NCCI Holdings, Inc.

NCCI RESEARCH BRIEF

May 2012

by Chris Laws

Narcotics in Workers Compensation

INTRODUCTION

Prescription drugs account for about 19% of workers compensation medical costs [1]. In 2009, the narcotic OxyContin® was the top drug in workers compensation, as measured by dollars paid, and another narcotic, Hydrocodone-Acetaminophen, ranked third.

The American College of Occupational and Environmental Medicine states, "the overuse of opioid therapy to treat chronic pain conditions is becoming epidemic in the United States," and, "there are many treatments that should be considered before opioids" [2]. According to this organization [3]:

- "Opioids are becoming more controversial in large part because of … markedly elevated death risks that have paralleled increases in consumption of opioids [narcotics]"
- "Routine use of opioids for the treatment of chronic nonmalignant pain conditions is not recommended"
- "Opioids are recommended for select patients with chronic persistent pain, neuropathic pain, or CRPS [complex regional pain syndrome]."

Two years ago, NCCI released a study on the use of narcotics in workers compensation [4]. Findings from that study include the following:

- There is a correlation between drug abuse treatments and heavy narcotic use
- There has been an increase in early narcotic use
- The use of narcotics can continue for many years

KEY FINDINGS

This update on narcotic use in workers compensation finds:

- Per-claim narcotic costs have increased
- There have been changes in which narcotics are most commonly used
- Narcotic use is concentrated among a small percentage of claimants
- Initial narcotic use is indicative of future use

STUDY DESIGN

Data

The data used in this study is sample data provided by carriers for medical services rendered between 1996 and 2009 on both lost-time and medical-only claims for injuries that occurred between 1994 and 2009, evaluated[1] as of July 1, 2010. "Prescription drug," as used in this study, is defined as a drug identified with a National Drug Code (NDC) or a carrier-specialized drug code.

Drug costs that are bundled with other services and coded under Hospital Revenue Codes, Healthcare Common Procedure Code System (HCPCS), Current Procedural Terminology (CPT), or other non-NDC codes are not included in this study.

[1] In order for transactions to be present in our data, they must be reported and entered into carriers' systems. For instance, if a claimant received a medical service on December 29, 2001, it is possible that the carrier did not have this transaction entered into their system until January, 2002 or later. As such, historical data is ever-changing, and we must examine it "evaluated as of" a certain date.

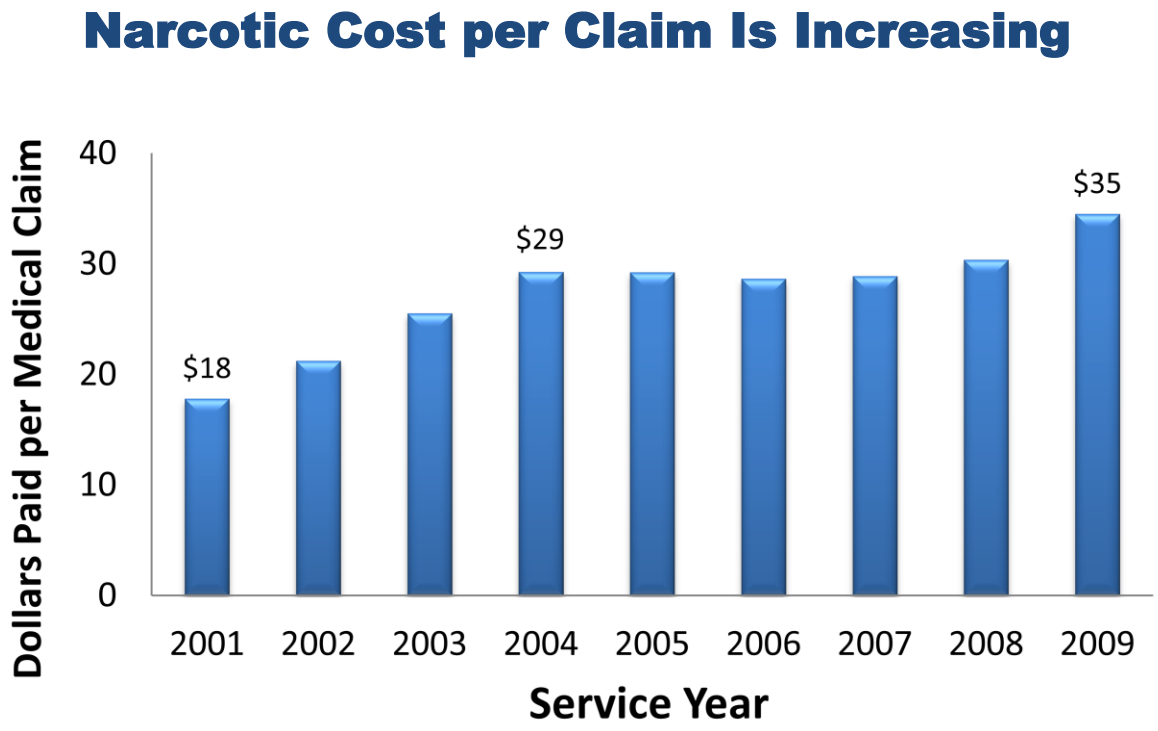
Narcotics Definition

This study defines narcotics to be those drugs with active ingredients listed in the International Narcotics Control Board's List of Narcotic Drugs Under International Control, "The Yellow List" [5]. This definition includes some drugs not included on the list of Schedule II drugs under the Controlled Substances Act for the United States, such as Hydrocodone BIT/Acetaminophen, which is a Schedule III drug. At the same time, this definition excludes some weaker drugs, such as Tramadol, that are sometimes included in studies of narcotics.

DISCUSSION OF FINDINGS

Overall Trends

We begin with a look at the average narcotic cost per workers compensation claim with medical transactions. Exhibit 1 shows that per-claim costs grew steadily from Service Year[2] 2001 to Service Year 2004, remained fairly flat for a few years, and then increased in 2009. From 2001 to 2004, per-claim narcotic costs grew at an average of 18 percent per year. From 2004 to 2008, per-claim narcotic costs grew at an average of 1 percent per year. While there has generally been lower growth in recent years, the narcotic cost per-claim in 2009 is 14 percent greater than it was in 2008.



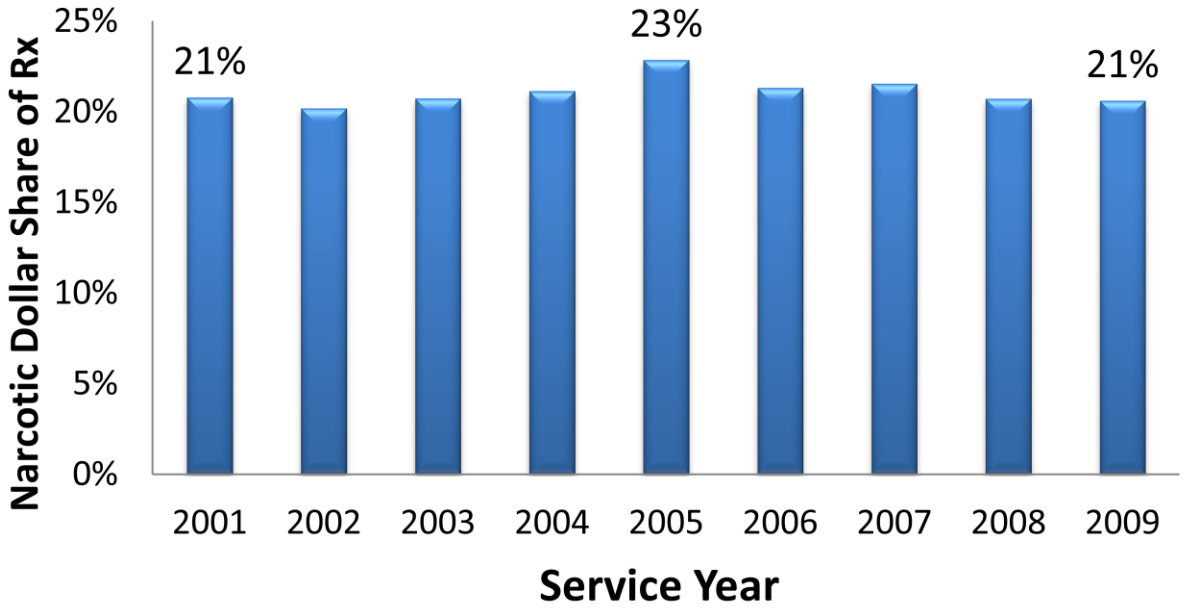
Source: Derived from sample data provided by carriers
Relative Service Years 1 through 5
Claim counts defined as claims with a medical service by Relative Service Year 2 (AY 2009 is projected)
Aggregation of nationwide sample (excluding ND, OH, WA, WV, and WY)

Exhibit 1

[2] A *service year* consists of all services in a calendar year aggregated across applicable (and available) injury years. For instance, if the data consists of all injuries that occurred in 1994 through 2007 (or Injury Years 1994 through 2007), then Service Year 2000 would consist of all services rendered in the year 2000 for those injuries that occurred from 1994 through 2000. The first *relative service year* consists of all services in the calendar year of the injury. The second relative service year consists of all services provided in the calendar year following the year of injury, and so on.

While Exhibit 1 shows an increase in the per-claim cost associated with the use of narcotics, Exhibit 2 shows that the narcotic share of workers compensation prescription drug costs has been relatively stable for many years. This stability suggests that workers compensation narcotic costs are keeping pace with the growth of total prescription drug costs. The narcotics share of costs in Service Year 2005 is slightly higher than shares for other service years. As mentioned in our previous study [4], this is about the time of increased concern over the use of Cox-2 inhibitors, drugs also used in the treatment of pain. This aberration could be the result of a temporary substitution effect.

The Narcotic Share of Total WC Rx Cost Has Been Relatively Stable

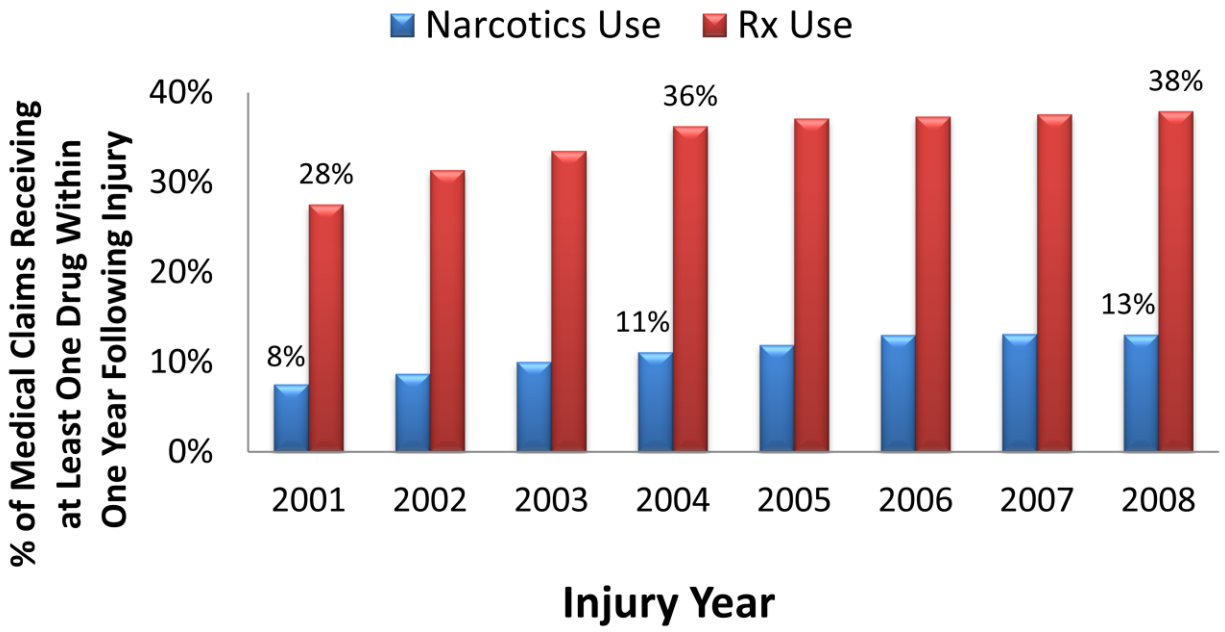


Source: Derived from sample data provided by carriers
Relative Service Years 1 through 5
Aggregation of nationwide sample (excluding ND, OH, WA, WV, and WY)

Exhibit 2

Narcotic use in workers compensation is becoming more common. Exhibit 3 compares the share of workers compensation claimants who receive narcotics to the share who receive prescription drugs of any kind. In Injury Year[3] 2001, 28 percent of all claimants with medical transactions received at least one prescription drug within one year following injury and 8 percent received narcotics. In Injury Year 2008, these numbers increased to 38 and 13 percent respectively. This implies that in 2008, over one-third of claimants with prescriptions received narcotics, up from 27 percent in 2001.

The Share of Medical Claims Receiving Narcotics Within One Year After Injury Has Increased



Source: Derived from sample data provided by carriers
Aggregation of nationwide sample (excluding ND, OH, WA, WV, and WY)

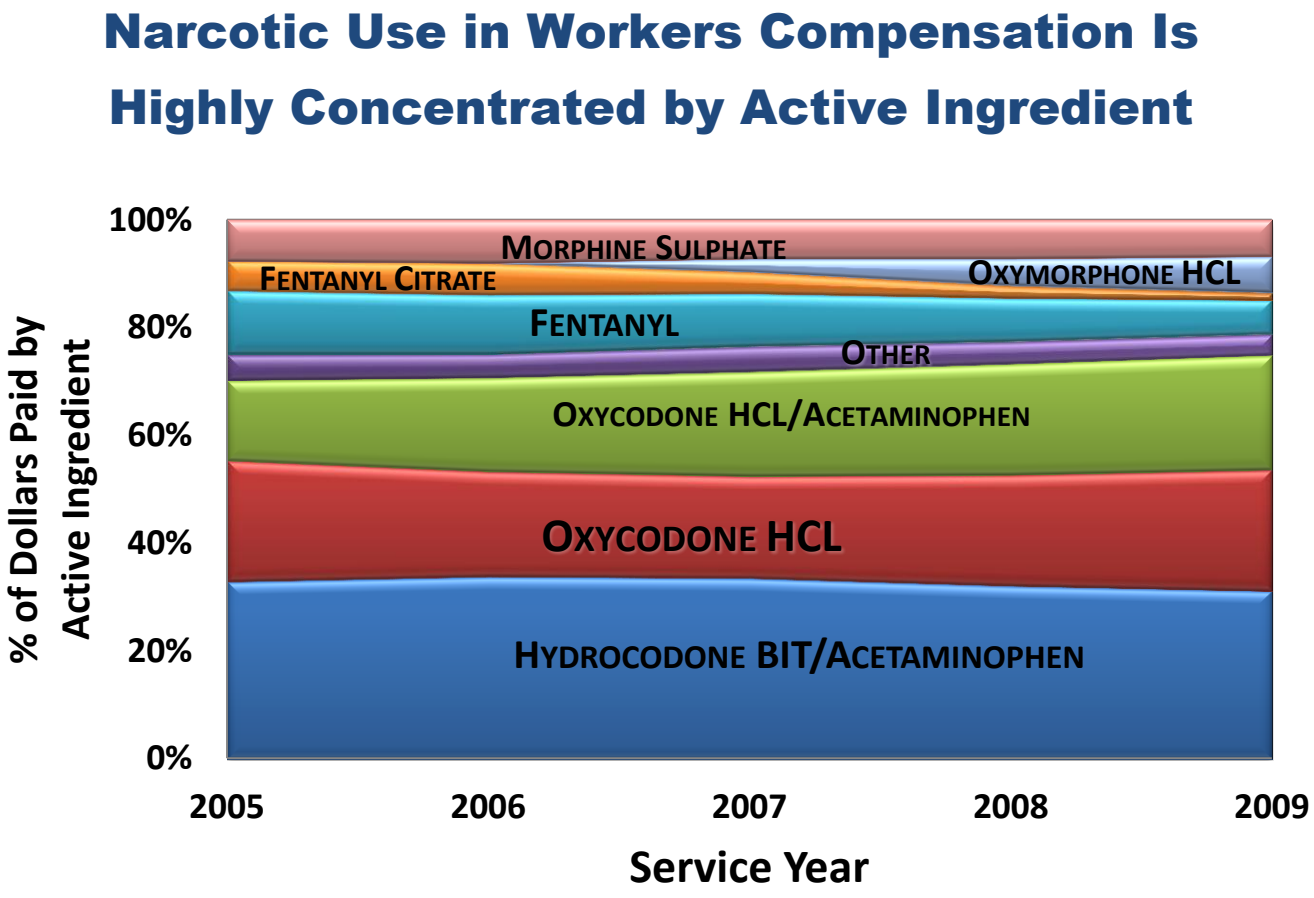
Exhibit 3

[3] We look at costs by *injury year* (the year of injury) because insurance coverage continues (potentially for many years) following the date of injury in workers compensation. This "long-tail" feature of workers compensation is distinct from most other lines of insurance coverage, where costs are usually confined to the 12-month policy year for which premium is charged. As a result, other types of insurance coverages are much more sensitive to short-term increases in costs, while workers compensation is subject to substantial long-term cost pressures.

Trends by Active Ingredient

Seven active ingredients account for more than 95 percent of the total cost of narcotics used in workers compensation. Exhibit 4 illustrates the stability of the market share of these drugs.

The only major shifts in market share by active ingredient over the past few years have been a simultaneous reduction in the use of Fentanyl Citrate and an increase in the use of Oxymorphone HCL. While Oxymorphone HCL has been available through an injection since 1959, it only became available as an oral tablet in mid-2006.



Source: Derived from sample data provided by carriers
Relative Service Years 1 through 5
Aggregation of nationwide sample (excluding ND, OH, WA, WV, and WY)

Exhibit 4

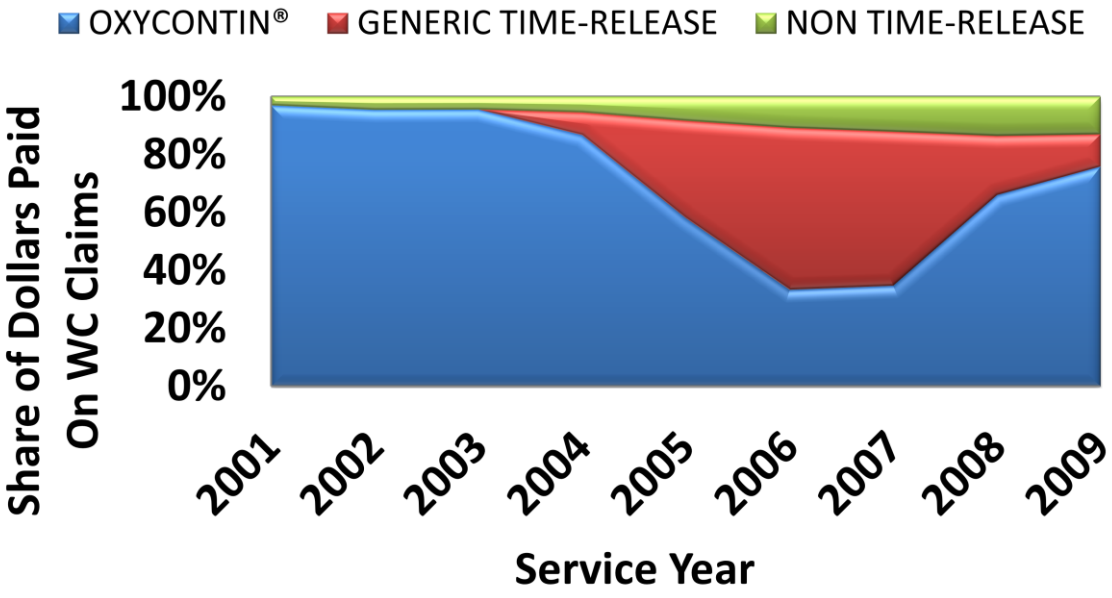
Despite the few market share shifts seen in Exhibit 4, there have been significant market share shifts for particular drugs with certain active ingredients. Exhibits 5 and 6 take a closer look at drugs with the active ingredient Oxycodone HCL and Fentanyl Citrate, respectively. The Appendix gives similar analyses for the other active ingredients shown in Exhibit 4.

OxyContin® has seen both a fall and then a rise in popularity in recent years. This drug was ranked first in Service Year 2003 [6]. Since then, it was ranked [1]:

- 8th in Service Year 2007
- 3rd in Service Year 2008
- 1st in Service Year 2009

The explanation behind its cyclical popularity rests in the unsteady road to the availability of a comparable generic. The active ingredient in OxyContin® is Oxycodone HCL, which has been available generically for many years, but OxyContin® has a patented time-release delivery system. In June 2005, a federal appeals court ruled that the patents on OxyContin® were not enforceable. In February 2006, the same court vacated its previous ruling. OxyContin's® patent holder allowed certain limited production and distribution of generic time-released Oxycodone HCL through 2009. Exhibit 5 shows the impact of these events on the market share of Oxycodone HCL. The increase and decrease in the market share of a generic time-released Oxycodone HCL coincides with the removal and reintroduction of the enforcement of the patents for OxyContin®.

Patent Issues Surrounding OxyContin® Drove Changes in Sales of Drugs With Active Ingredient Oxycodone HCL

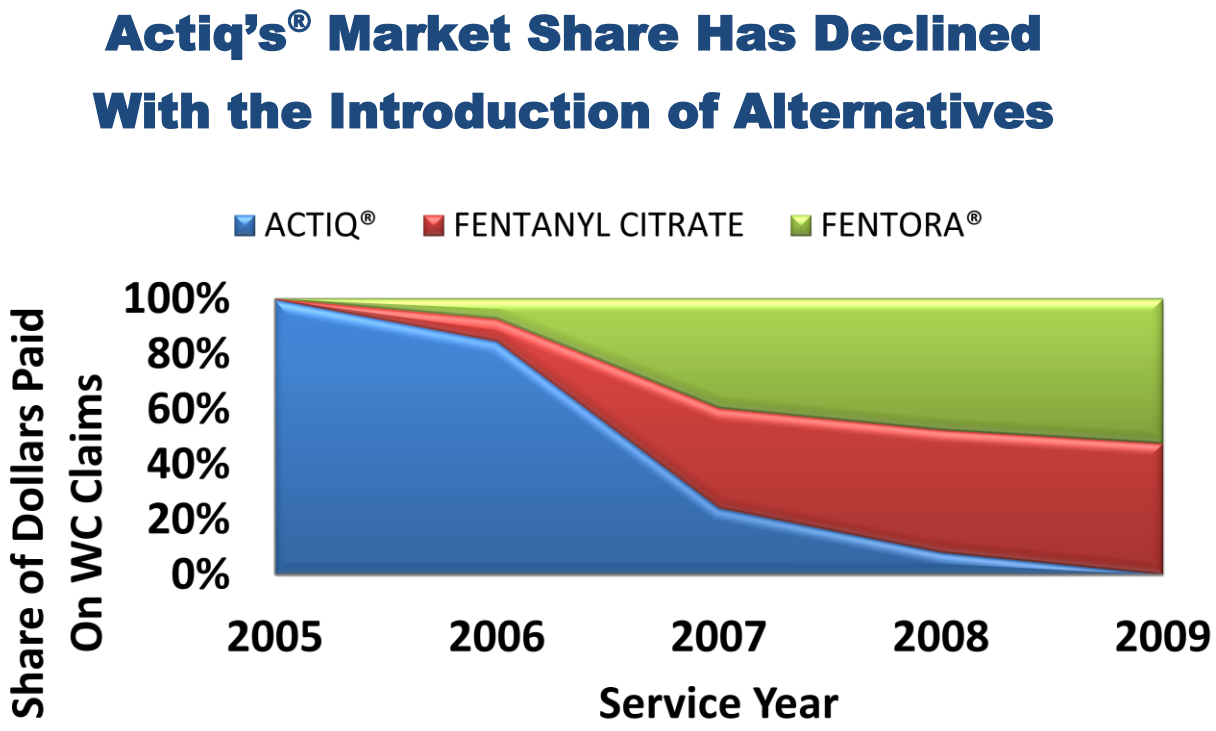


Source: Derived from sample data provided by carriers
Relative Service Years 1 through 5
Aggregation of nationwide sample (excluding ND, OH, WA, WV, and WY)

Exhibit 5

Narcotics with the active ingredient Fentanyl Citrate also show substantial market share changes in recent years, as seen in Exhibit 6. In September 2006, 1) a generic version of Actiq® became available and 2) Fentora®, a drug with the same active ingredient as Acitq®, Fentanyl Citrate, was approved by the FDA. Fentora® and generic Fentanyl Citrate have quickly taken over the majority of the workers compensation market share for drugs with this active ingredient. At the same time, as shown in Exhibit 4, the total workers compensation market share of drugs with Fentanyl Citrate as an active ingredient has declined substantially.

Fentora® is absorbed more rapidly in the blood stream than Actiq®. In September 2007, the FDA issued an alert on the use of Fentora® reporting serious side effects, including death, associated with the use of Fentora® due to a "misunderstanding of dosing instructions" or an "inappropriate substitution of Fentora® for Actiq®." The alert stated that a "conversion to Fentora® MUST include a dose reduction" (original emphasis).

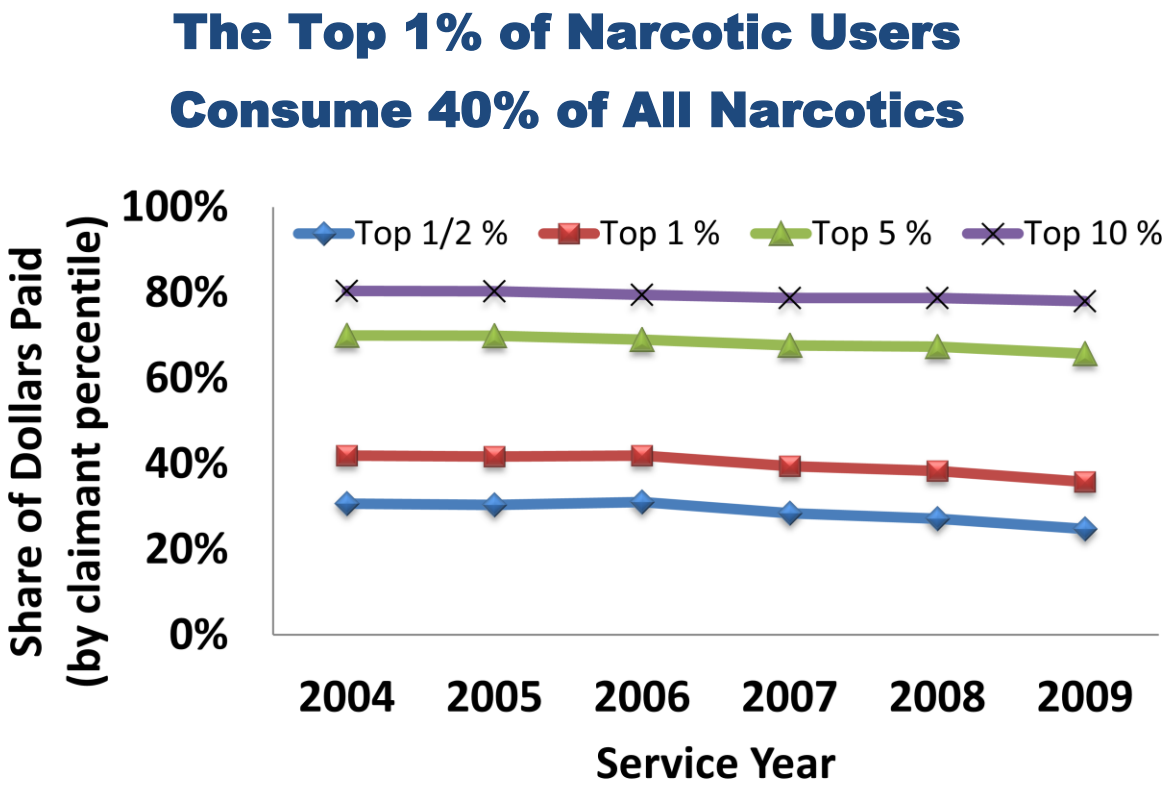


Source: Derived from sample data provided by carriers
Relative Service Years 1 through 5
Aggregation of nationwide sample (excluding ND, OH, WA, WV, and WY)
Generics indicated with active ingredient

Exhibit 6

Claimant Trends

Narcotic use in workers compensation is highly concentrated among a small percentage of claimants. Exhibit 7 displays the distribution of narcotic costs by claimant percentile. The narcotics consumed by the top 1 percent of claimants receiving narcotics accounts for close to 40 percent of all narcotic costs; the narcotics consumed by the top 10 percent of claimants receiving narcotics accounts for about 80 percent of all workers compensation narcotic costs. While narcotic use is highly concentrated, this exhibit also shows a slight downward trend in the share of narcotic costs for the top users.



Source: Derived from sample data provided by carriers
Relative Service Years 1 through 5
Aggregation of nationwide sample (excluding ND, OH, WA, WV, and WY)

Exhibit 7

NCCI first investigated the persistence of narcotic use in workers compensation in 2009 and found that, while the probability of continued use declined with time, narcotic use could continue for many years. This study expands the 2009 analysis by investigating the relationship between the amount of narcotics initially consumed and the persistence of their use. Exhibits 8 and 9 separate claimants into various cohorts based on their consumption of narcotics, in equivalent milligrams of Morphine (MEA), within the first quarter following injury. Within the first quarter following injury, roughly:

- 25 percent of all claims have an MEA greater than 0 but less than 100
- 50 percent of all claims have an MEA greater than 100 but less than 370
- 15 percent of all claims have an MEA greater than 370 but less than 825
- 10 percent of all claims have an MEA greater than 825

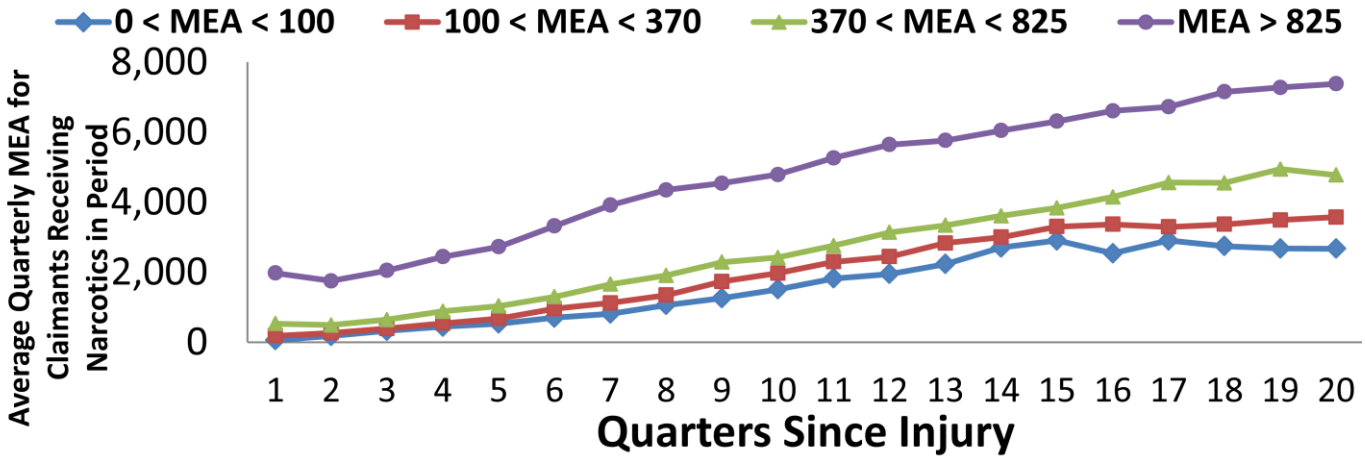
According to drugs.com, the usual adult dose for time-released Oxycodone (OxyContin®) is 10 mg orally every 12 hours. Assuming a claimant consumes 10 mg pills:

- 100 MEA is equivalent to approximately 7 pills of OxyContin®
- 370 MEA is equivalent to approximately 25 pills of OxyContin®
- 825 MEA is equivalent to approximately 55 pills of OxyContin®

Exhibit 8 shows the MEA per claim continuing to receive narcotics by quarter since injury. This graph demonstrates two points. First, the average MEA per claim receiving narcotics increases with claim maturity. Second, cohort ranking is maintained in subsequent quarters; for example, the cohort defined by highest initial use maintains its higher-than-other-cohorts status throughout.

Claims Continuing to Receive Narcotics Receive Higher Morphine Equivalent Amounts

Grouped Based on MEA in First Quarter Following Injury



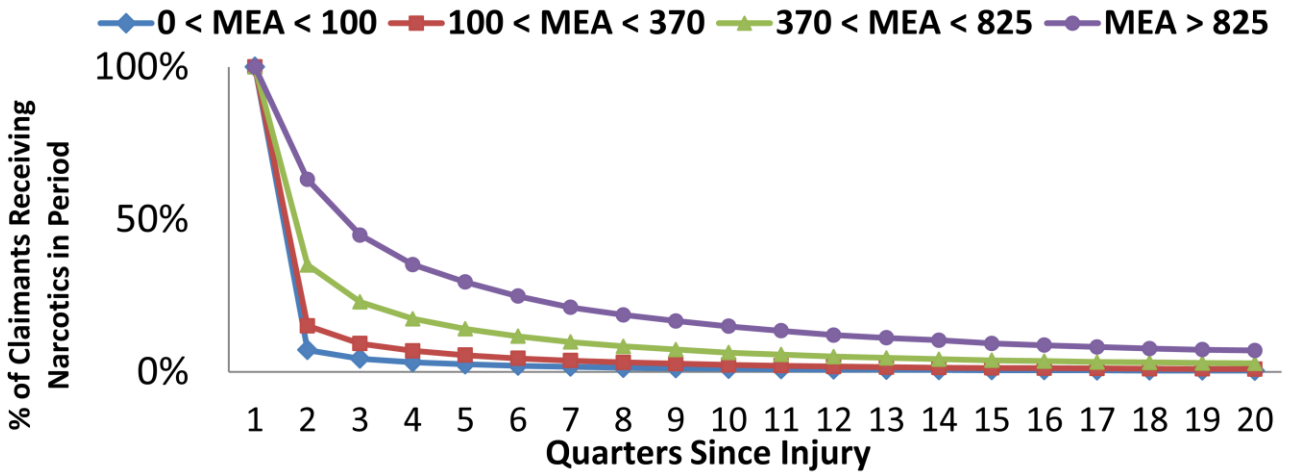
Source: Derived from sample data provided by carriers
Injury Years 2001 through 2004
MEA is defined as the milligrams of Morphine required to produce the same analgesic effect
100, 370, and 825 represent the 25th, 75th, and 90th percentiles
Calculation of MEA limited to the active ingredients Fentanyl, Fentanyl Citrate, Hydrocodone, Morphine, Oxycodone, Oxymorphone, and Codeine Phosphate
Aggregation of nationwide sample (excluding ND, OH, WA, WV, and WY)

Exhibit 8

Exhibit 9 investigates the relationship between the amount of narcotics consumed by a claimant in the first quarter following injury and the likelihood that this claimant will receive narcotics in subsequent quarters. Claimants who receive more narcotics in the initial quarter following injury are more likely to receive narcotics in subsequent quarters. For instance, while 63 percent of claimants with an MEA of more than 825 in the initial quarter following injury also received narcotics in the second quarter following injury, only 35 percent of claimants who received MEAs between 370 and 825 also received narcotics in the second quarter following injury.

Early Narcotic Use Is Indicative of Prolonged Use

Grouped Based on MEA in First Quarter Following Injury



Injury Years 2001 through 2004
MEA is defined as the milligrams of Morphine required to produce the same analgesic effect
100, 370, and 825 represent the 25th, 75th, and 90th percentiles
Calculation of MEA limited to the active ingredients Fentanyl, Fentanyl Citrate, Hydrocodone, Morphine, Oxycodone, Oxymorphone, and Codeine Phosphate
Aggregation of nationwide sample (excluding ND, OH, WA, WV, and WY) Source: Derived from sample data provided by carriers

Exhibit 9

CONCLUSION

Narcotic costs per claim in workers compensation is increasing. Narcotic use is highly concentrated among a small share of claimants. High use of narcotics in the first quarter following injury indicates a higher than average probability of narcotic use in subsequent periods.

NCCI will continue to monitor and report on prescription drugs and other important issues that affect the workers compensation industry.

REFERENCES

[1] Lipton, Barry, Chris Laws, and Linda Li. August 2011. "Workers Compensation Prescription Drug Study: 2011 Update." NCCI.

www.ncci.com/documents/2011_ncci_research_rxdrug_study.pdf. Accessed on 5/2/2012.

[2] Clinical Practice and Guidance Center. ACOEM *Guidelines for Chronic Use of Opioids*. American College of Occupational and Environmental Medicine.

www.acoem.org/Guidelines_Opioids.aspx. Accessed on 11/18/2011.

[3] *ACOEM's Guidelines for Chronic Use of Opioids*. American College of Occupational and Environmental Medicine. www.acoem.org/uploadedFiles/Knowledge_Centers/Practice_Guidelines/Chronic%20Pain%20Opioid%202011.pdf. Accessed on 11/18/2011.

[4] Lipton, Barry, Chris Laws, and Linda Li. December 2009. "Narcotics in Workers Compensation." NCCI. www.ncci.com/documents/Narcotics_in_WC_1209.pdf. Accessed on 11/18/2011.

[5] "List of Narcotics Drugs Under International Control," 49th edition. International Narcotics Control Board. December 2010.

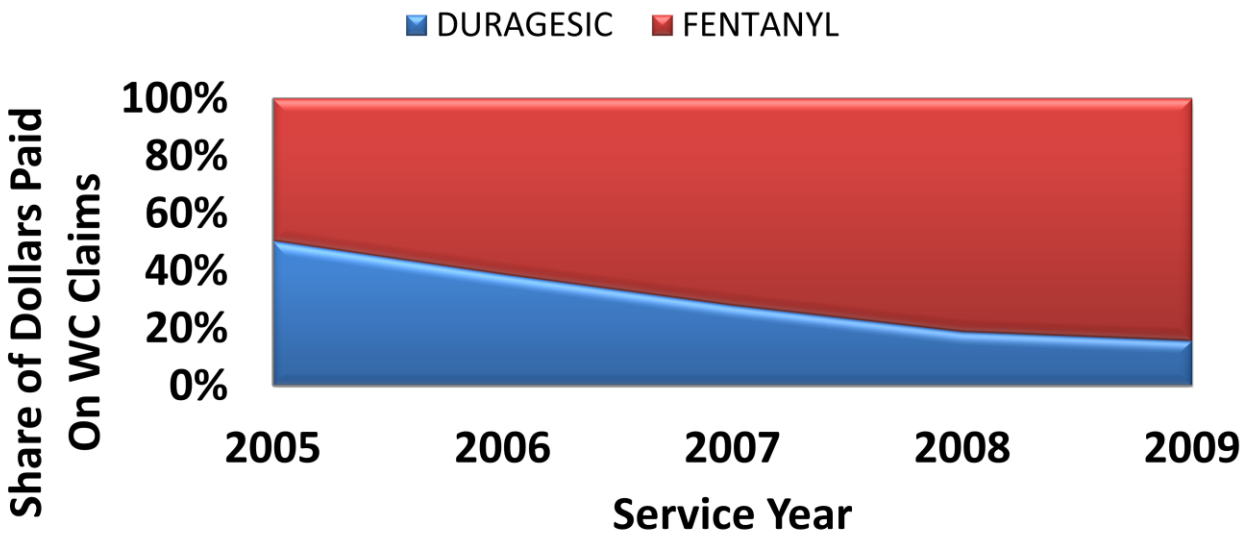
www.incb.org/pdf/forms/yellow_list/49th_Edition/49thedYL_Dec_10E.pdf. Accessed on 11/18/2011.

[6] Lipton, Barry, Brett King, and Chris Laws. November 2007. "Workers Compensation Prescription Drug Study 2007 Update." NCCI.

www.ncci.com/documents/research-RX-Study-2007.pdf. Accessed on 5/2/2012.

Appendix

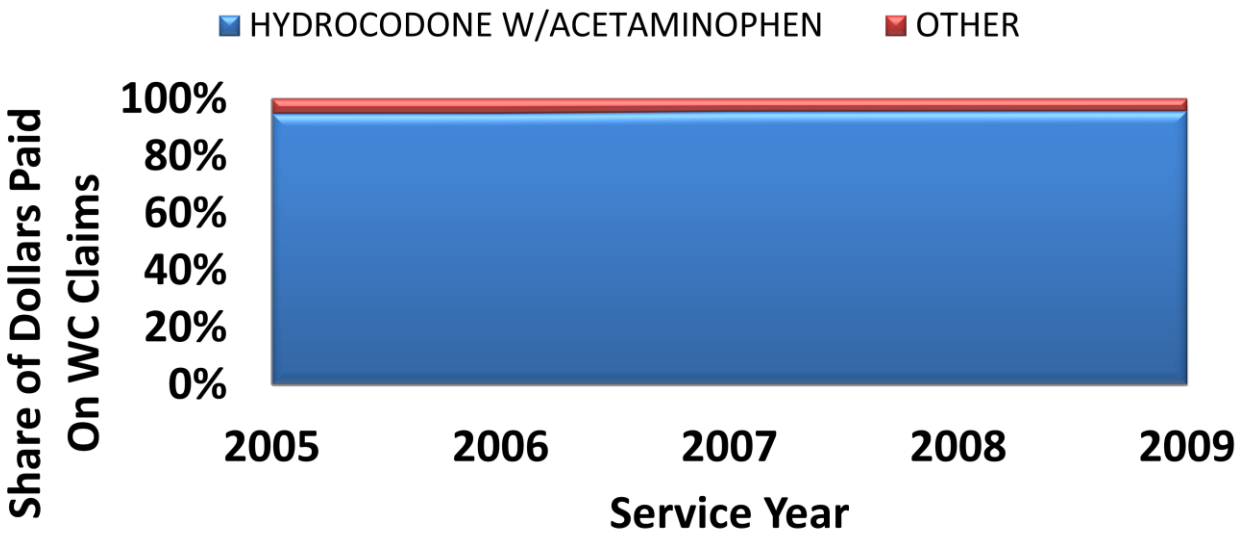
Workers Compensation Market Share Breakdown for Narcotic Drugs With Active Ingredient Fentanyl



Source: Derived from sample data provided by carriers
Relative Service Years 1 through 5
Aggregation of nationwide sample (excluding ND, OH, WA, WV, and WY)
Generics indicated with active ingredient

Exhibit 10

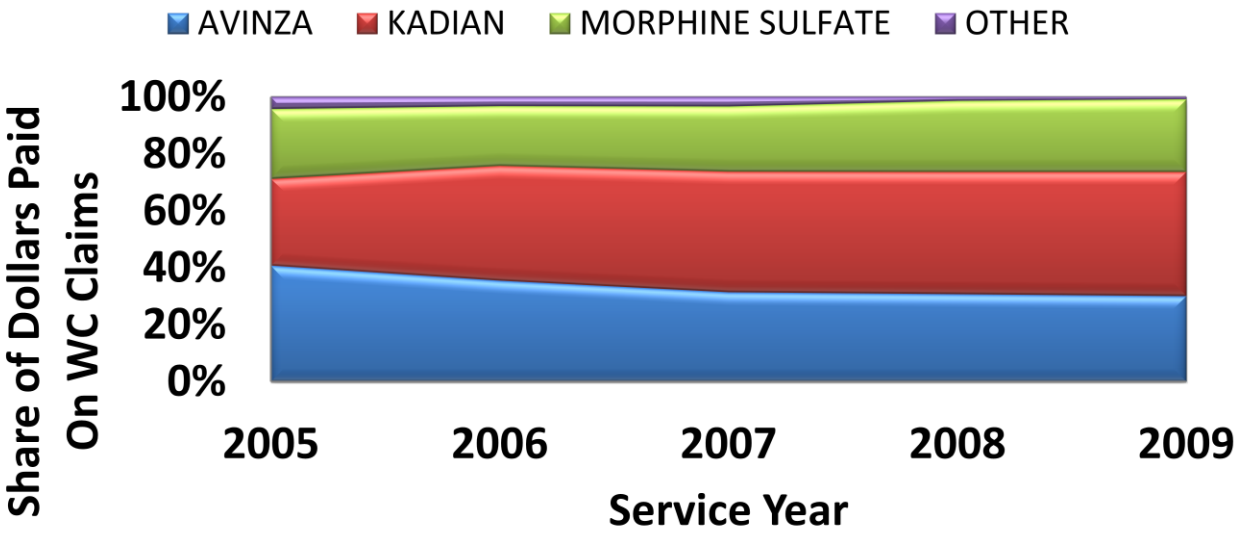
Workers Compensation Market Share Breakdown for Narcotic Drugs With Active Ingredient Hydrocodone BIT/Acetaminophen



Source: Derived from sample data provided by carriers
Relative Service Years 1 through 5
Aggregation of nationwide sample (excluding ND, OH, WA, WV, and WY)
Generics indicated with active ingredient

Exhibit 11

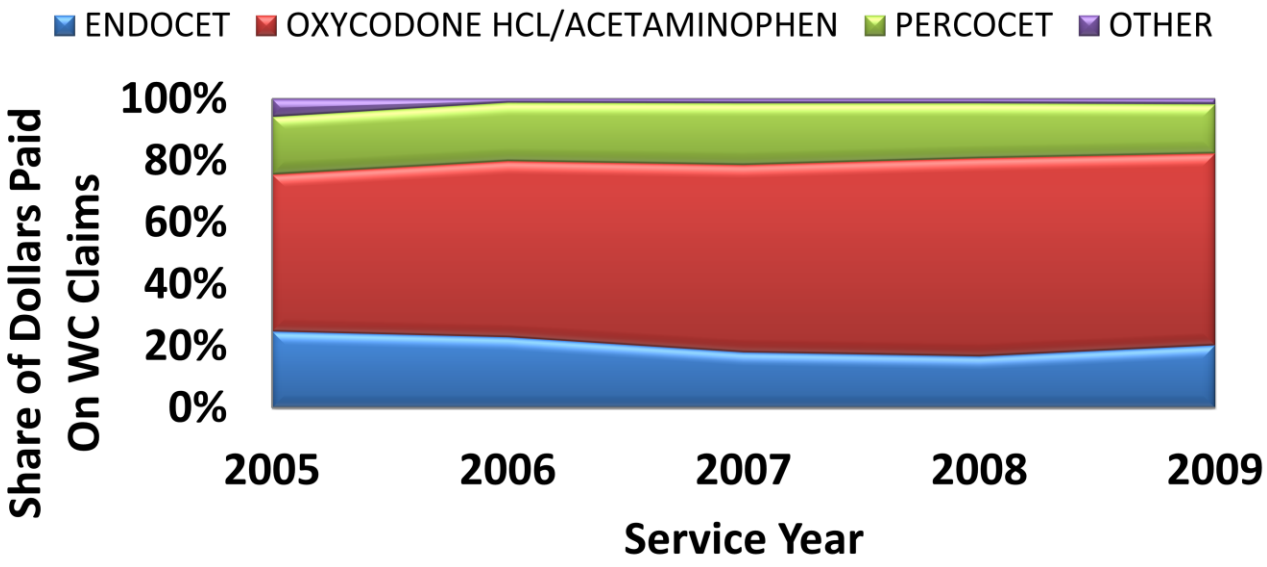
Workers Compensation Market Share Breakdown for Narcotic Drugs With Active Ingredient Morphine Sulfate



Source: Derived from sample data provided by carriers
Relative Service Years 1 through 5
Aggregation of nationwide sample (excluding ND, OH, WA, WV, and WY)
Generics indicated with active ingredient

Exhibit 12

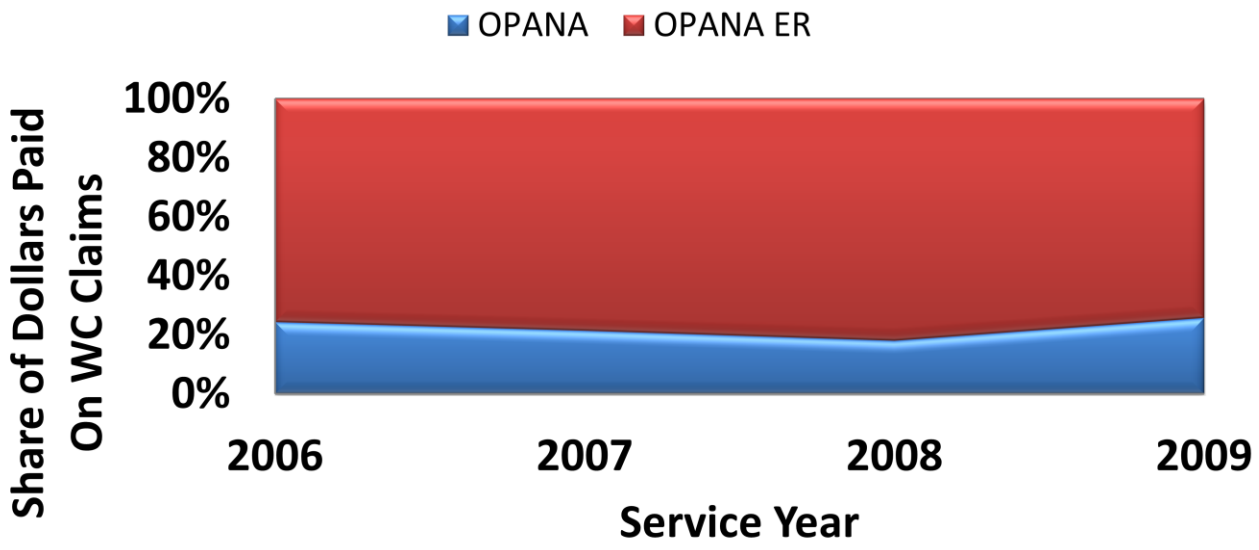
Workers Compensation Market Share Breakdown for Narcotic Drugs With Active Ingredient Oxycodone HCL/Acetaminophen



Source: Derived from sample data provided by carriers
Relative Service Years 1 through 5
Aggregation of nationwide sample (excluding ND, OH, WA, WV, and WY)
Generics indicated with active ingredient

Exhibit 13

Workers Compensation Market Share Breakdown for Narcotic Drugs With Active Ingredient Oxymorphone HCL



Source: Derived from sample data provided by carriers
Relative Service Years 1 through 5
Aggregation of nationwide sample (excluding ND, OH, WA, WV, and WY)

Exhibit 14