



Trends in Opioid Prescribing in U.S. Emergency Departments Based on Provider Level of Training



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Background and Research Question

- Overall prescribing of opioid analgesics (OAs) has risen dramatically over the past decade.
- Variation in OA prescribing based on provider level of training (PLOT) and specific OAs is less well characterized.
- This study evaluates trends in OA prescribing based on PLOT and investigates the use of specific OAs over time.

Methods

- Review of the National Hospital Ambulatory Medical Care Survey (NHAMCS), 2001-10.
- All ED visits in patients ≥ 18 years of age were included and were stratified into 3 provider categories: attending only, resident, or midlevel provider (physician assistant, nurse practitioner).
- Trends in ED prescribing of OAs based on PLOT, Drug Enforcement Agency (DEA) schedule, and the five most common individual OAs were analyzed.
- Prescribing trends for common non-opioid analgesics (acetaminophen and non-steroidal anti-inflammatories) were also explored.
- The proportion of visits involving each medication was tabulated and trends were analyzed using survey-weighted logistic regression.

Trends in Analgesic Prescribing by Provider Training

Provider Type/Medication	2001 Use (% Visits)	2010 Use (% Visits)	Percent Change	p-Value
Attending				
Any opioid	18.0%	24.1%	33.8%	0.001
CII	6.4%	11.3%	75.7%	0.001
CIII-V	11.3%	12.6%	11.6%	0.098
Codeine	1.9%	1.4%	-24.7%	0.003
Hydrocodone	8.9%	10.9%	22.7%	0.007
Hydromorphone	0.9%	5.2%	500.0%	0.001
Morphine	1.6%	5.2%	219.9%	0.001
Oxycodone	2.4%	4.7%	94.7%	0.001
Non-opioids	25.2%	26.0%	3.4%	0.481
Resident				
Any opioid	15.9%	24.6%	55.3%	0.001
CII	6.8%	11.7%	73.2%	0.001
CIII-V	8.0%	11.5%	44.6%	0.007
Codeine	1.6%	1.6%	1.2%	0.963
Hydrocodone	6.2%	9.7%	56.6%	0.007
Hydromorphone	0.8%	4.9%	529.9%	0.001
Morphine	3.0%	7.1%	139.7%	0.001
Oxycodone	3.3%	7.3%	120.8%	0.001
Non-opioids	30.5%	26.3%	-13.7%	0.207
Mid-Level				
Any opioid	20.0%	25.4%	26.6%	0.003
CII	6.0%	8.8%	45.9%	0.008
CIII-V	13.8%	14.4%	4.9%	0.682
Codeine	2.5%	1.6%	-33.1%	0.036
Hydrocodone	10.6%	12.6%	18.7%	0.18
Hydromorphone	0.7%	3.8%	432.4%	0.001
Morphine	1.7%	4.5%	162.0%	0.001
Oxycodone	2.5%	6.0%	142.3%	0.001
Non-opioids	31.0%	33.7%	8.8%	0.496

Results

- The weighted estimate of ED visits increased from 81.3 to 100.0 million from 2001 to 2010.
- There were differences in OA use between PLOT in 2001; residents prescribed the least OAs ($p=0.01$) compared to other groups.
- By 2010, there was increased OA use for all PLOT, but no difference between groups ($p=0.11$).
- Hydromorphone had the largest proportional increase in prescribing for all PLOT groups.
- There was no increase in non-opioid prescribing for any of the provider groups.

Limitations/Discussion

- Attendings may influence resident prescribing, yet trends could represent increased resident supervision or focus on pain management in training programs.
- Other factors such as patient experience, regulatory, and accreditation requirements could also be driving prescribing rates higher.
- We could not evaluate which specific provider ordered the medication during each visit.

Conclusions

- There were significant increases in OA prescribing across all PLOT; however, the greatest effect was noted in ED visits involving resident physicians.

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