Effects of Hydrocodone Rescheduling on Opioid Prescribing Outcomes: A Systematic Review

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Introduction

- Numerous regulations have been enacted in an effort to mitigate opioid-related harms.
- On October 6, 2014, the Drug Enforcement Administration (DEA) put into effect a rule that rescheduled hydrocodone combination products (HCPs) from Schedule III to II.
- The policy has been implicated in increased prescribing of other opioids and non-opioid analgesics

Study Aim:
Review the existing body of literature for outcomes related to the rescheduling of hydrocodone containing products (HCPs).

Methods

- We restricted the search to English language articles published from Jan 2014 to July 10, 2019 from several databases (see Fig. 1).
- PRISMA guideline was used for screening and reporting of relevant literature.
- Two of three authors (HB, NO, RO) independently extracted each study .
- We adapted relevant items from the Cochrane Risk of Bias in Non-Randomized Studies of Intervention (ROBINS-I) tool to evaluate the risk of bias (ROB) related to quasi-experimental studies – specifically policy interventions.
  - Three domains of the ROBINS-I tool were used: classification of interventions, deviation from intended interventions, and selection of the reports results.

Figure 1. Study flow diagram.

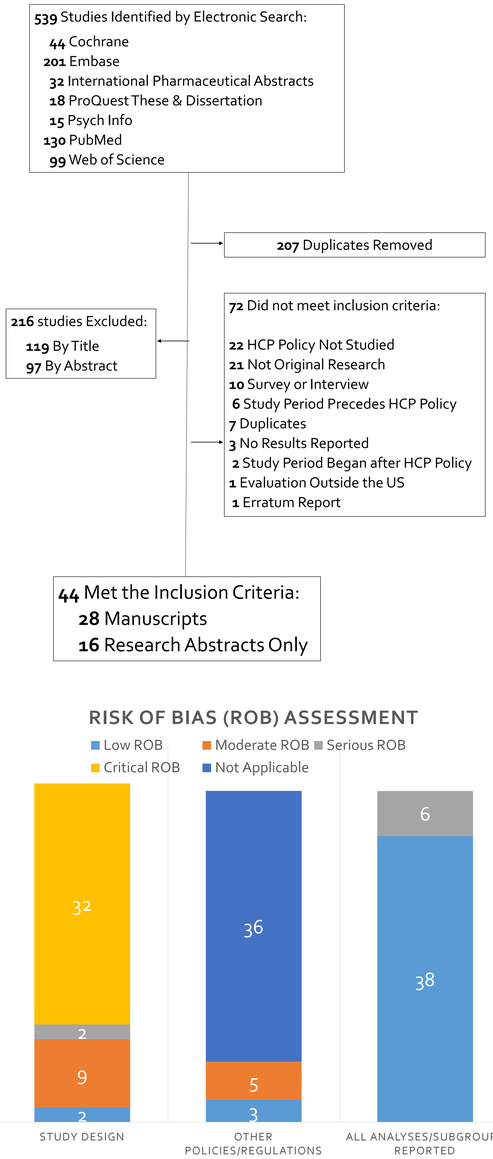
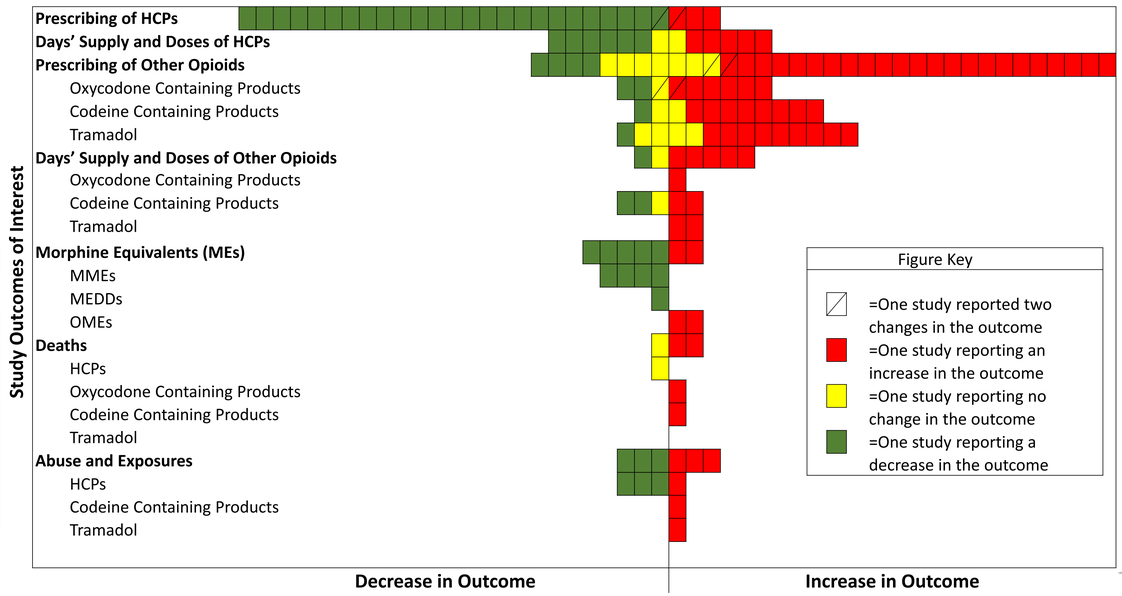


Figure 2. The number of studies reporting an increase, decrease, or no change in the study outcomes.



Results

HCP

- 24 studies reported ↓ HCP prescribing (↓3.1% to ↓66.0%).
- 6 studies reported ↓ in days' supply (↓20.6%) or doses (↓14.0% to ↓80.8%) of HCPs.

Non-HCP Opioids

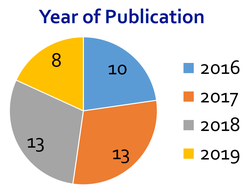
- ↑ prescribing of oxycodone containing products was reported by 5 studies (↑4.5% to
- ↑ prescribing of tramadol was reported by 9 studies (↑2.7% to ↑53.0%).
- ↑ prescribing of codeine containing products was reported by 8 studies (↑0.8% to ↑1352.9%).

MEs

- 5 studies: ↓ in morphine equivalents (MEs) (↓10.8% to ↓66.4%).
- 1 study: ↓ mg/week of HCPs (↓45.1% in Texas, ↓23.7% in Louisiana).
- 1 study: ↓ grams from 2007 to 2017 (↓56.0%).

Deaths

- 1 report: ↑ oxycodone-related deaths from July 2013 to December 2015 (↑12.0%). The same report described ↑ codeine containing product-related deaths (↑32.0%)
- 1 report: ↓ in hydrocodone-related drug overdose deaths but ↔ in age-adjusted deaths.



Discussion

- Increased use of the other Schedule II oxycodone was observed.
- Hydrocodone and oxycodone are likely similar in efficacy, cost, side effect profile, and drug interactions.
- Increased use of codeine containing products (Schedule III, V) and tramadol (Schedule IV) may be due to prescriber preference for drugs with less abuse and dependence potential than hydrocodone and other Schedule II opioids.
- We were unable to conduct a meta-analysis due to the heterogeneity of the studies' characteristics.
- The main strengths of this review are the comprehensive search strategy and the number of outcomes reported across the included studies.
- The main limitation of this study is that we cannot ascertain direct causality between intervention and outcomes.

Conclusions

- The rescheduling of HCPs appears to have resulted in decreased HCP prescribing in a variety of settings and data sources.
- This decrease appears to be matched with an increase in prescribing and days' supply/doses of other opioids (oxycodone, codeine, tramadol).
- A decrease in morphine equivalents was observed (consisting of outcomes reported for HCPs specifically as well as overall opioid MEs outcomes).
- Information on deaths, abuse, and exposures was limited in included studies.

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