



LONGER-TERM USE OF OPIOIDS

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EXECUTIVE SUMMARY

The dangers of opioid¹ misuse resulting in overdose deaths, addiction, and diversion constitute a top priority public health problem in the United States. The growing public concerns are shared by the workers' compensation health care community. This report examines longer-term use of opioids and how often the recommended monitoring has occurred. The information provided will help public officials identify means to strengthen the design or implementation of public policies related to narcotic use and help payors target efforts to better manage the use of narcotics while providing appropriate care to injured workers and reducing unnecessary risks to patients and unnecessary costs to employers.

SUMMARY OF MAJOR FINDINGS

- Injured workers in several study states were more likely to receive opioids on a longer-term basis than workers in other study states. The highest utilization occurred in Louisiana and New York, where 1 in 6 or 7 injured workers with narcotics were identified as longer-term users of narcotics, among 2009/2011 claims (Figure A).² In Texas, Pennsylvania, South Carolina, California, and North Carolina, the numbers were about 1 in 10. By contrast, fewer than 1 in 20 injured workers with narcotics were identified as longer-term users in several states (Arizona, Wisconsin, New Jersey, Indiana, and Iowa).
- In Texas, efforts have been made within the workers' compensation community to address issues related to utilization of opioids and other prescription drugs. Effective September 1, 2011, Texas adopted a guideline-based closed formulary which is applied to new claims with dates of injury on or after the effective date. In 2013, the formulary will be applied to claims with dates of injury before September 1, 2011.³ According to a recent study by the Texas Department of Insurance, fewer opioids and other "not recommended" drugs were being prescribed after the reform (Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2012). The reform in Texas is likely to have a significant impact on the longer-term use of opioids.⁴

¹ The terms *opioid* and *narcotic* are used interchangeably throughout this report to refer to prescription opioids for pain relief. See the Glossary for a more detailed description of these terms.

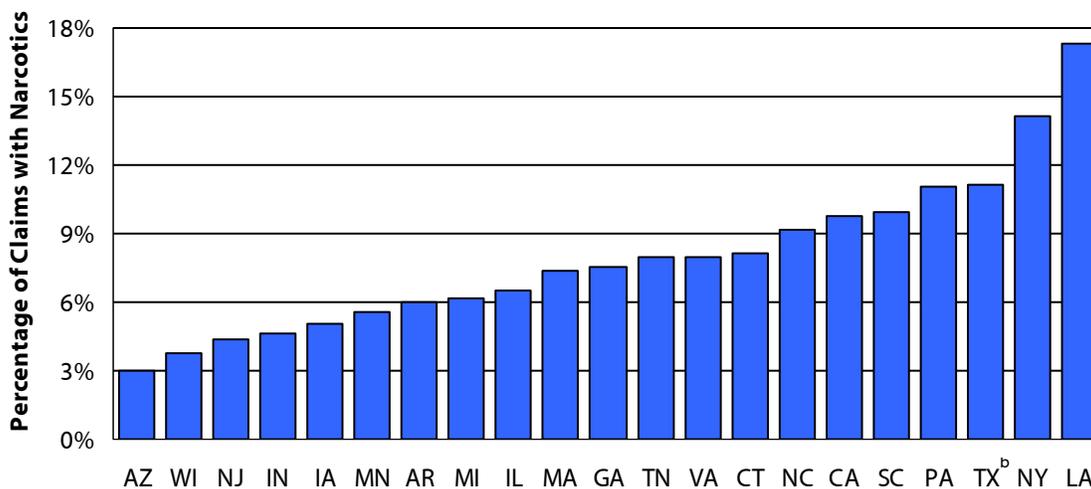
² We defined *longer-term users of narcotics* as those that had narcotics within the first three months after the injury and had three or more visits to fill narcotic prescriptions between the seventh and twelfth months after the injury. The results are based on nonsurgical claims with more than seven days of lost time that had narcotics over the specified period. 2009/2011 represents claims with injuries arising from October 1, 2008, to September 30, 2009, with prescriptions filled through March 31, 2011. See Chapter 2 for more details.

³ The pharmacy formulary rules are available at <http://www.tdi.texas.gov/wc/pharmacy/index.html#rules>.

⁴ Outside workers' compensation, an increasing number of states have made changes to improve the usefulness of the state prescription drug monitoring programs (PDMPs) to prevent overuse and misuse of opioids. In New York, for example, the Internet System for Tracking Over-Prescribing Act, known as *I-STOP*, has been passed to mandate that physicians check the PDMP database prior to prescribing opioids. Tennessee passed a law in 2012 mandating registration with and use of the state PDMP by prescribers. See Clark et al. (2012). Legislation passed in Massachusetts in 2012 mandates registration with the state PDMP by providers who prescribe controlled substances, and requires the public health agency to regulate the use of the PDMP by prescribers prior to seeing a new patient. See <http://www.malegislature.gov/Laws/SessionLaws/Acts/2012/Chapter244>. These changes are also expected to have an impact on curbing the overuse and misuse of opioids.

- In 10 of the 21 states, the percentage of claims with narcotics that were identified as having longer-term narcotic use increased 1–3 percentage points between 2007/2009 and 2009/2011—highest in Louisiana and New York (increased by 3 percentage points). Little change was seen in other study states, except Massachusetts.
- In Massachusetts, the percentage of injured workers with narcotics that had longer-term use of narcotics decreased by nearly 4 percentage points from 11 percent in 2007/2009 to 7 percent in 2009/2011.⁵ The results for Massachusetts may suggest a reversal trend in the prevalence of longer-term narcotic use, which might be explained by several regulatory changes in the state over the study period, including a mandatory physician educational program, which is required for prescribers of controlled substances, and the enhancement of the utility of the state PDMP to promote safe prescribing and dispensing of prescription narcotics in the state.⁶ It is uncertain whether this reversal will necessarily hold for the longer term, but it is certainly worth close monitoring.

Figure A Percentage of Nonsurgical Claims with Narcotics That Were Identified as Longer-Term Users of Narcotics,^a 2009/2011



Notes: The underlying data include nonsurgical claims with more than seven days of lost time that had prescriptions filled and paid for by a workers' compensation payor over the defined period. 2009/2011 refers to claims with injuries occurring in October 1, 2008, through September 30, 2009, and prescriptions filled through March 31, 2011.

^a We identified the longer-term users of narcotics as those who 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 months after the injury. Claims included are those with narcotics.

^b Under the Texas pharmacy closed formulary, which took effect on September 1, 2011, for new claims with dates of injury on or after that date, prescriptions for drugs that are listed as *N* or “not recommended” require pre-approval from the insurance carrier before they can be dispensed. A recent study by the Texas Department of Insurance found that fewer opioids and other not-recommended drugs were being prescribed in Texas after the reform (Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2012). The same formulary will be applied, effective September 1, 2013, to the legacy claims with dates of injury before September 1, 2011.

⁵ It appears that in Massachusetts, the frequency of longer-term narcotic use peaked in 2007/2009 after a 2 percentage point increase from 9 percent in 2006/2008. See Chapter 3 for a more detailed discussion.

⁶ See Massachusetts Department of Public Health, Bureau of Substance Abuse Services. 2010. *Opioid Overdose Prevention Strategies in Massachusetts*.

- Medical treatment guidelines for chronic opioid management recommend the use of monitoring and management services, such as periodic drug screening and testing, and psychological evaluation and treatment.⁷ We continue to find low compliance with the guidelines across states, among injured workers with longer-term use of narcotics.
 - Among 2009/2011 claims with longer-term use of narcotics, 18–30 percent received drug testing in most states studied, with the 21-state median at 24 percent (Table A).⁸ Over the study period, we saw an increase in the use of drug testing—the percentage of workers with longer-term use of narcotics who received at least one drug test increased from 14 to 24 percent in the median state. However, the use of the services was still low.
 - The rate of use of psychological evaluation and treatment services continued to be low. Only 4–7 percent of the injured workers with longer-term narcotic use received these services in the median state (Table A). Even in the state with highest use of these services, only 1 in 4 injured workers with longer-term narcotic use had psychological evaluation and 1 in 6 received psychological treatment. Little change was seen in the frequency of use of these services.

Table A Use of Services Recommended by Guidelines^a for Chronic Opioid Management, among Nonsurgical Claims with Longer-Term Use of Narcotics^b

	21-State Median	Range for States between 20th and 80th Percentile for Each Measure		Range for All 21 Study States	
		Minimum	Maximum	Minimum	Maximum
% of claims that had urine drug testing					
2007/2009	14%	9%	24%	5%	30%
2009/2011	24%	18%	30%	11%	35%
% of claims that had psychological evaluations					
2007/2009	6%	4%	9%	1%	29%
2009/2011	7%	3%	9%	2%	27%
% of claims that had psychological treatments/reports					
2007/2009	6%	3%	7%	1%	11%
2009/2011	4%	2%	6%	1%	17%
% of claims that had active physical medicine^c					
2007/2009	88%	85%	92%	57%	96%
2009/2011	90%	88%	92%	59%	98%

Notes: Included are nonsurgical claims with more than seven days of lost time that had prescriptions filled and paid for by a workers' compensation payor over the defined period. 2007/2009 refers to claims with injuries occurring in October 1, 2006, through September 30, 2007, and prescriptions filled through March 31, 2009; similar notation is used for other years.

^a See Table 2.3 for the definitions of recommended services. Technical Appendix A summarizes the guideline recommendations for chronic opioid management.

^b We identified the longer-term users of narcotics as those who 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 months after the injury. See Chapter 2 for more details.

^c The reader should be cautioned that this measure for Louisiana might be somewhat understated to the extent that the state has some specific coding practices regarding physical therapy.

⁷ Technical Appendix A provides a summary of guideline recommendations for chronic opioid management.

⁸ In this study, drug screening and testing services were identified as paid services that were provided in a nonhospital or hospital setting. The percentage of longer-term narcotic users receiving drug screening and testing reported in this study is somewhat higher than reported in the 2011 narcotics study because the 2011 study did not include drug screening and testing provided in a hospital setting. However, even after this change, we continued to find low compliance with guidelines for the monitoring service. See Chapter 2 for a more detailed discussion.

DATA AND APPROACH

The study uses data comprised of nearly 300,000 nonsurgical workers' compensation claims with more than seven days of lost time⁹ that received at least one prescription for pain medications paid under workers' compensation in 21 states.¹⁰ More than 1.1 million prescriptions for pain medications (including narcotics and non-narcotic pain medications) were associated with these claims. The claims represent injuries arising from October 1, 2006, to September 30, 2009, with prescriptions filled up to March 31, 2011. The underlying data reflect an average of 24 months of experience.

To examine longer-term use of narcotics, we identified a subset of claims 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 medical evaluation and treatment services recommended by medical treatment guidelines for chronic opioid management. We measured the frequency in use of these services to examine the compliance with treatment guidelines.¹¹

LIMITATIONS AND CAVEATS

Several limitations should be noted. First, unlike other WCRI benchmark reports (the CompScope™ series, for example), the claims used for this study may not be representative of all claims in some states. This may occur because of additional exclusions of a few data sources that had less complete information about prescription drugs. For two states, we were also missing data from some large regional insurers.¹² The percentage of claims in the population of each state that were represented by the claims included in our study ranged from 20 to 47 percent, depending on the state. Second, the interstate comparisons in this study were not adjusted for differences across states in the mix of cases and injury severity. However, we believe that the differences are not likely to be large enough to affect the results (see Chapter 2 and Technical Appendix B for more details). Third, 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 utilization of narcotics per claim would increase as claims age, especially in those states with higher proportions of longer-term narcotics users compared with the typical state. This may affect the ultimate rankings for some states on the utilization metrics, but is unlikely to affect the metrics on the frequency in use and longer-term use of narcotics.

⁹ See Chapter 2 for more details about the choice of nonsurgical claims with more than seven days of lost time for the study.

¹⁰ The 21 states are Arizona, Arkansas, California, Connecticut, Georgia, Illinois, Indiana, Iowa, Louisiana, Massachusetts, Michigan, Minnesota, New Jersey, New York, North Carolina, Pennsylvania, South Carolina, Tennessee, Texas, Virginia, and Wisconsin.

¹¹ See Chapter 2 for more details. Also see Technical Appendix A for a summary of guideline recommendations for chronic opioid management.

¹² We do not provide more details because of confidentiality.

1

INTRODUCTION

The dangers of opioid¹ misuse resulting in overdose deaths, addiction, and diversion constitute a top priority public health problem in the United States. Opioids have been widely prescribed for and filled by injured workers—about 55–85 percent of injured workers received narcotics, despite medical recommendations to avoid routine prescription and to limit the use of opioids to more severe pain or pain which is unresponsive to other analgesics.^{2,3} The growing public concerns regarding overuse and abuse, which often result in emergency room visits and even overdose deaths, are shared by the workers' compensation health care community. These concerns are increasingly important public policy issues, given the limited evidence of the effectiveness of opioids in treating chronic noncancer pain.⁴

A previous WCRI study (Wang, Mueller, and Hashimoto, 2011) examined interstate variations in the use and longer-term use of narcotics in 17 states⁵ and highlighted issues regarding compliance with medical treatment guidelines among the injured workers who received narcotics on a longer-term basis.⁶ According to the 2011 narcotics study, longer-term use of narcotics was more frequent in Louisiana as well as in New York, Pennsylvania, Texas, California, Massachusetts, and North Carolina, compared with what was typical of the 17 states. The study also found that few of those longer-term narcotic users received the recommended services for monitoring and managing chronic opioid therapy.

¹ The terms *opioid* and *narcotic* are used interchangeably throughout this report to refer to prescription opioids for pain relief. See the Glossary for a more detailed description of these terms.

² Moreover, narcotics have limited therapeutic effectiveness when prescribed for non-acute pain (see Technical Appendix C).

³ A vast majority (93–97 percent) of injured workers with more than seven days of lost time who had prescriptions paid for by a workers' compensation payor received pain medications (Wang and Liu, 2011). Among those who received pain medications, 59–87 percent received narcotics, as shown in Chapter 3 (Table 3.1).

⁴ Opioids have been accepted as appropriate treatment for cancer pain and acute pain under certain circumstances. For example, according to the American College of Occupational and Environmental Medicine (ACOEM), 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 three weeks after an acute injury). For traumatic injuries and post-operative pain, narcotic pain medications are options for pain relief during two to four weeks of initial treatment, according to ACOEM and other guidelines (American College of Occupational and Environmental Medicine, 2011; Colorado Department of Labor and Employment, 2007a and 2007b). However, there is fear that opioids are ineffective over the long term on treating noncancer pain, and that the prescription of opioids 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 (Collet, 2001; Passik, 2009).

⁵ 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.

⁶ Throughout this report, we will use the term *2011 study* to refer to the earlier WCRI report *Interstate Variations in Use of Narcotics*.

THE SCOPE OF THE REPORT

This report is an update on the part of the 2011 study that examined longer-term use of narcotics and guideline compliance. It is based on the same framework developed in that study. The report covers 21 states and prescriptions filled up to March 2011.⁷ In addition to documenting interstate variations in the longer-term use of narcotics, the study also examines trends in the longer-term use of and compliance with of treatment guidelines over the period from 2007/2009 to 2009/2011.⁸ Future studies will provide updates on overall use of narcotics and may further investigate several issues that are not addressed in this and the 2011 report.⁹

ORGANIZATION OF THE REPORT

This report is organized into four chapters. Chapter 2 describes the data and methods relevant to this report. Chapter 3 reports key findings on the longer-term use of narcotics and compliance with medical treatment guidelines for chronic opioid management in each state. Chapter 4 discusses the implications of the results and the need for future studies.

Three technical appendices are included in the report. Technical Appendix A provides a summary of medical guideline recommendations for chronic opioid management. Technical Appendix B discusses potential issues related to the selection of nonsurgical claims with more than seven days of lost time for the study and describes related sensitivity analyses. Technical Appendix C 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.

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

⁷ The 21 states include Arizona, Arkansas, California, Connecticut, Georgia, Illinois, Indiana, Iowa, Louisiana, Massachusetts, Michigan, Minnesota, New Jersey, New York, North Carolina, Pennsylvania, South Carolina, Tennessee, Texas, Virginia, and Wisconsin. These states are geographically diverse and represent a significant share of the U.S. population, a wide range of industries, and a variety of benefit structures and policies for workers' compensation pharmaceuticals. The 21 states include a wide range of states where medical costs per claim were lower, medium, or higher compared with the national average.

⁸ The underlying data include prescriptions for nonsurgical claims with more than seven days of lost time that had prescriptions filled and paid for by a workers' compensation payor over the defined period. 2009/2011 refers to claims with injuries occurring from October 1, 2008, through September 30, 2009, and prescriptions filled through March 31, 2011. Similar notation is used for other years.

⁹ These issues include: (1) how policies and practices (e.g., state prescription drug monitoring programs and pain policies, guidelines for prescribing narcotics, and workers' compensation policies for pharmaceuticals and narcotics) explain substantial variations across the states in the use of narcotics; (2) to what extent a relatively small number of heavy prescribers and heavy users influence the overall use of narcotics; and (3) how the use of narcotics relates to other medical services, especially surgery and active physical therapy. See Wang, Mueller, and Hashimoto (2011) for a more detailed discussion of these issues.

2

DATA AND METHODS

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

DATA AND REPRESENTATIVENESS

In this study, we included nearly 300,000 nonsurgical claims with more than seven days of lost time that received at least one prescription for pain medications paid under workers' compensation, and more than 1.1 million pain medication prescriptions associated with those claims.^{1, 2} Those claims are from 21 states,³ covering work-related injuries arising from October 1, 2006, to September 30, 2009, with prescriptions filled up to March 31, 2011. The analysis data were extracted from the WCRI Detailed Benchmark/Evaluation database, in which we have detailed prescription transaction data that were collected from workers' compensation payors and their medical bill review and pharmacy benefit management vendors. Table 2.1 provides the number of claims and prescriptions 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).

¹ 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. 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. However, we did not see clear evidence suggesting that this is likely to occur in our data (see Technical Appendix B for more details).

² In this study, we also focus on nonsurgical claims because narcotics may be prescribed to patients with surgery for different reasons, especially for post-surgical care. Evaluation of opioid prescriptions may need to take into account the timing in relation to surgery as well as injury severity and case experience. 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.

³ The 21 states are Arizona, Arkansas, California, Connecticut, Georgia, Illinois, Indiana, Iowa, Louisiana, Massachusetts, Michigan, Minnesota, New Jersey, New York, North Carolina, Pennsylvania, South Carolina, Tennessee, Texas, Virginia, and Wisconsin.

Table 2.1 Claims and Prescriptions Included in the Study

	AR	AZ	CA	CT	GA	IA	IL	IN	LA	MA	MI	MN	NC	NJ	NY	PA	SC	TN	TX ^a	VA	WI
% of claims with Rx that had no surgery	57%	63%	69%	60%	64%	54%	51%	57%	57%	63%	60%	55%	59%	60%	59%	61%	56%	52%	66%	62%	50%
% of all claims with > 7 days of lost time in each state represented by claims in study sample	27%	22%	39%	42%	29%	20%	24%	29%	29%	47%	34%	31%	31%	46%	44%	30%	46%	26%	47%	37%	21%
Number of nonsurgical claims with > 7 days of lost time that received Rx for ...																					
Pain medications	2,542	5,543	90,501	6,670	10,592	3,038	13,290	6,679	4,608	8,032	8,693	5,675	9,638	11,285	19,055	20,022	5,652	8,928	46,260	5,993	5,758
Narcotics	2,310	4,475	60,986	4,271	9,433	2,432	10,281	5,312	4,359	6,389	7,092	4,652	7,881	6,877	14,708	17,150	4,596	7,433	37,578	4,945	4,750
Among nonsurgical claims with > 7 days of lost time, number of prescriptions for ...																					
Pain medications	8,811	16,023	383,202	21,756	38,516	8,559	38,219	20,109	26,209	29,453	17,546	18,774	35,758	20,679	80,605	86,980	21,713	35,588	210,053	23,538	16,246
Narcotics	5,938	9,223	183,809	12,614	21,421	5,144	21,105	13,051	17,356	18,983	9,574	11,932	22,173	10,797	47,599	52,640	13,424	22,325	121,383	14,715	10,461

Note: Underlying data include claims with more than seven days of lost time that had injuries arising from October 1, 2006, to September 30, 2009, and prescriptions filled through March 31, 2011.

^a Under the Texas pharmacy closed formulary, which took effect on September 1, 2011, for new claims with dates of injury on or after that date, prescriptions for drugs that are listed as *N* or “*not recommended*” require pre-approval from the insurance carrier before they can be dispensed. A recent study by the Texas Department of Insurance found that fewer opioids and other not-recommended drugs were being prescribed in Texas after the reform (Texas Department of Insurance, Workers’ Compensation Research and Evaluation Group, 2012). The same formulary will be applied, effective September 1, 2013, to the legacy claims with dates of injury before September 1, 2011.

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.

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 detailed pharmacy data, although improving, was less complete for several data sources in some states, resulting in additional exclusions.⁴ This occurred when a data source in a state did not have complete and adequate data on NDCs and quantities for the prescriptions—the two data elements critical for constructing benchmark metrics for this study. The additional exclusions may affect the representativeness of the data if the claims from those excluded data sources were very different in some way, or had different claim experience. 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 two states, which may affect the representativeness of our data for these two states.⁵ The claims included in our study represent 20–47 percent of all claims in the population for each state (Table 2.1).

IDENTIFYING NARCOTIC PRESCRIPTIONS

We identified narcotic prescriptions based on the therapeutic classification developed by Medi-Span®,⁶ which we linked to the prescription transactions through the NDCs. 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 2.2 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 Schedule II narcotics.⁷ Long-acting Schedule II narcotics are typically in sustained or controlled release form 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 with cumulative use.⁸

⁴ To ensure the accuracy of the utilization metrics used for interstate comparisons and trend analysis, we excluded a few data sources in some states whose data showed unreasonably high or low values for certain measures.

⁵ We do not provide more detailed information regarding the states and data sources due to confidentiality.

⁶ 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 (Medi-Span®, 2005). The Medi-Span® database used in this study covers information about all drug products available in the U.S. market as of March 2011.

⁷ The three categories are consistent with the categories used by other studies regarding the use of narcotics (see Sullivan et al., 2008).

⁸ The side effects of acetaminophen include liver damage if used long term.

Table 2.2 Federal Classification of Controlled Substances

Schedule	Criteria for Classification	Examples of Specific Drugs
Schedule I	The drug or other substance 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 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 HCL (Methadose®) ^a
Schedule III	The drug or other substance 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.	Hydrocodone with acetaminophen (Vicodin®, Norco®), ^b hydrocodone with aspirin (Lortab ASA®)
Schedule IV	The drug or substance 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 (Darvocet-N®)
Schedule V	The drug or substance 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

^a Methadone may be prescribed as a Schedule II analgesic for chronic pain because it is inexpensive. However, its use has been discouraged because of a high risk of overdose death. The drug can also be used for weaning the patient from high dose 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.

^b The Drug Enforcement Administration has expressed interest in moving hydrocodone, which includes Vicodin® and Norco®, 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/docs/drugs_of_abuse_2011.pdf.

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.⁹ For this reason, we classified tramadol (Ultram® and Ultracet®) in our analysis as a weaker strength narcotic.

⁹ There has been discussion about reclassifying tramadol (Ultram® and Ultracet®) as a controlled substance at the federal level. See <http://pain.emedtv.com/tramadol/is-tramadol-a-narcotic.html>.

IDENTIFYING LONGER-TERM USE OF NARCOTICS

To examine chronic opioid therapy and management, we identified claims with the *longer-term use of narcotics* as those 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 months 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.¹⁰ 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.¹¹ However, even for weaker strength narcotics, three or more prescriptions over a six-month period (following the initial six 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 six-month period of treatment.

We also identified a smaller percentage of nonsurgical claims with narcotics that did not receive narcotics within three months postinjury, but otherwise exhibited the same pattern of longer-term use of narcotics as described above. Several reasons may explain this subset of claims. For example, some injured workers might have late onset pain and start pain treatment much later in time.¹² If such cases account for a significant percentage of cases with narcotics, this could overstate the longer-term use of narcotics. In addition, some physicians who follow the current practice guidelines may not prescribe narcotics early in the course of treatment, but use it later when other treatments (e.g., non-narcotic pain medications, over-the-counter painkillers, or other services that may be helpful for pain relief) have failed. It is also possible that some injured workers received narcotics as initial treatment but the narcotic prescriptions were not paid for by a workers' compensation payor. Since we do not see a clear pattern for this group of claims and there is a potential concern of overstating the prevalence of longer-term use of narcotics, we separated the two types of longer-term users and focused on the first type that had early use of narcotics.¹³

¹⁰ 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., 2010). Because our definition is based on the number of fill dates of narcotic prescriptions rather than days of supply, which indicates duration of narcotics consumption, we labeled the category we identified as *longer-term*, rather than *long-term* use of narcotics. Future studies will revisit this definition once we have consistently available data on days of supply.

¹¹ 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 narcotics, 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.

¹² Clinically, it is rare to see patients who do 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. However, the physician co-authors believe that it is rare for clinicians to see patients with late onset pain.

¹³ The longer-term users of narcotics with the early use of narcotics are referred to as *longer-term users* or *Type I longer-term users*. The group of claims that had the pattern of longer-term narcotic use but did not have narcotics within three months after the injury is referred to as *Type II longer-term users* in our discussion. In the analysis presented in Chapter 3, we focus on Type I longer-term users of narcotics.

For the analysis of longer-term use of narcotics, we included a small percentage of claims (less than a half of 1 percent in most states) with an unusually high amount of narcotics.¹⁴ We randomly reviewed some of the cases in this category and did not find evidence suggesting likely data anomalies in these claims. The detailed data review suggested that these were the heavy and prolonged narcotic users who appeared to have filled many prescriptions for the same or different narcotics at short intervals with large quantities. Since heavy and prolonged use of narcotics is an important part of the issues related to longer-term use, we included these claims in the analysis.

MEDICAL GUIDELINE RECOMMENDED SERVICES FOR CHRONIC OPIOID MANAGEMENT

In this report, we also examine the use of some key services recommended by medical treatment guidelines for chronic opioid management, including drug screening testing, psychiatric evaluation and treatment, and active physical therapy.¹⁵ We identified these recommended services using the Current Procedural Terminology (CPT) codes, which are listed in Table 2.3.

Note that, in this report, we identified the guideline recommended services as those paid for by a workers' compensation payor regardless of whether the service was provided in a hospital or nonhospital setting. Because the 2011 narcotics study focused only on nonhospital providers, the frequency in use of these services are somewhat higher in this report than what is reported in the 2011 study, especially for drug screening and testing and active physical therapy. However, this change did not affect the overall findings materially—we continue to find that the recommended services were less frequently received by the injured workers with longer-term use of narcotics when compared with treatment guideline recommendations. We also added several new drug testing codes that have been adopted by most payors since 2010 (see Table 2.3). These codes were not frequently seen in our data over the study period.

MEASURING FREQUENCY OF NARCOTIC USE

Several metrics were used in this report to measure the frequency of narcotic use among nonsurgical claims with pain medications, including the percentage of claims with pain medications that had narcotics and the percentage of cases with narcotics that were identified as longer-term users of narcotics. These and other metrics were constructed based on a weighting method so the results reflect the claim experience in each state for all market segments included.¹⁶

The measures to categorize use of narcotics are based on claims with pain medications, including both 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

¹⁴ The morphine equivalent amount of narcotics was considered unusually high for a claim if the estimated daily dosage (i.e., the total amount of morphine equivalent narcotics received by the claim divided by the duration of receiving narcotic prescriptions) for the claim exceeded 120 milligrams of morphine equivalent narcotics per day. The 120 milligram threshold is the maximal daily dosage typically recommended by most guidelines (e.g., Oregon guidelines for prescribing narcotics [Oregon Health and Science University, 2006]).

¹⁵ Technical Appendix A provides a summary of the general recommendations for chronic opioid management from several widely-accepted treatment guidelines at the national and state level.

¹⁶ 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 Limitations and Caveats section of this chapter.

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 received prescriptions for pain medications (93–97 percent).¹⁷

Table 2.3 CPT4 Codes Used to Identify Specific Services Recommended by Medical Treatment Guidelines for Chronic Opioid Management

CPT Code	Definition
Drug screening	
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
82055	Alcohol (ethanol); any specimen except breath
82075	Alcohol (ethanol); breath
82145	Amphetamine or methamphetamine
82205	Barbiturates, not elsewhere specified
82486	Chromatography, qualitative, column (e.g., gas liquid or high-performance liquid chromatography [HPLC]), analyte not elsewhere specified
82491	Chromatography, quantitative, column (e.g., gas liquid or HPLC); single analyte not elsewhere specified, single stationary and mobile phase
82492	Chromatography, quantitative, column (e.g., gas liquid or HPLC); multiple analytes, single stationary and mobile phase
82520	Cocaine or metabolite
83805	Assay of meprobamate
83840	Methadone
83925	Opiates (e.g., morphine, meperidine)
84022	Phenothiazine
G0430 ^a	Drug screen, qualitative: multiple drug classes other than chromatographic method, by high complexity test method (e.g., immunoassay, enzyme assay), per patient encounter; used by CMS to replace CPT code 80100
G0431 ^a	Drug screen, qualitative: single drug classes other than chromatographic method, by high complexity test method (e.g., immunoassay, enzyme assay), per patient encounter; used by CMS to replace CPT code 80101

continued

¹⁷ The percentage of claims with prescriptions that had prescriptions for pain medications was reported in Wang and Liu (2011).

Table 2.3 CPT4 Codes Used to Identify Specific Services Recommended by Medical Treatment Guidelines for Chronic Opioid Management (continued)

CPT Code	Definition
Psychiatric evaluations	
90801	Psychiatric diagnostic interview examination
90802	Interactive psychiatric diagnostic interview examination using play equipment, physical devices, language interpreter, or other mechanisms of communication
Psychiatric treatment and report	
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
Active physical therapy	
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)

^a New HCPCS codes that have been used by CMS to replace the CPT codes since 2010.

Key: CMS: Centers for Medicare & Medicaid Services; CPT: Current Procedural Terminology; HCPCS: Healthcare Common Procedure Coding System.

Source: American Medical Association (2006); United States Department of Health and Human Services, Centers for Medicare & Medicaid Services (2012).

SENSITIVITY ANALYSIS FOR CLAIM SELECTION

Nonsurgical claims with more than seven days of lost time that received narcotics were used for the analysis. 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. For example, 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 B.

LIMITATIONS AND CAVEATS

Several limitations should be noted. First, 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.¹⁸ 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 two states, we were missing data from some large regional insurers.¹⁹

Second, also unlike other WCRI benchmark reports (the CompScope™ series, for example), we did not use certain statistical techniques to adjust for differences across states in case mix and injury severity for the interstate comparisons in this study. However, based on several WCRI studies previously published, we believe that the differences across states in the case mix and the severity of injuries do not affect the comparative results in a material way.²⁰ Nonetheless, the reader should keep this in mind when interpreting the results.

Third, 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 of narcotic drugs, especially long-acting narcotics, are typically used at a later stage of medical treatment.²¹ As a result, we expect that in some states, the utilization of narcotics would increase as claims age, especially in those states with higher proportions of longer-term narcotic 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 on the utilization metrics, but is unlikely to affect the results on the frequency of use and longer-term use of narcotics and other frequency metrics used in the study.

¹⁸ Although we made sure that the claims included for this study were representative of 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 experiences.

¹⁹ We do not provide more details because of confidentiality.

²⁰ See Belton and Liu (2009) and Yang et al. (2009), which we discuss in Technical Appendix B.

²¹ In a National Council on Compensation Insurance 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.

3

KEY FINDINGS

This chapter presents the key findings on the prevalence of longer-term use of opioids and how closely medical treatment guidelines were followed in each of the 21 study states. We found that longer-term use of opioids continued to be prevalent in workers' compensation, especially in Louisiana and New York, as well as Texas, Pennsylvania, South Carolina, California, and North Carolina.¹ Among these states, the Texas workers' compensation system adopted a pharmacy closed formulary, which went into effect on September 1, 2011, for new claims with dates of injury on or after that date.² A recent study by the Texas Department of Insurance found that fewer opioids and other not-recommended drugs were being prescribed after the reform (Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2012). Effective September 1, 2013, the formulary in Texas will be applied to legacy claims with dates of injury before September 1, 2011. The efforts made in the Texas workers' compensation system are expected to have a significant impact on the use and longer-term use of opioids. Meanwhile, outside workers' compensation, an increasing number of states have had reforms to address issues related to overuse and misuse of opioids. For example, in New York, the Internet System for Tracking Over-Prescribing Act, known as *I-STOP*, has been passed to mandate that physicians check the prescription drug monitoring program (PDMP) database prior to prescribing opioids. Massachusetts and Tennessee passed laws in 2012 mandating registration with and use of the PDMP by prescribers.³

Narcotics were frequently received by the injured workers for pain relief. Figure 3.1 shows that in typical states, more than 3 in 4 injured workers who had more than seven days of lost time, had no surgery but took prescription pain medications received narcotics for pain relief. The figure was higher in Arkansas (87 percent) and lower in several states including Connecticut and New Jersey (59–60 percent).⁴

Longer-term use of narcotics was prevalent in several states studied over the study period. Figure 3.2 shows that among 2009/2011 nonsurgical claims with narcotics, the longer-term use of narcotics was most prevalent in Louisiana and New York, where 1 in 6 or 7 injured workers with narcotics had longer-term use of

¹ By our definition, claims with *longer-term use of narcotics* are those 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 months after the injury. In this report, we focus on nonsurgical claims with more than seven days of lost time. See Chapter 2 for detailed descriptions of the definition and claim selection.

² The formulary will be effective in 2013 for claims with dates of injury before September 1, 2011. The pharmacy formulary rules are available at <http://www.tdi.texas.gov/wc/pharmacy/index.html#rules>.

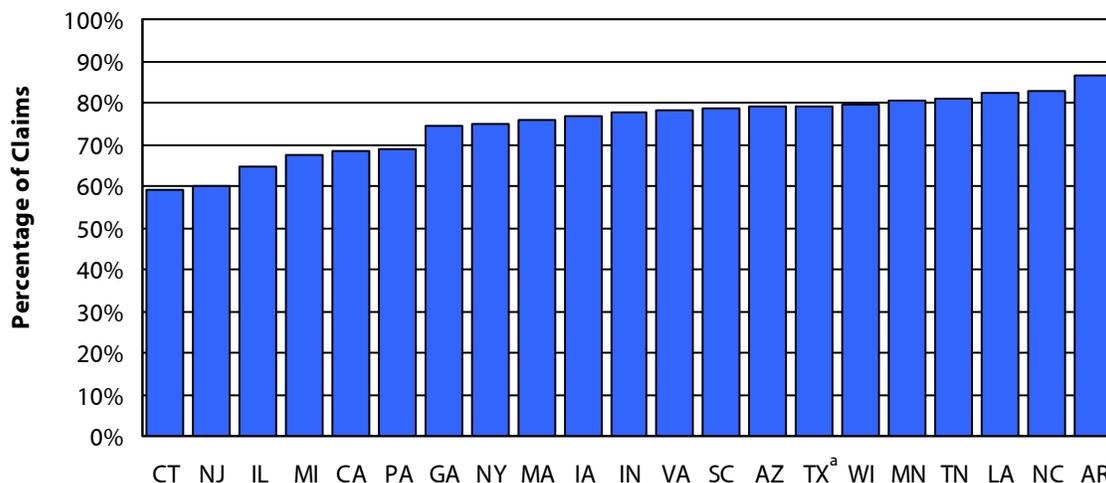
³ See Clark et al. (2012) for more details. Legislation passed in Massachusetts in 2012 mandates registration with the state PDMP by providers who prescribe controlled substances, and requires the public health agency to regulate the use of the PDMP by prescribers prior to seeing a new patient. See <http://www.malegislature.gov/Laws/SessionLaws/Acts/2012/Chapter244>.

⁴ We measure the frequency in use of narcotics based on claims with pain medications, which indicate that the narcotics were prescribed for pain relief. Among the nonsurgical claims with prescriptions, over 90 percent had prescriptions for pain medications across the 23 study states (Table 3.1).

narcotics. In five other states (Texas, Pennsylvania, South Carolina, California, and North Carolina), longer-term narcotic use was also prevalent—about 1 in 10 claims that received narcotics. By contrast, in several Midwest states included in the study (Indiana, Iowa, and Wisconsin), as well as Arizona and New Jersey, the longer-term use of narcotics was seen in 3–5 percent of the injured workers who received narcotics (Figure 3.2). Table 3.1 provides the data underlying Figures 3.1–3.3.

Some injured workers did not receive narcotics within the first quarter postinjury but exhibited the same pattern of longer-term use of narcotics as those identified as longer term users of narcotics.⁵ Figure 3.3 shows that in most states studied, fewer than 3 percent of the claims with narcotics fell in this category. The figure was higher for New York, Louisiana, Massachusetts, Connecticut, and Texas (3–6 percent), in which the claims in this group could contribute significantly to a higher overall use of narcotics. However, we do not focus on this group of claims in this report because of a potential concern of overstating the prevalence of longer-term narcotic use, as discussed in Chapter 2.⁶

Figure 3.1 Percentage of Claims with Pain Medications That Had Narcotics, 2009/2011 Nonsurgical Claims with More Than 7 Days of Lost Time



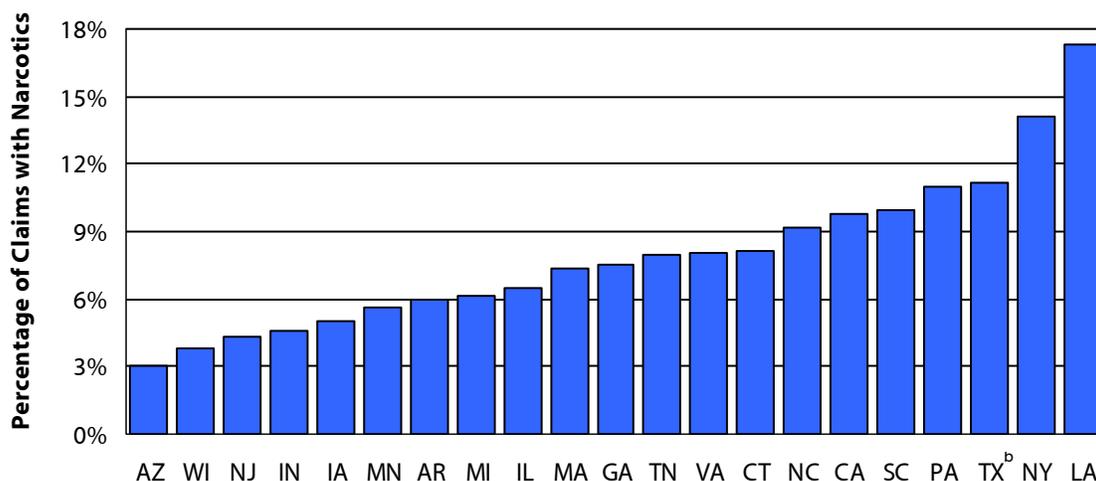
Notes: The underlying data include nonsurgical claims with more than seven days of lost time that had prescriptions filled and paid for by a workers' compensation payor over the defined period. 2009/2011 refers to claims with injuries occurring in October 1, 2008, through September 30, 2009, and prescriptions filled through March 31, 2011.

^a Under the Texas pharmacy closed formulary, which took effect on September 1, 2011, for new claims with dates of injury on or after that date, prescriptions for drugs that are listed as *N* or "not recommended" require pre-approval from the insurance carrier before they can be dispensed. A recent study by the Texas Department of Insurance found that fewer opioids and other not-recommended drugs were being prescribed in Texas after the reform (Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2012). The same formulary will be applied, effective September 1, 2013, to the legacy claims with dates of injury before September 1, 2011.

⁵ Several reasons might explain this subset of claims (referred to as *type II longer-term users*). For example, some injured workers might have had late onset pain and therefore received narcotics later. Physicians who follow treatment guidelines might not prescribe narcotics for low back pain at the beginning of the treatment and prescribed narcotics later, after all other methods have failed. It is also possible that some of these workers filled narcotic prescriptions within three months postinjury but the prescriptions were paid for by a non-workers' compensation payor, and thus did not appear in our data. These are possibilities that may be investigated further in future studies.

⁶ We chose to do so because we did not see clear patterns for this group of claims as to the nature of the treatment. Further investigations are needed to understand the medical conditions and treatment received by these injured workers to help address the management of longer-term use of narcotics when it occurs later.

Figure 3.2 Percentage of Claims with Narcotics That Were Identified as Longer-Term Users of Narcotics,^a 2009/2011 Nonsurgical Claims with More Than 7 Days of Lost Time



Note: The underlying data include nonsurgical claims with more than seven days of lost time that had prescriptions filled and paid for by a workers' compensation payor over the defined period. 2009/2011 refers to claims with injuries occurring in October 1, 2008, through September 30, 2009, and prescriptions filled through March 31, 2011.

^a We identified the longer-term users of narcotics as those who 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 months after the injury (i.e., Type I longer-term users). See Chapter 2 for more details.

^b Under the Texas pharmacy closed formulary, which took effect on September 1, 2011, for new claims with dates of injury on or after that date, prescriptions for drugs that are listed as *N* or "not recommended" require pre-approval from the insurance carrier before they can be dispensed. A recent study by the Texas Department of Insurance found that fewer opioids and other not-recommended drugs were being prescribed in Texas after the reform (Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2012). The same formulary will be applied, effective September 1, 2013, to the legacy claims with dates of injury before September 1, 2011.

Over the study period, several states saw a noticeable increase in the prevalence of longer-term narcotic use. In 10 of the 21 states, the percentage of claims with narcotics that were identified as longer-term users of narcotics increased 1–3 percentage points—highest in Louisiana and New York (Table 3.2). Little change was seen in other states over the same period, except Massachusetts.

In Massachusetts, we observed that the percentage of longer-term users of narcotics decreased by about 4 percentage points, from 11 percent in 2007/2009 to 7 percent in 2009/2011 (Table 3.2). Note that in the 2011 narcotics study, we reported that Massachusetts had 9 percent of nonsurgical cases with narcotics that had longer-term use of narcotics in 2006/2008. We observed the same percentage in the updated data. It appears that there was an increase in the frequency of longer-term use in the state from 2006/2008 to 2007/2009 before the trend reversed in the subsequent years.⁷

⁷ We also reviewed the underlying distribution of the number of prescriptions per claim for narcotics and the amount of narcotics per claim. The patterns at the higher percentiles of the same measure were consistent with the reversal trend for longer-term use of narcotics. Note that the results are descriptive, without adjusting for any factors that may affect the results.

Table 3.1 Frequency in Use of Narcotics among Nonsurgical Claims with More Than 7 Days of Lost Time

	AR	AZ	CA	CT	GA	IA	IL	IN	LA	MA	MI	MN	NC	NJ	NY	PA	SC	TN	TX ^a	VA	WI	21-State Median
Total number of nonsurgical claims that had Rx for pain medications	745	1,724	25,861	2,177	3,219	960	4,022	1,919	1,377	2,304	2,538	1,708	2,840	3,865	6,639	5,766	1,631	2,523	13,788	1,742	1,705	
% of nonsurgical claims with Rx that had pain medications	95%	96%	95%	94%	97%	91%	93%	93%	95%	93%	94%	92%	94%	92%	91%	93%	94%	94%	95%	93%	93%	94%
% of nonsurgical claims with pain medications that had narcotics	87%	79%	68%	59%	74%	77%	65%	78%	83%	76%	67%	81%	83%	60%	75%	69%	79%	81%	79%	78%	80%	78%
% of nonsurgical claims with narcotics that were identified as longer-term users of narcotics ^b	6%	3%	10%	8%	8%	5%	6%	5%	17%	7%	6%	6%	9%	4%	14%	11%	10%	8%	11%	8%	4%	8%
% of nonsurgical claims with narcotics that exhibited the pattern of longer-term narcotic use, but did not receive narcotics within first three months of injury ^c	1.7%	0.9%	2.9%	3.3%	2.1%	1.0%	2.5%	0.9%	4.2%	3.3%	2.2%	1.8%	2.3%	1.6%	6.1%	2.5%	2.8%	1.3%	3.1%	2.2%	1.3%	2.2%

Notes: Underlying data include nonsurgical claims with more than seven days of lost time that had injuries arising from October 1, 2008, to September 30, 2009, and prescriptions filled through March 31, 2011.

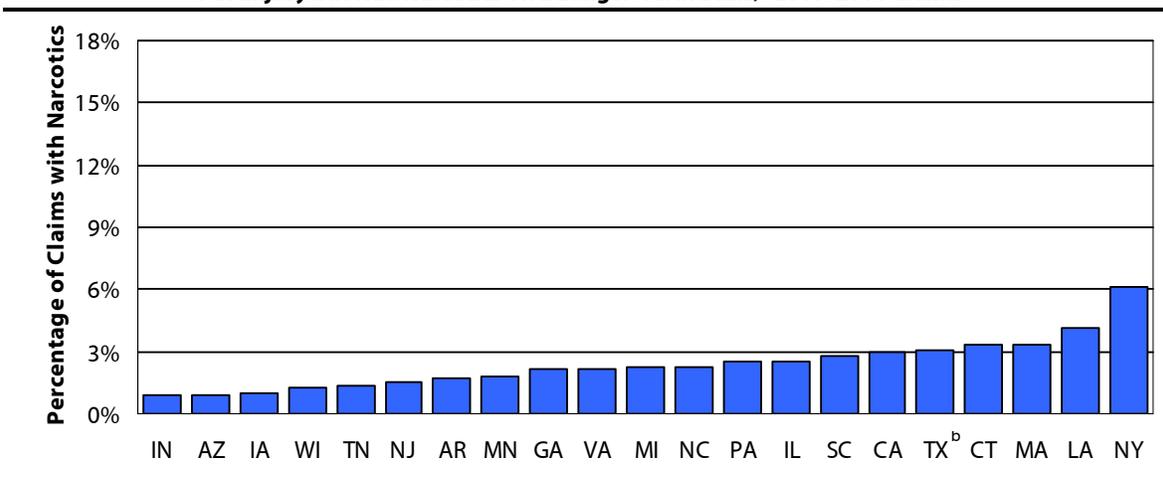
^a Under the Texas pharmacy closed formulary, which took effect on September 1, 2011, for new claims with dates of injury on or after that date, prescriptions for drugs that are listed as *N* or “*not recommended*” require pre-approval from the insurance carrier before they can be dispensed. A recent study by the Texas Department of Insurance found that fewer opioids and other not-recommended drugs were being prescribed in Texas after the reform (Texas Department of Insurance, Workers’ Compensation Research and Evaluation Group, 2012). The same formulary will be applied, effective September 1, 2013, to the legacy claims with dates of injury before September 1, 2011.

^b We identified the longer-term users of narcotics as those who 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 months after the injury. See Chapter 2 for more details

^c We identified a subset of claims that did not have narcotics within the first three months after the injury, but had three or more visits to fill narcotic prescriptions between the seventh and twelfth months after the injury (i.e., Type II longer-term users of narcotics). See Chapter 2 for more details.

Key: Rx: prescriptions.

Figure 3.3 Percentage of Claims with Narcotics That Did Not Receive Narcotics in First Three Months Postinjury but Had Narcotics on a Longer-Term Basis,^a 2009/2011 Claims



Note: The underlying data include nonsurgical claims with more than seven days of lost time that had prescriptions filled and paid for by a workers' compensation payor over the defined period. 2009/2011 refers to claims with injuries occurring in October 1, 2008, through September 30, 2009, and prescriptions filled through March 31, 2011.

- ^a We identified a subset of claims that did not have narcotics within the first three months after the injury, but had three or more visits to fill narcotic prescriptions between the seventh and twelfth months after the injury. See Chapter 2 for more details.
- ^b Under the Texas pharmacy closed formulary, which took effect on September 1, 2011, for new claims with dates of injury on or after that date, prescriptions for drugs that are listed as *N* or “not recommended” require pre-approval from the insurance carrier before they can be dispensed. A recent study by the Texas Department of Insurance found that fewer opioids and other not-recommended drugs were being prescribed in Texas after the reform (Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2012). The same formulary will be applied, effective September 1, 2013, to the legacy claims with dates of injury before September 1, 2011.

Recognizing that more rigorous analysis is needed to draw conclusions as to what may explain the reversal trend in Massachusetts, we provide some background information regarding changes in the policy environment in the state over the study period that might have been associated with the decline in the frequency of longer-term use of narcotics. In the past few years, Massachusetts has made several regulatory efforts to prevent opioid overuse and misuse, including (1) a mandatory educational program, sponsored by the Board of Registration of Medicine, for physicians who prescribe controlled substances, and (2) the enhancement of the utility of the state PDMP.⁸

Although Massachusetts was one of the states that passed the legislation to establish the state PDMP earlier (in 1992), the state PDMP was not actively promoted until fairly recently. Since 2008, a series of regulatory initiatives have been made to enhance the utility of the state PDMP to promote safe prescribing and dispensing of prescription narcotics in the state. In February 2010, for example, the state PDMP began providing unsolicited reports to prescribers on individuals meeting or exceeding a pre-determined threshold

⁸ Many of these efforts were outlined by the Massachusetts Department of Public Health, Bureau of Substance Abuse Services in their 2010 report, entitled *Opioid Overdose Prevention Strategies in Massachusetts*. The report is available at <http://media.masslive.com/breakingnews/other/opioid-strategies-feb2010.pdf>.

Table 3.2 Trends in Percentage of Nonsurgical Claims with Longer-Term Use of Narcotics, 2007/2009–2009/2011

	AR	AZ	CA	CT	GA	IA	IL	IN	LA	MA	MI	MN	NC	NJ	NY	PA	SC	TN	TX ^a	VA	WI	21-State Median
% of nonsurgical claims with narcotics that were identified as longer-term users of narcotics (Type I)^b																						
2007/2009	4%	3%	8%	7%	7%	3%	5%	4%	15%	11%	5%	5%	7%	4%	11%	9%	10%	8%	11%	7%	3%	7%
2008/2010	3%	3%	9%	9%	8%	4%	5%	4%	18%	10%	4%	6%	9%	4%	12%	10%	10%	7%	10%	7%	3%	7%
2009/2011	6%	3%	10%	8%	8%	5%	6%	5%	17%	7%	6%	6%	9%	4%	14%	11%	10%	8%	11%	8%	4%	8%
Percentage point change from 2007/2009 to 2009/2011	2	<1	2	1	<1	2	1	<1	3	-4	<1	<1	2	<1	3	2	<1	<1	<1	<1	1	1
% of nonsurgical claims with narcotics that exhibited the pattern of longer-term narcotic use (Type II)^c																						
2007/2009	<1%	<1%	3%	2%	1%	<1%	2%	<1%	3%	4%	1%	2%	1%	1%	6%	3%	2%	1%	3%	2%	2%	2%
2008/2010	2%	1%	3%	2%	2%	<1%	2%	<1%	3%	4%	2%	2%	3%	2%	6%	3%	4%	2%	2%	3%	1%	2%
2009/2011	2%	<1%	3%	3%	2%	1%	3%	<1%	4%	3%	2%	2%	2%	2%	6%	3%	3%	1%	3%	2%	1%	2%

Notes: The underlying data include nonsurgical claims with more than seven days of lost time that had prescriptions filled and paid for by a workers' compensation payor over the defined period. 2007/2009 refers to claims with injuries occurring in October 1, 2006, through September 30, 2007, and prescriptions filled through March 31, 2009; similar notation is used for other years. For the analysis of longer-term use of narcotics, we included a small number of claims with unusually high amount of narcotics. See Chapter 2 for more details.

^a Under the Texas pharmacy closed formulary, which took effect on September 1, 2011, for new claims with dates of injury on or after that date, prescriptions for drugs that are listed as *N* or "not recommended" require pre-approval from the insurance carrier before they can be dispensed. A recent study by the Texas Department of Insurance found that fewer opioids and other not-recommended drugs were being prescribed in Texas after the reform (Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2012). The same formulary will be applied, effective September 1, 2013, to the legacy claims with dates of injury before September 1, 2011.

^b We identified the longer-term users of narcotics as those who 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 months after the injury. See Chapter 2 for more details.

^c We identified a subset of claims that did not have narcotics within the first three months after the injury, but had three or more visits to fill narcotic prescriptions between the seventh and twelfth months after the injury (i.e., Type II longer-term users of narcotics). See Chapter 2 for more details.

for suspected questionable activities (i.e., potential doctor/pharmacy shopping).^{9, 10} Few states with PDMPs provide unsolicited prescription history reports to providers to assist them in clinical management of their patients. In December 2010, the state online PDMP became operational, providing patient prescription history reports to authorized prescribers and dispensers online.¹¹ In addition, the largest group health insurer in Massachusetts, Blue Cross Blue Shield, recently implemented an industry-leading policy to restrain abuse of opioid prescriptions,¹² which may likely influence the prescribing practice of physicians treating workers' compensation patients. It is worth mentioning that more recent efforts have also been made to address chronic pain management and narcotic use in the Massachusetts workers' compensation community. Effective March 2012, the updated medical treatment guidelines for chronic pain management, which improved the previous guideline significantly by stressing increased physician oversight and monitoring of narcotic use among injured workers with chronic pain, required the use of the guidelines for utilization review by workers' compensation payors.¹³

Because of the potential risks of heavy use and prolonged use of narcotics, most guidelines recommend careful screening of patients prior to the use of chronic opioid therapy and close monitoring and management through drug testing and psychological evaluation and treatment.¹⁴ Guidelines also recommend narcotics be used as part of comprehensive care, including active physical therapy and exercises to promote timely recovery.

In the 2011 narcotics study, we examined the compliance with medical treatment guidelines among the study states in treating injured workers with longer-term use of narcotics, focusing on four types of services recommended (i.e., random drug testing, psychological evaluation, psychological treatment and report, and active physical therapy). We found in the 2011 study that few longer-term users of narcotics received the recommended services.

In this study with more recent data, we continue to find that these services were infrequently received by the injured workers with longer-term use of narcotics. Table 3.3 shows that, in most states studied, 18–30 percent of the injured workers with longer-term use of narcotics received at least one drug testing service in

⁹ A study done by the Massachusetts Department of Public Health showed a significant decrease in some of the per-patient measures reported, including the average number of prescribers, average number of pharmacies where prescriptions were filled, and average days supply, after the unsolicited reports were put in place. A presentation regarding the Massachusetts study can be found at http://www.pmpalliance.org/pdf/PPTs/National2012/3_Young_StatePanelInnovationsMassachusetts.pdf.

¹⁰ The results for Massachusetts are consistent with the findings from a study that examined the impact of “proactive” PDMPs, which generate unsolicited reports to identify patients who filled narcotic prescriptions exceeding a pre-determined threshold on narcotic use and possible abuse (Simeone and Holland, 2006).

¹¹ More details about the Massachusetts Prescription Monitoring Program can be found at http://www.pmpalliance.org/pdf/PPTs/National2012/3_Young_StatePanelInnovationsMassachusetts.pdf.

¹² It requires that new opioid drug prescriptions written for quantities of longer than 30 days must be accompanied by a medical authorization before coverage is approved. Furthermore, all prescriptions for a short-acting opioid must be obtained from just one prescriber or prescribing group and that scripts must be filled at one designated pharmacy or pharmacy chain. See Kelly (2012).

¹³ Massachusetts' medical treatment guidelines can be found at <http://www.mass.gov/lwd/workers-compensation/hcsb/tg/>.

¹⁴ 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 treatment and need close monitoring. Chronic narcotic management requires a comprehensive treatment approach with clear functional goals agreed upon between the physician and patient. Guidelines also recommend 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. See Technical Appendix A for a summary of recommendations by guidelines for chronic opioid management.

2009/2011, with the 21-state median at 24 percent.¹⁵ Even for the state with the highest rate on this measure (Georgia), 35 percent of injured workers with longer-term use of narcotics received drug testing. Over the study period, the same measure increased by 7 percentage points in the median of the 21 states, and increased more rapidly in Arizona and California (greater than 15 percentage points) and Massachusetts, Minnesota, New York, Texas, and Wisconsin (10–15 percentage points).¹⁶ However, the utilization of drug testing was still low.¹⁷

For psychological evaluation, treatment and report, we continued to find that few longer-term users of narcotics had these recommended services, with the results consistent across the study period. As Table 3.3 shows, less than 10 percent of the longer-term users received psychological evaluations in all states except North Carolina (11 percent), Wisconsin (17 percent), and Texas (27 percent). Even in Texas, the state with the highest frequency of these services, only about 1 in 4 longer-term users had psychological evaluations. The use of psychological treatment services was infrequent, even in the states with the highest use of such services (Table 3.3).

An important purpose of narcotic therapy is to facilitate active physical therapy that is aimed at restoring functioning and promoting recovery. 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 in 9 of the 21 study states, more than 10 percent of the longer-term users did not receive active physical therapy (Table 3.3). Louisiana had the lowest rate of use—it appears that more than one-third of the injured workers in Louisiana who had longer-term use of narcotics did not receive active physical therapy.¹⁸

It is worth noting that some of the longer-term narcotic users identified based on our definition may not have had chronic pain, which would necessitate chronic narcotics management, but instead had episodic pain or short-term pain from a source other than the original injury. Even if we assume that there were a considerable number of such cases, the frequency of using the recommended services for chronic narcotics management was surprisingly low. On the other hand, those injured workers who had episodic or short-term pain and received narcotics on a longer-term basis might be unnecessarily exposed to the risk of side effects, addiction, and even overdose death. For those injured workers, more accurate diagnosis of medical conditions and initial screening for chronic opioid therapy are important to avoid unnecessary harm. Our findings raise 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.

¹⁵ By most states, we mean the states with the values on the measure between the 20th and 80th percentile.

¹⁶ Note that in the 2011 narcotics study, the drug screening and testing services provided and billed by a hospital provider were not included in the underlying data, which may have understated the use of drug testing by 5–8 percentage points for six states. In this study, we identified all paid drug screening and testing services regardless of whether the service was provided in a nonhospital or hospital setting. See Chapter 2 for a more detailed discussion.

¹⁷ Note that the frequency in use of drug testing among the longer-term users of narcotics appeared to be somewhat higher than what was reported in the 2011 study, among 2006/2008 claims. We see this in a number of data sources and states, which might have been due to the identification of additional data associated with drug testing for the claims, as part of data submission. This is unlikely to affect the trends reported because the same process was used within a data source.

¹⁸ The reader should be cautioned that this measure for Louisiana might be somewhat understated to the extent that the state has some specific coding practices regarding physical therapy.

Table 3.3 Use of Services Recommended by Guidelines^a for Chronic Narcotics Management, among Nonsurgical Claims Identified as Longer-Term Users of Narcotics^b

	AR	AZ	CA	CT	GA	IA	IL	IN	LA ^c	MA	MI	MN	NC	NJ	NY	PA	SC	TN	TX ^d	VA	WI	21-State Median
% of claims that had urine drug testing^e																						
2007/2009	11%	9%	9%	15%	25%	n/a	8%	n/a	23%	10%	12%	5%	29%	n/a	14%	13%	26%	30%	14%	23%	10%	14%
2009/2011	12%	29%	26%	20%	35%	n/a	11%	n/a	24%	20%	12%	15%	33%	25%	24%	20%	33%	31%	29%	30%	20%	24%
Percentage point change	1	20	17	5	9	n/a	3	n/a	1	10	0	10	4	n/a	10	7	6	1	14	7	10	7
% of claims that had psychological evaluations																						
2007/2009	n/a	7%	5%	1%	4%	n/a	5%	5%	10%	7%	6%	5%	10%	4%	6%	4%	12%	6%	29%	8%	4%	6%
2009/2011	n/a	2%	4%	2%	7%	4%	2%	n/a	9%	8%	8%	7%	11%	6%	4%	3%	9%	7%	27%	7%	17%	7%
Percentage point change	n/a	-5	0	1	3	n/a	-3	n/a	-1	1	1	2	0	2	-1	-1	-3	2	-2	-1	13	0
% of claims that had psychological treatments/reports																						
2007/2009	n/a	6%	1%	1%	6%	n/a	4%	3%	6%	3%	11%	8%	6%	2%	5%	3%	10%	4%	10%	6%	6%	6%
2009/2011	n/a	2%	1%	2%	4%	n/a	4%	1%	6%	6%	7%	4%	3%	3%	6%	3%	9%	2%	11%	2%	17%	4%
Percentage point change	n/a	-4	0	1	-2	n/a	1	-1	0	3	-5	-4	-3	2	1	0	-1	-2	1	-4	11	0
% of claims that had active physical medicine^e																						
2007/2009	85%	96%	88%	87%	92%	94%	92%	95%	57%	89%	91%	93%	88%	89%	83%	81%	85%	90%	83%	88%	87%	88%
2009/2011	88%	92%	90%	92%	90%	96%	89%	91%	59%	89%	91%	98%	87%	89%	83%	87%	93%	91%	90%	89%	90%	90%
Percentage point change	3	-4	2	4	-2	2	-3	-3	3	0	0	5	-1	1	1	6	7	1	7	1	3	1

Notes: The underlying data include nonsurgical claims with more than seven days of lost time that had prescriptions filled and paid for by a workers' compensation payor over the defined period. 2007/2009 refers to claims with injuries occurring in October 1, 2006, through September 30, 2007, and prescriptions filled through March 31, 2009; similar notation is used for other years.

^a Technical Appendix A summarizes the guideline recommendations for longer-term narcotic management.

^b We identified the longer-term users of narcotics as those who 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 months after the injury (i.e., Type I longer-term narcotic users). See Chapter 2 for more details.

^c The reader should be cautioned that this measure for Louisiana might be somewhat understated to the extent that the state has some specific coding practices regarding physical therapy.

^d Under the Texas pharmacy closed formulary, which took effect on September 1, 2011, for new claims with dates of injury on or after that date, prescriptions for drugs that are listed as *N* or “not recommended” require pre-approval from the insurance carrier before they can be dispensed. A recent study by the Texas Department of Insurance found that fewer opioids and other not-recommended drugs were being prescribed in Texas after the reform (Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2012). The same formulary will be applied, effective September 1, 2013, to the legacy claims with dates of injury before September 1, 2011.

^e In this analysis, all recommended services were identified as those paid services provided and billed by hospital and nonhospital providers. The figures were somewhat higher than those reported in the 2011 narcotics study (Wang, Mueller, and Hashimoto, 2011) for urine drug testing and active physical therapy because the hospital services were not included in the underlying data for the 2011 study.

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

4

IMPLICATIONS AND CONCLUSIONS

Since the late 1990s, the use of prescription opioids has increased very rapidly, coinciding with a sharp increase in the per capita death rate in the United States due to unintended drug overdose.¹ Several studies also found a strong correlation between states with the highest drug poisoning mortality and those with the highest opioid consumption.² For patients with occupational injuries, a higher use of opioids may also lead to addiction, increased disability or work loss, and even death.³ Although this report does not address these issues directly, the findings on trends and interstate variations in the longer-term use of opioids help identify means to strengthen the design or implementation of public policies related to narcotic overuse prevention and help payors target efforts to better manage the use of opioids while providing appropriate care to injured workers and reducing unnecessary risks to patients and unnecessary costs to employers.

Longer-term use of opioids has a greater potential for overuse, abuse, and diversion, and also puts injured workers at a 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. For the states with a higher proportion of longer-term narcotic users (Louisiana, New York, Texas, Pennsylvania, South Carolina, California, and North Carolina), especially those that saw an increased prevalence of longer-term use (Louisiana and New York), 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 opioids.

In recent years, an increasing number of states have made legislative or regulatory changes, within and outside workers' compensation, to address issues related to overuse and misuse of opioids. The Texas Division of Workers' Compensation adopted a pharmacy closed formulary, which is based on the Official Disability Guidelines (ODG). The formulary went into effect on September 1, 2011, for new claims with dates of injury on or after that date. The formulary will be effective on September 1, 2013 for legacy claims with dates of injury before September 1, 2011. According to a recent study by the Texas Department of Insurance, fewer opioids and other not-recommended drugs were being prescribed after the reform (Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2012). The changes in the Texas workers' compensation system are expected to have a significant impact on the longer-term use of opioids.

Some states have also adopted or updated treatment guidelines for chronic pain, specifically requiring the treating physicians to screen their patients prior to conducting chronic opioid therapy, to conduct random

¹ 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).

² See Okie (2010), Paulozzi and Ryan (2006), Hall et al. (2008), Dunn et al. (2010), and U.S. Department of Health and Human Services, Centers for Disease Control and Prevention (2010).

³ See Kidner, Mayer, and Gatchel (2009) and Franklin et al. (2005).

drug screening and testing, and to refer the patient to specialists for pain management and psychological/psychiatric consultation. Outside workers' compensation, an increasing number of states have passed legislation to address overuse and misuse of opioids. The most common changes include mandatory educational programs for providers who prescribe controlled substances, and requirements for physicians to check the state PDMP database prior to prescribing opioids. For example, New York recently passed the landmark I-STOP legislation, which includes, among other things, the requirement of real time submission of prescription transactions to the state PDMP and the mandate for all the prescribing physicians to check patient prescription history prior to prescribing opioids.⁴ Massachusetts and Tennessee passed legislation in 2012 mandating registration with and use of the PDMP by prescribers.⁵ Ongoing research on opioid use and longer-term use provides opportunities to monitor and evaluate these and other changes in policies aimed at controlling opioid overuse.

We saw an increase in the use of random drug testing among injured workers with longer-term use of narcotics in many states over the study period. However, the compliance with guidelines regarding the use of drug screening, as well as psychological evaluation and treatment, continued to be low among the study states. These recommended services may help to prevent some injured workers from unnecessary, and more often harmful, problems associated with longer-term narcotics use; they 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.

The noticeable decline in the frequency of longer-term narcotic use in Massachusetts is also worth noting. It is uncertain whether this reversal trend will continue, but it is certainly worth close monitoring. Massachusetts' experience may provide an opportunity to examine the impact of state policies aimed at preventing narcotic overuse.

CONCLUDING REMARKS

By highlighting changes in the prevalence of longer-term narcotic use in several states and substantial interstate variation in the use and longer-term 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 21 study states. Some providers may subsequently modify their practice patterns after seeing the practice norms. Limited in the scope of what policy questions this report can answer, this update leaves many important policy questions unanswered. Future studies should focus on providing insights as to which policies or initiatives are effective at reducing unnecessary use of narcotics and longer-term use of narcotics that may put some injured workers at risk for unnecessary harm.

⁴ Information about New York's I-STOP legislation can be found at <http://www.ag.ny.gov/sites/default/files/press-releases/2012/ISTOP%20REPORT%20FINAL%201.10.12.pdf>.

⁵ See Clark et al. (2012) for more details. Legislation passed in Massachusetts in 2012 mandates registration with the state PDMP by providers who prescribe controlled substances, and requires the public health agency to regulate the use of the PDMP by prescribers prior to seeing a new patient. See <http://www.malegislature.gov/Laws/SessionLaws/Acts/2012/Chapter244>.

TECHNICAL APPENDIX A: MEDICAL TREATMENT GUIDELINE PRINCIPLES FOR CHRONIC OPIOID MANAGEMENT

A number of extensive medical treatment guidelines have been developed to assure appropriate use of chronic opioid therapy. Table TA.A1 provides a summary of the general guideline recommendations. The medical treatment 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 these guidelines reflect the input of only a limited group of practitioners. The congruence among the recommendations speaks to a general consensus regarding chronic opioid management.

The medical treatment guidelines all advise a similar approach. Prior to receiving chronic opioid therapy, patients should be carefully screened for signs of aberrant drug-related 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.

After extensive counseling, a detailed consent form 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 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 medical treatment 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, Clark, and Angst, 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.A1 Summary of Medical Treatment Guideline Recommendations for Chronic Opioid Management

Guideline	Recommended Screening	Long Acting vs. Short Acting	Physician to Check PDMP Regularly	Maximum Dose to Be Exceeded with Caution	Requires Recording of Functional Status with Each Visit	Urine Drug Screening	Recommended Co-therapies
American College of Occupational and Environmental Medicine (2011)	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 Medicine (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 2010 and Fee Schedule Rule 18 (2011)	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	120 MEQ	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 Treatment of Pain (2004)	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 (2011) ^a	Screening 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 (2009)	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)	Screening for substance abuse and psychological conditions and referrals 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.

^a For the 2011 study, one reviewer raised a question as to whether the Official Disability Guidelines fully met the inclusion criteria outlined in Technical Appendix A (Wang, Mueller, and Hashimoto, 2011).

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

Sources: American College of Occupational and Environmental Medicine, 2011; Chou et al., 2009; National Opioid Use Guideline Group, 2010; Colorado Department of Labor and Employment, 2011; Federation of State Medical Boards of the United States, Inc., 2004; Work Loss Data Institute, 2011; Utah Department of Health, 2009; and Washington State Agency Medical Directors Group, 2010.

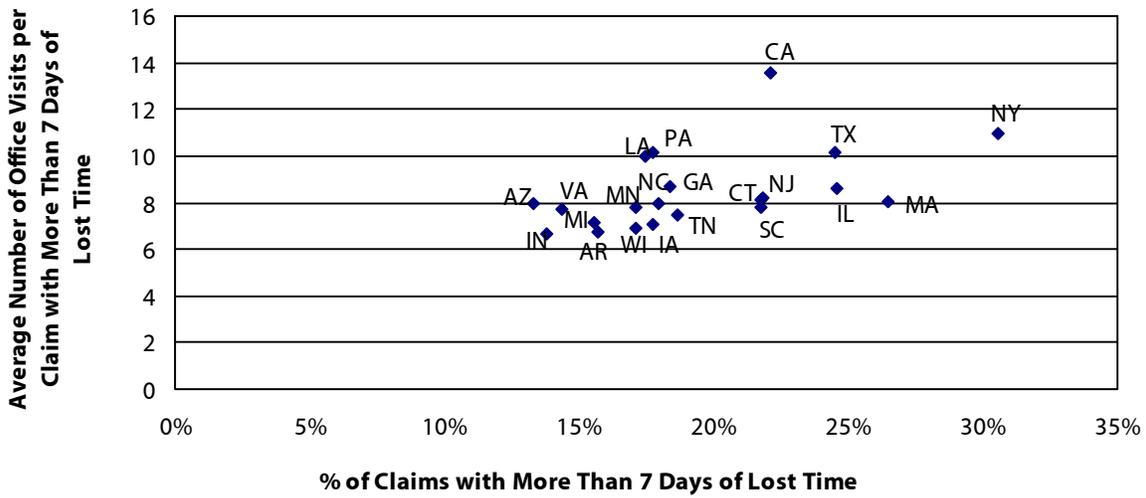
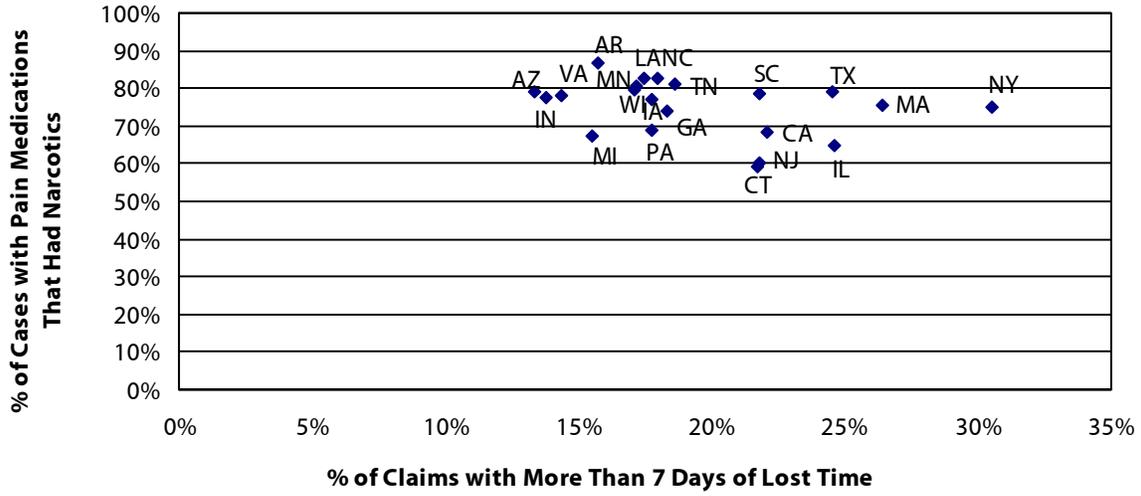
TECHNICAL APPENDIX B: SENSITIVITY OF SELECTING NONSURGICAL CLAIMS WITH MORE THAN 7 DAYS OF LOST TIME THAT RECEIVED NARCOTICS

In this report, the analysis is 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. Here, we discuss potential issues related to such a selection 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 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 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 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.B1).

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.B2).

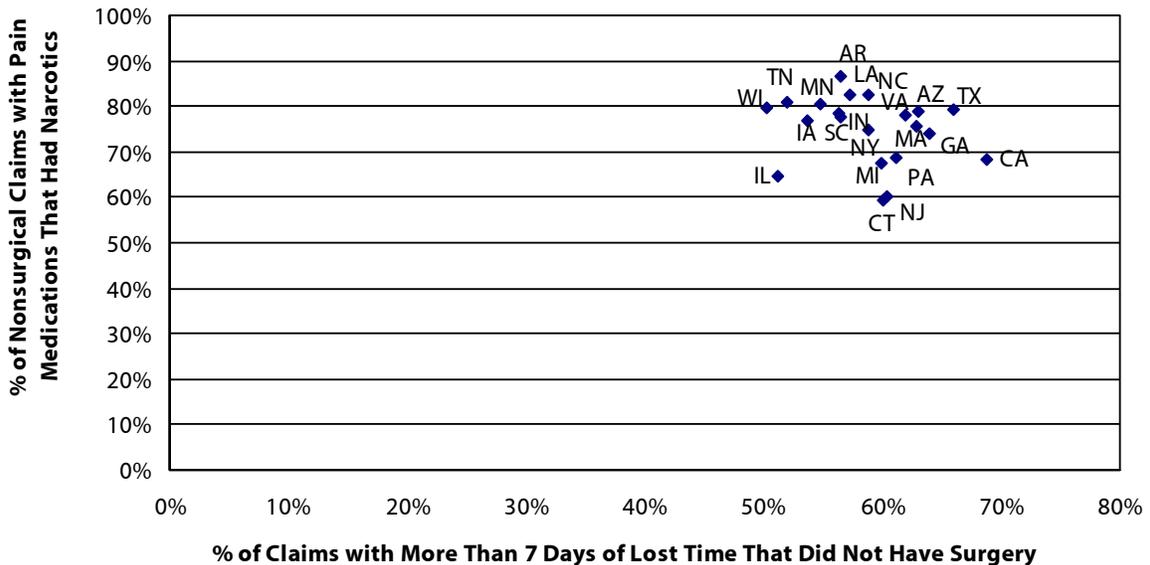
Figure TA.B1 Assessing Potential Bias of Selecting Claims with More Than 7 Days of Lost Time



Note: Underlying data include nonsurgical claims with more than seven days of lost time that had injuries arising from October 1, 2008, to September 30, 2009, and prescriptions filled through March 31, 2011.

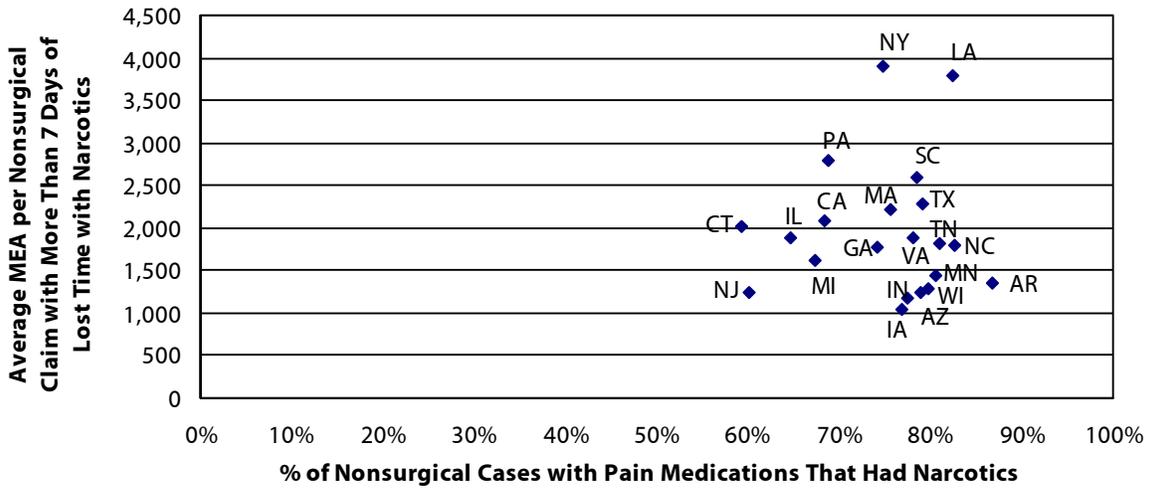
Third, we examined the interstate variations in the use and longer-term use of narcotics among nonsurgical cases that received narcotics. Since injured workers with pain can be treated in various ways, depending on the treating physician’s diagnosis and choice of treatments, including using prescription non-narcotic pain medications, a potential concern could be that different physicians may have different thresholds for 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.B3).

Figure TA.B2 Assessing Potential Bias of Selecting Nonsurgical Claims with More Than 7 Days of Lost Time



Note: Underlying data include nonsurgical claims with more than seven days of lost time that had injuries arising from October 1, 2008, to September 30, 2009, and prescriptions filled through March 31, 2011.

Figure TA.B3 Assessing Potential Bias of Selecting Nonsurgical Claims with Narcotics



Note: Underlying data include nonsurgical claims with more than seven days of lost time that had injuries arising from October 1, 2008, to September 30, 2009, and prescriptions filled through March 31, 2011.

Key: MEA: morphine equivalent amount.

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

The reader may want to know what might explain the results we observed in the use of narcotics for each state. We do not analyze the possible factors that might influence the utilization and prescribing patterns of narcotics in this 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 about the health care delivery system. We do not discuss how these factors directly impact our results.

PRESCRIPTION DRUG MONITORING PROGRAMS

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),¹ 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 2.2 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 aimed at preventing the abuse and diversion of narcotics includes, but is not limited to, the statewide PDMPs, 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.² State PDMPs vary in their objectives and operation. 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.C1 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).

¹ 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 manufacturers and wholesale distributors to the retail level. The transaction data are available for use in investigations of illegal diversions from manufacturers and wholesalers to retail distributors, such as physicians and pharmacists, who receive unusual quantities of certain drugs. See United States General Accounting Office (GAO) (2002) and Kraman (2004).

² 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.C1 State Prescription Drug Monitoring Programs^a

	Year Operational	Year Enacted	Requested Reporting by Pharmacies/Physicians	Schedule of Drugs Covered	Details^b
Arizona	2008	2007	n/a	II, III, IV	Carisoprodol (Soma®) is considered as Schedule II in Arizona
Arkansas	Not yet operational	2011	Yes/Yes	II, III, IV, V	Other drugs monitored include carisoprodol (Soma®) and tramadol (Ultram® and Ultracet®)
California	1939	1939	Yes/Yes	II, III, IV	Originally enacted in 1939, physicians were required to obtain state-issued prescription forms
Connecticut	2008	2007	Yes/No	II, III, IV, V	
Georgia	Pending	2011	Yes/Yes	II, III, IV, V	
Illinois	1968	1961	Yes/Yes	II, III, IV, V	
Indiana	1998	1997	Yes/Yes	II, III, IV, V	Patient profiles not available to physicians
Iowa	2009	2006	Yes/No	II, III, IV, V	
Louisiana	2008	2006	Yes/Yes	II, III, IV, V	
Massachusetts	1994	1992	n/a	II, III, IV, V	Patient profiles not available to physicians
Michigan	1989	1988	Yes/Yes	II, III, IV, V	Patient profiles not available to physicians
Minnesota	2010	2007	Yes/Yes	II, III, IV, V	
New Jersey	2012	2008	Yes/ n/a	II, III, IV, V	
New York	1973	1972	Yes/Yes	II, III, IV, V	Originally enacted in 1972, physicians were required to obtain state-issued prescription forms
North Carolina	2007	2005	Yes/No	II, III, IV, V	
Pennsylvania	1973	1972	Yes/No	II	PDMP data only made available to law enforcement
South Carolina	2008	2006	Yes/Yes	II, III, IV, V	
Tennessee	2007	2003	Yes/Yes	II, III, IV, V	
Texas	1982	1981	Yes/No	II, III, IV, V	Physicians are required to obtain state-issued prescription forms; carisoprodol (Soma®) is considered as Schedule IV in Texas
Virginia	2003	2002	Yes/Yes	II, III, IV, V	
Wisconsin	Not yet operational	2010	n/a	II, III	

^a Information included is based on the state profiles, which are available at <http://www.pmpalliance.org/content/state-profiles>.

^b Information are partially from 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: n/a: not available; PDMP: prescription drug monitoring program.

INTRACTABLE PAIN STATUTES AND POLICIES

Policymakers and the medical profession have not only focused on preventing abuse and diversion of controlled substances, but have also expressed concern about the medical need to identify and treat pain effectively. The intractable pain statutes and policies were adopted by states to offset the negative impact of historical regulations on legitimate medical practices and the undue burdens for practitioners and patients. Since 1990, states adopted statutes, regulations, policies, and guidelines to encourage appropriate pain management, including the prescription of opioids for chronic pain. This approach recognizes that

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

Table TA.C2 provides a listing of statutes, regulations, policies, and guidelines that relate to the prescription of narcotics for intractable or chronic pain.

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 grades to evaluate state pain legislation and policies.³ Table TA.C2 lists the grade which the PPSG assigned to each state. A higher grade is given to those states that have laws and policies which ensure the medical availability of pain medications.

ASSESSING THE IMPACT OF PDMPs AND INTRACTABLE PAIN LAWS ON NARCOTIC PRESCRIPTIONS

The development of 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 provide a rough assessment of how the long-standing statewide PDMPs and state intractable pain policies correlated with the level of narcotic use we observed among the study states. We found some correlations overall based on the 21-state data (Table TA.C3). We found a negative correlation between long-standing state PDMPs and the percentage of pain prescriptions that were narcotics and Schedule II narcotics. We found a positive correlation between the higher grades assigned for having effective intractable pain laws and policies and the percentage of pain prescriptions for Schedule II narcotics. However, evaluating the impact of these policies on the use of narcotics needs more rigorous analysis with additional data.

³ The PPSG's grading criteria are based on evaluating policies affecting drug availability, 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.C2 A Summary of State Pain Policies

State	Statutes and Regulations	Policies and Guidelines	Grade Assigned by Pain & Policy Studies Group in 2008 ^a
Arizona	n/a	Medical Board Guideline (2003) Osteopathic Board Guideline (2000) Nursing Board Guideline (2009)	B+
Arkansas	Chronic Intractable Pain Act, 17-950701 (2003)		C+
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
Connecticut	Intractable Pain Statute, 38a-492i (2001)	Medical Examining Board Statement (2005) Board of Examiners for Nursing Statement (2006)	B
Georgia	Medical Board Rule, 360-3.02	Composite State Board of Medical Examiners (2008)	B
Illinois	n/a		C
Indiana	n/a		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
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)	n/a	C+
New York	n/a	Board of Medicine Policy Statement (2007)	C
North Carolina	n/a	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+
South Carolina	n/a	Medical Board Pain Management Guideline (2009) Joint Position Statement on Pain Management for the South Carolina Board of Nursing and South Carolina Board of Pharmacy (2009)	C+

continued

Table TA.C2 A Summary of State Pain Policies (continued)

State	Statutes and Regulations	Policies and Guidelines	Grade Assigned by Pain & Policy Studies Group in 2008 ^a
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
Virginia	n/a	Board of Medicine Policy Statement (2004) Medical Society of Virginia's Guidelines for the Use of Opioids in the Management of Chronic, Non-Cancer Pain (1997)	A
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

^a The Pain & Policy Studies Group at the University of Wisconsin School of Medicine and Public Health issued a report card in July 2008 that assigned grades to evaluate state pain legislation and policies.

Key: n/a: not available in the *Database of State Statutes, Regulations, and Other Official Governmental Policies*.

Source: Pain & Policy Studies Group, *Database of State Statutes, Regulations, and Other Official Governmental Policies*, <http://www.painpolicy.wisc.edu/matrix.htm>.

Table TA.C3 Relationship between Statewide Prescription Drug Monitoring Programs, State Pain Policies, and the Use of Schedule II Narcotics among the 21 Study States

	AR	AZ	CA	CT	GA	IA	IL	IN	LA	MA	MI	MN	NC	NJ	NY	PA	SC	TN	TX ^a	VA	WI
% of Rx for pain medications that were for narcotics	67%	54%	48%	57%	53%	55%	55%	63%	66%	62%	56%	65%	61%	53%	58%	60%	60%	63%	58%	62%	65%
% of Rx for pain medications that were for Schedule II narcotics	10%	15%	3%	23%	7%	7%	6%	6%	7%	30%	6%	19%	14%	21%	15%	24%	15%	11%	2%	16%	18%
Year in which the state PDMP was operational ^b	n/o	2008	1939	2008	n/o	2009	1968	1998	2008	1994	1989	2010	2007	2012	1973	1973	2008	2007	1982	2003	n/o
Number of years since state PDMP was operational ^b	0	3	72	3	0	2	43	13	3	17	22	1	4	-1	38	38	3	4	29	8	0
Grade for state pain policy, by the Pain & Policy Studies Group ^c	C+	B+	B	B	B	B	C	C+	C	B+	A	B+	B	C+	C	C+	C+	C	C	A	A
Numeric value assigned to the grades ^d	3.5	4.5	4.0	4.0	4.0	4.0	3.0	3.5	3.0	4.5	5.0	4.5	4.0	3.5	3.0	3.5	3.5	3.0	3.0	5.0	5.0

Note: Underlying data include nonsurgical claims with more than seven days of lost time that had injuries arising from October 1, 2008, to September 30, 2009, and prescriptions filled through March 31, 2011.

^a Under the Texas pharmacy closed formulary, which took effect on September 1, 2011, for new claims with dates of injury on or after that date, prescriptions for drugs that are listed as *N* or “not recommended” require pre-approval from the insurance carrier before they can be dispensed. A recent study by the Texas Department of Insurance found that fewer opioids and other not-recommended drugs were being prescribed in Texas after the reform (Texas Department of Insurance, Workers’ Compensation Research and Evaluation Group, 2012). The same formulary will be applied, effective September 1, 2013, to the legacy claims with dates of injury before September 1, 2011.

^b To assess the correlation between statewide PDMPs and the use of narcotics and Schedule II narcotics, we counted the number of years from the year a state PDMP became operational to 2011. We found a negative correlations (-0.4430, -0.3224; $p < 0.01$) between the number of years since PDMP was operational and the percentage of pain prescriptions that were narcotics and Schedule II narcotics, respectively. The number of years after operational PDMP was assigned to 0 if the state PDMP was enacted but not operational as of 2011. See Table TA.C1 for more information about state PDMPs.

^c The Pain & Policy Studies Group at the University of Wisconsin School of Medicine and Public Health issued a report card in July 2008 that assigned grades to evaluate state pain legislation and policies (Pain & Policy Studies Group, 2010).

^d To assess the correlation, we converted the grades for state pain policies linearly to numerals and found a positive correlation (0.3131, $p < 0.01$) between the converted grades and the percentage of pain prescriptions for Schedule II narcotics. No correlation was seen between the converted grades and the frequency of narcotics as a percentage of pain prescriptions.

Key: n/o: not operational; PDMP: prescription drug monitoring program; Rx: prescriptions.

TREATMENT GUIDELINES

Several medical treatment guidelines for pain management and prescribing narcotics 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 medicine 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 noncancer pain is weak or questionable.⁴ Some states have adapted national guidelines, while other states have developed their own occupational or general treatment guidelines for prescribing narcotics.⁵

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-related 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 A 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 with non-specialists, this could increase the use of narcotics in these states.

In states where more of the 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

⁴ 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 Noble 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 therapy can be small (Cepeda et al., 2007; Landau et al., 2007, and Noble et al., 2010).

⁵ 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.

regulates hospital accreditation.⁶ 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 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 review and preauthorization requirements 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.

⁶ 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, which may include the prescription of opioids. See <http://www.ipcaz.org/pages/new.html> for a summary of the requirements.

GLOSSARY

Chronic opioid management refers to the clinical management of chronic opioid therapy, the opioid treatment used for patients with chronic pain after the subacute stage of injury.

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.

Longer-term users of narcotics refers to injured workers who 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 months after the injury. Because our definition is based on the number of fill dates of narcotic prescriptions rather than days of supply, which indicates duration of narcotics consumption, we labeled the category we identified as *longer-term*, rather than *long-term* use of narcotics. We also refer to them as *Type I longer-term users*. We refer to injured workers who did not receive narcotics within the first quarter postinjury, but exhibited the same pattern of longer-term use of narcotics as those identified as Type I longer-term users, as *Type II longer-term users*.

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). In recent years, the term *opioids* has been increasingly used in health care policy discussions when referring to narcotics prescribed for pain relief. In this report, we use the two terms interchangeably.

Opiate refers to drugs whose origin is the opium poppy, including codeine and morphine (Avinza®).

Opioid denotes both natural (codeine, morphine [Avinza®]) and synthetic (methadone [Methadose®], fentanyl [Duragesic®]) drugs whose pharmacological effects are mediated by specific receptors in the nervous system. In this report, we used the terms *opioids* and *narcotics* interchangeably.

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. The classifications 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 (Vicodin®) is

currently classified as Schedule III and hydrocodone HCL is classified as a Schedule II narcotic. Tramadol (Ultram® and Ultracet®) is also classified as a weaker strength narcotic in our study, although it is not scheduled at the federal level.

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About the Institute

The Workers Compensation Research Institute is a nonpartisan, not-for-profit research organization providing objective information about public policy issues involving workers' compensation systems.

The Institute does not take positions on the issues it researches; rather it provides information obtained through studies and data collection efforts that conform to recognized scientific methods, with objectivity further ensured through rigorous peer review procedures.

The Institute's work helps those interested in improving workers' compensation systems by providing new, objective, empirical information that bears on certain vital questions:

- How serious are the problems that policymakers want to address?
- What are the consequences of proposed solutions?
- Are there alternative solutions that merit consideration? What are their consequences?

The Institute's work takes several forms:

- Original research studies on major issues confronting workers' compensation systems
- Original research studies of individual state systems where policymakers have shown an interest in reform and where there is an unmet need for objective information
- Sourcebooks that bring together information from a variety of sources to provide unique, convenient reference works on specific issues
- Periodic research briefs that report on significant new research, data, and issues in the field
- Benchmarking reports that identify key outcomes of state systems