

Community Pharmacists' Knowledge of Codeine Use in Children

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Background

- Codeine is a pro-drug that is metabolized by the CYP2D6 enzyme into morphine for its analgesic effects.
- Ultrarapid metabolizers of the CYP2D6 enzyme can convert 5-30 times more codeine than is typical, which can lead to serious adverse effects, such as respiratory depression or death¹.
- In 2011, approximately 1.7 million pediatric patients had a codeine containing prescription filled at US retail pharmacies².
- Numerous cases involving serious adverse effects or fatalities have been reported in children who have been prescribed codeine³⁻⁵.
- In 2013, the FDA added a black box warning to avoid codeine in children after a tonsillectomy⁶.
- Guidelines from the American Academy of Pediatrics and the American College of Chest Physicians have recommended against codeine use in children for both analgesia and cough suppression due to its lack of documented efficacy and concern for potential dangers⁷⁻⁹.
- However, it is unknown if community pharmacists are aware of the current warnings surrounding codeine.

Objective

Primary objective: To determine community pharmacists' knowledge of the black box warning for codeine in children.

Methods

- This study was IRB approved by University of Maryland
- A 16-item survey was administered via survey monkey to community pharmacists in Maryland.
- The survey consisted of questions regarding knowledge of the black box warning for codeine in children and which conditions are appropriate for codeine use.
- Participants were recruited using emails and professional meetings.
- Descriptive statistics were used to analyze results.

Results

- There were 47 responses to the survey, which was a response rate of 34%.
 - 6 were inpatient pharmacists and were excluded from survey questions
 - 8 did not complete the entire survey

Table 1. Demographics

Demographic	Percent	n = 47
Gender		
Male	63.8%	30
Race		
Asian or Pacific Islander	31.9%	15
Black or African American	2.1%	1
White or Caucasian	59.6%	28
Prefer not to answer	6.4%	3
Current Area of Practice		
Independent pharmacy	12.8%	6
Chain pharmacy	21.3%	10
Hospital outpatient pharmacy	44.7%	21
Hospital inpatient pharmacy	12.8%	6
Other (please specify)*	14.9%	7
Years in Community Pharmacy Practice		
n = 38		
Less than 1 year	5.3%	2
1-5 years	31.6%	12
6-10 years	18.4%	7
11-20 years	15.8%	6
20+ years	28.9%	11

*Responses included consultant, government, association management, and academia

- Primary outcome:** 38% (14/37) of respondents were aware of the black box warning.
 - No difference in knowledge based on years in practice, <10 years vs. 11+ years, p=0.32
 - 4/14 respondents (29%) were able to correctly describe the warning in an open ended question.
- 28% (10/35) knew the concern occurred in ultra-rapid metabolizers. (Figure 1)
- Respondents noted it was appropriate to use codeine in a child for pain (41%), cough (32%), and never (27%). (Figure 2)

Figure 1. Knowledge of patient group at risk for adverse events

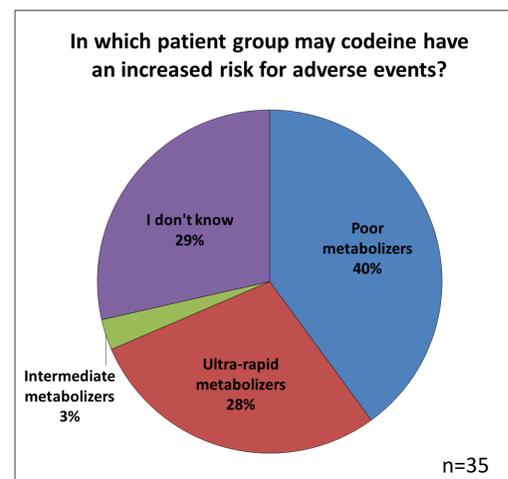
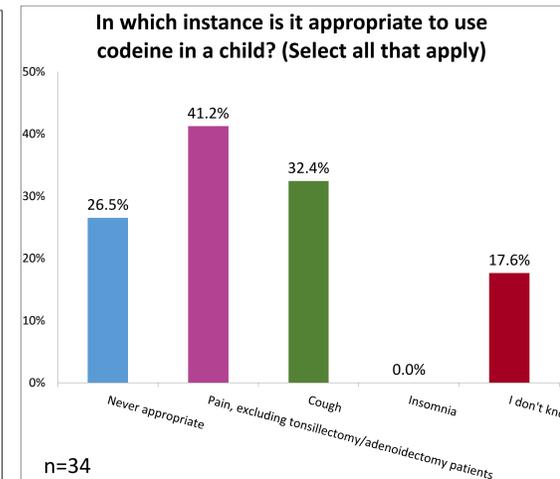
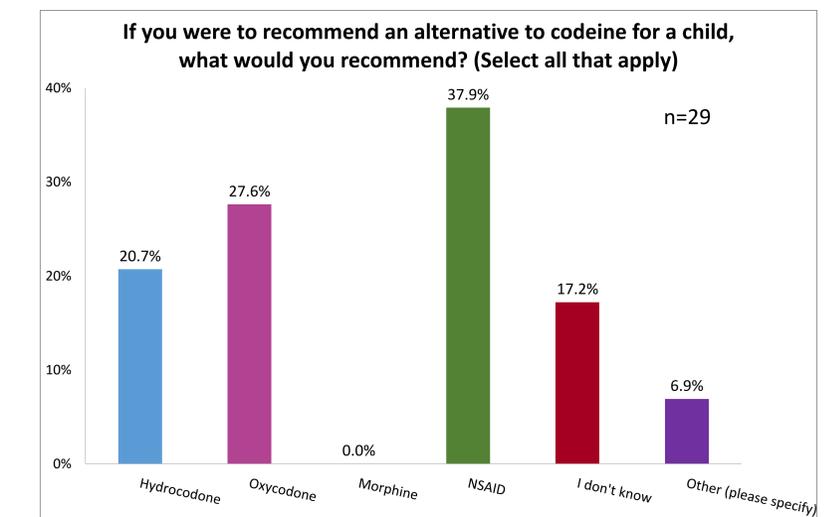


Figure 2. Knowledge of appropriate use of codeine in a child



Results

Figure 3. Recommendations for alternative to codeine



*Reponses in the other category included water and acetaminophen

Conclusions

- The majority of respondents did not know about the codeine black box warning in children.
- Therefore, more education is needed for community pharmacists about pain treatment in children.

References

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