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**Changes in age-specific rates of doctor-shopping for opioids following introduction of reformulated OxyContin® tablets**



|  |  |
| --- | --- |
|  | **At Least:** |
| **At Least:** | **1****Pharmacy** | **2****Pharmacies** | **3****Pharmacies** | **4****Pharmacies** | **5****Pharmacies** |
| **1 Prescriber** | **-2%****(-2, -1)** | **0%****(-1, -1)** | **-43%****(-46, -41)** | **-72%****(-76, -67)** | **-81%****(-89, -67)** |
| **2 Prescribers** | **5% (4, 6)** | **-4%****(-5, -2)** | **-50.2%****(-53, -47)** | **-75%****(-80, -69)** | **-80.8%****(-90, -63)** |
| **3 Prescribers** | **-32%****(-35, -29)** | **-44%****(-47, -40)** | **-58%****(-62, -54)** | **-78%****(-83, -71)** | **-75%****(-88, -48)** |
| **4 Prescribers** | **-67%****(-74, -58)** | **-69%****(-76, -60)** | **-74%****(-81, -64)** | **-73%****(-82, -59)** | **-82%****(-93, -52)** |
| **5 Prescribers** | **-78%****(-90, -52)** | **-73.41%****(-88, -41)** | **-77.21%****(-90, -46)** | **-73%****(-89, -35)** | **-75%****(-92, -24)** |

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| BACKGROUND |  | METHODS (CONT.) |  |  | RESULTS (CONT.) |
| ■ In August 2010, Purdue Pharma introduced a reformulated extended-release oxycodone (OxyContin®) in |  | ■ Doctor shopping threshold |  | **Figure 2. Changes in rates of doctor-shopping by age group** | **Table 3. Change in Rates of doctor-shopping (95% CI) for OxyContin Before Versus** |
| the US, which is intended to deter crushing and forms a gel when dissolved to deter abuse. |  | – Sum total number of unique prescribers and pharmacies across all overlap events in six-month period |  | **before versus after reformulation of OxyContin** | **After Reformulation by Shopping Threshold** |
| ■ The introduction of reformulated OxyContin has resulted in declines in indicators of diversion: |  | – If number of prescribers/pharmacies reaches a specified threshold then patient is coded as positive for |  |  |  |
| • 60% reduction in reports of drug diversion by law enforcement |  | doctor shopping |  |  |  |

• 80% reduction in prescriptions for high dosage OxyContin prescriptions by potentially problematic prescribers

■ Is there a similar decline in diversion through “doctor-shopping” and how do changes in rates of doctor- shopping vary by age?

DOCTOR-SHOPPING

■ Obtaining prescriptions from multiple prescribers and/or pharmacies:

• For personal abuse

• For distribution to others who intend to abuse the drugs

• Generally involves multiple overlapping prescriptions from more than one prescriber and multiple pharmacies (Cepeda et al., 2012, Journal of Clinical Pharmacology)

– Initial threshold = at least 2 prescribers and 3 pharmacies (Cepeda et al., 2012, Journal of Clinical

Pharmacology

– All combinations of prescribers and pharmacies examined

■ Doctor shopping rate

– Number of doctor shoppers/number of individuals with a prescription of specified product in specified time interval

**Figure 1. Doctor-shopping example of a patient with two overlap events involving prescriptions from 2 unique prescribers and**

**3 unique pharmacies in a six-month period**

OBJECTIVES

■ To characterize and estimate changes in age-specific rates of doctor-shopping for OxyContin and other opioids before versus after introduction of OxyContin reformulated with abuse deterrent properties in Aug

2010

■ To compare rates of doctor-shopping for OxyContin and other single-entity (SE) opioid products, often abused through non-oral routes (eg, snorting and injecting), and combination opioid products (with acetaminophen [APAP]), often abused orally by ingesting intact tablets

■ To estimate changes in doctor shopping by additional characteristics associated with abuse/diversion

– Cash payment

RESULTS

**Table 1. IMS: Rate of Doctor-shopping for OxyContin by Time Period**

SUMMARY

■ Declines in rates of doctor-shopping from 1 year before (July 2009 to June 2010) to 2.5 years after reformulation (January 2011 to June 2013) were of larger magnitude for OxyContin than other opioids.

■ Factors that have been previously shown to be associated with doctor-shopping and abuse (Cepeda et

– High dosage strength

■ To compare the magnitude in change of doctor-shopping rates for more versus less sensitive thresholds defining doctor-shopping

**Pre-**

**Reformulation**

**Transition**

**Post-**

**Reformulation**

**Figure 3. Changes in rates of doctor-shopping for Oxycontin for overlap events that**

al., 2012, Journal of Clinical Pharmacology; Coplan et al., 2013, Pharmacoepidemiology and Drug Safety)

had larger declines in rates post-reformulation

– 18-29 years old

METHODS

**Number of OxyContin**

**Patients Included in Study**

**Number of Patients with**

849,860 447,569 2,130,955

**involve at least one cash payment, 80 mg dosage strength, and both cash payment**

**and 80 mg dosage strength: a) All ages and b) 18-29 year olds**

– Cash payment

– High dosage strength

■ The age-specific profile of doctor-shopping rates of OxyContin was consistent with that of other single

■ Data Source: IMS LRx database

– Patient de-identified data from sample of IMS Health retail universe

– Direct feeds from retail pharmacies

– Encryption algorithm to de-identify and assign each patient a unique ID

– Covers approximately 65% of all retail prescriptions filled in the US

– More than 150 million unique de-identified patients

– More than 1 million prescribers

■ Estimated rates of doctor shopping in six-month intervals before and after introduction of ORF

– Pre-reformulation: July 2009 to June 2010

– Transition: July to December 2010

– Post-reformulation: January 2011 to June 2013

■ For each six-month calendar period (January-June, July-December), identify all possible “overlap” events for OxyContin and comparator products:

– Start date of each prescription and days supply

– Overlapping prescriptions are determined by multiple prescriptions for the same patient where number of days supply of the prescriptions overlap by at least one day

– Comparators include: Immediate-release (IR) single entity (SE) oxycodone, IR oxycodone/APAP, IR

hydrocodone/APAP

0 13% 0 10% -23 (-25 -21) 0 772 (0 755 0 789) 0 65

■ For each overlap event

– Count number of unique prescribers

– Count number of unique pharmacies

**2+ Prescribers/** 2,087 977 2,606

**3+ Pharmacies**

**Number of**

**3 Ph i**

**Doctor-shopping rate** 0.25% 0.22% 0.12%

**Table 2. Changes in Rates of Doctor-shopping for OxyContin and Opioid Comparators**



|  |  |  |
| --- | --- | --- |
|  | **Pre- Post-****period period Percent Ratio of Ratio of (July’09 – (Jan’11 – change Relative Risk Relative Relative Risk June’10) June’13) (95% CI) (95% CI) Risk (95% CI)** |  |
| **All Doctor-Shopping Events** |
| **OxyContin** | 0.25% | 0.12% | -50 (-53, -47) | 0.498 (0.470, 0.528) |  |  |
| **IR SE****oxycodone** | 0.34% | 0.36% | 5 (2, 9) | 1.053 (1.022, 1.085) | 0.47 | 0.473 (0.443, 0.505) |
| **Oxycodone****APAP** | .13% | .10% | 23 - , - | 0. ( .755, .789 | 0. | 0.645 (0.606, 0.686) |
| **Hydrocodone****APAP** | 0.15% | 0.13% | -13(-14, -12) | 0.866 (0.856, 0.876) | 0.58 | 0.575(0.542, 0.609) |
|  |

**(at least 2 prescribers and 3 pharmacies)**

**All Ages**

**18-29 Years Old**

entity opioids (IR single entity oxycodone) before reformulation but was more similar to opioid combination products (hydrocodone and oxycodone with APAP) after reformulation

■ Magnitude of decline in doctor-shopping rates increased as threshold for doctor-shopping increased

CONCLUSIONS

■ Larger declines for characteristics associated with abuse and diversion supports construct validity of changes in rates of doctor-shopping for reformulated OxyContin.

■ The reduction in doctor-shopping supports the hypothesis that the reformulation of OxyContin deters abuse.

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