

The Economic Burden of Prescription Opioid Abuse

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Agenda

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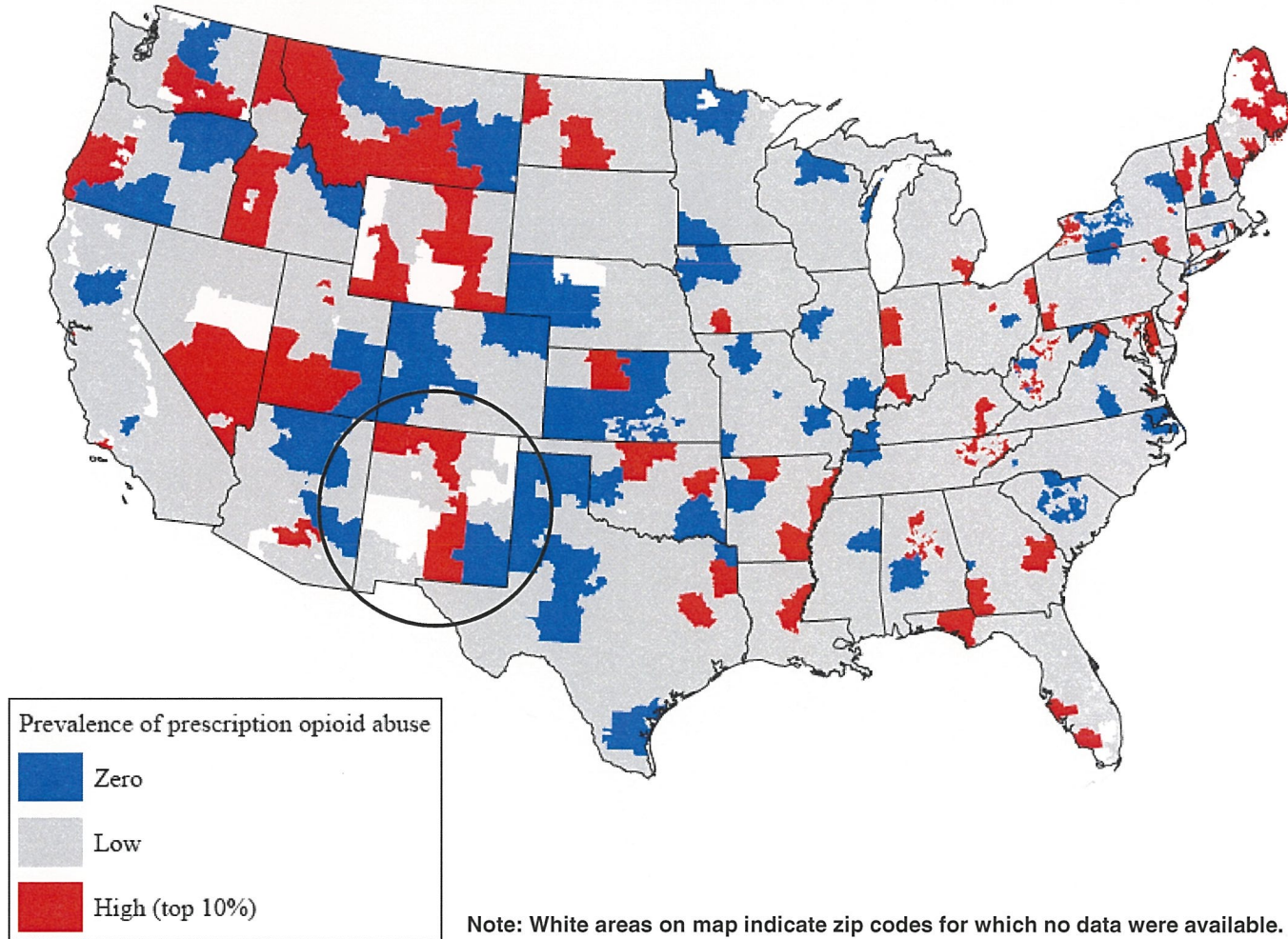
Background

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- The latest National Survey on Drug Use and Health reports that 10.3 million Americans used prescription-type pain relievers (i.e., opioids) for non-medical purposes in 2014
- In 2014, 1.9 million Americans met the DSM-IV criteria for abuse of or dependence on pain relievers, yielding a national abuse/dependence prevalence of 0.60% in the U.S.

Research using a nationwide private insurance database

Figure 1. Prevalence of prescription opioid abuse by three-digit zip code



Financial Burden on Payers

Opioid Abuse Impact on Payers

- Opioid abuse, dependence, and misuse imposes a significant monetary burden
 - Opioid abusers have substantial direct medical and pharmacy costs
 - Caregivers for abusers face an additional economic burden
 - Society also bears costs such as criminal justice costs
- Key considerations facing payers in the wake of opioid abuse concerns:
 - The cost of prescription opioid abuse
 - The cost savings impact of introducing opioids designed to deter abuse and ease of extraction
 - The use of internal medical and drug claims data to identify patients who may be at risk for opioid abuse
- Economic research provides insights into key considerations facing payers
 - Cost of opioid abuse
 - Budget impact model of potential cost savings of abuse-deterrent formulations
 - Claims-based predictive risk models of abuse-type behavior

Costs of Opioid Abuse

Opioid abuse has become a major social problem in the United States

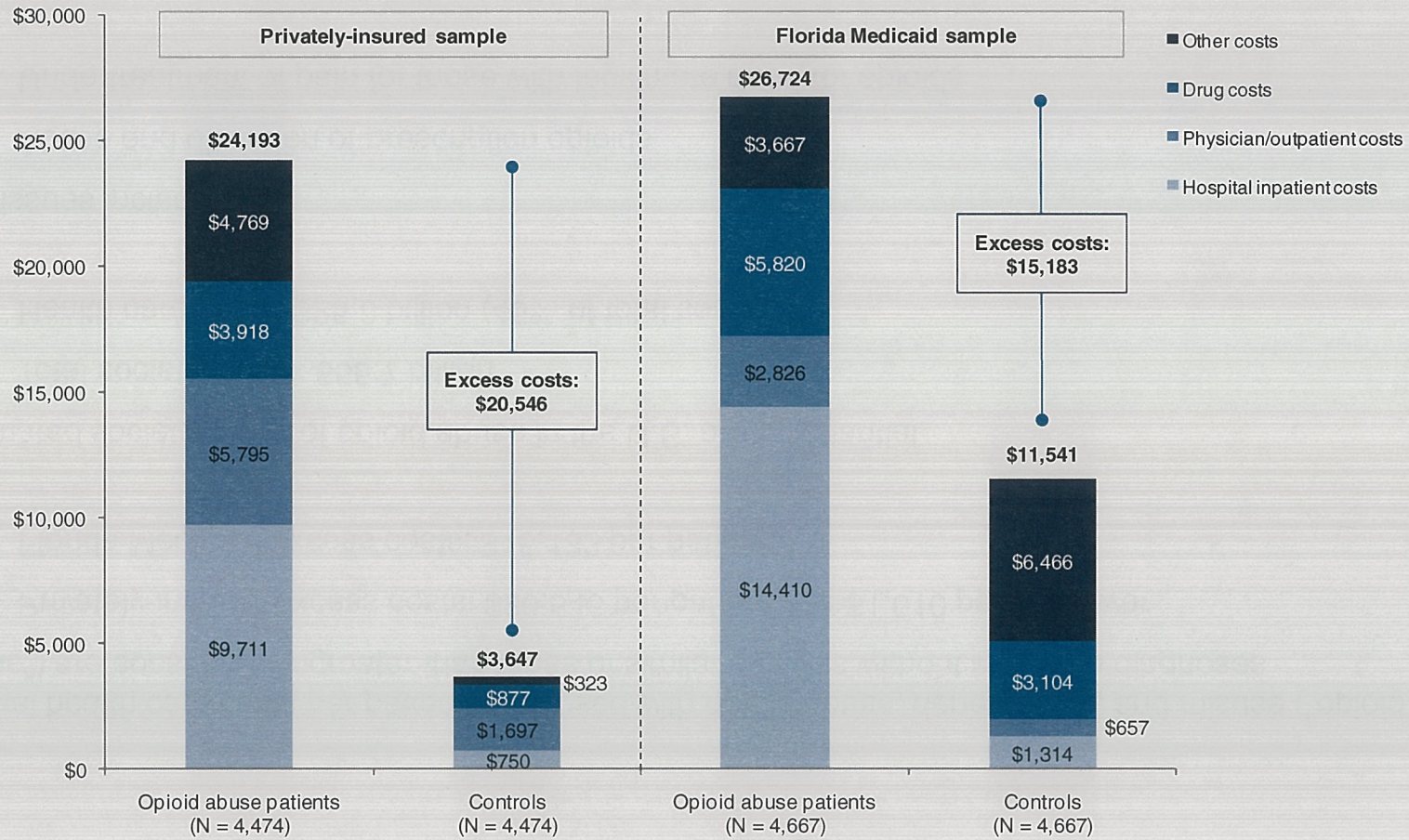
- Annual health care costs per patient diagnosed with opioid abuse, dependence, and misuse (“opioid abuse”) are considerably greater than those of similar patients without any such diagnoses
 - Privately-insured excess costs: \$20,546 per patient and \$1,010 per caregiver
 - Florida Medicaid excess costs: \$15,183 per patient

- Estimated societal costs of opioid abuse in the U.S. are substantial
 - Total societal costs: \$55.7 billion
 - Health care costs: \$25.0 billion (45% of total costs)

- Key issues include
 - Abuse and diversion of prescription opioids
 - Undertreatment of pain for those with legitimate need for opioids

- Risk management approaches must balance maximization of the medical and other benefits of prescription opioids with minimization of risks associated with abuse

Figure 2. Annual direct costs per opioid abuse patient



Note.

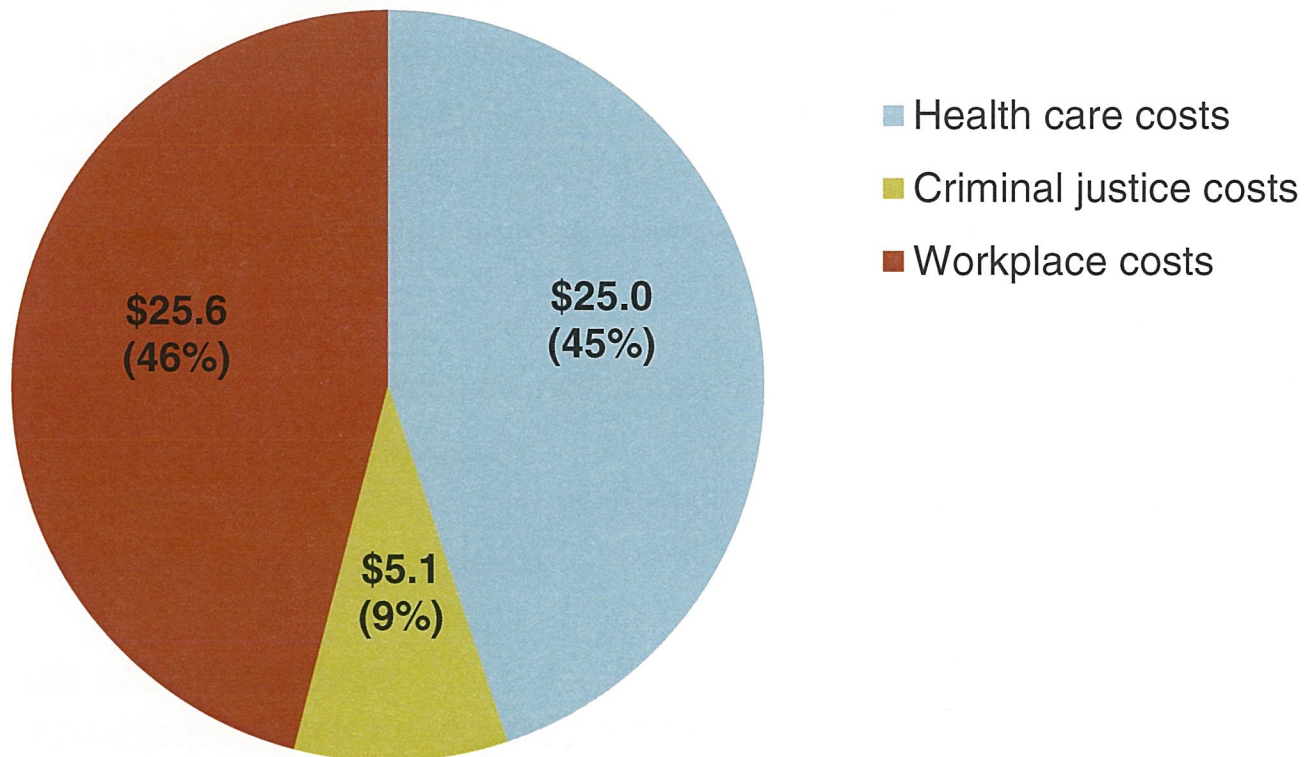
^aCosts were measured over a 12-month period (the 6 months before and after the index date).

^bOther costs include Emergency Department visits, lab services, and treatment at other places of services.

Source: White AG, Birnbaum HG, Schiller M, et al. The economic impact of opioid abuse, dependence, and misuse. *Am J Pharm Benefits*. 2011;3(4):e59-e70.

Figure 3. Annual societal costs of opioid abuse

Total societal costs: \$55.7 billion



Source: Birnbaum HG, White AG, Schiller M, et al. Societal costs of opioid abuse, dependence, and misuse in the United States. *Pain Med.* 2011;12(4):657-667

Published research has examined two key initiatives that may reduce opioid abuse and help curb its costs

1. Design of tamper-resistant opioid formulations
 - Opioids designed to deter abuse or ease of extraction may help reduce prevalence of certain kinds of abuse/misuse (e.g., snorting or injecting)
 - As a result, these new formulations may help reduce costs associated with abuse/misuse including ED visits and hospitalizations

2. Estimation of models to identify patients at risk for opioid abuse
 - Claims data, such as those available to MCOs or prescription drug monitoring programs (PDMPs), can help identify patients who may be at risk
 - Important risk factors for opioid abuse include
 - Unusual prescription-related behavior (e.g., “pharmacy shopping” and “doctor shopping”)
 - Comorbidities (e.g., non-opioid substance abuse, depression)
 - Demographics (e.g., male gender, 18-24 year old age group)

Budget Impact Model: Estimating Cost Savings of Opioids Designed to Deter Abuse

A budget impact model (BIM) can be designed with several objectives in mind

1. Assess the potential **cost savings to payers** (e.g., MCOs, pharmacy benefits managers) that may be realized from the introduction of opioids designed to deter abuse
2. Quantify **health care impact of market entry** of opioids designed to deter abuse (e.g., reduced hospitalizations and ED visits)
3. Estimate **annual cost savings** resulting from health care impact
 - Direct medical cost savings (i.e., from a plan perspective)
 - Disability and absenteeism cost savings (i.e., from an employer perspective)
 - Drug cost offsets (i.e., from a pharmacy benefit manager perspective)
4. Evaluate the impact for **different populations** and under **various scenarios**
 - E.g., different assumptions regarding market share captured
5. Evaluate the effectiveness of ADOs at deterring abuse by evaluating “liking scores”

BIMs can examine key prescription drug and medical-related outcomes associated with the abuse of prescription opioids

- Direct medical services
 - ED visits
 - Hospitalizations
 - Outpatient care
 - Substance abuse-related drug treatment (e.g., buprenorphine)
 - Diseases associated with injection (e.g., HIV, hepatitis, endocarditis, skin infection/abscess, cellulitis, phlebitis)

- Prescription drugs
 - Non-opioid prescription drug use
 - Opioids filled for purposes of abuse/misuse

BIMs can be designed with the flexibility to generate plan-specific estimates

- User-defined model inputs include
 - Number of insured lives
 - Age distribution of insured lives
 - Prevalence of opioid abuse
 - Amount reimbursed for a 30-day supply of existing branded and generic opioids as well as for abuse-deterrent opioid
 - Number of 30-day opioid prescriptions (existing branded or generics) reimbursed per year
 - Market share captured from existing branded and generic opioids by abuse-deterrent opioid
 - Methods of abuse potentially prevented by abuse-deterrent opioid (i.e., the effectiveness of the drug in deterring abuse/misuse)

Results of ADO introductions

1. Replacement of ER morphine prescriptions with an ER ADO that had the effectiveness of Embeda led to significantly more avoided medical events than did an ER ADO with the effectiveness of OxyContin (e.g., 436,759 versus 181,643 outpatient visits avoided)
2. The replacement of ER morphine prescriptions with an ER ADO that had Embeda's effectiveness yielded direct and indirect cost savings of nearly \$375M versus only \$155M when the ERO ADO had OxyContin's effectiveness
3. These results to compare to findings of Rossiter et al. Rossiter et al. found that the introduction of an ER ADO oxycodone (i.e., OxyContin) was associated decreases in rates of diagnosed abuse with annual medical cost savings of ~\$430 million in the US

Real-world impact of ADOs

- Currently there are two ADFs commercially available on the market, OxyContin CR (launched August 2010) and Opana ER (launched April 2011)
 - Recent research reports that rates of abuse for oxycodone HCl and oxymorphone HCl have **declined by 41% and 59%**, respectively, following the introduction ADFs^{8,9}
 - If one were to take the mid point of a 50% reduction, this would imply considerable costs savings, and the drug costs would likely be offset with medical and indirect cost savings

- Skinner (2012)¹⁰ estimates that a **30% reduction** in abuse from switching to OxyContin ADO (“OxyNEO”) would generate Canadian societal savings to fully offset the increased drug costs relative to generics

Risk Models: Identifying Patients At Risk for Opioid Abuse Using Claims Data

Research has assessed the feasibility of using different mixes of claims data to identify patients at risk for opioid abuse

- Goal is to identify patients who may be at risk for prescription opioid abuse
 - Early identification may help avert longer term abuse problems
 - Reductions in abuse rates will be associated with reduced financial impact of prescription opioid abuse in the longer term
 - A X% reduction in abuse rate may lead to a Y% reduction in costs, via a BIM
 - Similar to the types of information and algorithms adopted by many State Prescription Drug Monitoring Programs

Using privately-insured claims data several important risk factors were identified

Risk Factors from Drug Claims

- Demographics
 - Age (e.g., 18-24 years)
 - Gender (e.g., male)
- Utilization parameters
 - Number of opioid prescriptions
- Atypical prescription-related behavior
 - Receiving opioids from multiple pharmacies or multiple physicians
 - Refilling prescriptions early*
 - Consecutive, large (>50%) increases in dosage

Risk Factors from Medical Claims

- Demographics
 - Age (e.g., 18-24 years)
 - Gender (e.g., male)
- Medical diagnoses
 - Non-opioid substance abuse, depression, PTSD, hepatitis, cancer, fibromyalgia
- Medical treatment facility visits
 - Hospitalizations
 - Mental health outpatient care

Sources: White AG, Birnbaum HG, Schiller M, et al. Analytic models to identify patients at risk for prescription opioid abuse. Am J Manag Care. 2009;15(12):897-906.

Conclusion

Conclusion

- Prevalence of opioid abuse and related health care events continues to grow
- Opioid abuse imposes substantial costs to payers
 - At the patient level, both abusers and their caregivers have substantial excess costs
 - At the societal level, opioid abuse costs over \$50 billion annually
- Two potentially fruitful strategies for addressing opioid abuse are
 - Introduction of opioids designed to deter abuse or ease of extraction
 - Evidence-based analysis to better identify patients who may be at risk for opioid abuse
- Post-launch data on both OxyContin ADOs currently on the market should shed light on the financial impact of ADOs and can be used to estimate actual cost savings, and it appears ADFs are having a positive impact on the rates of prescription opioid abuse

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