Misclassification Bias May Contribute to Overestimates of Use of Specific Opioid Products

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Abstract

Aim
Understanding the extent of misuse of specific opioid products is valuable in making policy decisions. However, self-reports of product use and misuse are subject to misclassification. Product misclassification was assessed by comparing self-reported past year use estimates to sources that track product dispensing and diversion.

Methods
Estimates of past year use from the 2017 National Survey on Drug Use and Health were compared to IQVIA projections of prescriptions dispensed through the retail channel in 2017. Estimates of active pharmaceutical ingredients (oxycodone and hydrocodone) and specific products (OxyContin® and Zohydro® ER) were compared between data sources. Researched Abuse, Diversion and Addiction-Related Surveillance (RADARS®) System Poison Center Program pill identification calls from law enforcement and Drug Diversion Program cases were examined to determine whether discrepancies in estimates between data sources could be attributed to diversion.

Results
Estimates of individuals using oxycodone or hydrocodone in the past year were lower than prescriptions dispensed. By contrast, an estimated 9.1 million individuals used OxyContin in the past year but only 3.4 million prescriptions were dispensed. An estimated 284 thousand individuals used Zohydro ER in the past year but only 74 thousand prescriptions were dispensed. The distribution of pill identification calls and drug diversion cases were similar to prescriptions dispensed: OxyContin accounted for 6.7% of oxycodone prescriptions, 4.9% of oxycodone pill identification calls, and 6.0% of oxycodone diversion cases; Zohydro ER accounted for less than 1% of hydrocodone prescriptions, pill identification calls, and diversion cases.

Conclusion
The finding that past-year use estimates exceed prescriptions dispensed without greater levels of diversion suggests there may be more false positive endorsements of branded products on self-report surveys.

Background

- Product identification is important to understanding emerging trends in opioid abuse and misuse and for assessing the effectiveness of interventions (such as abuse deterrent formulations)
- Self-report survey methodologies are valuable in obtaining information on the misuse of prescription medications but may be subject to information biases

Methods

The aim of this study is to assess potential product misclassification by comparing past year utilization estimates obtained from self-report surveys to sources that track retail product distribution and product diversion. Four data sources were used:

- National Survey on Drug Use and Health: Past year use estimates from the 2016 and 2017 National Survey on Drug Use and Health obtained using https://rdas.samhsa.gov
- IQVIA™ (Danbury, CT) Longitudinal Patient Data projections of prescriptions dispensed in the retail channel in 2016 and 2017
- Researched Abuse, Diversion and Addiction-Related Surveillance (RADARS®) System Poison Center Program drug identification calls from law enforcement in 2016 and 2017
- RADARS System Drug Diversion Program new diversion cases in 2017

Results

Table 1. Distribution of past year use reports, past year non-medical use reports (NSDUH), prescriptions dispensed at retail pharmacies (IQVIA), and drug identification calls by law enforcement (RADARS System Poison Center Program, and Drug Diversion Program in 2017

Drug Group	Past-year Use (in thousands)	Prescriptions Dispensed (in thousands)	Poison Center Drug Identification Calls	Drug Diversion Cases
Hydrocodone	51,979	78,332	2,223	1,525
Oxycodone	26,720	49,938	3,142	2,164
Morphine	6,231	7,720	393	361
Oxymorphone	917	860	146	177

Figure 1. Distribution of past year use reports (NSDUH), prescriptions dispensed at retail pharmacies (IQVIA), and drug identification calls by law enforcement (RADARS System Poison Center Program) in 2016 and 2017

Note: Categories sum to 100% within API and data source. Individuals may be included in more than one groups within or between APIs.

Results

- Estimates of individuals using the active pharmaceutical ingredients (APIs) of oxycodone, morphine, or hydrocodone in the past year were lower than prescriptions dispensed (Table 1)
- Estimates of individuals using oxymorphone were greater than prescriptions dispensed (Table 1)
- Diversion reports per prescription dispensed were highest for oxymorphone
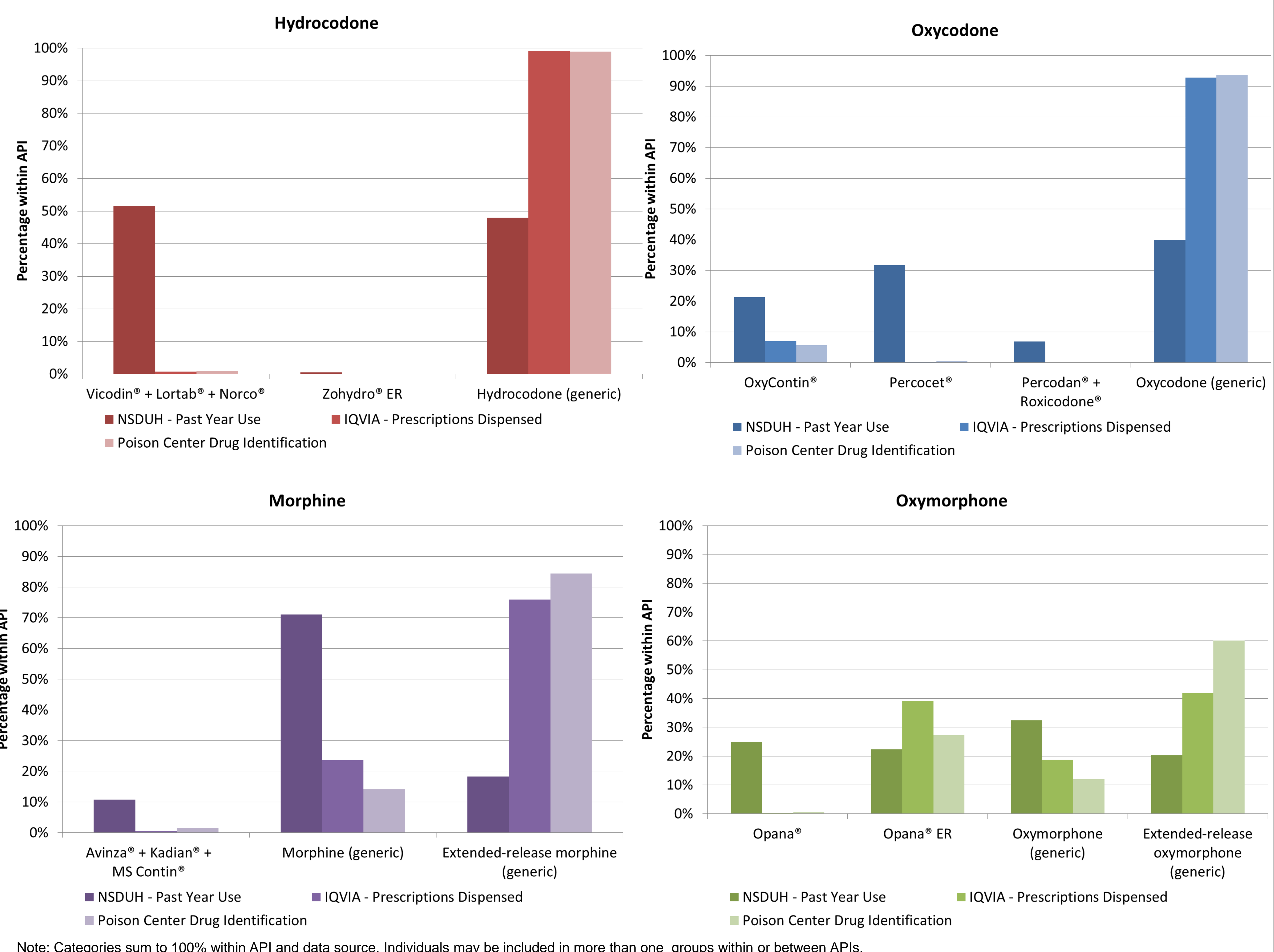
Conflict of Interest

Results

- According to the NSDUH, an estimated 9.1 million individuals used OxyContin in the past year in 2017 but only 3.4 million prescriptions were dispensed in 2017
- An estimated 284 thousand individuals used Zohydro ER in the past year in 2017 but only 74 thousand prescriptions were dispensed in 2017
- Data from 2016 and 2017 were included to expand product specific comparisons (Figure 1)
- Within hydrocodone and oxycodone, branded products made up a much larger percentage of all endorsements of past year use than prescriptions dispensed and drug identification calls (Figure 1)
- Within morphine, "morphine (generic)" endorsements made up a larger percentage of endorsements than prescriptions dispensed and drug identification calls
- Within oxymorphone, "Opana" endorsements made up a larger percentage of endorsements than prescriptions dispensed and drug identification calls

Conclusions

- Past year-use estimates and prescriptions dispensed estimates were comparable for the APIs assessed
- Substantial differences existed between past-year use reports and both prescriptions dispensed and diversion estimates for specific products
- Estimating product utilization via self-report surveys may be valuable in assessing and controlling for product misclassification
- When assessing the misuse and abuse of particular prescription products, data sources with precise product identification are important to provide context to data obtained through self-report assessments

Support