

# Intravenous Hydromorphone Prescribing Patterns in a Community Hospital Emergency Department: an Assessment for Opioid Stewardship Optimization

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## BACKGROUND

- As of 2017 the US department of Health and Human Services declared the Opioid Crisis a public health emergency<sup>1</sup>, making opioid stewardship the responsibility of all involved in the prescribing process.
- Acute pain is a common problem in the emergency department (ED). In some cases, pain has been identified as the chief complaint in upwards of 50% of all ED visits<sup>2</sup>
- Common treatments include non-steroidal anti-inflammatory drugs (NSAIDs), muscle relaxants, anxiolytics, and opioids

## PURPOSE

- Determine prescribing patterns of the opioid hydromorphone ordered intravenously (IV) in the ED
- Identify potential opportunities for opioid stewardship in the ED

## METHODS

### Design

- Retrospective, single center, electronic medical record review
- 29 bed ED, ~ 40,000 annual visits
- Encounters occurred August 2020 to February 2021

### Inclusion criteria

- Patients who visited the ED during the study period and received at least 1 dose of IV hydromorphone

### Exclusion criteria

- Patient was admitted or transferred to another hospital following ED visit
- IV hydromorphone used for end-of-life or comfort care

### Statistical analysis

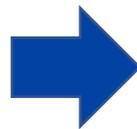
- Chi square statistics were performed using an online calculator on Social Science Statistics, alpha set at 0.05

## RESULTS

- 221 encounters among 204 total patients were evaluated during the study period identified in initial search
- Average patient age: 47.9 +/- 11.8 years

Pain Origin (n, %)		Repeat Visitors, n	
Abdomen	103 (46.6)	2 encounters	9
Musculoskeletal	37 (16.7)	3 encounters	1
Flank	29 (13.1)	4 encounters	3
Back	26 (11.8)	5 encounters	3
Chest	15 (6.8)	7 encounters	1
Headache	7 (3.2)		
Sickle Cell Crisis	4 (1.8)		

67% (149)



Proportion of Encounters with IV hydromorphone as first line

60% (133)



Proportion of encounters with NO morphine or fentanyl allergy

- Physicians more likely to prescribe outpatient opioids than Mid Level providers  $X^2(1, 93) = 9.13, p = .002$
- Those that prescribed hydromorphone first line in >50% of encounters (10/20 providers) evaluated were even more likely to prescribe hydromorphone first line in  $\geq 75\%$  of encounters (8/10)
- Repeat visitors were not more likely to be given IV hydromorphone first line
- Increasing initial pain scores was not associated with first line IV hydromorphone

## DISCUSSION

- When ordered, IV hydromorphone was the first line treatment in most cases
- Disparities in prescribing habits among ED providers have been identified, illustrating potential need for improvement in opioid prescribing habits
- Patients with morphine and fentanyl allergies were significantly more likely to be given hydromorphone first line, which may be appropriate
- Patients with repeat visits were not more likely to be prescribed hydromorphone first line

## LIMITATIONS

- No adjustment for number of provider shifts worked
- Did not evaluate dosing strategies with patient weight

## CONCLUSIONS

- Opportunities to improve prescribing habits at the Olathe Medical Center ED were identified
- Potential initiatives to address current patterns include physician and nursing education and order set modifications that emphasize use of alternative analgesic agents (e.g. ketamine, local anesthetics, NSAIDs)

## AUTHORS' DISCLOSURES

The authors have nothing to disclose concerning possible financial or personal relationships with commercial entities that may have a direct or indirect interest in the subject matter.

## REFERENCES

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