

# The Effect of Language Barrier on Prescribing of Pain Medication for Patients Diagnosed in the Emergency Department with Kidney Stones

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## INTRODUCTION

- Disparities in healthcare delivery is a well studied topic, with race as the main focus.<sup>1,2,3</sup>
- It has been demonstrated that Hispanic patients with isolated long bone fractures were twice as likely as non-Hispanic whites to receive no pain medication.<sup>4</sup>
- However, there is a paucity of research studying the impact of language barriers on care delivered in the Emergency Department.
- This study assessed English Speaking (ES) and Non-English Speaking (NES) patients with a diagnosis of kidney stone for equivalence of pain control. Renal Colic due to Kidney stone is a common cause for need for pain control. Race was assessed secondarily.

## METHODS

- Using Cerner's i2b2 Truman Medical Centers database, data from patients presenting to the ED with diagnoses of kidney stone from 10/1/15 to 3/21/18 was obtained.
- The database was then queried for pain medication given for ES and NES patients.
- The initial data pull identified 4048 patients meeting inclusion criteria, 3793 ES and 255 NES patients.
- To equalize groups, the 255 NES patients and 255 randomly selected ES patients meeting the inclusion criteria were compared.
- Chi Square Test of Association and Odds Ratios were calculated.

## RESULTS

| Drugs                                        | Percent of patients given the Drug | Prescribed more to NES patients | Prescribed more to ES patients | No statistical significance between two groups |
|----------------------------------------------|------------------------------------|---------------------------------|--------------------------------|------------------------------------------------|
| NSAIDs (Ibuprofen, acetaminophen, ketorolac) | 46.1%                              | OR=1.46<br>P = .000012          |                                |                                                |
| Morphine                                     | 26.1%                              |                                 |                                | ✓                                              |
| Acetaminophen-Hydrocodone                    | 24.2%                              |                                 |                                | ✓                                              |
| Fentanyl                                     | 20.0%                              |                                 | OR=281.32<br>P = 6.56E-98      |                                                |
| Acetaminophen-oxycodone                      | 10.6%                              |                                 | OR=1.73<br>P = .00017          |                                                |
| Oxycodone                                    | 6.1%                               |                                 | OR=1.934<br>P = .001           |                                                |

- NES patients were 1.46 times more likely than ES to be given NSAIDS for pain relief.
- ES patients received multiple types of opioids 46% more often than did NES patients.
- ES patients were more likely to receive the more commonly prescribed opioids than NES.
- Black patients and white patients are equally likely to be prescribed opioids.
- White patients are 20% more likely than black patients to receive multiple opioids.
- Races other than white were 2.91 times less likely to receive multiple opioids.

## CONCLUSION

- Language spoken and race both impact the type and amount of pain medication prescribed for kidney stones in the ED.
- The language disparity may indicate that a better effort to re-evaluate NES patients with painful conditions is merited. Additionally, utilization of translation services by ED staff must also be improved.
- Limitations:
  - Medication duplications were generated by i2b2 database resulting in lost data.
  - The processing capability of i2b2 limited data acquisition thus limiting sample size.
- Future studies of disparities in health care due to language barriers present additional research opportunities to further understand this inequity. Also, modes of care delivery including ordering of imaging, laboratory studies, use of antibiotics for infection, and ED length of stay should be studied.

## REFERENCES

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