data include nonsurgical claims with more than 7 days of lost time that had injuries arising from October 1, 2005, to September 30, 2006, and prescriptions filled through March 31, 2008.

<sup>a</sup> California and New York had statutory changes in 2007 which impacted the reimbursements for prescription drugs including narcotics in workers' compensation. In California, the statutory changes lowered the prices paid for physician-dispensed prescriptions to the level received for pharmacy-dispensed prescriptions, which impacted the prices paid for physician-dispensed narcotics. The data in this study reflect a mix of experience before and after the changes.

Key: MEA: morphine equivalent amount; mg: milligrams.

<sup>4</sup> Our results are largely consistent with what was reported in an NCCI study on narcotics (Lipton, Laws, and Li, 2009). In that study, the authors found that the variation in the narcotics cost per medical claim showed a geographic pattern—narcotics cost per claim was lower in the Midwest states and higher in many coastal states.

**Figure 3.2 Average Number of Narcotic Rx per Claim with Narcotics, Nonsurgical Cases with More Than 7 Days of Lost Time**

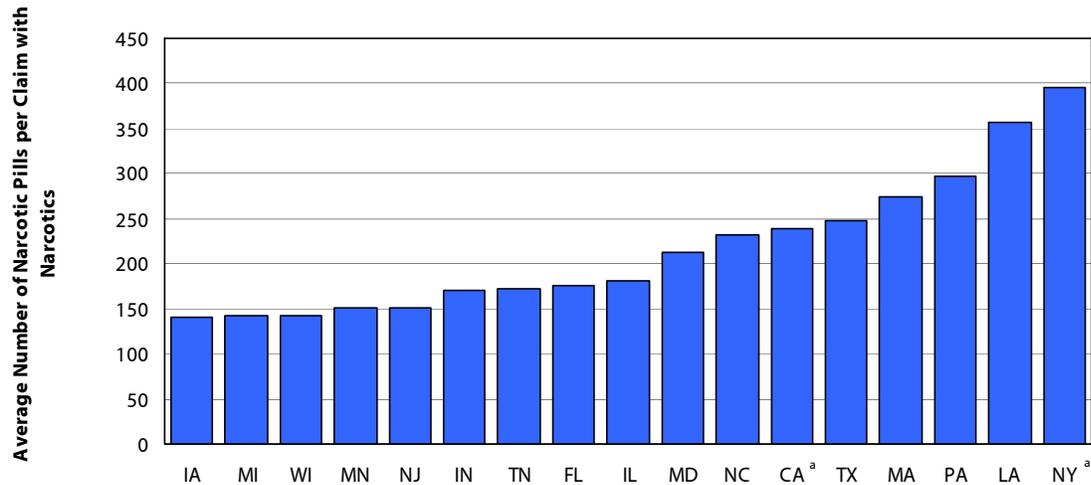


Note: Underlying data include nonsurgical claims with more than 7 days of lost time that had injuries arising from October 1, 2005, to September 30, 2006, and prescriptions filled through March 31, 2008.

<sup>a</sup> California and New York had statutory changes in 2007 which impacted the reimbursements for prescription drugs including narcotics in workers' compensation. In California, the statutory changes lowered the prices paid for physician-dispensed prescriptions to the level received for pharmacy-dispensed prescriptions, which impacted the prices paid for physician-dispensed narcotics. The data in this study reflect a mix of experience before and after the changes.

Key: Rx: prescriptions.

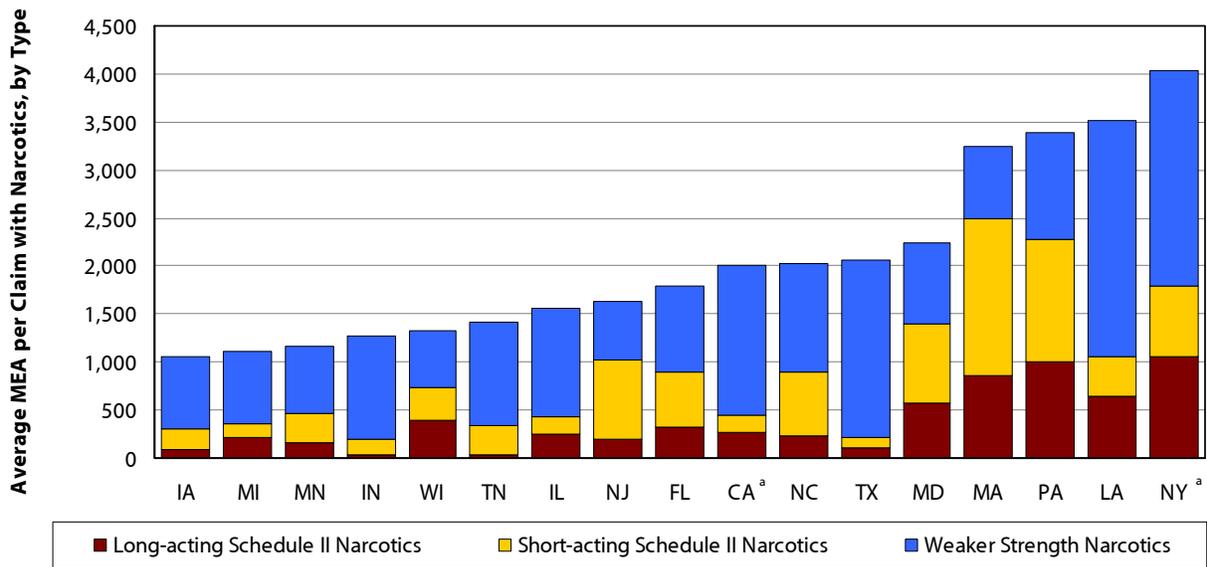
**Figure 3.3 Average Number of Narcotic Pills per Claim with Narcotics, Nonsurgical Cases with More Than 7 Days of Lost Time**



Note: Underlying data include nonsurgical claims with more than 7 days of lost time that had injuries arising from October 1, 2005, to September 30, 2006, and prescriptions filled through March 31, 2008.

<sup>a</sup> California and New York had statutory changes in 2007 which impacted the reimbursements for prescription drugs including narcotics in workers' compensation. In California, the statutory changes lowered the prices paid for physician-dispensed prescriptions to the level received for pharmacy-dispensed prescriptions, which impacted the prices paid for physician-dispensed narcotics. The data in this study reflect a mix of experience before and after the changes.

**Figure 3.4 Average MEA per Claim with Narcotics by Type, Nonsurgical Cases with More Than 7 Days of Lost Time**



Note: Underlying data include nonsurgical claims with more than 7 days of lost time that had injuries arising from October 1, 2005, to September 30, 2006, and prescriptions filled through March 31, 2008.

<sup>a</sup> California and New York had statutory changes in 2007 which impacted the reimbursements for prescription drugs including narcotics in workers' compensation. In California, the statutory changes lowered the prices paid for physician-dispensed prescriptions to the level received for pharmacy-dispensed prescriptions, which impacted the prices paid for physician-dispensed narcotics. The data in this study reflect a mix of experience before and after the changes.

Key: MEA: morphine equivalent amount.

In Massachusetts and Pennsylvania, while the average number of prescriptions and the average number of pills per claim for narcotics were also higher than typical (Figures 3.2 and 3.3, and Table 3.1), there is a third reason which contributed to the higher amount of narcotics per claim—physicians in these two states, especially in Massachusetts, were more often prescribing stronger, Schedule II narcotics. Massachusetts stood out in use of Schedule II narcotics—43 percent of nonsurgical cases with pain medications had Schedule II narcotics, which accounted for 33 percent of all prescriptions for pain medications (Table 3.1). These figures are much higher in Massachusetts, even when compared with the next highest states. In Pennsylvania, the frequency of using Schedule II narcotics was also higher (24 percent of nonsurgical cases with pain medications and 21 percent of pain medication prescriptions, Table 3.1). Figure 3.4 also illustrates this phenomenon—more frequent and higher use of Schedule II narcotics, including long-acting and short-acting Schedule II narcotics, contributed to a much higher amount of narcotics per claim.

**Table 3.1 Use of Narcotics among Nonsurgical Cases with More Than 7 Days of Lost Time**

	CA <sup>a</sup>	FL	IA	IL	IN	LA	MA	MD	MI	MN	NC	NJ	NY <sup>a</sup>	PA	TN	TX	WI	17-State Median	
Total number of cases that had Rx for pain medications	22,832	6,205	808	2,507	1,970	832	2,243	1,377	2,493	1,697	2,800	2,040	4,231	5,710	2,597	13,144	1,723	2,493	
<b>% of cases that had ... , among nonsurgical cases with more than 7 days of lost time that had pain medications</b>																			
Narcotics	63%	75%	74%	63%	81%	86%	77%	60%	57%	78%	79%	57%	73%	68%	80%	79%	82%	75%	
Schedule II narcotics	3%	18%	14%	4%	12%	18%	43%	20%	5%	22%	26%	26%	14%	24%	21%	3%	24%	18%	
<b>% of Rx for pain medications that were ...</b>																			
Narcotics	47%	56%	62%	55%	67%	70%	65%	54%	49%	64%	64%	52%	60%	60%	63%	60%	66%	60%	
Schedule II narcotics	3%	11%	9%	4%	7%	9%	33%	19%	5%	13%	16%	20%	11%	21%	9%	2%	17%	11%	
<b>Among nonsurgical cases with more than 7 days of lost time that had narcotics</b>																			
Average MEA per claim (mean)	2,014	1,792	1,055	1,551	1,267	3,513	3,247	2,238	1,116	1,173	2,034	1,624	4,040	3,387	1,418	2,071	1,336	1,792	
Average MEA per claim (median)	400	400	375	300	400	725	450	375	270	315	450	375	775	450	400	525	305	400	
Average number of narcotic Rx per claim (mean)	4.6	4.0	3.6	3.9	4.2	7.2	5.3	4.1	3.2	3.6	4.9	3.4	5.8	5.6	4.3	4.7	3.3	4.2	
Average number of narcotic Rx per claim (median)	2.0	2.0	2.0	2.0	2.0	3.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Average number of narcotic pills per claim (mean)	239	175	140	180	171	357	275	213	142	151	232	152	396	297	172	248	142	180	
Average number of narcotic pills per Rx (mean)	52	44	39	46	41	50	52	52	45	42	48	45	68	53	40	53	43	46	
Average MEA per pill (mean)	7.6	8.3	7.4	7.8	7.1	9.6	10.7	9.0	7.9	6.8	8.0	8.8	9.6	10.2	7.9	7.8	8.4	8.0	

Notes: Underlying data include nonsurgical claims with more than 7 days of lost time that had injuries arising from October 1, 2005, to September 30, 2006, and prescriptions filled through March 31, 2008.

<sup>a</sup> California and New York had statutory changes in 2007 which impacted the reimbursements for prescription drugs including narcotics in workers' compensation. In California, the statutory changes lowered the prices paid for physician-dispensed prescriptions to the level received for pharmacy-dispensed prescriptions, which impacted the prices paid for physician-dispensed narcotics. The data in this study reflect a mix of experience before and after the changes.

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

The results for these four states were striking. The reader may be concerned that the mean value of the morphine equivalent amount per claim might have been skewed by outliers in the data or some legitimate cases with heavy use of narcotics. We did two things to address this concern. First, we identified cases that had an unusually high morphine equivalent amount and excluded those cases from the analysis (the excluded cases comprise less than 1 percent of the cases with narcotics).<sup>5</sup> The results presented reflect this exclusion. Second, we did a sensitivity test by removing the top 5 percent of cases from the sample of cases with narcotics. The results of the sensitivity test did not change how the states were characterized in the amount of narcotics used per claim, especially for the states with higher utilization. Therefore, these “heavy users” of narcotics were included in the analysis.<sup>6</sup> Since heavy and longer-term use of narcotics is an important part of the overall use of narcotics, we used the mean values for the amount of narcotics per claim to compare the use of narcotics across the states. We also reported the median values for the same measure (see Table 3.1) for the interested reader. If the mean value of a measure is much higher than the median of the same measure it suggests that the problem is likely to be concentrated in a relatively small percentage of narcotic users.

Another possible concern was that because states tend to be different in terms of benefit structure and claim administration, the interstate comparison of the utilization of narcotics may be reflective of differences in claim maturity. Among the four states with the highest amount of narcotics per claim,<sup>7</sup> Louisiana, Massachusetts, and Pennsylvania are wage-loss states where the average duration of temporary disability is longer than in the other states.<sup>8</sup> In New York, claims usually stay open for a longer period of time.<sup>9</sup> One possible explanation for the higher utilization of narcotics per claim in these states may be because more claims stayed open and still received medical services as claims became more mature. We analyzed the patterns of narcotics utilization at different maturities and found that the amount of narcotics per claim in the four states was already higher at the end of the first year postinjury.<sup>10</sup> We also found that among the states studied, a greater amount of narcotics received per claim was associated with a higher proportion of claims that had longer disability duration.<sup>11</sup> However, without a more rigorous analysis, we cannot tell to what extent the longer disability duration would affect the use of narcotics in a state.

Many factors may help explain the results we observed. While analyzing the impact of these factors is beyond the scope of this study, in Technical Appendix A we provide, some background information about possible factors that may influence the prescription of narcotics. These factors include state prescription drug monitoring programs, state intractable pain legislation and policies, treatment guidelines, and workers’ compensation regulation of pharmaceuticals.

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<sup>5</sup> The morphine equivalent amount of narcotics was considered unusually high if the estimated daily dosage for narcotics exceeding 120 milligrams of morphine equivalent, which is the maximal daily dosage typically recommended by guidelines (e.g., Oregon guidelines for prescribing narcotics [Oregon Health and Science University, 2006]).

<sup>6</sup> In our detailed data review of several randomly selected cases with heavy use of narcotics, we did not see evidence suggesting likely data anomalies. Based on the prescription transactions, these heavy users appeared to have filled many prescriptions for the same or different narcotics at short intervals. Because of this, we included these “heavy users” in the analysis.

<sup>7</sup> As mentioned earlier, the amount of narcotics per claim refers to the average morphine equivalent amount of narcotics per claim for nonsurgical claims with more than seven days of lost time that had narcotics paid by workers’ compensation payors.

<sup>8</sup> We characterize states as *wage loss* or *non-wage loss* based on benefit structure. Under a wage-loss benefit structure, most indemnity benefits are paid as temporary disability benefits, generally resulting in longer duration. Permanent partial disability benefits are much less frequent in states with a wage loss benefit structure (Telles, 2011). It is interesting to note that Michigan is also a wage-loss state (Savych and Tanabe, 2011), but the amount of narcotics per claim in Michigan was among the lowest.

<sup>9</sup> A WCRI report provides performance metrics for the benefit delivery system in New York. The study authors caution the reader that because, historically, income benefits have been paid and medical care delivered for a much longer time in New York than in most other states, “snapshots of system performance using even 60 months of paid experience will understate system costs and medical care” (See Tanabe and Telles, 2010, p. 13).

<sup>10</sup> See Technical Appendix D and Table TA.D1 for more details.

<sup>11</sup> See Technical Appendix D and Table TA.D2 for a discussion and results.

## **MORE FREQUENT USE OF NARCOTICS AND STRONGER, SCHEDULE II NARCOTICS MAY SIGNAL OVERUSE OF NARCOTICS IN SOME STATES<sup>12</sup>**

We found large differences among the states in the frequency of prescribing narcotics and stronger, Schedule II narcotics for pain relief. For some states with more frequent prescription of narcotics and stronger, Schedule II narcotics, overuse of narcotics and stronger narcotics may be a concern.

To measure the frequency of prescribing narcotics, we used the nonsurgical cases that had pain medications as base because receiving pain medications is an indicator of the medical need for pain relief.<sup>13</sup> Figure 3.5 shows the percentage of nonsurgical cases with prescriptions that received narcotics and average number of narcotic pills per claim.<sup>14</sup> As Figure 3.5a shows, the percentage of nonsurgical cases with pain medications that had narcotics ranged from 57 percent in New Jersey and Michigan to over 80 percent in Indiana, Louisiana, and Wisconsin. It is worth noting that although Indiana and Wisconsin were among the highest in the percentage of injured workers with pain medications that received narcotics (Figure 3.5a), the average injured worker in these two states who received narcotics had fewer narcotic pills per claim, compared with what was typical for the 17 states (Figure 3.5b). Take Wisconsin as an example. Physicians in Wisconsin used narcotics in 82 percent of the nonsurgical cases who had pain medications, the second highest among the 17 states (Figure 3.5a). However, Wisconsin was among the lowest on the average number of prescriptions and the average number of pills per claim for narcotics—the average injured worker who received narcotics in Wisconsin had about 3 prescriptions totaling 142 pills per claim for narcotics, 21 percent lower than the 17-state median (Figures 3.2, 3.3, and 3.5b).<sup>15</sup> The average morphine equivalent amount of narcotics per claim was also lower in the state (Figure 3.1). By contrast, Louisiana had the highest percentage of cases with pain medications that received narcotics (Figure 3.5), and the per-claim utilization of narcotics, measured by the average amount of narcotics per claim and the average number of prescriptions for narcotics, were among the highest of the 17 states (Figures 3.1 and 3.2).

The results for Indiana and Wisconsin may suggest two potential issues. First, physicians in the two states might prescribe narcotics in more cases than typical so that cases with narcotics might be less serious and hence used fewer narcotic prescriptions per claim. We examined this potential selection bias and concluded that it should not be significant, if it exists. We discuss this in Chapter 2 and Technical Appendix D. Second, physicians in the two states might instruct patients to buy non-prescription pain medications over the counter more often than in other states, which might have resulted in a higher percentage of prescriptions for pain medications that were for narcotics or a higher percentage of cases with pain medications that had narcotics. For either measure, we did not see clear evidence suggesting a serious problem with the underlying data. We discuss this in Chapter 2.

<sup>12</sup> It should be noted that we do not know what the optimal level of narcotic use is. The findings here were based on interstate comparison.

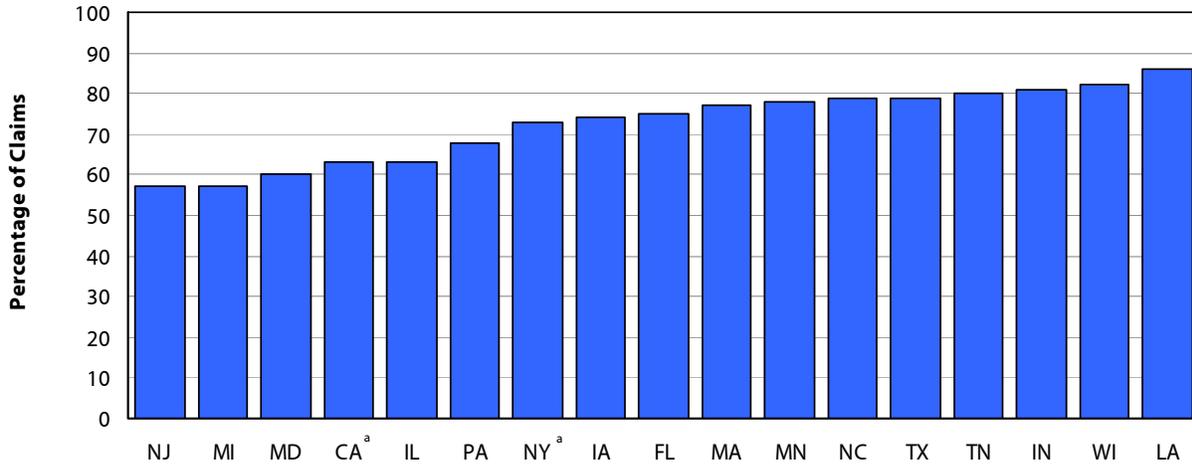
<sup>13</sup> The prescriptions for pain medications in this study include those that are for prescription narcotics and prescription non-narcotic pain medications. Non-prescription pain medications are not included in the data. One may be concerned about the comparability of the results if the use of non-prescription pain medications varied widely across the states. However, we see little variation in the use of pain medications—60–70 percent of nonsurgical cases with prescriptions had pain medications in all states. This suggests that variation in the use of non-prescription pain medications not likely to be large, but we do not directly observe it in the data. See Chapter 2 for a more detailed discussion.

<sup>14</sup> These measures are presented side by side because presenting frequency of narcotic use without per-claim utilization might be misleading.

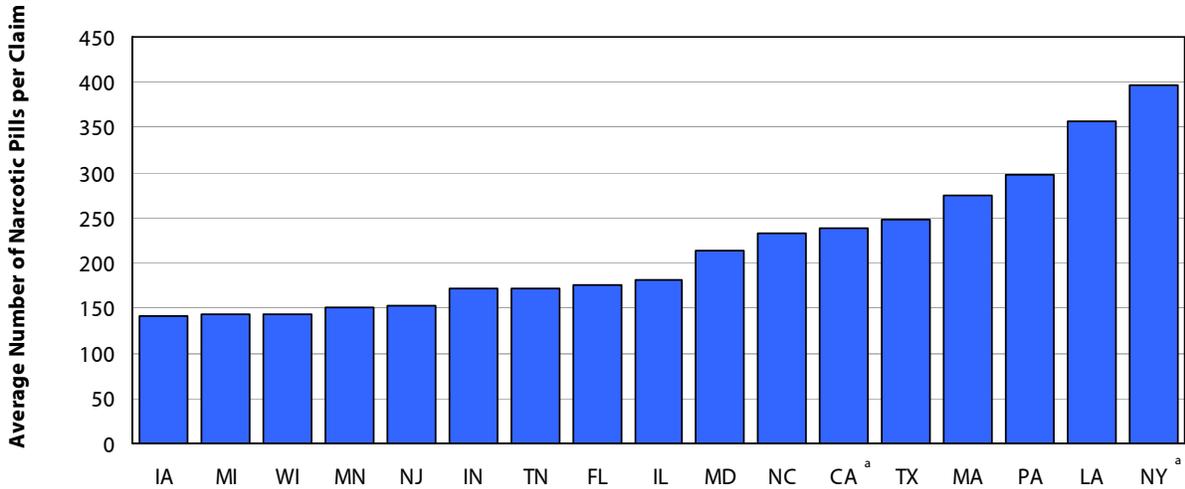
<sup>15</sup> The average amount of narcotics per claim in Wisconsin was also lower than the 17-state median but not among the lowest because physicians in Wisconsin were more likely to prescribe stronger narcotics, as discussed below.

**Figure 3.5 Frequency and Utilization of Narcotics, Nonsurgical Cases with More Than 7 Days of Lost Time**

**Figure 3.5a Percentage of Claims with Pain Medications That Had Narcotics**



**Figure 3.5b Average Number of Narcotic Pills per Claim with Narcotics**



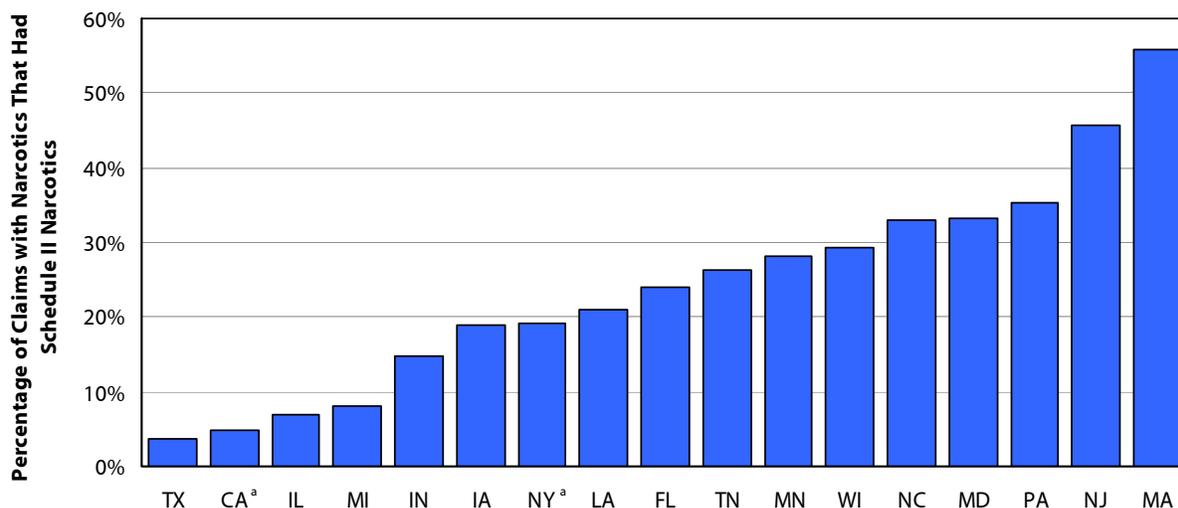
Note: Underlying data include nonsurgical claims with more than 7 days of lost time that had injuries arising from October 1, 2005, to September 30, 2006, and prescriptions filled through March 31, 2008.

<sup>a</sup> California and New York had statutory changes in 2007 which impacted the reimbursements for prescription drugs including narcotics in workers' compensation. In California, the statutory changes lowered the prices paid for physician-dispensed prescriptions to the level received for pharmacy-dispensed prescriptions, which impacted the prices paid for physician-dispensed narcotics. The data in this study reflect a mix of experience before and after the changes.

When a physician decides to prescribe narcotics for pain relief, the next choice is whether to prescribe weaker or stronger narcotics. Figure 3.6 shows a strikingly large interstate variation in the frequency of prescribing stronger, Schedule II narcotics among the 17 study states. Injured workers in California, Illinois, Michigan, and Texas received stronger, Schedule II narcotics very rarely (4–8 percent of the cases). By contrast, patients in Maryland, Minnesota, North Carolina, Pennsylvania, and Wisconsin were more likely to have stronger, Schedule II narcotics (28–35 percent), and far more likely in New Jersey (46 percent) and Massachusetts (56 percent). Similar results can be seen in Table 3.1 which shows the percentage of prescriptions for pain medication that were narcotics or Schedule II narcotics.

Many factors may influence a physician’s choice to prescribe weaker or stronger narcotics, including the physician’s judgment as to the medical necessity for pain relief, practice norms within a medical community, and patients’ preference. State prescription monitoring programs and pain policies may also influence physicians’ prescribing behavior.<sup>16</sup>

**Figure 3.6 Percentage of Claims with Narcotics That Had Schedule II Narcotics, Nonsurgical Cases with More Than 7 Days of Lost Time**



Note: Underlying data include nonsurgical claims with more than 7 days of lost time that had injuries arising from October 1, 2005, to September 30, 2006, and prescriptions filled through March 31, 2008.

<sup>a</sup> California and New York had statutory changes in 2007 which impacted the reimbursements for prescription drugs including narcotics in workers’ compensation. In California, the statutory changes lowered the prices paid for physician-dispensed prescriptions to the level received for pharmacy-dispensed prescriptions, which impacted the prices paid for physician-dispensed narcotics. The data in this study reflect a mix of experience before and after the changes.

<sup>16</sup> In Technical Appendix A, we provide some background information about the policy environment that may influence physicians’ prescribing behavior. While a few studies outside workers’ compensation have found evidence of the impact of state prescription monitoring programs on physicians’ prescribing of narcotics and Schedule II narcotics (Curtis et al., 2006a and 2006b for example), we did not analyze it in this report.

While a discussion of possible reasons for the substantial variation in prescribing stronger, Schedule II narcotics is beyond the scope of this study, we found that more frequent prescribing of stronger, Schedule II narcotics did not always imply an overuse of narcotics. For example, physicians in Wisconsin were more likely to prescribe Schedule II narcotics—the percentage of nonsurgical cases with narcotics that had Schedule II narcotics was 29 percent in Wisconsin, 5 percentage points higher than the median of the 17 states (Figures 3.6).<sup>17</sup> However, the average morphine equivalent amount of narcotics per claim in Wisconsin was 25 percent lower than the 17-state median (Figure 3.1). A similar pattern can be seen in Minnesota.

By contrast, physicians in Massachusetts and Pennsylvania used stronger, Schedule II narcotics in a higher percentage of cases with narcotics (56 percent in Massachusetts and 35 percent in Pennsylvania, compared to 24 percent in the median state), and the amount of narcotics received by the average injured worker in these two states who received narcotics was among the highest (Figures 3.6 and 3.1).

It should also be noted that stronger, Schedule II narcotics were used rarely in California and Texas, but the amount of narcotics per claim in the two states was higher than typical of the 17 states. Thus, prevalent use of stronger, Schedule II narcotics may not be related to the overall amount of narcotics used per claim.

### **LONGER-TERM USE OF NARCOTICS WAS MORE FREQUENT THAN EXPECTED, AND FEW RECEIVED RECOMMENDED MONITORING SERVICES**

The use of narcotics to treat chronic pain has recently become more controversial. There has been very limited evidence of the effectiveness of narcotic therapy in treating chronic pain. Narcotics appear to act on the central nervous system altering the perception of pain, which also alters mood and can have both euphoriant and depressant effects. With limited evidence of effectiveness, there have been documented side effects and potential risks of overuse, abuse, and diversion. In addition, while narcotics can be used to relieve chronic pain, very often the target disease and physiology are poorly understood.

According to a Cochrane study, there is only weak evidence suggesting that patients who are able to continue long-term opioid therapy experience clinically significant pain relief. However, because multiple side effects are common, causing many patients to discontinue use, it is unclear whether this type of therapy functionally benefits most patients (Nobel et al., 2010). Most studies show that only around 50 percent of patients tolerate the side effects of opioids and related medications well, and benefit from opioid therapy for pain relief. Depending on the diagnoses and other agents available for treatment, the incremental benefit of chronic opioid use can be small (Cepeda et al., 2007; Laudau et al., 2007, and Nodel et al., 2010).

Because of serious side effects and potential risks, most guidelines recommend careful screening of patients for chronic opioid therapy and close monitoring and management through drug testing, psychological evaluation and treatment.<sup>18</sup> Guidelines also recommend active physical therapy and exercises to promote faster recovery.

In this study, we examine the use of narcotics over time by focusing on a cohort of nonsurgical cases that had narcotics in the first quarter postinjury. Table 3.2 shows how frequently injured workers with pain medications received narcotics in that time frame.

<sup>17</sup> It is worth noting that Wisconsin has been on the forefront of a national movement to encourage pain management including narcotics prescriptions. See an article on the controversy involving the Wisconsin pain expert guidelines and the DEA at [http://www.redorbit.com/news/health/107676/new\\_guidelines\\_for\\_pain\\_medication\\_worry\\_doctors\\_pain\\_management/index.html](http://www.redorbit.com/news/health/107676/new_guidelines_for_pain_medication_worry_doctors_pain_management/index.html).

<sup>18</sup> See Technical Appendix B for a summary of recommendations by guidelines for chronic opioid management.

**Table 3.2 Frequency of Claims with Pain Medications and Narcotics in the First Quarter Postinjury, Nonsurgical Cases with More Than 7 Days of Lost Time**

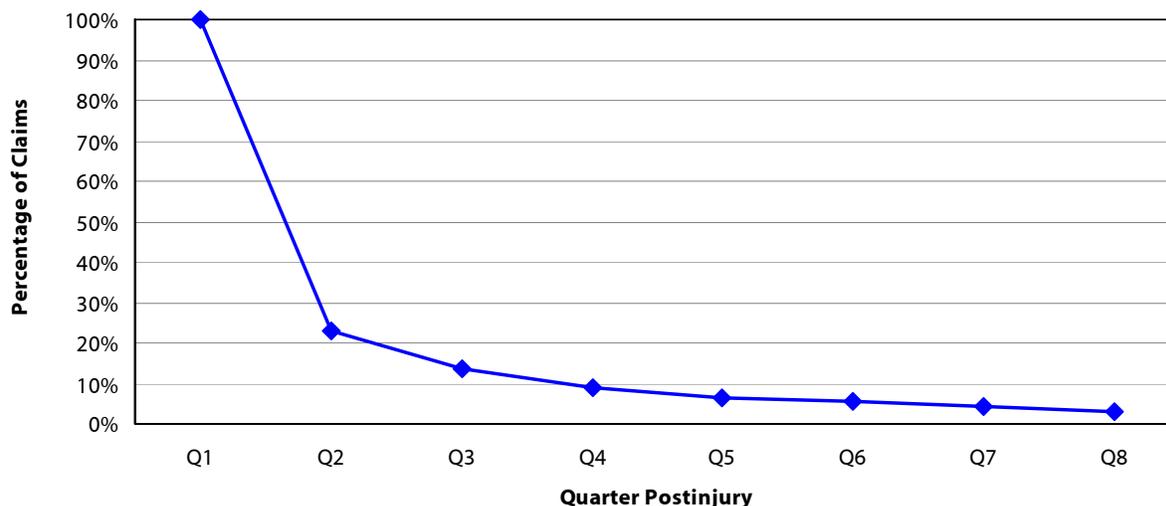
	CA <sup>a</sup>	FL	IA	IL	IN	LA	MA	MD	MI	MN	NC	NJ	NY <sup>a</sup>	PA	TN	TX	WI	17- State Median
Total number of cases that had Rx for pain medications	22,832	6,205	808	2,507	1,970	832	2,243	1,377	2,493	1,697	2,800	2,040	4,231	5,710	2,597	13,144	1,723	2,493
% of cases with Rx that had pain medications	96%	95%	94%	93%	93%	95%	91%	96%	95%	91%	94%	91%	92%	94%	96%	95%	92%	94%
% of cases that had pain medications within the first quarter postinjury	91%	95%	95%	91%	93%	87%	86%	92%	93%	86%	91%	90%	85%	91%	93%	93%	92%	91%
% of cases with pain medications in the first quarter postinjury that had narcotics in the same quarter	56%	73%	72%	59%	80%	83%	74%	57%	55%	78%	78%	54%	60%	64%	78%	75%	81%	73%

Note: Underlying data include nonsurgical claims with more than 7 days of lost time that had injuries arising from October 1, 2005, to September 30, 2006, and prescriptions filled through March 31, 2008.

<sup>a</sup> California and New York had statutory changes in 2007 which impacted the reimbursements for prescription drugs including narcotics in workers' compensation. In California, the statutory changes lowered the prices paid for physician-dispensed prescriptions to the level received for pharmacy-dispensed prescriptions, which impacted the prices paid for physician-dispensed narcotics. The data in this study reflect a mix of experience before and after the changes.

Key: Rx: prescriptions.

**Figure 3.7 Percentage of Claims with Narcotics in the First Quarter That Also Received Narcotics in a Given Quarter Postinjury,<sup>a</sup> Nonsurgical Cases with More Than 7 Days of Lost Time**



Note: Underlying data include nonsurgical claims with more than 7 days of lost time that had injuries arising from October 1, 2005, to September 30, 2006, and prescriptions filled through March 31, 2008.

<sup>a</sup> The figure shows the median values of the measure among the 17 states, including California, Florida, Illinois, Indiana, Iowa, Louisiana, Maryland, Massachusetts, Michigan, Minnesota, New Jersey, New York, North Carolina, Pennsylvania, Tennessee, Texas, and Wisconsin. See Table 3.3 for more details.

We tracked the subset of nonsurgical cases that received narcotics within the first quarter postinjury and examined the patterns of narcotic use in the subsequent quarters. Figure 3.7 shows that in the median state, one in five of those who received narcotics in the first quarter postinjury continued to receive narcotics at the second quarter, a large drop as expected. At the third quarter, about one in seven of those receiving narcotics in the first quarter filled narcotic prescriptions. The figure dropped slowly afterwards to about 3–5 percent at quarter 6 to quarter 8 postinjury.

Table 3.3 provides the same data by state. It shows that in some states, a much higher proportion of the cases had an early and persistent use of narcotics. For example, one in three nonsurgical cases in Louisiana and New York that had narcotics in the first quarter postinjury continued to receive narcotics in the second quarter, compared with about one in five in the median state. The percentage of the cases that had narcotics in the sixth and seventh quarters postinjury was much higher in these two states than in the other states. The proportion of persistent use over time was higher in California, Louisiana, New York, Pennsylvania, and Texas.

The early and persistent use of narcotics seen in some states raises an important question about the potential problems associated with the longer-term use of narcotics.

**Table 3.3 Percentage of Cases with Narcotics in the First Quarter Postinjury That Received Narcotics in Subsequent Quarters, Nonsurgical Cases with More Than 7 Days of Lost Time**

	CA <sup>a</sup>	FL	IA	IL	IN	LA	MA	MD	MI	MN	NC	NJ	NY <sup>a</sup>	PA	TN	TX	WI	17-State Median	
Total number of cases that had narcotics	14,455	4,665	596	1,586	1,599	717	1,725	823	1,413	1,318	2,200	1,163	3,102	3,907	2,065	10,432	1,416	1,599	
% of cases with pain medications that had narcotics	63%	75%	74%	63%	81%	86%	77%	60%	57%	78%	79%	57%	73%	68%	80%	79%	82%	75%	
<b>Percentage of claims with more than 7 days of lost time that received narcotics in subsequent months postinjury, after receiving narcotics in the first 3 months postinjury</b>																			
1–3 months	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
4–6 months	24%	22%	14%	22%	23%	33%	26%	23%	16%	20%	26%	23%	34%	25%	23%	29%	21%	23%	
7–8 months	18%	13%	7%	14%	11%	25%	14%	14%	9%	11%	16%	11%	27%	17%	12%	19%	9%	14%	
9–12 months	15%	9%	5%	8%	5%	22%	12%	10%	6%	8%	11%	6%	22%	15%	8%	14%	4%	9%	
13–15 months	13%	6%	3%	6%	3%	19%	9%	8%	4%	6%	9%	4%	20%	13%	6%	11%	3%	6%	
16–18 months	11%	5%	2%	4%	2%	14%	8%	7%	2%	5%	7%	4%	19%	11%	5%	9%	1%	5%	
19–21 months	10%	4%	1%	3%	1%	14%	7%	7%	2%	4%	6%	3%	17%	8%	4%	7%	1%	4%	
22–24 months	8%	2%	1%	3%	1%	8%	7%	3%	1%	3%	4%	2%	15%	6%	3%	6%	1%	3%	

Notes: Underlying data include nonsurgical claims with more than 7 days of lost time that had injuries arising from October 1, 2005, to September 30, 2006, and prescriptions filled through March 31, 2008.

<sup>a</sup> California and New York had statutory changes in 2007 which impacted the reimbursements for prescription drugs including narcotics in workers' compensation. In California, the statutory changes lowered the prices paid for physician-dispensed prescriptions to the level received for pharmacy-dispensed prescriptions, which impacted the prices paid for physician-dispensed narcotics. The data in this study reflect a mix of experience before and after the changes.

Narcotics have been accepted as appropriate treatment for acute and cancer pain.<sup>19</sup> However, there is fear that narcotics are ineffective over the long term on treating noncancer pain, and that the prescription of narcotics to treat such pain will lead to an increase in nonmedical uses, negatively affecting public health and imposing higher costs on the health care and criminal justice systems.<sup>20</sup>

To look at longer-term narcotic use, we identified a subset of nonsurgical cases that had narcotics within the first 3 months after the injury and had 3 or more visits to fill narcotic prescriptions between the seventh and twelfth month after the injury.<sup>21</sup> Figure 3.8 shows the percentage of nonsurgical cases with narcotics that were identified as the longer-term users of narcotics.

As Figure 3.8 shows, Louisiana was the highest among the 17 states studied—nearly 1 in 6 injured workers who did not have surgery but received narcotics met our criteria for the longer-term use of narcotics. The figure was nearly 1 in 8 in New York, about 1 in 10 in Pennsylvania and Texas, and about 1 in 12 in California, Massachusetts, and North Carolina, compared with about 1 in 20 in the typical states, especially the Midwest states (Figure 3.8).

It is worth noting that we also identified a subset of nonsurgical cases that did not receive narcotics within the first quarter postinjury but exhibited the same pattern of longer-term use of narcotics.<sup>22</sup> As Figure 3.9 shows, 1–3 percent of the cases with narcotics fell in this category in most states, but the figure was higher for California, Louisiana, Massachusetts, New York, and Pennsylvania (3–6 percent). We do not focus on this group of cases in this report.<sup>23</sup> However, the pattern of longer-term use across the states appears consistent with that for the longer-term use of narcotics we defined.

Guidelines recommend the careful selection of patients with chronic pain who would be most likely to benefit from longer-term use of narcotics. All patients should be screened for potential alcohol and drug abuse problems and psychological issues, since these patients are less likely to succeed with chronic narcotic management and need close monitoring.<sup>24</sup> Careful monitoring and management includes random urine drug screening, periodic assessment and evaluation of function and side effects, and tapering of narcotic medication when the goals and patient behavior expectations are not met.<sup>25</sup> Narcotic use should only be considered as part of comprehensive treatment approach.

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<sup>19</sup> According to the American College of Occupational and Environmental Medicine (ACOEM), for example, opioids may be indicated for acute non-traumatic pain when there is significant objective evidence of injury and other pain medications, such as non-steroidal anti-inflammatory drugs and acetaminophen, have failed to control pain in the short term (up to 3 weeks after an acute injury). For traumatic injuries and post-operative pain, narcotic pain medications are options for pain relief during 2 to 4 weeks of initial treatment, according to ACOEM and other guidelines (Glass, 2004, Ch. 3.; Colorado Department of Labor and Employment, 2007a and 2007b).

<sup>20</sup> See Collett (2001) and Passik (2009).

<sup>21</sup> See Chapter 2 and Technical Appendix C for a more detailed description.

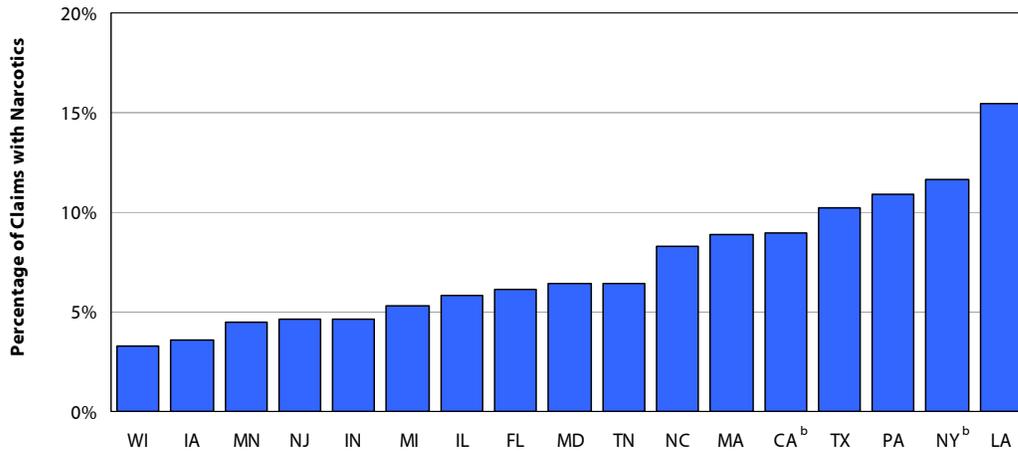
<sup>22</sup> While it is possible that some patients do not have narcotics until 6 months after their injuries, such cases are rarely seen clinically. It is possible that some of these workers filled narcotic prescriptions within 3 months postinjury but the prescriptions were paid by a non-workers' compensation payor, and thus would not appear in our data. It is also possible that other treatments, such as over-the-counter pain medications and pain management injections, were tried but in some cases failed to control the pain, and thus narcotics were used as a last resort. These are possibilities that need to be further investigated.

<sup>23</sup> We do not focus on this group of cases because there is a concern that the inclusion of these cases may overstate the prevalence of longer-term use of narcotics. See Technical Appendix C for a more detailed discussion.

<sup>24</sup> Chronic narcotic management requires a comprehensive treatment approach with clear functional goals agreed upon between the physician and patient.

<sup>25</sup> See Technical Appendix B for a summary of medical guideline recommendations for chronic opioid management.

**Figure 3.8 Percentage of Claims with Narcotics That Were Identified as Longer-term Users of Narcotics,<sup>a</sup> Nonsurgical Cases with More Than 7 Days of Lost Time**

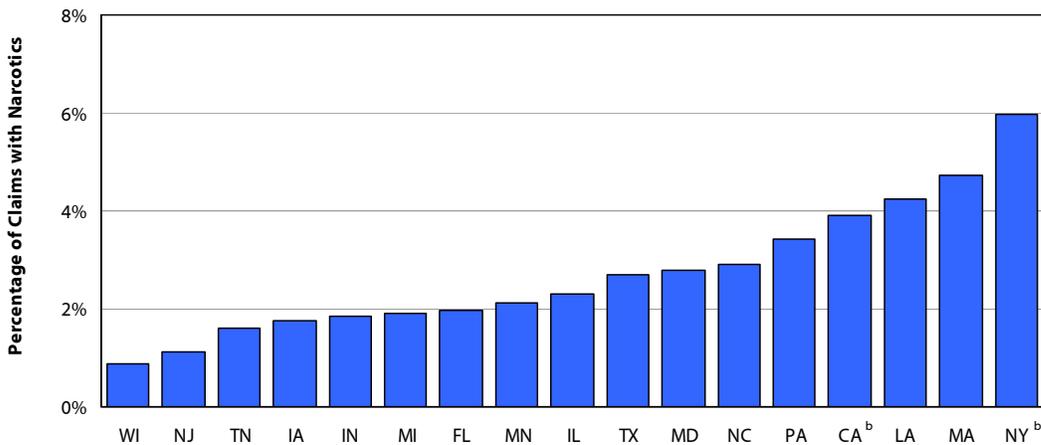


Note: Underlying data include nonsurgical claims with more than 7 days of lost time that had injuries arising from October 1, 2005, to September 30, 2006, and prescriptions filled through March 31, 2008.

<sup>a</sup> We identified the longer-term users of narcotics as those who had narcotics within the first 3 months after the injury and had 3 or more visits to fill narcotic prescriptions between the seventh and twelfth month after the injury.

<sup>b</sup> California and New York had statutory changes in 2007 which impacted the reimbursements for prescription drugs including narcotics in workers' compensation. In California, the statutory changes lowered the prices paid for physician-dispensed prescriptions to the level received for pharmacy-dispensed prescriptions, which impacted the prices paid for physician-dispensed narcotics. The data in this study reflect a mix of experience before and after the changes.

**Figure 3.9 Percentage of Claims with Narcotics That Did Not Receive Narcotics in 3 Months Postinjury but Had Narcotics on a Longer-term Basis,<sup>a</sup> Nonsurgical Cases with More Than 7 Days of Lost Time**



Note: Underlying data include nonsurgical claims with more than 7 days of lost time that had injuries arising from October 1, 2005, to September 30, 2006, and prescriptions filled through March 31, 2008.

<sup>a</sup> We identified the longer-term users of narcotics as those who did not have narcotics within the first 3 months after the injury, but had 3 or more visits to fill narcotic prescriptions between the seventh and twelfth month after the injury. See the Data and Methods and Technical Appendix C for a more detailed description.

<sup>b</sup> California and New York had statutory changes in 2007 which impacted the reimbursements for prescription drugs including narcotics in workers' compensation. In California, the statutory changes lowered the prices paid for physician-dispensed prescriptions to the level received for pharmacy-dispensed prescriptions, which impacted the prices paid for physician-dispensed narcotics. The data in this study reflect a mix of experience before and after the changes.

However, our data showed that few cases that were identified as longer-term users of narcotics received those recommended services, contrary to medical guideline recommendations.<sup>26</sup> As Table 3.4 shows, only 7 percent of the longer-term users in the median state had urine drug screening tests. Even in the states where the frequency of use was the highest, only 1 in 5 of the longer-term users had a urine drug screening test (Table 3.4). Similarly, few longer-term users of narcotics had the psychological evaluation and treatment recommended by guidelines. Even in Texas, the state with the highest frequency of using these services, only about 1 in 4 had psychological evaluations, and about 1 in 10 had psychological treatment. Even if we assume that some of these cases did not have chronic pain which would necessitate chronic narcotics management, the frequency of using these services was surprisingly low.

An important purpose of chronic opioid therapy is to facilitate active physical therapy that is aimed at restoring functioning. Active physical therapy is recommended by guidelines for chronic opioid management as part of a comprehensive treatment for patients with chronic pain. We found that only three-quarters of the longer-term users received active physical medicine services in the median state. Notice that the proportion of longer-term narcotic users who received active physical therapy was below 70 percent in 5 of the 17 states, and especially low in Massachusetts (55 percent).

Table 3.5 provides some utilization measures for the longer-term users, those who had narcotics within the first 3 months after the injury and had 3 or more visits to fill narcotic prescriptions between the seventh and twelfth month after the injury. While the longer-term users of narcotics received a much higher amount of narcotics per claim, more narcotic prescriptions and pills per claim, we noticed that the percentage of the longer-term narcotic users that received long-acting Schedule II narcotics was lower than expected (Table 3.5). This may suggest that some cases in this group may not need longer-term narcotic treatment but received short-acting or weaker strength narcotics on a longer-term basis. It could also be possible that some physicians were more hesitant to prescribe long-acting narcotics for the patients who may need them. However, the medical literature on chronic opioid management recommends long-acting narcotics to be used because they are thought to be less addictive and less likely to provide euphoria than short-acting narcotics.

In any case, this observation raises several questions about longer-term use of narcotics that need to be further investigated: how many cases among the longer-term narcotic users truly need medical treatment for chronic pain? How many of those who do not need longer-term use of narcotics received it on a longer-term basis? How are those longer-term users being screened for longer-term narcotic therapy? Can unnecessary longer-term use be prevented and, if so, how? More rigorous methodology and additional data may be needed to answer these questions.

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<sup>26</sup> Morasco and colleagues also reported a similar finding on the use of urine drug screening among veterans with chronic non-cancer pain, who were prescribed high doses of opioids over a long period of time (Morasco et al., 2010).

**Table 3.4 Use of Services Recommended by Guidelines<sup>a</sup> for Chronic Narcotics Management, among Nonsurgical Cases Identified as Longer-term Users of Narcotics<sup>b</sup>**

	CA <sup>c</sup>	FL	IA	IL	IN	LA	MA	MD	MI	MN	NC	NJ	NY <sup>c</sup>	PA	TN	TX	WI	17-State Median
Total number of nonsurgical cases that had narcotics	14,455	4,665	596	1,586	1,599	717	1,725	823	1,413	1,318	2,200	1,163	3,102	3,907	2,065	10,432	1,416	1,599
% of nonsurgical cases with narcotics that were identified as longer-term users of narcotics	9%	6%	4%	6%	5%	15%	9%	6%	5%	5%	8%	5%	12%	11%	6%	10%	3%	6%
% of cases that had drug screening test	4%	20%	n/a	6%	3%	21%	6%	9%	3%	2%	16%	7%	12%	8%	19%	11%	7%	7%
% of cases that had psychological evaluations	4%	4%	n/a	2%	3%	9%	3%	3%	4%	10%	6%	2%	6%	4%	3%	28%	5%	4%
% of cases that had psychological treatments/reports	3%	6%	n/a	4%	3%	9%	2%	1%	4%	11%	3%	n/a	7%	3%	2%	13%	n/a	4%
% of cases that had active physical medicine	83%	84%	63%	77%	79%	68%	55%	82%	71%	61%	82%	93%	71%	76%	75%	82%	64%	76%

Note: Underlying data include nonsurgical claims with more than 7 days of lost time that had injuries arising from October 1, 2005, to September 30, 2006, and prescriptions filled through March 31, 2008.

<sup>a</sup> Technical Appendix B summarizes the guideline recommendations for longer-term narcotic management.

<sup>b</sup> We identified the longer-term users of narcotics as those who had narcotics within the first 3 months after the injury and had 3 or more visits to fill narcotic prescriptions between the seventh and twelfth month after the injury. See the Data and Methods and Technical Appendix C for a more detailed description.

<sup>c</sup> California and New York had statutory changes in 2007 which impacted the reimbursements for prescription drugs including narcotics in workers' compensation. In California, the statutory changes lowered the prices paid for physician-dispensed prescriptions to the level received for pharmacy-dispensed prescriptions, which impacted the prices paid for physician-dispensed narcotics. The data in this study reflect a mix of experience before and after the changes.

Key: n/a: not available (due to small sample size or lack of data).

**Table 3.5 Utilization of Narcotics among Longer-term Users of Narcotics,<sup>a</sup> Nonsurgical Cases with More Than 7 Days of Lost Time**

	CA <sup>b</sup>	FL	IA	IL	IN	LA	MA	MD	MI	MN	NC	NJ	NY <sup>b</sup>	PA	TN	TX	WI	17- State Median
% of cases with narcotics that were identified as longer-term users of narcotics	9%	6%	4%	6%	5%	15%	9%	6%	5%	5%	8%	5%	12%	11%	6%	10%	3%	6%
<b>Among longer-term users of narcotics</b>																		
% of cases that had narcotics	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Average number of Rx per claim for narcotics	19	18	20	18	20	24	26	22	17	19	21	18	22	24	21	20	17	20
Average MEA per claim with narcotics	11,328	12,710	6,195	9,366	7,550	14,901	28,335	13,839	11,095	8,221	11,968	14,416	19,495	19,124	10,276	10,999	10,916	11,328
% of cases that had C-II narcotics	18%	56%	47%	26%	43%	38%	82%	74%	30%	47%	60%	86%	50%	73%	53%	15%	56%	50%
Average number of Rx per claim for C-II narcotics	9	9	9	6	6	8	18	15	10	8	11	8	10	16	8	6	11	9
% of cases that had LA C-II narcotics	10%	16%	13%	12%	17%	13%	30%	19%	22%	14%	14%	29%	22%	30%	9%	9%	19%	16%
Average number of Rx per claim for LA C-II narcotics	7	7	3	7	5	7	11	10	7	7	9	5	10	9	4	5	8	7

Notes: Underlying data include nonsurgical claims with more than 7 days of lost time that had injuries arising from October 1, 2005, to September 30, 2006, and prescriptions filled through March 31, 2008.

<sup>a</sup> We identified the longer-term users of narcotics as those who had narcotics within the first 3 months after the injury and had 3 or more visits to fill narcotic prescriptions between the seventh and twelfth month after the injury. See the Data and Methods and Technical Appendix C for a more detailed description.

<sup>b</sup> California and New York had statutory changes in 2007 which impacted the reimbursements for prescription drugs including narcotics in workers' compensation. In California, the statutory changes lowered the prices paid for physician-dispensed prescriptions to the level received for pharmacy-dispensed prescriptions, which impacted the prices paid for physician-dispensed narcotics. The data in this study reflect a mix of experience before and after the changes.

Key: C-II: Schedule II; LA C-II: Long-acting Schedule II; MEA: morphine equivalent amount; Rx: prescriptions.

# 4

## HIGHLIGHTS OF STATE RESULTS

In this chapter, we highlight major findings in the use of narcotics for individual states. We focus on the frequency and utilization of narcotics and how the use of narcotics in one state differs from the median of the 17 states. We do not analyze why the difference occurred.<sup>1</sup>

### A GUIDE TO THE READER

In this chapter, we provide a short table for each state that helps characterize the use of narcotics for the state. Each table describes the use of narcotics for surgical and nonsurgical claims with more than seven days of lost time. We include the results for this broader set of cases only in this chapter to provide some basic data for policymakers to characterize their state.

We focus on nonsurgical cases with more than seven days of lost time that received narcotics to make the interstate comparison more meaningful when comparing each state to the 17-state median.<sup>2</sup>

To characterize the use of narcotics, we focus on the following three metrics, which are most relevant for policy:

- average morphine equivalent amount of narcotics received per claim for claims with narcotics.
- percentage of prescriptions for pain medications that were for narcotics and different types of narcotics.
- percentage of cases with narcotics that were identified as longer-term users of narcotics.<sup>3</sup>

The per-claim amount of narcotics is the most important metric, which is used to compare a state with the 17-state median in the overall use of narcotics.<sup>4</sup> In addition, we also report the average number of prescriptions per claim, the average number of pills per prescription, and the average number of pills per claim for claims with more than seven days of lost time that received narcotics. These measures, along with the frequency of narcotic use, help explain why there was a higher, typical, or lower overall use of narcotics in a state. Among the possible reasons, we focus on whether a state with a higher overall use of narcotics, for example, had (a) more prescriptions filled, (b) a higher number of pills prescribed per prescription, or (c) more frequent prescribing of certain stronger, Schedule II narcotics.

Findings on the frequency of narcotic use are interesting but may not be as important as the findings concerning

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<sup>1</sup> To help the reader interpret the results in a state context, we provide some background information about state laws and the regulatory environment in Technical Appendix A.

<sup>2</sup> See Chapter 2 for our discussion regarding this choice.

<sup>3</sup> See Chapter 2 and Technical Appendix C for a description of how we identified the longer-term users of narcotics.

<sup>4</sup> The average morphine equivalent amount of narcotics per claim for nonsurgical claims with more than seven days of lost time that had narcotics is a standardized measure that takes into account the differences across the states in the number of pills per prescription and the number of prescriptions per claim. See the Data and Methods for a detailed description of this measure and the other utilization metrics that help characterize the patterns in use of narcotics.

the overall amount of narcotics prescribed. For example, even if more injured workers who had pain medications received narcotics in a particular state, this may not be a cause for concern if the average amount of narcotics per claim is much lower than typical among the study states.

To characterize prescribing patterns, we looked at narcotics (and different types of narcotics) as a percentage of prescriptions for pain medications, to find out how many times the physician chooses to prescribe narcotics when prescribing pain medications. Similarly, we looked at the percentage of injured workers with pain medications that received narcotics, which also shows how often physicians used narcotics for pain relief in each state.

It is also important to look at how prevalently narcotics are used on a longer term basis because this is an area where a relatively small proportion of cases may account for a disproportionately large amount of narcotics received, and potentially lead to overuse, abuse, and diversion. We focus on the percentage of nonsurgical cases that were identified as longer-term users of narcotics to highlight for a state the potential issues related to longer-term use of narcotics.

To help identify how a state's results differ from the 17-state median, we provided in the table the percentage difference above or below the 17-state median for the utilization measures, and used the percentage point difference for the frequency measures.

Finally, the reader should keep in mind that the results reported are for claims with injuries occurring from October 1, 2005 to September 30, 2006, and prescriptions filled through March 31, 2008. The timeframe is especially important for California and New York. In March 2007, California changed the rules about reimbursements for physician-dispensed prescription drugs that equalized the prices for pharmacy- and physician-dispensed prescriptions. New York introduced a pharmacy fee schedule for the first time, effective July 2007, which was based on Medicaid fees for pharmaceuticals. One year later in July 2008, the state implemented a change to have its pharmacy fee schedule based on average wholesale price. For these two states, the results reflect a mix of pre- and post-reform experience.

## **CALIFORNIA (RESULTS PARTIALLY POST-REFORM)**

Injured workers in California who had narcotics received a higher amount of narcotics per claim, and proportionally more injured workers with narcotics had narcotics on a longer-term basis, compared with what was typical of the 17 states included in the study. The reader should keep in mind that California's results reflect a mix of pre- and post-reform experience. The reforms lowered the prices paid for physician-dispensed prescriptions to the level received for pharmacy-dispensed prescriptions.

In California, fewer injured workers received narcotics—63 percent of the injured workers who did not have surgery but received prescriptions for pain medications received narcotics, compared with the 17-state median of 75 percent. When prescribing narcotics, physicians in California rarely used stronger, Schedule II narcotics—only 5 percent of the nonsurgical cases with narcotics received stronger, Schedule II narcotics, compared with 24 percent in the median of the 17 states. Schedule II narcotics only accounted for about 3 percent of the prescriptions for pain medications in California (11 percent in the median state).<sup>5</sup> However, the amount of narcotics per claim among

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<sup>5</sup> It should be noted that our findings for California are a snapshot, including prescriptions filled through March 2008. More recently, California has seen dramatic increases year by year in the use of Schedule II narcotics (CWCI, 2009). In July 2009, California adopted the Official Disability Guidelines (ODG) for chronic pain management, which is expected to have a significant impact on the frequency and utilization of narcotics, especially Schedule II narcotics.

nonsurgical cases with narcotics was 12 percent higher in California than that in the median state.<sup>6</sup> In California, physicians wrote and injured workers filled more prescriptions per claim for more narcotic pills—the average injured worker received 4.6 narcotic prescriptions for 239 narcotic pills per claim in California, compared with 4.2 prescriptions for 180 pills in the median state. This was especially true for the weaker strength narcotics. At 8.9 percent, California was among the states with a higher percentage of the nonsurgical cases with narcotics that were identified as longer-term users of narcotics. The figure was 6.4 percent in the median state.

**Table 4.1 Use of Narcotics: Comparing California<sup>a</sup> to the Median of 17 States, Cases with More Than 7 Days of Lost Time**

	Surgical and Nonsurgical Cases		Nonsurgical Cases	
	CA	CA	17-State Median	Percentage (Point) Difference
Number of cases included	24,046	14,455		
<b>Frequency and utilization of narcotics, among claims with narcotics</b>				
Average MEA per claim	2,528	2,014	1,792	12%
Average number of Rx per claim	5.6	4.6	4.2	11%
Average number of pills per claim	289	239	180	32%
Average number of pills per Rx	52	52	46	12%
% of claims with pain medications that had narcotics	72%	63%	75%	-12%
<i>% of claims with narcotics that had ...</i>				
Weaker strength (than Schedule II) narcotics	100%	100%	93%	7%
Schedule II narcotics	8%	5%	24%	-19%
<b>% of Rx for pain medications that were ...</b>				
Weaker strength (than Schedule II) narcotics	49%	44%	49%	-5%
Short-acting Schedule II narcotics	2%	2%	9%	-7%
Long-acting Schedule II narcotics	1.3%	1.2%	2.0%	-0.8%
<b>Longer-term users of narcotics<sup>b</sup></b>				
% of claims with narcotics that were identified as longer-term users of narcotics	n/a	8.9%	6.4%	2.5%

Note: Underlying data include claims with more than 7 days of lost time that had injuries arising from October 1, 2005, to September 30, 2006, and prescriptions filled through March 31, 2008.

<sup>a</sup> California had statutory changes in 2007 that lowered the prices paid for physician-dispensed prescriptions to the level received for pharmacy-dispensed prescriptions, which impacted the prices paid for physician-dispensed narcotics in the state. The data in this study reflect a mix of experience before and after the changes.

<sup>b</sup> We identified the longer-term users of narcotics as those who had narcotics within the first 3 months after the injury and had 3 or more visits to fill narcotic prescriptions between the seventh and twelfth month after the injury. See the Data and Methods and Technical Appendix C for a more detailed description.

Key: MEA: morphine equivalent amount; n/a: not available; Rx: prescriptions.

<sup>6</sup> One may be concerned that a lower percentage of cases with narcotics may introduce a potential bias that affects how Pennsylvania's result compares to the median state. From our analysis, we did not see clear evidence suggesting that this should be a concern. See Chapter 2 and Technical Appendix D for a description of our analysis.

**FLORIDA**

Florida was typical in the use of narcotics among the 17 states studied. For nonsurgical cases with narcotics, the average injured worker in Florida had 4 narcotic prescriptions amounting to 1,792 milligrams of morphine equivalent per claim—the figures were at or close to the 17-state median (Table 4.2). With 6 percent of the nonsurgical cases with narcotics that were identified as longer-term users of narcotics, the frequency of longer-term use of narcotics in Florida was also typical of the 17 states.

The prescribing pattern among Florida physicians was also similar to those in the typical states in our study. For nonsurgical cases with pain medications, 75 percent received prescriptions for narcotics in Florida, at the 17-state median. Prescriptions for narcotics in Florida accounted for 57 percent of all prescriptions for pain medications, compared with 60 percent in the median state.

**Table 4.2 Use of Narcotics: Comparing Florida to the Median of 17 States, Cases with More Than 7 Days of Lost Time**

	Surgical and Nonsurgical Cases		Nonsurgical Cases	
	FL	FL	17-State Median	Percentage (Point) Difference
Number of cases included	7,661	4,665		
<b>Frequency and utilization of narcotics, among claims with narcotics</b>				
Average MEA per claim	2,340	1,792	1,792	0%
Average number of Rx per claim	5.2	4.0	4.2	-3%
Average number of pills per claim	237	175	180	-3%
Average number of pills per Rx	46	44	46	-6%
% of claims with pain medications that had narcotics	82%	75%	75%	0%
<i>% of claims with narcotics that had ...</i>				
Weaker strength (than Schedule II) narcotics	90%	93%	93%	0%
Schedule II narcotics	38%	24%	24%	0%
<b>% of Rx for pain medications that were ...</b>				
Weaker strength (than Schedule II) narcotics	47%	46%	49%	-3%
Short-acting Schedule II narcotics	13%	10%	9%	1%
Long-acting Schedule II narcotics	2.0%	1.3%	2.0%	-0.7%
<b>Longer-term users of narcotics<sup>a</sup></b>				
% of claims with narcotics that were identified as longer-term users of narcotics	n/a	6.2%	6.4%	-0.2%

Note: Underlying data include claims with more than 7 days of lost time that had injuries arising from October 1, 2005, to September 30, 2006, and prescriptions filled through March 31, 2008.

<sup>a</sup> We identified the longer-term users of narcotics as those who had narcotics within the first 3 months after the injury and had 3 or more visits to fill narcotic prescriptions between the seventh and twelfth month after the injury. See the Data and Methods and Technical Appendix C for a more detailed description.

Key: MEA: morphine equivalent amount; n/a: not available; Rx: prescriptions.

**ILLINOIS**

For nonsurgical cases with narcotics, the average amount of narcotics per claim in Illinois was 13 percent lower than the 17-state median, which was mainly the result of less frequent use of Schedule II narcotics (Table 4.3). It is worth noting that although the amount of narcotics per claim in Illinois was lower than the 17-state median, Illinois was the highest among the Midwest states included in our study on the same measure (Figure 3.1). Among the nonsurgical cases with narcotics, only 7 percent received Schedule II narcotics in Illinois, compared with 24 percent at the median of the 17 states.<sup>7</sup>

Physicians in Illinois were less likely to prescribe narcotics and short-acting Schedule II narcotics to treat pain. Sixty-three percent of nonsurgical cases with pain medications received narcotics in Illinois, accounting for 55 percent of all prescriptions for pain medications, compared with the 17-state median of 75 percent and 60 percent, respectively. Only 2 percent of the prescriptions for pain medications were written in Illinois for short-acting Schedule II narcotics, compared with 9 percent in the median state.

The frequency of longer-term use of narcotics was typical in Illinois, with 5.9 percent of the nonsurgical cases with narcotics that were identified as longer-term users of narcotics. The 17-state median for the same measure was 6.4 percent.

**Table 4.3 Use of Narcotics: Comparing Illinois to the Median of 17 States, Cases with More Than 7 Days of Lost Time**

	Surgical and Nonsurgical Cases		Nonsurgical Cases	
	IL	IL	17-State Median	Percentage (Point) Difference
Number of cases included	3,832	1,586		
<b>Frequency and utilization of narcotics, among claims with narcotics</b>				
Average MEA per claim	2,025	1,551	1,792	-13%
Average number of Rx per claim	5.1	3.9	4.2	-7%
Average number of pills per claim	234	180	180	0%
Average number of pills per Rx	46	46	46	0%
% of claims with pain medications that had narcotics	76%	63%	75%	-12%
<i>% of claims with narcotics that had ...</i>				
Weaker strength (than Schedule II) narcotics	99%	100%	93%	7%
Schedule II narcotics	12%	7%	24%	-17%
<b>% of Rx for pain medications that were ...</b>				
Weaker strength (than Schedule II) narcotics	59%	51%	49%	2%
Short-acting Schedule II narcotics	3%	2%	9%	-7%
Long-acting Schedule II narcotics	2.4%	1.7%	2.0%	-0.3%
<b>Longer-term users of narcotics<sup>a</sup></b>				
% of claims with narcotics that were identified as longer-term users of narcotics	n/a	5.9%	6.4%	-0.5%

Note: Underlying data include claims with more than 7 days of lost time that had injuries arising from October 1, 2005, to September 30, 2006, and prescriptions filled through March 31, 2008.

<sup>a</sup> We identified the longer-term users of narcotics as those who had narcotics within the first 3 months after the injury and had 3 or more visits to fill narcotic prescriptions between the seventh and twelfth month after the injury. See the Data and Methods and Technical Appendix C for a more detailed description.

Key: MEA: morphine equivalent amount; n/a: not available; Rx: prescriptions.

<sup>7</sup> The amount of narcotics per claim for Schedule II narcotics was higher in Illinois (data not included) but not enough to offset the low percentage of cases that had Schedule II narcotics.

**INDIANA**

Physicians in Indiana prescribed narcotics in a higher percentage of cases that had pain medications, but the average injured worker who received narcotics had a lower amount of narcotics per claim. Although more frequent use of narcotics may signal an overuse of narcotics, this may not be the case for Indiana.

For nonsurgical cases with pain medications, 81 percent received narcotics in Indiana, 6 percentage points higher than that in the median state (Table 4.4). However, the per-claim utilization of narcotics was much lower—the average amount of narcotics per claim in Indiana was 1,267 milligrams of morphine equivalent, 29 percent lower than the 17-state median.<sup>8</sup> Indiana’s lower amount of narcotics per claim was mainly the result of a lower per-claim utilization of Schedule II narcotics. In Indiana, 15 percent of nonsurgical cases that received narcotics had Schedule II narcotics, and among the cases with Schedule II narcotics, the average morphine equivalent amount per claim was much lower than the 17-state median (data not included).

Indiana was lower on the frequency of longer-term use of narcotics. Less than 5 percent of the nonsurgical cases with narcotics were identified as longer-term users of narcotics in Indiana, nearly 2 percentage points lower than the 17-state median. In fact, all the Midwest states included in our study showed a lower proportion of longer-term users of narcotics.

**Table 4.4 Use of Narcotics: Comparing Indiana to the Median of 17 States, Cases with More Than 7 Days of Lost Time**

	Surgical and Nonsurgical Cases		Nonsurgical Cases	
	IN	IN	17-State Median	Percentage (Point) Difference
Number of cases included	3,647	1,599		
<b>Frequency and utilization of narcotics, among claims with narcotics</b>				
Average MEA per claim	1,840	1,267	1,792	-29%
Average number of Rx per claim	5.5	4.2	4.2	0%
Average number of pills per claim	226	171	180	-5%
Average number of pills per Rx	41	41	46	-11%
% of claims with pain medications that had narcotics	89%	81%	75%	6%
<i>% of claims with narcotics that had ...</i>				
Weaker strength (than Schedule II) narcotics	96%	98%	93%	4%
Schedule II narcotics	26%	15%	24%	-9%
<b>% of Rx for pain medications that were ...</b>				
Weaker strength (than Schedule II) narcotics	63%	60%	49%	11%
Short-acting Schedule II narcotics	8%	5%	9%	-3%
Long-acting Schedule II narcotics	2.3%	1.3%	2.0%	-0.6%
<b>Longer-term users of narcotics<sup>a</sup></b>				
% of claims with narcotics that were identified as longer-term users of narcotics	n/a	4.6%	6.4%	-1.8%

Note: Underlying data include claims with more than 7 days of lost time that had injuries arising from October 1, 2005, to September 30, 2006, and prescriptions filled through March 31, 2008.

<sup>a</sup> We identified the longer-term users of narcotics as those who had narcotics within the first 3 months after the injury and had 3 or more visits to fill narcotic prescriptions between the seventh and twelfth month after the injury. See the Data and Methods and Technical Appendix C for a more detailed description.

Key: MEA: morphine equivalent amount; n/a: not available; Rx: prescriptions.

<sup>8</sup> A similar pattern was seen for Wisconsin among the Midwest states included in our study.

**IOWA**

While the percentage of cases with pain medications that received narcotics in Iowa was typical of the 17 states, Iowa was the lowest in the average amount of narcotics per claim. For nonsurgical cases with narcotics, the average injured worker in Iowa received 1,055 milligrams of morphine equivalent narcotics, the lowest among the 17 states, which was 41 percent lower than the 17-state median (Table 4.5). The lower amount of narcotics per claim in Iowa was the result of fewer prescriptions and fewer pills per claim for narcotics and less frequent use of Schedule II narcotics. For example, when receiving narcotics, the average injured worker received 140 pills per claim for narcotics in Iowa, 22 percent lower than the median of the 17 states. In Iowa, fewer injured workers with narcotics received stronger, Schedule II narcotics (19 percent in Iowa compared with 24 percent in the median state). At 3.6 percent, Iowa was also among the lowest of the 17 states in the frequency of longer-term use of narcotics. The 17-state median was 6.4 percent.

**Table 4.5 Use of Narcotics: Comparing Iowa to the Median of 17 States, Cases with More Than 7 Days of Lost Time**

	Surgical and Nonsurgical Cases		Nonsurgical Cases	
	IA	IA	17-State Median	Percentage (Point) Difference
Number of cases included	1,497	596		
<b>Frequency and utilization of narcotics, among claims with narcotics</b>				
Average MEA per claim	1,467	1,055	1,792	-41%
Average number of Rx per claim	5.0	3.6	4.2	-14%
Average number of pills per claim	208	140	180	-22%
Average number of pills per Rx	42	39	46	-16%
% of claims with pain medications that had narcotics	85%	74%	75%	-1%
<i>% of claims with narcotics that had ...</i>				
Weaker strength (than Schedule II) narcotics	94%	95%	93%	1%
Schedule II narcotics	29%	19%	24%	-5%
<b>% of Rx for pain medications that were ...</b>				
Weaker strength (than Schedule II) narcotics	55%	53%	49%	4%
Short-acting Schedule II narcotics	10%	8%	9%	-1%
Long-acting Schedule II narcotics	1.4%	1.2%	2.0%	-0.8%
<b>Longer-term users of narcotics<sup>a</sup></b>				
% of claims with narcotics that were identified as longer-term users of narcotics	n/a	3.6%	6.4%	-2.8%

Note: Underlying data include claims with more than 7 days of lost time that had injuries arising from October 1, 2005, to September 30, 2006, and prescriptions filled through March 31, 2008.

<sup>a</sup> We identified the longer-term users of narcotics as those who had narcotics within the first 3 months after the injury and had 3 or more visits to fill narcotic prescriptions between the seventh and twelfth month after the injury. See the Data and Methods and Technical Appendix C for a more detailed description.

Key: MEA: morphine equivalent amount; n/a: not available; Rx: prescriptions.

**LOUISIANA**

Physicians in Louisiana used narcotics to treat pain in a higher than typical percentage of injured workers who had pain medications, and the average amount of narcotics per claim in Louisiana was among the highest of the 17 study states. Furthermore, we found a much higher percentage of injured workers in Louisiana who received narcotics on a longer-term basis.

For nonsurgical cases that had prescriptions for pain medications, 86 percent had narcotics in Louisiana, 11 percentage points higher than the 17-state median (Table 4.6). When receiving narcotics, the average injured worker in Louisiana received narcotics that were equivalent to 3,513 milligrams of morphine per claim. Injured workers in Louisiana received more prescriptions and more pills per claim for narcotics even among nonsurgical cases—the average injured worker in Louisiana who did not have surgery but received narcotics had 7.2 prescriptions and 357 pills per claim for narcotics, nearly double that in the median state—even though physicians in Louisiana were less likely to prescribe stronger, Schedule II narcotics.

Louisiana was also the highest among the 17 states on the frequency of longer-term use of narcotics (Figure 3.8). Among the nonsurgical cases with narcotics, over 15 percent of them in Louisiana received narcotics on a longer-term basis, which is in contrast with the 17–state median at 6.4 percent. More frequent longer-term use of narcotics also drove Louisiana’s higher per-claim utilization of narcotics.

**Table 4.6 Use of Narcotics: Comparing Louisiana to the Median of 17 States, Cases with More Than 7 Days of Lost Time**

	Surgical and Nonsurgical Cases		Nonsurgical Cases	
	LA	LA	17-State Median	Percentage (Point) Difference
Number of cases included	1,345	717		
<b>Frequency and utilization of narcotics, among claims with narcotics</b>				
Average MEA per claim	3,877	3,513	1,792	96%
Average number of Rx per claim	8.6	7.2	4.2	73%
Average number of pills per claim	410	357	180	98%
Average number of pills per Rx	48	50	46	7%
% of claims with pain medications that had narcotics	91%	86%	75%	11%
<i>% of claims with narcotics that had ...</i>				
Weaker strength (than Schedule II) narcotics	93%	97%	93%	3%
Schedule II narcotics	35%	21%	24%	-3%
<b>% of Rx for pain medications that were ...</b>				
Weaker strength (than Schedule II) narcotics	62%	61%	49%	12%
Short-acting Schedule II narcotics	10%	7%	9%	-2%
Long-acting Schedule II narcotics	2.5%	2.3%	2.0%	0.4%
<b>Longer-term users of narcotics<sup>a</sup></b>				
% of claims with narcotics that were identified as longer-term users of narcotics	n/a	15.4%	6.4%	9.0%

Note: Underlying data include claims with more than 7 days of lost time that had injuries arising from October 1, 2005, to September 30, 2006, and prescriptions filled through March 31, 2008.

<sup>a</sup> We identified the longer-term users of narcotics as those who had narcotics within the first 3 months after the injury and had 3 or more visits to fill narcotic prescriptions between the seventh and twelfth month after the injury. See the Data and Methods and Technical Appendix C for a more detailed description.

Key: MEA: morphine equivalent amount; n/a: not available; Rx: prescriptions.

## MARYLAND

Among nonsurgical cases with narcotics, the amount of narcotics received per claim in Maryland was equivalent to 2,238 milligrams of morphine, which was 25 percent higher than the 17-state median (Table 4.7). Injured workers in Maryland received a typical number of prescriptions for narcotics but the average number of narcotic pills per claim was 18 percent higher than that in the median state.

Physicians in Maryland were less likely to prescribe narcotics for pain relief.<sup>9</sup> However, when physicians chose to prescribe narcotics, they were more likely to choose stronger, Schedule II narcotics. At 33 percent, the percentage of nonsurgical cases with narcotics that had Schedule II narcotics in Maryland was 9 percentage points higher than that in the median state. Prescriptions for Schedule II narcotics accounted for about 19 percent of all prescriptions for pain medications in Maryland, compared with 11 percent in the median state.

Our data showed that Maryland was at the median of the 17 states in the frequency of longer-term use of narcotics—6.4 percent of the nonsurgical cases were identified as longer-term users of narcotics.

**Table 4.7 Use of Narcotics: Comparing Maryland to the Median of 17 States, Cases with More Than 7 Days of Lost Time**

	Surgical and Nonsurgical Cases		Nonsurgical Cases	
	MD	MD	17-State Median	Percentage (Point) Difference
Number of cases included	1,468	823		
<b>Frequency and utilization of narcotics, among claims with narcotics</b>				
Average MEA per claim	3,435	2,238	1,792	25%
Average number of Rx per claim	5.9	4.1	4.2	-1%
Average number of pills per claim	320	213	180	18%
Average number of pills per Rx	54	52	46	12%
% of claims with pain medications that had narcotics	70%	60%	75%	-15%
<i>% of claims with narcotics that had ...</i>				
Weaker strength (than Schedule II) narcotics	80%	83%	93%	-10%
Schedule II narcotics	47%	33%	24%	9%
<b>% of Rx for pain medications that were ...</b>				
Weaker strength (than Schedule II) narcotics	35%	34%	49%	-15%
Short-acting Schedule II narcotics	23%	16%	9%	7%
Long-acting Schedule II narcotics	5.7%	3.2%	2.0%	1.3%
<b>Longer-term users of narcotics<sup>a</sup></b>				
% of claims with narcotics that were identified as longer-term users of narcotics	n/a	6.4%	6.4%	0.0%

Note: Underlying data include claims with more than 7 days of lost time that had injuries arising from October 1, 2005, to September 30, 2006, and prescriptions filled through March 31, 2008.

<sup>a</sup> We identified the longer-term users of narcotics as those who had narcotics within the first 3 months after the injury and had 3 or more visits to fill narcotic prescriptions between the seventh and twelfth month after the injury. See the Data and Methods and Technical Appendix C for a more detailed description.

Key: MEA: morphine equivalent amount; n/a: not available; Rx: prescriptions.

<sup>9</sup> One may be concerned that a lower percentage of cases with narcotics may introduce a potential bias that affects how Maryland's result compares to the median state. From our analysis, we did not see clear evidence suggesting that this should be a concern. See Chapter 2 and Technical Appendix D for a description of our analysis.

## MASSACHUSETTS

The utilization of narcotics in Massachusetts was among the highest of the 17 states studied. This was in contrast to the lower utilization of other medical services in the state.<sup>10</sup> Physicians in Massachusetts prescribed stronger, Schedule II narcotics in a much higher percentage of cases with pain medications, compared with the other study states. When receiving narcotics, the average injured worker in Massachusetts also had more prescriptions for more pills, resulting in a much higher amount of narcotics per claim. Massachusetts also had a higher than typical percentage of cases with narcotics that received narcotics on a longer-term basis.

In Massachusetts, 77 percent of nonsurgical cases with pain medications received narcotics, close to the 17-state median of 75 percent (Table 4.8). For nonsurgical cases that received narcotics for pain relief, the average injured worker in Massachusetts had 3,247 milligrams of morphine equivalent per claim for narcotics, 81 percent higher than the 17-state median. The higher amount of narcotics per claim in Massachusetts was partially the result of a higher number of prescriptions per claim for narcotics (5.3 in Massachusetts compared with 4.2 in the median state) and a higher number of pills per claim for narcotics (275 compared with 180). Another important reason for Massachusetts to be among the highest in the amount of narcotics per claim was that physicians in Massachusetts were much more often prescribing stronger, Schedule II narcotics. For example, 56 percent of the injured workers who received narcotics in Massachusetts had Schedule II narcotics, more than double that in the median state. The prescriptions for Schedule II narcotics accounted for more than 32 percent of all prescriptions for pain medications in Massachusetts, compared with 11 percent in the median state.

At 8.9 percent, Massachusetts had more nonsurgical cases with narcotics that were identified as longer-term users of narcotics, which contributed to the higher amount of narcotics received per claim in the state.

## MICHIGAN

Physicians in Michigan less often prescribed narcotics to treat pain and the utilization of narcotics per claim was among the lowest of the 17 study states. Also in Michigan, fewer injured workers receiving narcotics were prescribed narcotics on a longer-term basis.

Among nonsurgical cases with narcotics, the average amount of narcotics per claim in Michigan was 38 percent lower than the 17-state median—Michigan was the second lowest on this measure, next to Iowa (Figure 3.1, Table 4.9). Michigan's lower amount of narcotics per claim was the result of fewer prescriptions written for fewer narcotic pills per claim as well as less frequent use of stronger, Schedule II narcotics. On average, injured workers in Michigan who did not have surgery but received narcotics for pain relief filled 3.2 prescriptions for 142 pills per claim for narcotics, 21–24 percent lower than the 17-state median.

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<sup>10</sup> The lower utilization of other medical services in Massachusetts was reported in the WCRI *CompScope™ Medical Benchmarks for Massachusetts* (Radeva, 2011).

**Table 4.8 Use of Narcotics: Comparing Massachusetts to the Median of 17 States, Cases with More Than 7 Days of Lost Time**

	Surgical and Nonsurgical Cases		Nonsurgical Cases	
	MA	MA	17-State Median	Percentage (Point) Difference
Number of cases included	3,197	1,725		
<b>Frequency and utilization of narcotics, among claims with narcotics</b>				
Average MEA per claim	3,056	3,247	1,792	81%
Average number of Rx per claim	5.5	5.3	4.2	27%
Average number of pills per claim	280	275	180	52%
Average number of pills per Rx	51	52	46	12%
% of claims with pain medications that had narcotics	85%	77%	75%	2%
<i>% of claims with narcotics that had ...</i>				
Weaker strength (than Schedule II) narcotics	71%	73%	93%	-21%
Schedule II narcotics	67%	56%	24%	32%
<b>% of Rx for pain medications that were ...</b>				
Weaker strength (than Schedule II) narcotics	34%	33%	49%	-16%
Short-acting Schedule II narcotics	32%	29%	9%	21%
Long-acting Schedule II narcotics	3.5%	3.3%	2.0%	1.3%
<b>Longer-term users of narcotics<sup>a</sup></b>				
% of claims with narcotics that were identified as longer-term users of narcotics	n/a	8.9%	6.4%	2.5%

Note: Underlying data include claims with more than 7 days of lost time that had injuries arising from October 1, 2005, to September 30, 2006, and prescriptions filled through March 31, 2008.

<sup>a</sup> We identified the longer-term users of narcotics as those who had narcotics within the first 3 months after the injury and had 3 or more visits to fill narcotic prescriptions between the seventh and twelfth month after the injury. See the Data and Methods and Technical Appendix C for a more detailed description.

Key: MEA: morphine equivalent amount; n/a: not available; Rx: prescriptions.

Physicians in Michigan were also less likely to prescribe narcotics for pain relief. Only 57 percent of the nonsurgical cases with pain medications received narcotics in Michigan, among the lowest of the 17 study states. When choosing narcotics for pain relief, Michigan physicians were also less likely to prescribe stronger, Schedule II narcotics—only 8 percent of the nonsurgical cases with narcotics received Schedule II narcotics in Michigan, compared with 24 percent in the median state. The prescriptions for Schedule II narcotics only accounted for about 5 percent of all prescriptions for pain medications, compared with 11 percent in the median state.

Longer-term use of narcotics was less frequent in Michigan—5.3 percent of the nonsurgical cases with narcotics were identified as longer-terms users of narcotics. The figure was 6.4 percent in the median state.

**Table 4.9 Use of Narcotics: Comparing Michigan to the Median of 17 States, Cases with More Than 7 Days of Lost Time**

	Surgical and Nonsurgical Cases		Nonsurgical Cases	
	MI	MI	17-State Median	Percentage (Point) Difference
Number of cases included	2,972	1,413		
<b>Frequency and utilization of narcotics, among claims with narcotics</b>				
Average MEA per claim	1,580	1,116	1,792	-38%
Average number of Rx per claim	4.1	3.2	4.2	-24%
Average number of pills per claim	185	142	180	-21%
Average number of pills per Rx	45	45	46	-3%
% of claims with pain medications that had narcotics	71%	57%	75%	-18%
<i>% of claims with narcotics that had ...</i>				
Weaker strength (than Schedule II) narcotics	99%	100%	93%	7%
Schedule II narcotics	14%	8%	24%	-16%
<b>% of Rx for pain medications that were ...</b>				
Weaker strength (than Schedule II) narcotics	51%	44%	49%	-5%
Short-acting Schedule II narcotics	4%	3%	9%	-6%
Long-acting Schedule II narcotics	2.5%	2.2%	2.0%	0.2%
<b>Longer-term users of narcotics<sup>a</sup></b>				
% of claims with narcotics that were identified as longer-term users of narcotics	n/a	5.3%	6.4%	-1.1%

Note: Underlying data include claims with more than 7 days of lost time that had injuries arising from October 1, 2005, to September 30, 2006, and prescriptions filled through March 31, 2008.

<sup>a</sup> We identified the longer-term users of narcotics as those who had narcotics within the first 3 months after the injury and had 3 or more visits to fill narcotic prescriptions between the seventh and twelfth month after the injury. See the Data and Methods and Technical Appendix C for a more detailed description.

Key: MEA: morphine equivalent amount; n/a: not available; Rx: prescriptions.

## MINNESOTA

The utilization of narcotics per claim in Minnesota was among the lowest of the 17 states studied, which was similar to Iowa and Michigan. This was despite the evidence suggesting that physicians in Minnesota prescribed narcotics and stronger, Schedule II narcotics in a higher percentage of cases for pain relief (3-4 percentage points higher than the 17-state median, Table 3.1).

For nonsurgical cases with narcotics, Minnesota had a slightly higher percentage of cases that received narcotics than typical—78 percent of nonsurgical cases with pain medications received narcotics in Minnesota, compared with 75 percent in the median state (Table 4.10). When choosing narcotics for pain relief, physicians in Minnesota were also more likely to prescribe Schedule II narcotics—28 percent of the nonsurgical cases who received narcotics had Schedule II narcotics, 4 percentage points higher than that in the median state. Despite a higher percentage of cases receiving narcotics and Schedule II narcotics, the average amount of narcotics per claim in Minnesota was much lower compared with the other study states. Minnesota was among the lowest, next to Iowa and Michigan, in the average amount of narcotics received per claim—equivalent to 1,173 milligrams of morphine, 35 percent lower than the 17-state median. Injured workers in Minnesota who received narcotics had fewer prescriptions and fewer pills per claim for narcotics—the average injured worker in Minnesota had 3.6 narcotic prescriptions, totaling 151 pills per claim, compared with 4.2 narcotic prescriptions, totaling 180 pills, in the median state.

At 4.5 percent, Minnesota had fewer cases that were identified as longer-term users of narcotics. The figure was 6.4 percent in the median state.

**Table 4.10 Use of Narcotics: Comparing Minnesota to the Median of 17 States, Cases with More Than 7 Days of Lost Time**

	Surgical and Nonsurgical Cases		Nonsurgical Cases	
	MN	MN	17-State Median	Percentage (Point) Difference
Number of cases included	2,895	1,318		
<b>Frequency and utilization of narcotics, among claims with narcotics</b>				
Average MEA per claim	1,465	1,173	1,792	-35%
Average number of Rx per claim	4.3	3.6	4.2	-14%
Average number of pills per claim	186	151	180	-16%
Average number of pills per Rx	43	42	46	-9%
% of claims with pain medications that had narcotics	87%	78%	75%	3%
<i>% of claims with narcotics that had ...</i>				
Weaker strength (than Schedule II) narcotics	85%	86%	93%	-7%
Schedule II narcotics	39%	28%	24%	4%
<b>% of Rx for pain medications that were ...</b>				
Weaker strength (than Schedule II) narcotics	52%	50%	49%	1%
Short-acting Schedule II narcotics	15%	11%	9%	3%
Long-acting Schedule II narcotics	2.9%	2.0%	2.0%	0.0%
<b>Longer-term users of narcotics<sup>a</sup></b>				
% of claims with narcotics that were identified as longer-term users of narcotics	n/a	4.5%	6.4%	-1.9%

Note: Underlying data include claims with more than 7 days of lost time that had injuries arising from October 1, 2005, to September 30, 2006, and prescriptions filled through March 31, 2008.

<sup>a</sup> We identified the longer-term users of narcotics as those who had narcotics within the first 3 months after the injury and had 3 or more visits to fill narcotic prescriptions between the seventh and twelfth month after the injury. See the Data and Methods and Technical Appendix C for a more detailed description.

Key: MEA: morphine equivalent amount; n/a: not available; Rx: prescriptions.

**NEW JERSEY**

Physicians in New Jersey were less likely to prescribe narcotics for pain relief, and the average amount of narcotics per claim received by injured workers was slightly lower than typical of the 17 states.

For nonsurgical cases with narcotics, the average injured worker in New Jersey had the amount of narcotics that was equivalent to 1,624 milligrams of morphine, slightly lower than the 17-state median (Table 4.11). Physicians in New Jersey were much less likely to prescribe narcotics to treat injured workers for pain—only 57 percent of nonsurgical cases that had pain medications received narcotics, among the lowest of the 17 study states (Figure 3.5a). When choosing to prescribe narcotics, however, New Jersey physicians more often prescribed stronger, Schedule II narcotics—a similar prescribing pattern as seen in Maryland, Massachusetts, and Pennsylvania, but with a much lower amount of narcotics per claim (Figure 3.4).

At 4.6 percent, New Jersey has fewer nonsurgical cases with narcotics that were identified as longer-term users of narcotics. The figure was 6.4 percent in the median state.

**Table 4.11 Use of Narcotics: Comparing New Jersey to the Median of 17 States, Cases with More Than 7 Days of Lost Time**

	Surgical and Nonsurgical Cases		Nonsurgical Cases	
	NJ	NJ	17-State Median	Percentage (Point) Difference
Number of cases included	2,560	1,163		
<b>Frequency and utilization of narcotics, among claims with narcotics</b>				
Average MEA per claim	2,294	1,624	1,792	-9%
Average number of Rx per claim	4.6	3.4	4.2	-19%
Average number of pills per claim	211	152	180	-16%
Average number of pills per Rx	46	45	46	-3%
% of claims with pain medications that had narcotics	71%	57%	75%	-18%
<i>% of claims with narcotics that had ...</i>				
Weaker strength (than Schedule II) narcotics	70%	79%	93%	-14%
Schedule II narcotics	63%	46%	24%	22%
<b>% of Rx for pain medications that were ...</b>				
Weaker strength (than Schedule II) narcotics	34%	33%	49%	-16%
Short-acting Schedule II narcotics	28%	18%	9%	9%
Long-acting Schedule II narcotics	3.3%	2.0%	2.0%	0.0%
<b>Longer-term users of narcotics<sup>a</sup></b>				
% of claims with narcotics that were identified as longer-term users of narcotics	n/a	4.6%	6.4%	-1.8%

Note: Underlying data include claims with more than 7 days of lost time that had injuries arising from October 1, 2005, to September 30, 2006, and prescriptions filled through March 31, 2008.

<sup>a</sup> We identified the longer-term users of narcotics as those who had narcotics within the first 3 months after the injury and had 3 or more visits to fill narcotic prescriptions between the seventh and twelfth month after the injury. See the Data and Methods and Technical Appendix C for a more detailed description.

Key: MEA: morphine equivalent amount; n/a: not available; Rx: prescriptions.

**NEW YORK (RESULTS PARTIALLY POST-REFORM)**

New York was the highest among the 17 study states on the average amount of narcotics per claim (Figure 3.1). The percentage of cases with narcotics that received narcotics on a longer-term basis was also among the highest (Figure 3.8). The reader should keep in mind that New York’s results reflect a mix of pre-reform and post-reform experience.<sup>11</sup>

For nonsurgical cases with narcotics, the average worker in New York received narcotics that are equivalent to 4,040 milligrams of morphine, 125 percent higher than the 17-state median (Table 4.12). Physicians wrote and injured workers filled more prescriptions for narcotics—the average injured worker with narcotics had 5.8 prescriptions in New York, 40 percent higher than the 17-state median. Moreover, physicians in New York more often wrote prescriptions for larger quantities—the average injured worker in New York who received narcotics had 396 pills per claim for narcotics, 120 percent higher than the 17-state median.

**Table 4.12 Use of Narcotics: Comparing New York<sup>a</sup> to the Median of 17 States, Cases with More Than 7 Days of Lost Time**

	Surgical and Nonsurgical Cases		Nonsurgical Cases	
	NY	NY	17-State Median	Percentage (Point) Difference
Number of cases included	6,101	3,102		
<b>Frequency and utilization of narcotics, among claims with narcotics</b>				
Average MEA per claim	3,923	4,040	1,792	125%
Average number of Rx per claim	6.1	5.8	4.2	40%
Average number of pills per claim	386	396	180	120%
Average number of pills per Rx	63	68	46	47%
% of claims with pain medications that had narcotics	83%	73%	75%	-2%
<i>% of claims with narcotics that had ...</i>				
Weaker strength (than Schedule II) narcotics	94%	96%	93%	3%
Schedule II narcotics	24%	19%	24%	-5%
<b>% of Rx for pain medications that were ...</b>				
Weaker strength (than Schedule II) narcotics	52%	49%	49%	0%
Short-acting Schedule II narcotics	9%	7%	9%	-2%
Long-acting Schedule II narcotics	3.3%	3.6%	2.0%	1.6%
<b>Longer-term users of narcotics<sup>b</sup></b>				
% of claims with narcotics that were identified as longer-term users of narcotics	n/a	11.7%	6.4%	5.3%

Note: Underlying data include claims with more than 7 days of lost time that had injuries arising from October 1, 2005, to September 30, 2006, and prescriptions filled through March 31, 2008.

<sup>a</sup> New York had statutory changes in 2007 which impacted the reimbursements for prescription drugs including narcotics in workers’ compensation. The data in this study reflect a mix of experience before and after the changes.

<sup>b</sup> We identified the longer-term users of narcotics as those who had narcotics within the first 3 months after the injury and had 3 or more visits to fill narcotic prescriptions between the seventh and twelfth month after the injury. See the Data and Methods and Technical Appendix C for a more detailed description.

Key: MEA: morphine equivalent amount; n/a: not available; Rx: prescriptions.

<sup>11</sup> New York introduced a pharmacy fee schedule in 2007 which impacted the reimbursements for prescription drugs including narcotics in workers’ compensation. Note that the study period ended before the subsequent changes in the pharmacy fee schedule in 2008.

The frequency of longer-term use of narcotics in New York was the second highest among the study states, with nearly 12 percent of the nonsurgical cases with narcotics identified as longer-term narcotic users. The figure was 6.4 percent in the median state.

Physicians in New York prescribed narcotics in a fairly typical percentage of cases—73 percent of the cases with pain medications received narcotics, compared to 75 percent in the median state. When prescribing narcotics, physicians in New York were less likely to prescribe Schedule II narcotics to treat injured workers for pain relief—19 percent of nonsurgical cases with narcotics received Schedule II narcotics in New York, 5 percentage points lower than in the median state. However, they were more likely to prescribe long-acting Schedule II narcotics (3.6 percent in New York compared with 2 percent in the median state).

## **NORTH CAROLINA**

Physicians in North Carolina used narcotics in a somewhat higher percentage of cases and the average injured worker who received narcotics had a higher amount of narcotics per claim. More injured workers in North Carolina who were prescribed narcotics received narcotics on a longer-term basis, compared with what was typical of the 17 states.

For nonsurgical cases with narcotics, the average amount of narcotics per claim in North Carolina was equivalent to 2,034 milligrams of morphine, 13 percent higher than the 17-state median (Table 4.13). North Carolina's higher amount of narcotics per claim was mainly the result of more prescriptions per claim (4.9 in North Carolina compared with 4.2 in the median state) and more pills per claim (232 compared with 180) for narcotics. Physicians in North Carolina were more likely to prescribe narcotics to treat pain—79 percent of the nonsurgical cases who had pain medications received narcotics, 4 percentage points higher than the 17-state median. When prescribing narcotics, physicians in North Carolina were also more likely to prescribe Schedule II narcotics—33 percent of the nonsurgical cases with narcotics received Schedule II narcotics, 9 percentage points higher than in the median state. The Schedule II narcotic prescriptions accounted for about 16 percent of all prescriptions for pain medication in North Carolina, compared with 11 percent in the median state. However, the average amount of Schedule II narcotics used per claim with Schedule II narcotics was lower in North Carolina, offsetting the higher frequency (data not included).

At 8.3 percent, North Carolina had a higher proportion of nonsurgical cases with narcotics that were identified as longer-term users of narcotics. The figure was 6.4 percent in the median state.

**Table 4.13 Use of Narcotics: Comparing North Carolina to the Median of 17 States, Cases with More Than 7 Days of Lost Time**

	Surgical and Nonsurgical Cases		Nonsurgical Cases	
	NC	NC	17-State Median	Percentage (Point) Difference
Number of cases included	4,402	2,200		
<b>Frequency and utilization of narcotics, among claims with narcotics</b>				
Average MEA per claim	2,645	2,034	1,792	13%
Average number of Rx per claim	6.3	4.9	4.2	18%
Average number of pills per claim	301	232	180	29%
Average number of pills per Rx	48	48	46	3%
% of claims with pain medications that had narcotics	87%	79%	75%	4%
<i>% of claims with narcotics that had ...</i>				
Weaker strength (than Schedule II) narcotics	85%	89%	93%	-5%
Schedule II narcotics	49%	33%	24%	9%
<b>% of Rx for pain medications that were ...</b>				
Weaker strength (than Schedule II) narcotics	48%	48%	49%	-1%
Short-acting Schedule II narcotics	18%	14%	9%	5%
Long-acting Schedule II narcotics	2.3%	1.9%	2.0%	0.0%
<b>Longer-term users of narcotics<sup>a</sup></b>				
% of claims with narcotics that were identified as longer-term users of narcotics	n/a	8.3%	6.4%	1.9%

Note: Underlying data include claims with more than 7 days of lost time that had injuries arising from October 1, 2005, to September 30, 2006, and prescriptions filled through March 31, 2008.

<sup>a</sup> We identified the longer-term users of narcotics as those who had narcotics within the first 3 months after the injury and had 3 or more visits to fill narcotic prescriptions between the seventh and twelfth month after the injury. See the Data and Methods and Technical Appendix C for a more detailed description.

Key: MEA: morphine equivalent amount; n/a: not available; Rx: prescriptions.

## PENNSYLVANIA

The average amount of narcotics per claim in Pennsylvania was among the highest of the 17 states studied (Figure 3.1). Physicians in Pennsylvania prescribed narcotics in a lower percentage of cases, but when choosing narcotics for pain relief, they were more likely to prescribe stronger, Schedule II narcotics to treat pain, and injured workers received more prescriptions for more pills per claim. Also, more injured workers with narcotics received narcotics on a longer-term basis in Pennsylvania, compared with most of the other study states (Figure 3.8).

Among nonsurgical cases that received narcotics for pain relief, the average amount of narcotics per claim in Pennsylvania was 3,387 milligrams of morphine equivalent, 89 percent higher than in the median state (Table 4.14). Physicians in Pennsylvania were somewhat less likely to prescribe narcotics for pain relief—68 percent of nonsurgical cases with pain medications received narcotics in Pennsylvania, compared with 75 percent in the median state.<sup>12</sup> The higher amount of narcotics per claim in Pennsylvania was partially the result of a higher number of prescriptions per claim for narcotics (5.6 in Pennsylvania compared with 4.2 in the median state), which led to a higher number of

<sup>12</sup> One may be concerned that a lower percentage of cases with narcotics may introduce a potential bias that affects how Pennsylvania's result compares to the median state. From our analysis, we did not see clear evidence suggesting that this should be a concern. See Chapter 2 and Technical Appendix D for a description of our analysis.

pills per claim for narcotics (297 compared with 180). Another important reason for Pennsylvania to be among the highest in the amount of narcotics per claim was that physicians in Pennsylvania more often prescribed stronger, Schedule II narcotics. In Pennsylvania, more injured workers who received narcotics had stronger, Schedule II narcotics (35 percent in Pennsylvania compared with 24 percent in the median state). Physicians prescribed more Schedule II narcotics (both short-acting and long-acting Schedule II narcotics) for pain relief. Among all prescriptions for pain medication, 17 percent were written for short-acting Schedule II narcotics and nearly 5 percent were for long-acting Schedule II narcotics.

Pennsylvania was among the states where a higher proportion of nonsurgical cases were identified as longer-term users of narcotics (10.9 percent in Pennsylvania compared with 6.4 percent in the median state). The more frequent longer-term use of narcotics also contributed to Pennsylvania’s higher per-claim utilization of narcotics.

**Table 4.14 Use of Narcotics: Comparing Pennsylvania to the Median of 17 States, Cases with More Than 7 Days of Lost Time**

	Surgical and Nonsurgical Cases		Nonsurgical Cases	
	PA	PA	17-State Median	Percentage (Point) Difference
Number of cases included	7,863	3,907		
<b>Frequency and utilization of narcotics, among claims with narcotics</b>				
Average MEA per claim	3,605	3,387	1,792	89%
Average number of Rx per claim	6.2	5.6	4.2	35%
Average number of pills per claim	317	297	180	65%
Average number of pills per Rx	51	53	46	14%
% of claims with pain medications that had narcotics	79%	68%	75%	-7%
<i>% of claims with narcotics that had ...</i>				
Weaker strength (than Schedule II) narcotics	84%	88%	93%	-5%
Schedule II narcotics	47%	35%	24%	11%
<b>% of Rx for pain medications that were ...</b>				
Weaker strength (than Schedule II) narcotics	40%	38%	49%	-11%
Short-acting Schedule II narcotics	19%	17%	9%	8%
Long-acting Schedule II narcotics	5.1%	4.8%	2.0%	2.8%
<b>Longer-term users of narcotics<sup>a</sup></b>				
% of claims with narcotics that were identified as longer-term users of narcotics	n/a	10.9%	6.4%	4.5%

Note: Underlying data include claims with more than 7 days of lost time that had injuries arising from October 1, 2005, to September 30, 2006, and prescriptions filled through March 31, 2008.

<sup>a</sup> We identified the longer-term users of narcotics as those who had narcotics within the first 3 months after the injury and had 3 or more visits to fill narcotic prescriptions between the seventh and twelfth month after the injury. See the Data and Methods and Technical Appendix C for a more detailed description.

Key: MEA: morphine equivalent amount; n/a: not available; Rx: prescriptions.

**TENNESSEE**

Physicians in Tennessee were somewhat more likely to prescribe narcotics for pain relief, compared with what was typical of the 17 states, and the average injured worker who had narcotics received a lower amount of narcotics per claim.

Among nonsurgical cases with narcotics, the average morphine equivalent amount of narcotics per claim in Tennessee was 1,418 milligrams, 21 percent lower than in the median state (Table 4.15). The average number of narcotic prescriptions and pills per claim in Tennessee was typical of the 17 states. Tennessee also had a typical use of stronger, Schedule II narcotics, but fewer prescriptions were written for long-acting Schedule II narcotics. The lower amount of narcotics per claim in Tennessee was mainly due to a lower amount of Schedule II narcotics per claim with Schedule II narcotics, which is seen in both short-acting and long-acting narcotics.<sup>13</sup>

With 6.4 percent of nonsurgical cases with narcotics identified as longer-term users of narcotics, Tennessee was at the median of the 17 states in the frequency of longer-term use of narcotics.

**Table 4.15 Use of Narcotics: Comparing Tennessee to the Median of 17 States, Cases with More Than 7 Days of Lost Time**

	Surgical and Nonsurgical Cases		Nonsurgical Cases	
	TN	TN	17-State Median	Percentage (Point) Difference
Number of cases included	4,533	2,065		
<b>Frequency and utilization of narcotics, among claims with narcotics</b>				
Average MEA per claim	2,010	1,418	1,792	-21%
Average number of Rx per claim	5.7	4.3	4.2	2%
Average number of pills per claim	230	172	180	-5%
Average number of pills per Rx	40	40	46	-13%
% of claims with pain medications that had narcotics	88%	80%	75%	5%
<i>% of claims with narcotics that had ...</i>				
Weaker strength (than Schedule II) narcotics	91%	93%	93%	-1%
Schedule II narcotics	44%	26%	24%	2%
<b>% of Rx for pain medications that were ...</b>				
Weaker strength (than Schedule II) narcotics	56%	53%	49%	4%
Short-acting Schedule II narcotics	13%	9%	9%	0%
Long-acting Schedule II narcotics	1.3%	0.7%	2.0%	-1.3%
<b>Longer-term users of narcotics<sup>a</sup></b>				
% of claims with narcotics that were identified as longer-term users of narcotics	n/a	6.4%	6.4%	0.0%

Note: Underlying data include claims with more than 7 days of lost time that had injuries arising from October 1, 2005, to September 30, 2006, and prescriptions filled through March 31, 2008.

<sup>a</sup> We identified the longer-term users of narcotics as those who had narcotics within the first 3 months after the injury and had 3 or more visits to fill narcotic prescriptions between the seventh and twelfth month after the injury. See the Data and Methods and Technical Appendix C for a more detailed description.

Key: MEA: morphine equivalent amount; n/a: not available; Rx: prescriptions.

<sup>13</sup> This data is not detailed in the report.

**TEXAS**

Compared with what was typical of the 17 states, physicians in Texas were more likely to prescribe narcotics to treat pain and the average injured worker who had narcotics received a higher amount of narcotics per claim, despite the fact that stronger, Schedule II narcotics were rarely used in the state. More injured workers in Texas who had narcotics received narcotics on a longer-term basis.

In Texas, more injured workers received narcotics—79 percent of the injured workers who did not have surgery but received prescriptions for pain medications received narcotics, compared with the 17-state median of 75 percent (Table 4.16). When receiving narcotics, the average injured worker had narcotics that were equivalent to 2,071 milligrams of morphine, 16 percent higher than the 17-state median, despite the fact that stronger, Schedule II narcotics were used rarely in Texas—only 4 percent of the nonsurgical cases who had narcotics received Schedule II narcotics, compared with 24 percent in the median state. Prescriptions for Schedule II narcotics only accounted for about 2 percent of the prescriptions for pain medications.

Physicians wrote and injured workers filled more prescriptions per claim for more narcotic pills in Texas—the average injured worker received 4.7 narcotic prescriptions for 248 narcotic pills per claim in Texas, compared with 4.2 prescriptions for 180 pills in the median state. This was especially true for the weaker strength narcotics, which drove the higher amount of narcotics per claim in Texas. At 10.2 percent, Texas was among the states where a higher percentage of the nonsurgical cases with narcotics were identified as longer-term users of narcotics. The figure was 6.4 percent in the median state.

**Table 4.16 Use of Narcotics: Comparing Texas to the Median of 17 States, Cases with More Than 7 Days of Lost Time**

	Surgical and Nonsurgical Cases		Nonsurgical Cases	
	TX	TX	17-State Median	Percentage (Point) Difference
Number of cases included	18,290	10,432		
<b>Frequency and utilization of narcotics, among claims with narcotics</b>				
Average MEA per claim	2,587	2,071	1,792	16%
Average number of Rx per claim	5.8	4.7	4.2	13%
Average number of pills per claim	300	248	180	38%
Average number of pills per Rx	51	53	46	14%
% of claims with pain medications that had narcotics	86%	79%	75%	4%
<i>% of claims with narcotics that had ...</i>				
Weaker strength (than Schedule II) narcotics	99%	100%	93%	7%
Schedule II narcotics	6%	4%	24%	-20%
<b>% of Rx for pain medications that were ...</b>				
Weaker strength (than Schedule II) narcotics	62%	58%	49%	9%
Short-acting Schedule II narcotics	1%	1%	9%	-8%
Long-acting Schedule II narcotics	1.2%	0.9%	2.0%	-1.1%
<b>Longer-term users of narcotics<sup>a</sup></b>				
% of claims with narcotics that were identified as longer-term users of narcotics	n/a	10.2%	6.4%	3.8%

Note: Underlying data include claims with more than 7 days of lost time that had injuries arising from October 1, 2005, to September 30, 2006, and prescriptions filled through March 31, 2008.

<sup>a</sup> We identified the longer-term users of narcotics as those who had narcotics within the first 3 months after the injury and had 3 or more visits to fill narcotic prescriptions between the seventh and twelfth month after the injury. See the Data and Methods and Technical Appendix C for a more detailed description.

Key: MEA: morphine equivalent amount; n/a: not available; Rx: prescriptions.

**WISCONSIN**

Physicians in Wisconsin were more likely to prescribe narcotics to treat injured workers for pain relief. For nonsurgical cases with pain medications, 82 percent received narcotics in Wisconsin, 7 percentage points higher than in the median state (Table 4.17). When prescribing narcotics, physicians in Wisconsin were also more likely to prescribe stronger, Schedule II narcotics—29 percent of the nonsurgical cases with narcotics had Schedule II narcotics in Wisconsin, 5 percentage points higher than in the median state.

However, more frequent use of narcotics, including Schedule II narcotics, does not necessarily imply an overuse of narcotics. Wisconsin’s per-claim utilization of narcotics was much lower compared with most of the study states. The average amount of narcotics per claim in Wisconsin was 1,336 milligrams of morphine equivalent, 25 percent lower than the 17-state median. When using narcotics and Schedule II narcotics, physicians wrote and injured workers filled fewer prescriptions for fewer pills per claim. For example, the average injured worker with narcotics had 3.3 narcotic prescriptions for 142 pills in Wisconsin, compared with 4.2 prescriptions for 180 pills in the median state.

In Wisconsin, only 3.3 percent of nonsurgical cases with narcotics were identified as longer-term users of narcotics, the lowest among the 17 states included in our study (Figure 3.8). The figure was 6.4 percent in the median state. In fact, all the Midwest states included in our study showed a lower proportion of longer-term use of narcotics.

**Table 4.17 Use of Narcotics: Comparing Wisconsin to the Median of 17 States, Cases with More Than 7 Days of Lost Time**

	Surgical and Nonsurgical Cases		Nonsurgical Cases	
	WI	WI	17-State Median	Percentage (Point) Difference
Number of cases included	2,949	1,416		
<b>Frequency and utilization of narcotics, among claims with narcotics</b>				
Average MEA per claim	1,765	1,336	1,792	-25%
Average number of Rx per claim	4.4	3.3	4.2	-21%
Average number of pills per claim	195	142	180	-21%
Average number of pills per Rx	45	43	46	-7%
% of claims with pain medications that had narcotics	88%	82%	75%	7%
<i>% of claims with narcotics that had ...</i>				
Weaker strength (than Schedule II) narcotics	85%	88%	93%	-6%
Schedule II narcotics	40%	29%	24%	5%
<b>% of Rx for pain medications that were ...</b>				
Weaker strength (than Schedule II) narcotics	49%	49%	49%	0%
Short-acting Schedule II narcotics	18%	14%	9%	5%
Long-acting Schedule II narcotics	5.0%	3.2%	2.0%	1.3%
<b>Longer-term users of narcotics<sup>a</sup></b>				
% of claims with narcotics that were identified as longer-term users of narcotics	n/a	3.3%	6.4%	-3.1%

Note: Underlying data include claims with more than 7 days of lost time that had injuries arising from October 1, 2005, to September 30, 2006, and prescriptions filled through March 31, 2008.

<sup>a</sup> We identified the longer-term users of narcotics as those who had narcotics within the first 3 months after the injury and had 3 or more visits to fill narcotic prescriptions between the seventh and twelfth month after the injury. See the Data and Methods and Technical Appendix C for a more detailed description.

Key: MEA: morphine equivalent amount; n/a: not available; Rx: prescriptions.

# 5

## IMPLICATIONS AND CONCLUSIONS

Since the late 1990s, the use of prescription narcotics has increased very rapidly, coinciding with a sharp increase in the per capita death rate in the U.S. due to unintended drug overdose.<sup>1</sup> Several studies also found a strong correlation between states with the highest drug poisoning mortality and those with the highest opioid consumption.<sup>2</sup> For patients with occupational injuries, a higher use of narcotics may also lead to addiction, increased disability or work loss, and even death.<sup>3</sup>

Although this report does not address these issues directly, the findings on substantial interstate variation in the use of narcotics help highlight the states in which certain patterns of narcotic use may lead to overuse and abuse of narcotics. For the states with a much higher amount of narcotics per claim (Louisiana, Massachusetts, New York, and Pennsylvania) and a higher proportion of longer-term narcotic users (California, Louisiana, Massachusetts, New York, North Carolina, Pennsylvania, and Texas), further investigations are needed to identify whether overuse, abuse, addiction, and diversion explain our findings, and whether disability and unintentional deaths from drug overdoses are likely the result of higher and longer-term use of narcotics. If so, interventions may be needed. They may include (1) establishing a regulatory environment that encourages physicians to make more informed decisions when prescribing narcotics, (2) raising awareness, by educating providers and patients, about the appropriateness of using narcotics and the potential risk of abuse and diversion, and (3) facilitating changes in claim management.

We found that the patterns of prescribing stronger versus weaker narcotics varied substantially among the 17 study states, which might reflect differences in local practice patterns that are different from the norm. For example, physicians in Massachusetts and Pennsylvania were more likely to prescribe Schedule II narcotics (Figure 3.6). When Schedule II narcotics were prescribed, injured workers received a larger number of prescriptions per claim for Schedule II narcotics. The more frequent and higher use of stronger, Schedule II narcotics in these two states may signal a potential issue of overuse and an opportunity for provider education. If the doctors in these states knew that their local practice patterns were very different from those in the other study states, they might reduce the use of stronger, Schedule II narcotics.

However, more frequent use of stronger, Schedule II narcotics does not necessarily lead to a problem if a short regimen of Schedule II narcotics is used for relieving more severe pain to produce better outcomes. Without outcome data, we cannot tell if this is the case for Wisconsin and Minnesota, where physicians were more likely to choose stronger, Schedule II narcotics for pain relief, but fewer prescriptions per claim were filled, especially for stronger, Schedule II narcotics.<sup>4</sup>

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<sup>1</sup> The per capita death rate from unintentional drug overdoses increased from 3-4 deaths per 100,000 population in the late 1990s to 9 deaths per 100,000 population in 2007 (Okie, 2010).

<sup>2</sup> See Okie (2010), Paulozzi and Ryan (2006), Hall et al. (2008), Dunn et al. (2010), and CDC (2010).

<sup>3</sup> See Kidner et al. (2009) and Franklin et al. (2005), respectively.

<sup>4</sup> Data on the utilization of stronger, Schedule II narcotics are not included in the report.

By contrast, physicians in California and Texas rarely prescribed Schedule II narcotics, but wrote more prescriptions with more pills for weaker narcotics, resulting in a higher amount of narcotics per claim. For injured workers with more severe pain, Schedule II narcotics, if prescribed and used judiciously, may provide more adequate pain relief and facilitate early recovery and return to work. However, we do not know if this is the case without linking the specific prescribing patterns to outcomes. Further investigations are needed to better understand the issues related to utilization and prescribing patterns of Schedule II narcotics and associated outcomes.

Longer-term use of narcotics has a greater potential for overuse, abuse, and diversion, and also puts injured workers at higher risk of disability and work loss, and even of death from prescription drug overdose. Because of the serious consequences, longer-term use of narcotics needs to be closely managed and monitored; this includes initial patient screening for psychosocial factors that may put some injured workers at a greater risk of harm, as well as ongoing management of longer-term use. However, we found that few of those longer-term users of narcotics received the services recommended by medical guidelines for chronic opioid management, such as drug screening and psychological evaluation and treatment. These services, if used appropriately, may help prevent some injured workers from unnecessary, and more often harmful, problems associated with the longer-term use of narcotics. These services may also help to better manage the treatment of those who have a medical need to use narcotics on a longer-term basis for their chronic pain. It should be noted that guidelines recommend these services for better management of chronic opioid use.

## **CONCLUDING REMARKS**

By highlighting interstate variations in the use of narcotics, this study may help policymakers and stakeholders to better target their efforts to address possible overuse and diversion of narcotics in their states. This study may also be used as an important educational tool for the community of workers' compensation medical providers in each state to compare their practice patterns to the norms seen across the 17 study states. Some providers may subsequently modify their practice patterns after seeing the practice norms. Recognizing the limited scope of this report, we expect that this study will lay the groundwork for future studies that will provide more insights into the factors influencing the utilization and prescription of narcotics and longer-term use of narcotics.

# TECHNICAL APPENDIX A: BACKGROUND INFORMATION ABOUT FACTORS THAT MAY INFLUENCE THE PRESCRIBING OF NARCOTICS

In this report, we document substantial interstate variations in the use of narcotics across 17 states. The reader may want to know what might explain the results we observed for each state. We do not analyze the possible factors that might influence the utilization and prescribing patterns of narcotics in study. Instead, we provide in this appendix some background information about some of those factors, including information about the legal and regulatory environment for prescribing narcotics, as well as the health care delivery system. It is not our intention to discuss how these factors directly impact our results.

## PRESCRIPTION DRUG MONITORING PROGRAMS AND PAIN POLICIES

Historically, laws and regulations at the federal and state level have been aimed at preventing the abuse and diversion of controlled substances. The federal Controlled Substance Act (CSA),<sup>1</sup> part of the Comprehensive Drug Abuse Prevention and Control Act of 1970, established a classification structure, by categorizing controlled substances into five schedules based on their medicinal value and potential for abuse, addiction, and dependency. Table 2.3 in Chapter 2 provides the definition of each schedule and examples of specific narcotic medications that are classified in each schedule.

At the state level, the legal and regulatory environment for prescribing narcotics includes, but is not limited to, the statewide prescription drug monitoring programs (PDMPs), state pain policies (i.e., statutes, regulations, and guidelines for pain management), physician licensing and hospital accreditation requirements, and state workers' compensation laws and regulations for pharmaceuticals.

PDMPs are designed to facilitate the collection, analysis, and reporting of information on the prescribing, dispensing, and use of prescription drugs within a state.<sup>2</sup> State PDMPs vary in their objectives and operation—some include education objectives to provide information to providers, pharmacies, and the public. The state PDMPs also vary in terms of which drugs are subject to monitoring, type of information collected, which agency is responsible for the program, and the level of monitoring and methods for analyzing data to detect potential diversion activities. Table TA.A1 summarizes the status of PDMPs among the states included in our study.

The authority for regulating medical practice belongs to the states. State laws govern the prescribing and dispensing of prescription drugs by licensed health care professionals, through delegating the responsibility of regulating physicians to state medical boards, and delegating the responsibility of regulating pharmacy practice to state boards of pharmacy (Crosse, 2004).

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<sup>1</sup> The CSA requires any pharmacy, hospital, physician, manufacturer, or distributor that works with any of the substances listed under the CSA to register with the Drug Enforcement Administration (DEA). The DEA has the authority to regulate transactions and monitor the movement of controlled substances from manufacturer and wholesale distributor to the retail level. The transaction data are available for use in investigations of illegal diversions from manufacturer and wholesaler to retail distributors, such as physicians and pharmacists, who receive unusual quantities of certain drugs. See GAO (2002) and Kraman (2004).

<sup>2</sup> The programs are intended to help law enforcement identify and prevent prescription drug diversion, and, at the same time, to ensure legitimate access to prescription narcotic drugs where medically necessary (Kraman, 2004; GAO, 2002; and Crosse, 2004).

**Table TA.A1 State Pain Management Provisions**

	<b>Status of State PDMP as of 2010</b>	<b>Year Enacted</b>	<b>Program Type<sup>a</sup></b>	<b>Schedule of Drugs Covered<sup>a</sup></b>	<b>Details<sup>a</sup></b>
California	Operational	1940	Triplicate, electronic	II	Originally enacted in 1939, physicians are required to obtain state issued prescription forms
Florida	Enacted (2007 legislation)	2007			
Illinois	Operational	1961	Electronic	II	Originally enacted in 1961
Indiana	Operational	1995	Electronic	II	Patient profiles not available to physicians
Iowa	Operational (2007 legislation)	2007			
Louisiana	Operational (enacted in 2007)	2007			
Maryland	No information				
Massachusetts	Operational	1992	Electronic	II	Patient profiles not available to physicians
Michigan	Operational	1989	Electronic	II, III, IV, V	Patient profiles not available to physicians
Minnesota	Enacted in 2007	2007			
New Jersey	Enacted (2007 legislation)	2007			
New York	Operational	1977	Single copy, electronic	II	Originally enacted in 1972, physicians are required to obtain state-issued prescription forms
North Carolina	Operational (enacted in 2007)	2007			
Pennsylvania	Operational				
Tennessee	Operational	2003	Electronic	II, III, IV	
Texas	Operational	1982	Single copy, electronic	II	Physicians are required to obtain state-issued prescription forms
Wisconsin	Pending				

<sup>a</sup> Information, as of August 2003, provided is based on Table 3.1 in Kraman (2004).

*Definition:* Operational: program currently collecting prescription data and can respond to requests for reporting by those authorized to make these requests.

*Key:* PDMP: prescription drug monitoring program.

*Sources:* National Alliance for Model State Drug Laws, 2010; GAO, 2002.

More recently, policymakers and the medical profession have expressed concern about the negative impact of these historical regulations on legitimate medical practices and the undue burdens for practitioners and patients. Since 1990, states have increasingly adopted statutes, regulations, policies, and guidelines to encourage the prescription of opioids for chronic pain and appropriate pain management. This approach recognizes that:

- controlled substances are necessary for optimal pain management.
- the legitimacy of a practitioners’ prescribing is not based only on the amount or duration of the narcotic prescription.
- physical dependence should not be considered the same as a harmful addiction.

Table TA.A2 provides a listing of statutes, regulations, policies, and guidelines that relate to the prescription of narcotics for intractable or chronic pain.

**Table TA.A2 A Summary of State Pain Policies**

	<b>Statutes and Regulations</b>	<b>Policies and Guidelines</b>	<b>Grade Assigned by Pain &amp; Policy Studies Group in 2008<sup>a</sup></b>
California	Intractable Pain Statute, 2241.5 (2007) Pain Patient's Bill of Rights, 124960 (1997)	Statement by Medical Board (1994) California Medical Board Guidelines (2003) California State Board of Pharmacy Statement (1996) Board of Registered Nursing Pain Management Policy (1994, amended 1999)	B
Florida	Civil Rights Act, § 458.32, § 765.1103 (2002) Board of Medicine Regulation, 64B8-9.013 (1999) Board of Osteopathic Medicine Regulation, 64B15-14.005 (2000, amended 2006) Board of Pharmacy Regulation 64B16-27.831 (2002, amended 2003)	Joint Policy Statement of the Boards of Medicine, Nursing, Osteopathic Medicine, and Pharmacy (2005)	B
Illinois			C
Indiana			C+
Iowa	Board of Medicine Regulation, 653 IAC 134.2 (1997, amended 2002)	Board of Pharmacy Policy Statement (2002) Joint Policy Statement by the Boards of Medicine, Nursing, Pharmacy, and Physician Assistants (2009)	B
Louisiana	Board of Medicine Regulation, LAC46:XLV.6915-6923 (1997, amended 2000)		C
Maryland		Board of Medicine Guideline (1996) Board of Nursing Guideline (not dated)	B
Massachusetts	Intractable Pain Statute, 94C § 9 (2003)	Board of Registration in Medicine Guideline (1989, amended 2001) Model Policy (2001, amended 2004) Board of Pharmacy Policy Statement (2009) Board of Nursing Policy Statement (2009)	B+
Michigan	Intractable Pain Statute, 333.16204a-d (1999)	Board of Pharmacy Guideline (2005) Board of Nursing Guideline (not dated) Joint Guideline (2003)	A
Minnesota	Intractable Pain Statute. § 152.125 (1997)	Board of Medicine Guideline (2007) Joint Policy Statement (2004)	B+
New Jersey	Board of Medicine Regulation, 13.35-7.6 (1997)		C+
New York		Board of Medicine Policy Statement (2007)	C
North Carolina		Board of Medicine Policy Statement (1996, amended 2005) Board of Medicine Policy Statement (1999) Joint Policy Statement (1999)	B
Pennsylvania		Board of Medicine Guideline (1998)	C+

*continued*

**Table TA.A2 A Summary of State Pain Policies (continued)**

	<b>Statutes and Regulations</b>	<b>Policies and Guidelines</b>	<b>Grade Assigned by Pain &amp; Policy Studies Group in 2008<sup>a</sup></b>
Tennessee	Intractable Pain Treatment Act, § 63-6-1101 - § 63-6-1109 (2001) Board of Medicine Regulation (1999, amended 2006) Board of Osteopathy Regulation (2000, amended 2003)	Board of Medicine Policy Statement (1995)	C
Texas	Intractable Pain Act, Civ.St. Art. 4495c (1989, amended 2005) Medical Board Regulation, 22 TX ADC § 170.1-170.3	Board of Medicine Policy Statement (1993) Board of Pharmacy Policy Statement (2001)	C
Wisconsin	Controlled Substances Statute, 961.001, 961.38 (1996)	Board of Medicine Policy Statement (2007) Board of Pharmacy Policy Statement (2005) Board of Nursing Policy Statement (2007)	A

<sup>a</sup> Source: Pain & Policy Studies Group (2008).

Source: Database of State Statutes, Regulations, and Other Official Governmental Policies, [www.painpolicy.wisc.edu/matrix.htm](http://www.painpolicy.wisc.edu/matrix.htm).

The Pain & Policy Studies Group (PPSG) at the University of Wisconsin School of Medicine and Public Health issued a report card in July 2008 that assigned a grading system to evaluate the state pain legislation and policies.<sup>3</sup> The above table lists the grade which the PPSG assigned to the state. A higher grade is given to those states that have laws and policies which ensure the medical availability of pain medications.

The development in the prescription drug monitoring programs and pain policies, at the state level, reflects the legislative and regulatory effort to strike a balance between providing necessary pain relief and minimizing the risk of abuse and diversion of narcotics.

We assessed how the long-standing statewide PDMPs and the level of promotion of narcotic use by state pain policies correlated with the level of narcotic use we observed among the 17 study states. We found some correlations overall based on the 17-state data (Table TA.A3). However, we did not attempt to use this information to interpret the state's results.

<sup>3</sup> The PPSG's grading criteria are based on evaluating policies affecting drug availability and medical practice and pain management, rather than drug abuse prevention and control. These include both positive provisions, which enhanced pain management, and negative provisions, which had the potential to impede pain management. Higher grades were assigned by the PPSG to states which had more positive provisions and fewer negative provisions. See the PPSG's report card for lists of positive and negative provisions (PPSG, 2008).

**Table TA.A3 Relationship between Statewide Prescription Drug Monitoring Programs, State Pain Policies, and the Use of Schedule II Narcotics among the 17 Study States**

	CA <sup>a</sup>	FL	IA	IL	IN	LA	MA	MD	MI	MN	NC	NJ	NY <sup>a</sup>	PA	TN	TX	WI
% of Rx for pain medications that were for Schedule II narcotics	3%	11%	9%	4%	7%	9%	33%	19%	5%	13%	16%	20%	11%	21%	9%	2%	17%
Year in which the state PDMP first enacted <sup>b</sup>	1940	2007	2007	1961	1995	2007	1992	n/a	1989	2007	2007	2007	1977	n/a	2003	1982	n/a
Long-standing state PDMP <sup>b</sup>	1	0	0	1	1	0	1	0	1	0	0	0	1	0	0	1	0
Grade for state pain policy, by the Pain & Policy Studies Group at the University of Wisconsin <sup>c</sup>	B	B	B	C	C+	C	B+	B	A	B+	B	C+	C	C+	C	C	A
Numeric value assigned to the grades <sup>d</sup>	4.0	4.0	4.0	3.0	3.5	3.0	4.5	4.0	5.0	4.5	4.0	3.5	3.0	3.5	3.0	3.0	5.0

Note: Underlying data include nonsurgical claims with more than 7 days of lost time that had injuries arising from October 1, 2005, to September 30, 2006, and prescriptions filled through March 31, 2008.

<sup>a</sup> California and New York had statutory changes in 2007 which impacted the reimbursements for prescription drugs including narcotics in workers' compensation. In California, the statutory changes lowered the prices paid for physician-dispensed prescriptions to the level received for pharmacy-dispensed prescriptions, which impacted the prices paid for physician-dispensed narcotics. The data in this study reflect a mix of experience before and after the changes.

<sup>b</sup> To assess the correlation between statewide PDMPs and the use of Schedule II narcotics, we assigned 1 to represent a long-standing PDMP if a state enacted its PDMP before 1997, and 0 if a state did not have a PDMP over the study period or enacted it after 1997. We found a negative correlation (-0.4434, p<0.01) between the long-standing state PDMPs and the percentage of pain prescriptions that were Schedule II narcotics.

<sup>c</sup> Source: Pain & Policy Studies Group, 2008.

<sup>d</sup> To assess the correlation, we converted the grades for state pain policy linearly to numerals and found a positive correlation (0.2019, p<0.01) between the converted grades and the percentage of claims with Schedule II narcotics.

Key: n/a: not available; PDMP: prescription drug monitoring program; Rx: prescriptions.

## TREATMENT GUIDELINES

Several medical treatment guidelines for prescribing narcotics and pain management have been developed at the national level. The most widely accepted guidelines include the general treatment guidelines by the American Pain Society and the American Academy of Pain Management, and the occupational medical treatment guidelines by the American College of Occupational and Environmental Medicine (ACOEM), and the Official Disability Guidelines (ODG). The Cochrane reviews point out that the evidence in support of opioid use for chronic non-cancer pain is weak or questionable.<sup>4</sup> Some states have adapted national guidelines, while other states have developed their own occupational or general treatment guidelines for prescribing narcotics.<sup>5</sup>

For example, ACOEM and ODG guidelines generally discourage the use of opioids initially except for traumatic cases or those with severe pain, and if opioids are prescribed, prescriptions are usually for two weeks according to ACOEM. Opioids are recommended for post-operative pain, and for fractures and other conditions likely to result in significant pain.

A number of extensive guidelines have been developed to assure appropriate use of chronic opioids. They all advise a similar approach. Patients should be carefully screened for signs of aberrant drug behavior and other risk factors such as co-morbid psychiatric conditions. Chronic opioid management should only be offered after other therapies have failed and the patient has moderately severe pain from a defined physical condition. Technical Appendix B provides a summary of guideline recommendations for chronic opioid management.

These treatment guidelines probably have had a limited influence on prescribing behavior over the study period, given that most were developed fairly recently, and few practitioners were likely to be aware of them.

## MEDICAL PRACTICE AND HEALTH CARE DELIVERY SYSTEM

Geographic differences in medical practice and the health care delivery system may also play an important role in shaping interstate variations. Some states or regions may have a higher concentration of pain clinics and doctors who specialize in pain treatment than other states. In states where patients have easier access to clinics specializing in the treatment of pain, the prescribing patterns may differ from the states where there are few pain clinics. For example, some occupational medicine clinics are affiliated with academic medical centers that also have pain clinics. This arrangement facilitates referrals of patients to those who specialize in pain treatment. If pain specialists prescribe narcotics more frequently on a longer-term basis, compared to non-specialists, this could increase the use of narcotics in these states.

In states where more of their workers' compensation medical care is provided by hospital-affiliated clinics, the prescribing patterns may be influenced indirectly by certain requirements of the Joint Commission, which regulates hospital accreditation.<sup>6</sup> Doctors who practice in hospital-based or hospital-affiliated programs may be more likely to be influenced by the requirements, as compared with doctors who are in private practice or those who work for

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<sup>4</sup> According to a Cochrane study, there is only weak evidence suggesting that patients on long-term opioid therapy experience clinically significant pain relief. However, multiple side effects are common, causing many patients to discontinue use. It is unclear whether this type of therapy functionally benefits most patients. See Nobel et al (2010). Most studies show that only around 50 percent of patients tolerate the side effects of opioids and related medications well, and benefit from opioid therapy for pain relief. Depending on the diagnoses and other agents available for treatment, the incremental benefit of chronic opioids use can be small (Cepeda et al., 2007; Laudau et al., 2007, and Noble et al., 2010).

<sup>5</sup> The Washington State guidelines for prescribing opioids have been used by the Centers for Disease Control and Prevention to advise prescribing physicians on the use of narcotics for treating pain. We have used these guidelines as a reference in our analysis.

<sup>6</sup> To encourage improved pain management, the Joint Commission enforces standards mandating that pain should be treated as a vital sign and should be treated aggressively. Patients must be thoroughly assessed and receive effective pain management, including the prescription of opioids. See <http://www.ipcaz.org/pages/new.html> for a summary of the requirements.

commercial occupational medicine networks. It is worth noting that a higher level of involvement with chiropractic care may also contribute to a lower rate of narcotics use in some states at the aggregate level, because chiropractors cannot prescribe medications.

### **STATE WORKERS' COMPENSATION LAWS AND REGULATIONS ON PHARMACEUTICALS**

Workers' compensation laws on pharmaceuticals include regulations on pharmacy fee schedules, physician dispensing and reimbursement, generic mandate, step therapy, and pharmacy networks or pharmacy benefit managers (Victor and Petrova, 2006a and 2006b). Physician dispensing and pharmacy fee schedules are likely to influence prescribing behavior and impact the use of narcotics (Wang and Victor, 2010). Utilization and pre-authorization may also influence the rate of narcotics use.

In recent years, pharmacy benefit managers have begun to offer a greater number of services to help payors manage the utilization of all pharmaceuticals, but especially narcotics. Because of the timing of these initiatives, we do not expect that they had any impact on the use of narcotics over the study period.

It is worth noting that workers' compensation fee schedules for other medical services may also have an indirect impact on the use of narcotics. For example, a low fee schedule rate for surgery might incentivize physicians to treat marginal cases with narcotic therapy instead of surgery.

## **TECHNICAL APPENDIX B: GUIDELINE PRINCIPLES FOR CHRONIC OPIOID MANAGEMENT**

A number of extensive guidelines have been developed to assure appropriate use of chronic opioids. Table TA.B1 provides a summary of the general guideline recommendations. The guidelines reviewed in the table were identified through an internet search for opioid management guidelines developed by governmental or other national entities representing medical practice standards; or guidelines used by states and specialty societies which were developed using available evidence and a consensus of a multi-disciplinary group of practitioners. We excluded guidelines that did not incorporate multi-disciplinary involvement, because it suggested the input of only a limited group of practitioners. The congruence among the recommendations speaks to a general consensus regarding chronic opioid management.

The guidelines advise a similar approach. Patients should be carefully screened for signs of aberrant drug behavior and other risk factors such as co-morbid psychiatric conditions. Patients with a history of drug or alcohol abuse, or other psychiatric conditions, are less likely to benefit from chronic opioid treatment and require close management by professionals who have expertise in addiction and pain control. Chronic opioid therapy should only be offered after other therapies have failed and the patient has moderately severe pain from a defined physical condition. Thus, pure somatoform disorders should not be treated with chronic opioid therapy.

A detailed consent form with extensive counseling is required before initiating a therapeutic trial. Patients should be aware of the side effects of chronic opioid therapy: constipation, nausea, hyperalgesia (an increased pain response to low level painful stimuli), endocrine changes, sexual dysfunction, increases in sleep apnea if present, and cognitive dysfunction, especially initially. Patients should also know the indications for tapering off of opioids which include aberrant drug behavior, lack of progress toward functional goals, inadequate response to the opioid chosen, and suspected hyperalgesia. Patients should also understand the risk of diversion and agree to have their medication kept in a locked location. Patients must agree to have opioids prescribed from only one physician/clinic.

A short-term therapeutic trial is recommended initially and short-acting opioids are generally prescribed for the trial. Although several years ago the trend was to shift to long-acting opioids if a trial was successful, there appears to be no strong evidence that long-acting opioids are preferable. All patients should be regularly monitored with an assessment of function as well as pain. A successful trial normally results in only a 2–3 point decrease on a 10 point pain scale.

Urine drug screenings are recommended for all high-risk cases; however, guidelines vary according to frequency and when to screen for low-risk patients. Many guidelines recommend drug screening before initiating chronic opioid trials.

Most guidelines define high dose use in morphine equivalents and suggest caution before exceeding higher doses. Opioid rotation is sometimes tried if a patient is no longer benefiting from a specific opioid, but the benefit of this rotation is unclear. Opioid therapy is tapered for aberrant drug behavior, inability to meet therapeutic goals, significant side effects, or suspected hyperalgesia. A number of studies support the concept of hyperalgesia (Chu et al., 2006; Hay et al., 2009; and Silverman, 2009). Thus, hyperalgesic patients who have been tapered off of chronic narcotics are likely to function better with less pain than they did on the narcotics. Tapering is commonly tried when patients are not functioning well on opioids.

**Table TA.B1 A Summary of Guideline Recommendations for Chronic Opioid Management**

<b>Guideline</b>	<b>Recommended Screening</b>	<b>Long Acting vs. Short Acting</b>	<b>Physician to Check PDMP Regularly</b>	<b>Maximum Dose to Be Exceeded with Caution</b>	<b>Requires Recording of Functional Status with Each Visit</b>	<b>Urine Drug Screening</b>	<b>Recommended Co-therapies</b>
American College of Occupational and Environmental Medicine (2008)	Substance abuse screening and psychiatric evaluation for most cases.	Begin with weaker acetaminophen combination products. Only progress when necessary.	n/a	n/a	Yes	For all patients.	Complete functional restoration and behavioral interventions first.
American Pain Society and American Academy of Pain Management (2009)	For aberrant drug behavior and psychiatric co-morbidities.	Begin with short acting. No recommendation regarding long versus short for chronic use.	n/a	200 MEQ	Yes	Random screening on all high-risk patients and to be considered for low-risk patients.	Cognitive-behavioral therapy, interdisciplinary rehabilitation, functional restoration.
Canadian Guideline for the Safe and Effective Use of Opioids for Chronic Non-Cancer Pain (2010)	Emphasizes treating physician's psychiatric and substance abuse evaluation.	Use of benzodiazepines discouraged. Step-wise progression starting with short acting and then moving to long acting if desired.	n/a	200 MEQ	Yes	Discusses pre-therapy and follow up drug screening, no specific numbers.	For psychiatric patients, seek consultation. Multi-disciplinary pain programs encouraged.
Colorado Treatment Guidelines 2005 and Fee Schedule Rule 18 (2010)	Psychological evaluation for all chronic pain patients. Screen for substance abuse.	After successful trial, one long acting and one short acting "rescue," not more than 2 opioids to be prescribed.	Yes	n/a	Yes	For all patients before beginning therapy and annually randomly.	Psychological treatment, active therapy, interdisciplinary therapy.
Federation of State Medical Boards Model Policy for the Use of Controlled Substances for the Control of Pain (1997)	Screening for substance abuse and co-existing conditions.	n/a	n/a	n/a	Yes	High-risk patients.	Concurrent therapy expected, not defined.
Official Disability Guidelines (2010) <sup>a</sup>	Screen for opioid risk. Psychosocial evaluation, psychological assessment for some patients.	n/a	n/a	n/a	Yes	Frequent random drug screening, especially for high-risk patients.	Multidisciplinary pain clinic.
Utah Clinical Guidelines on Prescribing Opioids (2008)	Screening for substance abuse and consultation if psychological issues.	Long acting not to be used for acute pain. Begin trials with short acting.	Yes	120–200 MEQ	Yes	For all patients prior to beginning therapy.	Previous active therapy, psychological therapy if diagnosis identified.
Washington State Interagency (2010)	Screen for substance abuse and psychological conditions and refer for treatment as needed.	Generally do not combine with sedative-hypnotics, appendix implies long acting with "rescue" short acting.	n/a	120 MEQ	Yes	All patients under 65 at baseline and yearly or more often depending on risk for abuse.	Discusses referrals including psychological as needed.

Key: MEQ: morphine equianalgesic conversion; n/a: not available; PDMP: prescription drug monitoring program.

<sup>a</sup> One reviewer raised a question as to whether the Official Disability Guidelines fully met the inclusion criteria outlined in the technical appendix.

Sources: Chou et al., 2009; Glass, 2004, Ch. 6; National Opioid Use Guideline Group, 2010; Colorado Department of Labor and Employment, 2005; Federation of State Medical Boards of the United States, Inc., 2004; Work Loss Data Institute, 2008; Sundwall, et al., 2009; and Washington State Agency Medical Directors Group, 2010.

## TECHNICAL APPENDIX C: IDENTIFYING LONGER-TERM USERS OF NARCOTICS AND RECOMMENDED SERVICES FOR MONITORING

The longer-term users of narcotics were identified in the data to analyze the patterns of longer-term narcotic use, and the utilization of the services recommended by medical guidelines for chronic narcotics management.

We defined *longer-term users* as those who had narcotics within the first 3 months after the injury and had 3 or more visits to fill narcotic prescriptions between the seventh and twelfth month after the injury. The criteria used are likely to reflect at least 30 days of narcotics supply during this time period.<sup>1,2</sup>

We also identified a subset of nonsurgical cases that did not receive narcotics within 3 months postinjury but would otherwise follow the same pattern of longer-term use of narcotics. One may be concerned that this group of cases, if considered as longer-term users, could over-state the prevalence of longer-term use of narcotics. For example, some injured workers might have late onset pain and started the pain treatment much later in time. If such cases account for a significant percentage of cases with narcotics, it could overstate the longer-term use of narcotics. However, clinically, it is rare to see patients who did not have pain symptoms at the initial stage of the treatment who later develop pain for the same injury. We do not have an estimate of the percentage of cases with narcotics that might have late onset pain, but 5–6 percent of cases with narcotics may seem substantially higher than a clinician would expect to see for patients with late onset pain.

In this report, we also examine the use of some key services recommended by medical guidelines for chronic opioid management. We identified the CPT codes of those services, including drug screening test, psychiatric evaluation and treatment, and active physical therapy. Table TA.C1 provides a list of the CPT codes of the recommended services.

**Table TA.C1 CPT4 Codes Used to Identify Specific Services Recommended for Managing Longer-term Use of Narcotics**

CPT Code	Definition
<b>Drug screening</b>	
80100	Drug screen, qualitative; multiple drug classes chromatographic method, each procedure
80101	Drug screen, qualitative; single drug class method (e.g., immunoassay, enzyme assay), each drug class
80102	Drug confirmation, each procedure
80154	Benzodiazepines
80184	Phenobarbital
80299	Quantitation of drug, not elsewhere specified

*continued*

<sup>1</sup> Clinically, it would seem very unusual to give a nonsurgical case 30 days of narcotics in the second 3-month period. It seems unlikely that a nonsurgical case would deteriorate sufficiently to warrant such a prescription. It could also represent up to two months worth of narcotics, depending on the prescription.

<sup>2</sup> An alternative definition for *longer-term user* would be those users whose daily dosage, during the seventh through twelfth month after injury, exceeded 30 milligrams of morphine equivalent, which is the minimum daily dosage for chronic opioid therapy as suggested by the Canadian guidelines (National Opioid Use Guideline Group, 2010). Although this definition takes into account the strength of narcotics, thus making the results more comparable, data limitations prevented us from using it.

**Table TA.C1 CPT4 Codes Used to Identify Specific Services Recommended for Managing Longer-term Use of Narcotics (continued)**

<b>CPT Code</b>	<b>Definition</b>
82055	Alcohol (ethanol); any specimen except breath
82075	Alcohol (ethanol); breath
82145	Amphetamine or methamphetamine
82205	Barbiturates, not elsewhere specified
82491	Chromatography, quantitative, column (e.g., gas liquid or high-performance liquid chromatography (HPLC)); single analyte not elsewhere specified, single stationary and mobile phase
82491	Chromatography, quantitative, column (e.g., gas liquid or HPLC); single analyte not elsewhere specified, single stationary and mobile phase
82520	Cocaine or metabolite
83840	Methadone
83925	Opiates (e.g., morphine, meperidine)
84022	Phenothiazine
<b>Psychiatric evaluations</b>	
90801	Psychiatric diagnostic interview examination
90802	Interactive psychiatric diagnostic interview examination using play equipment, physical devices, language interpreter, or other mechanisms of communication
<b>Psychiatric treatment and report</b>	
90804–90809	Individual psychotherapy, insight oriented, behavior modifying and/or supportive, in an office or outpatient facility (depending on length of service and whether evaluation and management service is included)
90810–90815	Individual psychotherapy, interactive, using play equipment, physical devices, language interpreter, or other mechanisms of non-verbal communication, in an office or outpatient facility (depending on length of service and whether evaluation and management service is included)
90816–90822	Individual psychotherapy, insight oriented, behavior modifying and/or supportive, in an inpatient hospital, partial hospital or residential care setting (depending on length of service and whether evaluation and management service is included)
90823–90829	Individual psychotherapy, interactive, using play equipment, physical devices, language interpreter, or other mechanisms of non-verbal communication, in an inpatient hospital, partial hospital or residential care setting (depending on length of service and whether evaluation and management service is included)
90875–90876	Individual psychophysiological therapy incorporating biofeedback training by any modality (face-to-face with the patient), with psychotherapy (depending on length of service)
90882	Environmental intervention for medical management purposes on a psychiatric patient's behalf with agencies, employers, or institutions
90899	Unlisted psychiatric service or procedure
<b>Active physical therapy</b>	
97110	Therapeutic procedure, one or more areas, each 15 minutes; therapeutic exercises to develop strength and endurance, range of motion and flexibility
97112	Therapeutic procedure, one or more areas, each 15 minutes; neuromuscular reeducation of movement, balance, coordination, kinesthetic sense, posture, and/or proprioception for sitting and/or standing activities
97113	Therapeutic procedure, one or more areas, each 15 minutes; aquatic therapy with therapeutic exercises
97116	Therapeutic procedure, one or more areas, each 15 minutes; gait training (includes stair climbing)
97150	Therapeutic procedure(s), group (2 or more individuals)
97530	Therapeutic activities, direct (one-on-one) patient contact by the provider (use of dynamic activities to improve functional performance), each 15 minutes
97545	Work hardening/conditioning; initial 2 hours
97546	Work hardening/conditioning; each additional hour (list separately in addition to code for primary procedure)

Source: American Medical Association, 2006.

## **TECHNICAL APPENDIX D: SENSITIVITY ANALYSIS**

In this appendix, we discuss several issues that might impact the results of the interstate comparisons. We focus on three main issues: (1) the difference in injury severity and case mix across states and how it may be potentially affected by the selection of nonsurgical cases with seven days of lost time that received narcotics, (2) the difference in the proportion of outlier cases and heavy users of narcotics across states and its impact on overall utilization of narcotics, and (3) the impact of different claim maturities on the interstate comparison in the utilization of narcotics. Based on our analysis, we concluded that these potential issues are unlikely to be significant enough to change how the states were characterized in terms of higher, medium, or lower in the use of narcotics.

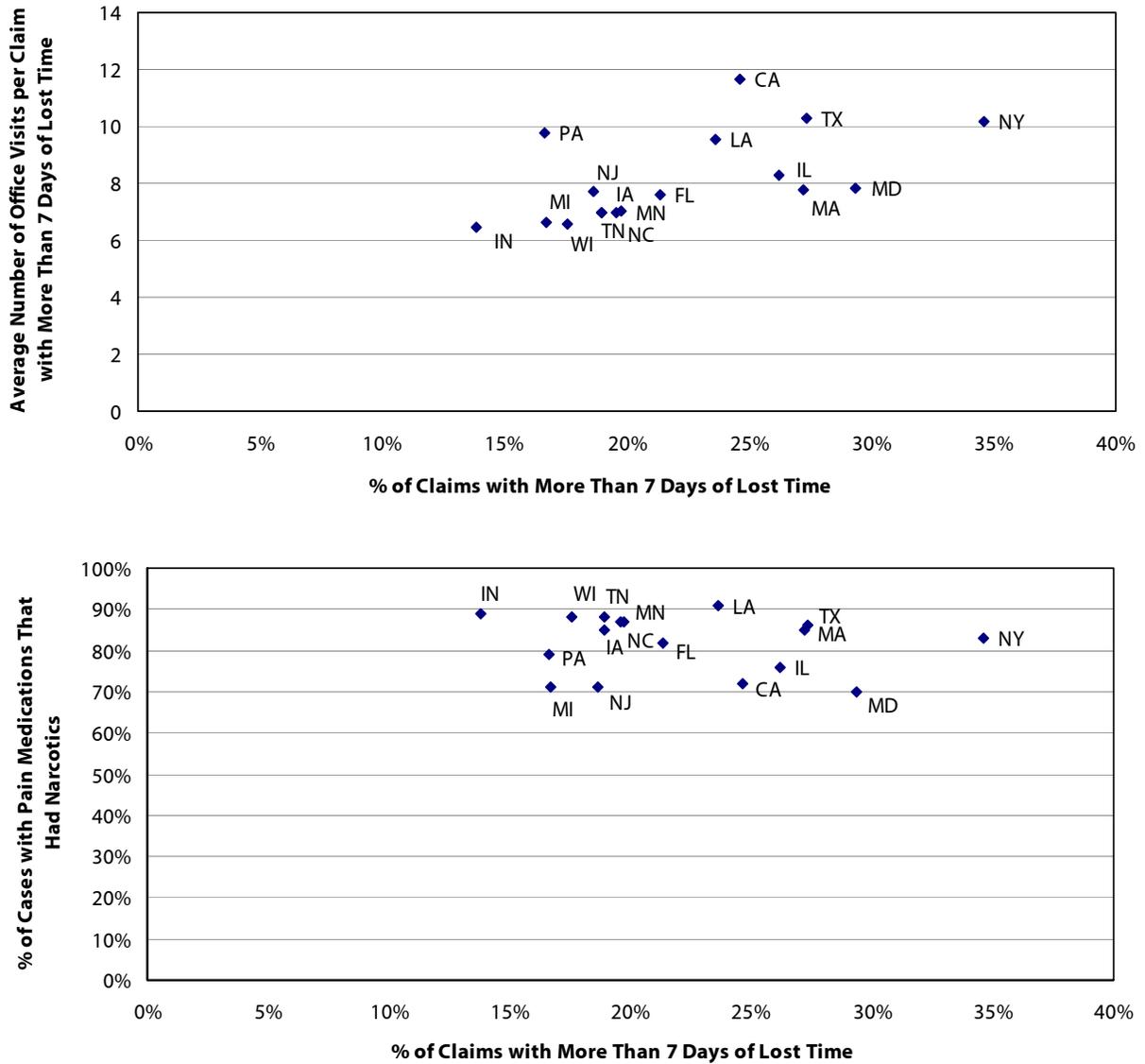
### **INJURY SEVERITY, CASE MIX, AND SELECTION OF NONSURGICAL CASES WITH NARCOTICS**

In this study, we examined the utilization of narcotics based on nonsurgical cases with more than seven days of lost time that received narcotics. This subset of cases was selected based on three variables that are reflective of the differences across the states in terms of claim types and how medical services were provided. We discuss potential endogenous issues related to these three variables and the results of our sensitivity analysis.

First, we chose to focus on claims with more than seven days of lost time for this study. Since the percentage of claims that had more than seven days of lost time varied across the states, one may be concerned that, therefore, the injury severity and case mix would be very different across the states also, because states with a lower percentage of claims with more than seven days of lost time might have proportionally more severe cases included in the data than the states where the percentage was higher. This would obviously make interstate comparisons less meaningful. Based on previous WCRI studies, however, we believe that differences in injury severity and case mix across states are not likely to be large enough to affect the comparative results. For example, a recent WCRI study, based on survey data of worker outcomes, reported that the injury severity for injured workers with more than seven days of lost time was similar among the 11 states surveyed (Belton and Liu, 2009). The WCRI CompScope™ multistate benchmarks adjusted for differences in the mix of cases and other factors across the states and assessed the impact of the case-mix adjustment (Yang et al., 2009). That study found that the difference in the mix of cases across states had only a small impact on the results, not large enough to change how the states were characterized as higher, medium, or lower. The impact was 1-2 percent for most states, with the exception of California and Texas at 3-4 percent. We also looked at the use of narcotics to see how it was correlated with the percentage of claims with more than seven days of lost time and did not find evidence suggesting that it should be a concern (Figure TA.D1).

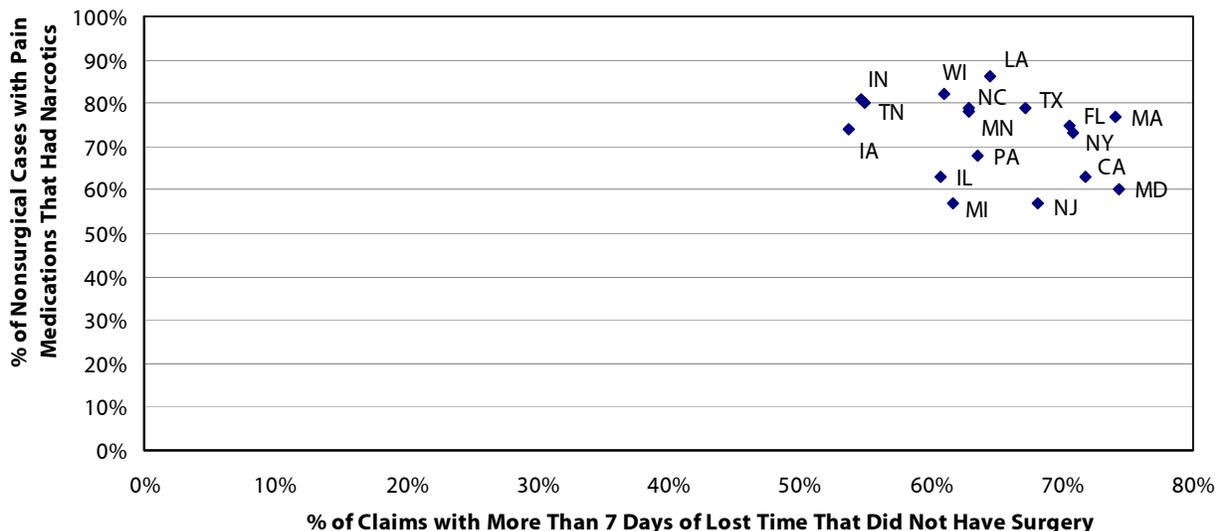
Second, because post-operative narcotic use is very different from the narcotic use among nonsurgical cases, we chose to use nonsurgical cases as the base to make the interstate comparison more meaningful. However, a potential concern may be that since the surgery rate varied widely across the states (Coomer et al., 2010), the nonsurgical criterion might filter in a higher proportion of more severe cases for the states with a lower surgery rate and vice versa. We looked at the percentage of cases that did not have surgery and how it was correlated with the percentage of cases with pain medications that received narcotics. We did not find evidence suggesting that this selection was likely to affect the comparability of the cases in a material way (Figure TA.D2).

**Figure TA.D1 Assessing Potential Bias of Selecting Claims with More Than 7 Days of Lost Time<sup>a</sup>**



Note: Underlying data include nonsurgical claims with more than 7 days of lost time that had injuries arising from October 1, 2005, to September 30, 2006, and prescriptions filled through March 31, 2008.

<sup>a</sup> California and New York had statutory changes in 2007 which impacted the reimbursements for prescription drugs including narcotics in workers' compensation. In California, the statutory changes lowered the prices paid for physician-dispensed prescriptions to the level received for pharmacy-dispensed prescriptions, which impacted the prices paid for physician-dispensed narcotics. The data in this study reflect a mix of experience before and after the changes.

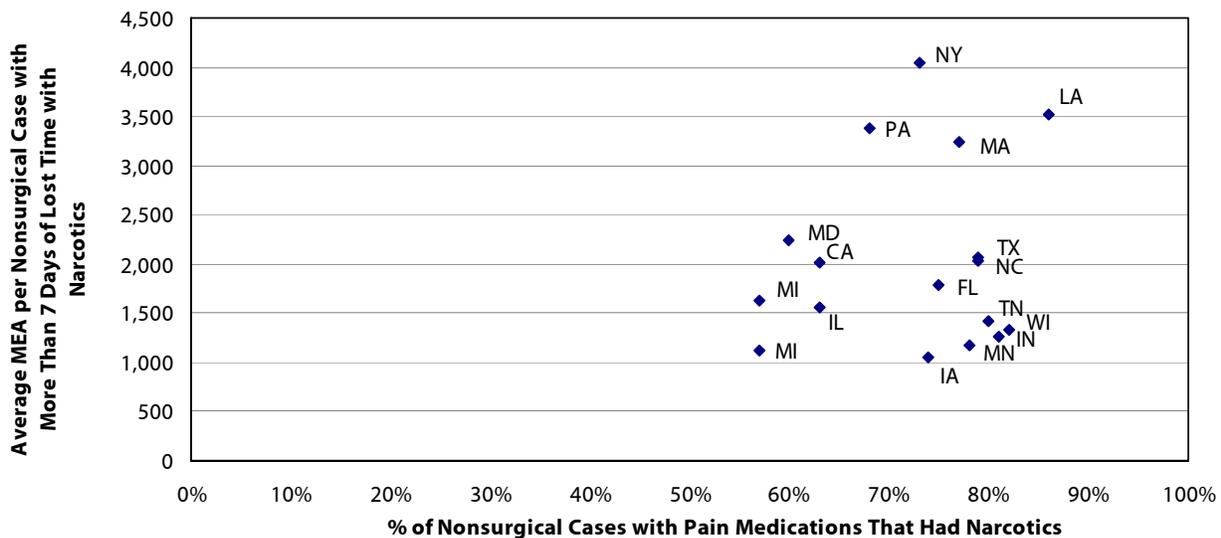
**Figure TA.D2 Assessing Potential Bias of Selecting Nonsurgical Cases with More Than 7 Days of Lost Time<sup>a</sup>**

Note: Underlying data include nonsurgical claims with more than 7 days of lost time that had injuries arising from October 1, 2005, to September 30, 2006, and prescriptions filled through March 31, 2008.

<sup>a</sup> California and New York had statutory changes in 2007 which impacted the reimbursements for prescription drugs including narcotics in workers' compensation. In California, the statutory changes lowered the prices paid for physician-dispensed prescriptions to the level received for pharmacy-dispensed prescriptions, which impacted the prices paid for physician-dispensed narcotics. The data in this study reflect a mix of experience before and after the changes.

For the use of stronger, Schedule II narcotics, we found that the potential selection bias, if existent, was likely to reinforce the results of interstate comparison. For example, the surgery rates were much lower in California and Texas, which may suggest that the cases included in the analysis were relatively more severe compared to cases in states with higher surgery rates. However, Schedule II narcotics, which are usually used for more severe pain, were used rarely in these two states. Had we included more comparable cases for these two states (with a higher surgery rate), we would have seen fewer prescriptions of Schedule II narcotics than we observed. For the states with a higher surgery rate (e.g., Louisiana, North Carolina, and Tennessee), the nonsurgical cases included would be less severe. These states, however, had typical or more frequent use of narcotics. The frequency would be even higher if cases included were comparable in terms of severity.

Third, we examined the interstate variations in the use of narcotics among nonsurgical cases that received narcotics. Since injured workers with pain can be treated in various ways, depending on the treating physician's diagnosis and choice of treatments, including using prescription non-narcotic pain medications, a potential concern could be that different physicians may have different thresholds of prescribing narcotics. For example, for the same injured worker with a pain score of 7 on the scale of 1 to 10, a physician in state A may not think that the pain would be severe enough to warrant the use of narcotics, while a physician in state B may well prescribe narcotics for pain relief. If this reflects the practice norms in the two states, on average cases with narcotics in state A would be more severe than those in state B, due to physicians' selection. Considerable variation across the states in the percentage of cases with pain medications that received narcotics may raise a concern about the comparability of the states' results. However, we did not see a strong correlation between the per-claim utilization and the percentage of nonsurgical cases with pain medications that received narcotics (Figure TA.D3).

**Figure TA.D3 Assessing Potential Bias of Selecting Nonsurgical Cases with Narcotics<sup>a</sup>**

Note: Underlying data include nonsurgical claims with more than 7 days of lost time that had injuries arising from October 1, 2005, to September 30, 2006, and prescriptions filled through March 31, 2008.

<sup>a</sup> California and New York had statutory changes in 2007 which impacted the reimbursements for prescription drugs including narcotics in workers' compensation. In California, the statutory changes lowered the prices paid for physician-dispensed prescriptions to the level received for pharmacy-dispensed prescriptions, which impacted the prices paid for physician-dispensed narcotics. The data in this study reflect a mix of experience before and after the changes.

Key: MEA: morphine equivalent amount.

## OUTLIERS AND HEAVY USERS OF NARCOTICS

Some of the initial results on interstate variations were surprising. For example, the average morphine equivalent amount of narcotics per claim was surprisingly high in Massachusetts and Pennsylvania as well as in New York and Louisiana. One potential concern was that the mean value of the morphine equivalent amount per claim was likely sensitive to outliers in the data. We did two things to address this concern. First, we identified the cases where the morphine equivalent amount of narcotics seemed unreasonably high and removed them from the analysis; these cases comprised less than 1 percent of the data.<sup>1</sup> Second, we identified *heavy users* of narcotics, using the 95th percentile as the threshold, and did a sensitivity test by removing these cases for the sensitivity analysis. The result showed that the four states had proportionally more heavy users of narcotics. We reviewed the detailed prescription transactions for several randomly selected cases identified as heavy users, and did not see clear evidence suggesting likely data anomalies. Based on our data review, these heavy users appeared to have filled many prescriptions for the same or different narcotics at short intervals. Since heavy and longer-term use of narcotics is an important part of the overall use of narcotics, we included these claims in the analysis and used the mean values for the amount of narcotics per claim to compare the use of narcotics across the states. We also reported median values for the same measure for the interested reader.

<sup>1</sup> The morphine equivalent amount of narcotics was considered unusually high if the estimated daily dosage for narcotics exceeding 120 milligrams of morphine equivalent, the maximal daily dosage typically recommended by guidelines (e.g., Oregon guidelines for prescribing narcotics [Oregon Health and Science University, 2006]).

**HOW DO STATES COMPARE IN THE USE OF NARCOTICS WHEN CLAIMS BECOME MORE MATURE?**

Another concern often raised about interstate comparisons in per-claim utilization of narcotics is that such interstate rankings may change depending upon the maturity of the claims being analyzed—claims may develop differently across states, due to differences in workers' compensation laws, benefit structures, and administration. To address this concern, we analyzed the patterns in the morphine equivalent amount of narcotics per claim at different claim maturities and found that the amount of narcotics per claim in the four states with the highest amount of narcotics per claim were already much higher at the end of the first year postinjury (Table TA.D1).

We also looked at how the use of narcotics per claim correlates with different intervals of temporary disability duration across the states and found a strong positive correlation between the amount of narcotics per claim and the proportion of claims with longer disability duration (Table TA.D2). This suggests that the higher use of narcotics in some states may be explained partially by the average longer duration of temporary disability. However, without a more rigorous analysis, we cannot tell to what extent the longer disability duration would affect the use of narcotics in a state. It is also possible that a certain pattern of narcotic use may lead to longer disability duration.

**Table TA.D1 Average Morphine Equivalent Amount of Narcotics per Claim at Different Maturities, Nonsurgical Cases with More Than 7 Days of Lost Time That Received Narcotics**

	CA <sup>a</sup>	FL	IA	IL	IN	LA	MA	MD	MI	MN	NC	NJ	NY <sup>a</sup>	PA	TN	TX	WI	17- State Median
Total number of cases that had narcotics	14,455	4,665	596	1,586	1,599	717	1,725	823	1,413	1,318	2,200	1,163	3,102	3,907	2,065	10,432	1,416	1,599
% of cases with Rx that had pain medications	96%	95%	94%	93%	93%	95%	91%	96%	95%	91%	94%	91%	92%	94%	96%	95%	92%	94%
% of cases with pain medications that had narcotics	63%	75%	74%	63%	81%	86%	77%	60%	57%	78%	79%	57%	73%	68%	80%	79%	82%	75%
<b>Average MEA per claim with narcotics as of the end of given quarter</b>																		
First quarter	472	620	628	523	699	786	742	564	508	484	634	573	811	680	563	621	656	621
Second quarter	697	890	733	740	952	1,158	1,252	832	660	623	903	789	1,294	1,113	758	936	949	890
Third quarter	931	1,106	839	891	1,100	1,537	1,600	1,055	804	753	1,129	914	1,776	1,529	895	1,203	1,084	1,084
Fourth quarter	1,165	1,286	932	1,029	1,164	1,898	1,868	1,351	961	838	1,350	1,045	2,268	1,913	1,003	1,419	1,192	1,192
Fifth quarter	1,389	1,455	984	1,181	1,207	2,317	2,198	1,631	1,030	933	1,546	1,148	2,712	2,326	1,122	1,615	1,283	1,389
Sixth quarter	1,605	1,581	1,020	1,326	1,236	2,700	2,543	1,860	1,072	1,034	1,734	1,283	3,160	2,703	1,236	1,794	1,328	1,581
Seventh quarter	1,818	1,728	1,041	1,461	1,260	3,128	2,910	2,091	1,099	1,109	1,921	1,441	3,619	3,070	1,333	1,945	1,359	1,728
Eighth quarter	2,014	1,792	1,055	1,552	1,267	3,513	3,247	2,238	1,116	1,172	2,043	1,624	4,040	3,387	1,418	2,071	1,384	1,792

Note: Underlying data include nonsurgical claims with more than 7 days of lost time that had injuries arising from October 1, 2005, to September 30, 2006, and prescriptions filled through March 31, 2008.

<sup>a</sup> California and New York had statutory changes in 2007 which impacted the reimbursements for prescription drugs including narcotics in workers' compensation. In California, the statutory changes lowered the prices paid for physician-dispensed prescriptions to the level received for pharmacy-dispensed prescriptions, which impacted the prices paid for physician-dispensed narcotics. The data in this study reflect a mix of experience before and after the changes.

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

**Table TA.D2 Average Morphine Equivalent Amount per Claim with Narcotics, by Disability Duration**

	CA <sup>a</sup>	FL	IA	IL	IN	LA	MA	MD	MI	MN	NC	NJ	NY <sup>a</sup>	PA	TN	TX	WI	17-State Median
Average MEA per claim with narcotics	2,014	1,792	1,055	1,551	1,267	3,513	3,247	2,238	1,116	1,173	2,034	1,624	4,040	3,387	1,418	2,071	1,384	1,792
<b>% of claims by disability duration in weeks</b>																		
PPD claims with no TD payments	9%	18%	10%	15%	14%	7%	4%	7%	4%	16%	18%	8%	8%	5%	15%	12%	4%	9%
1–4 weeks	28%	33%	43%	23%	33%	17%	22%	27%	36%	40%	26%	21%	16%	24%	33%	23%	41%	27%
5–13 weeks	24%	27%	28%	27%	35%	33%	28%	34%	34%	24%	24%	35%	26%	32%	32%	27%	35%	28%
14–26 weeks	13%	12%	11%	17%	13%	12%	16%	12%	13%	9%	11%	18%	16%	11%	12%	18%	14%	13%
27–54 weeks	13%	7%	8%	11%	5%	11%	11%	9%	7%	7%	10%	12%	13%	9%	6%	14%	4%	9%
Longer than 55 weeks	13%	2%	1%	6%	1%	19%	19%	12%	6%	4%	12%	5%	20%	19%	2%	6%	1%	6%
<b>Average MEA per claim with narcotics, TD duration</b>																		
PPD claims with no TD payments	1,548	1,338	1,593	353	1,041	2,172	1,606	726	971	1,177	1,097	595	2,861	3,623	1,006	1,409	542	1,177
1–4 weeks	525	586	497	477	546	557	427	414	356	482	615	417	1,193	551	657	673	460	525
5–13 weeks	955	1,233	750	981	1,018	1,899	1,277	669	753	686	1,081	586	1,984	795	1,044	1,213	991	991
14–26 weeks	1,717	2,186	1,625	1,599	2,526	1,691	3,726	1,596	1,293	2,200	1,661	2,442	2,677	1,865	1,998	2,435	2,704	1,998
27–54 weeks	3,313	5,992	3,281	2,642	4,738	3,675	7,041	3,364	3,263	2,765	3,667	2,290	4,979	3,934	6,109	4,050	5,000	3,675
Longer than 55 weeks	6,571	16,351	4,118	9,155	5,101	10,457	7,281	11,788	4,815	5,575	7,454	10,907	9,938	11,635	5,129	7,267	17,756	7,454

Note: Underlying data include nonsurgical claims with more than 7 days of lost time that had injuries arising from October 1, 2005, to September 30, 2006, and prescriptions filled through March 31, 2008.

<sup>a</sup> California and New York had statutory changes in 2007 which impacted the reimbursements for prescription drugs including narcotics in workers' compensation. In California, the statutory changes lowered the prices paid for physician-dispensed prescriptions to the level received for pharmacy-dispensed prescriptions, which impacted the prices paid for physician-dispensed narcotics. The data in this study reflect a mix of experience before and after the changes.

Key: MEA: morphine equivalent amount; PPD: permanent partial disability; Rx: prescriptions; TD: temporary disability.

## GLOSSARY

*Controlled substances* are prescription drugs and illegal drugs that have a potential for producing psychological or physical dependence, and are classified into five schedules by the federal government.

*Intractable pain* is a term that is used and defined in the federal controlled substances regulations and in many state laws. The term generally refers to a pain state in which the cause cannot be removed or otherwise treated, and no relief or cure has been found after reasonable efforts (U.S. Code of Federal Regulations, 2000). It includes pain due to cancer as well as to chronic diseases.

*Intractable pain treatment policy* refers to laws, regulations, or other government-issued policies and guidelines that address the legitimacy of the medical use of opioid analgesics to treat patients with intractable pain. These policies vary in the degree to which opioid treatment for intractable pain is accepted or rejected, and they may include specific restrictions and conditions.

*Intractable Pain Treatment Acts (IPTAs)* are state pain policies created by elected officials, not by organizations representing the medical and scientific communities.

Although IPTAs are not uniform across states, they tend to be more restrictive than other guidelines:

- IPTAs generally define the medical use of opioids for intractable pain as a therapy of last resort.
- IPTAs apply to all intractable pain patients, even if they have cancer.
- IPTAs imply that opioids may be used for pain only in cases where the cause of pain cannot be removed.
- IPTAs exclude pain patients who use drugs "for nontherapeutic purposes."
- IPTAs require an evaluation of every pain patient by a specialist in the organ system believed to be the cause of pain.
- Some IPTAs require a signed informed consent form in every case.

*Narcotic* is a legal term that was used to classify substances such as opioids, under the Single Convention on Narcotic Drugs, 1961, and the U.S. Controlled Substance Act, according to the Pain & Policy Studies Group Resource Guide (PPSG, 1998). Since marijuana and cocaine are also legally classified as *narcotics*, some may prefer to use the terms *opiate* or *opioid* when discussing the medical use of narcotics for pain relief. However, in this report, we used *narcotics* to refer to narcotics prescribed for pain relief.

*Opiate* refers to drugs whose origin is the opium poppy, including codeine and morphine.

*Opioid* denotes both natural (codeine, morphine) and synthetic (methadone, fentanyl) drugs whose pharmacological effects are mediated by specific receptors in the nervous system.

*Prescription drug diversion* is simply the deflection of prescription drugs from medical sources into the illegal market. See Kraman (2004).

*Schedule II narcotics* are narcotics that are classified as Schedule II controlled substances, which are of the highest abuse potential among the controlled substances for medical use. There are five schedules of controlled substances, classified by the Drug Enforcement Administration under federal law, which are based on a drug's medical usefulness and abuse potential.

*Weaker strength narcotics* are those that have a lower analgesic potency and abuse potential than the Schedule II narcotics. These include the Schedule III, IV, and V narcotics classified by the Drug Enforcement Administration under federal law. For example, hydrocodone-acetaminophen is currently classified as Schedule III and hydrocone HCL is classified as Schedule II narcotics. Tramadol is also classified as weaker strength narcotics in our study although it is not scheduled at the federal level.

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