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## Background

Optimal postoperative analgesia requires an assessment of the risks and benefits of a broad array of drugs and other therapeutic modalities. For children, analgesic requirements can be difficult to predict, drug kinetics and dynamics vary as a function of age, habitus, and genetics, and safety in the outpatient setting requires caregiver education and adherence. Recent regulatory changes regarding commonly prescribed analgesics may substantially alter prescribing patterns, but predicting the impact of these policies on post-operative analgesia after ambulatory surgery is difficult as little is known about current practices.

## Goals

To describe current patterns in the prescription of analgesic medications to pediatric patients after ambulatory surgery.

## Methods

This study consisted of a retrospective review of insurance claim data from multiple private payers consolidated in the Truven Marketscan database during 2007-2010. Records were included if professional fee claims for an ambulatory surgical procedure and general anesthesia were filed on the same calendar day. Prescriptions were included if an analgesic drug claim was filed on the day of or the day following surgery.

## Results

936,313 outpatient procedures were analyzed, with 46.1% of children receiving at least one analgesic prescription (Table 1). 96% of children who received a prescription received a product containing acetaminophen (APAP) and an opioid. Proportions of specific drugs prescribed varied with age (Table 2) and among the five most common procedure categories (Table 3). In the years preceding the 2012 FDA warning for codeine after tonsillectomy/adenoidectomy, APAP/codeine accounted for 49.4% of analgesic prescriptions for that procedure.

## Conclusions

APAP/opioid combination drugs were the most common analgesics prescribed to children following ambulatory surgery during the time period under review. Recent changes in FDA warnings for codeine after tonsillectomy and announced plans to reschedule hydrocodone as a Class II controlled substance may have profound and unpredictable changes on prescription patterns, with attendant changes in pain control and patient safety. Pediatric anesthesiologists are in position to provide leadership and expertise during the creation of safe and effective protocols for post-operative analgesia in a period of rapid change.

**Table 01: Dataset and Patient Demographics**

		<b>Post-Op Prescription (n=435,477)</b>	<b>No Post-Op Prescription (n=568,560)</b>
<b>Year (%)</b>	2007	18.9	19.2
	2008	26.9	27.0
	2009	28.1	27.4
	2010	26.2	26.3
<b>Gender (%)</b>	Male	56.8	56.4
<b>Age (%)</b>	< 1 (Infant)	4.2	18.1
	1-4 (Small Child)	22.5	32.4
	5-12 (Child)	35.5	29.7
	>12 (Teen)	37.8	19.8
<b>Geographic Region (%)</b>	Northeast	10.2	11.2
	North Central	32.9	29.4
	South	43.7	45.6
	West	11.2	11.7
	Unknown	2.0	2.1

**Table 02: Prescription Analgesics by Agent Type and Patient Age**

	<b>Infant (&lt; 1y)</b>	<b>Small Child (1y-4y)</b>	<b>Child (5y-12y)</b>	<b>Teen (&gt;12y)</b>
<b>No Prescription Analgesic (%)</b>	81.50	62.24	47.30	31.38
<b>Of Those Receiving a Prescription Analgesic (%)</b>				
Isolated Opiate	2.0	1.1	1.7	4.4
APAP/Codeine	68.0	61.8	52.4	13.5
APAP/Hydrocodone	27.8	35.3	40.5	52.6
APAP/Oxycodone	1.3	1.14	3.1	17.2
Other Opiate Combo	0.0	0.0	0.0	0.5
NSAID	0.8	0.7	2.2	11.8

**Table 03 : Prescription Analgesics by Agent Type and Procedure (Five Most Common Ambulatory Procedure Types)**

	<b>Tonsillectomy/ Adenoidectomy</b>	<b>Ear Procedures</b>	<b>Musculoskeletal Surgery</b>	<b>Eye Procedures</b>	<b>Male Genital Procedures</b>
<b>No Prescription Analgesic (%)</b>	35.9	83.7	32.7	87.4	36.1
<b>Of Those Receiving a Prescription Analgesic (%)</b>					
Isolated Opiate	0.9	0.70	5.1	3.2	2.2
APAP/Codeine	49.4	55.7	19.5	53.7	65.4
APAP/Hydrocodone	45.9	40.2	47.7	32.3	26.9
APAP/Oxycodone	2.9	1.90	16.2	5.6	3.6
Other Opiate Combo	0.0	0.0	0.3	0.1	0.1
NSAID	0.9	1.5	11.2	5.0	1.8