

# Quality Improvement Project Regarding Concomitant Administration of Promethazine and Opioids in Hospitalized Patients with Chronic Pain

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## Background

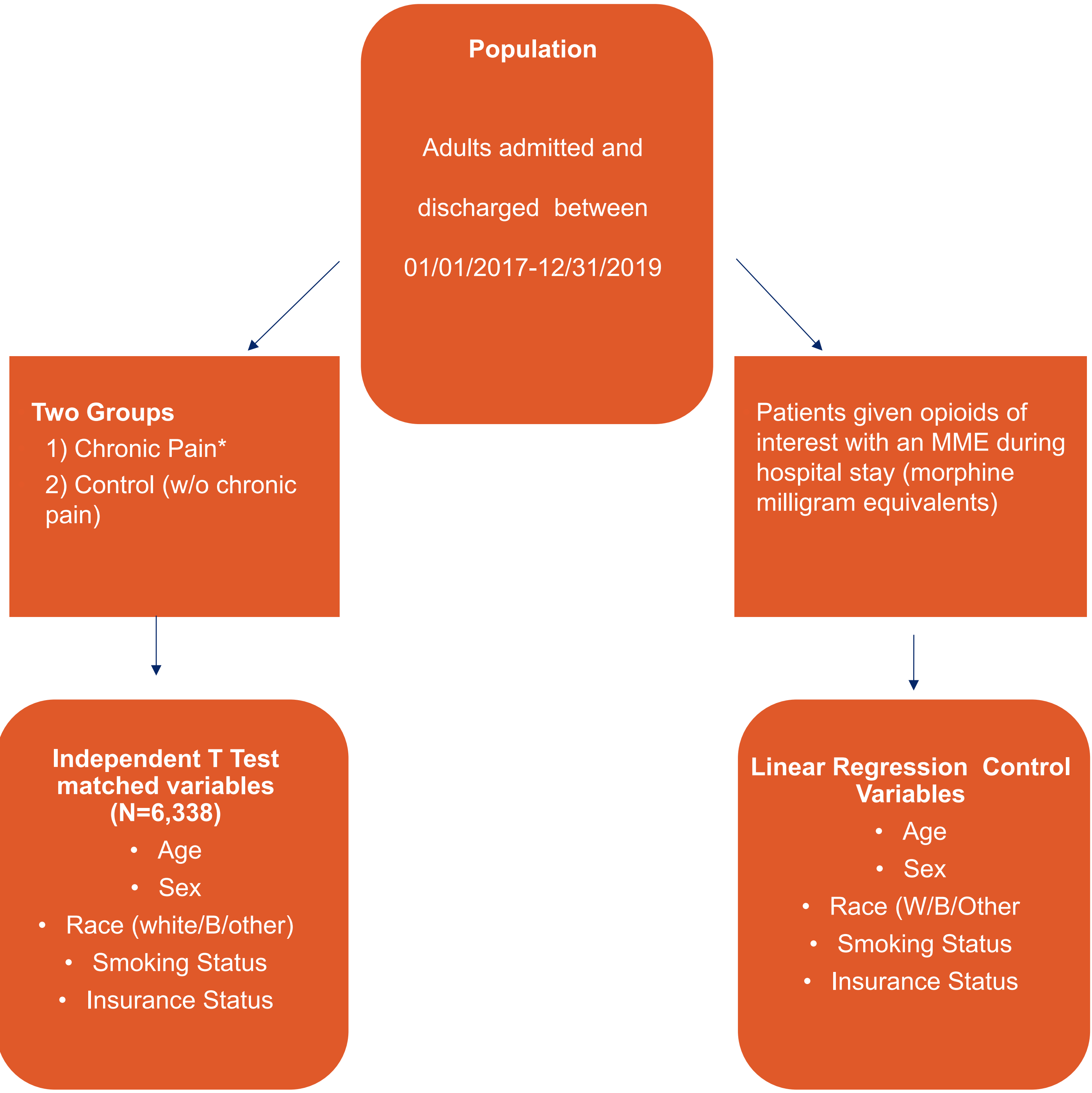
- Promethazine is a drug used to treat nausea, allergies, insomnia, and as an adjunct for procedural sedation. It is known to potentiate the euphoric effects of opioids. According to a 2015 study by Lynch et al., 4.5% of chronic pain patients tested positive for promethazine for which they did not have an active prescription.
- Promethazine use has also been studied in methadone maintenance patients and intravenous drug users, and provides compelling evidence of promethazine's potential for abuse.
- Minimal literature has studied promethazine use in hospitalized patients that have chronic pain or the characteristics of users more likely to receive the medication.

## Objective

To spread the awareness and education of medical staff in regard to patients with pre-existing diagnosis of chronic pain who receive more promethazine than those without a diagnosis of chronic pain.

To determine the characteristics of users more likely to receive Promethazine and being aware of those characteristics.

## Methods



\*Chronic Pain Inclusion: If associated with an ICD 10 code for chronic pain, not elsewhere classified, chronic pain due to trauma, chronic post-thoracotomy pain, other chronic post procedural pain, or other chronic pain

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## Results

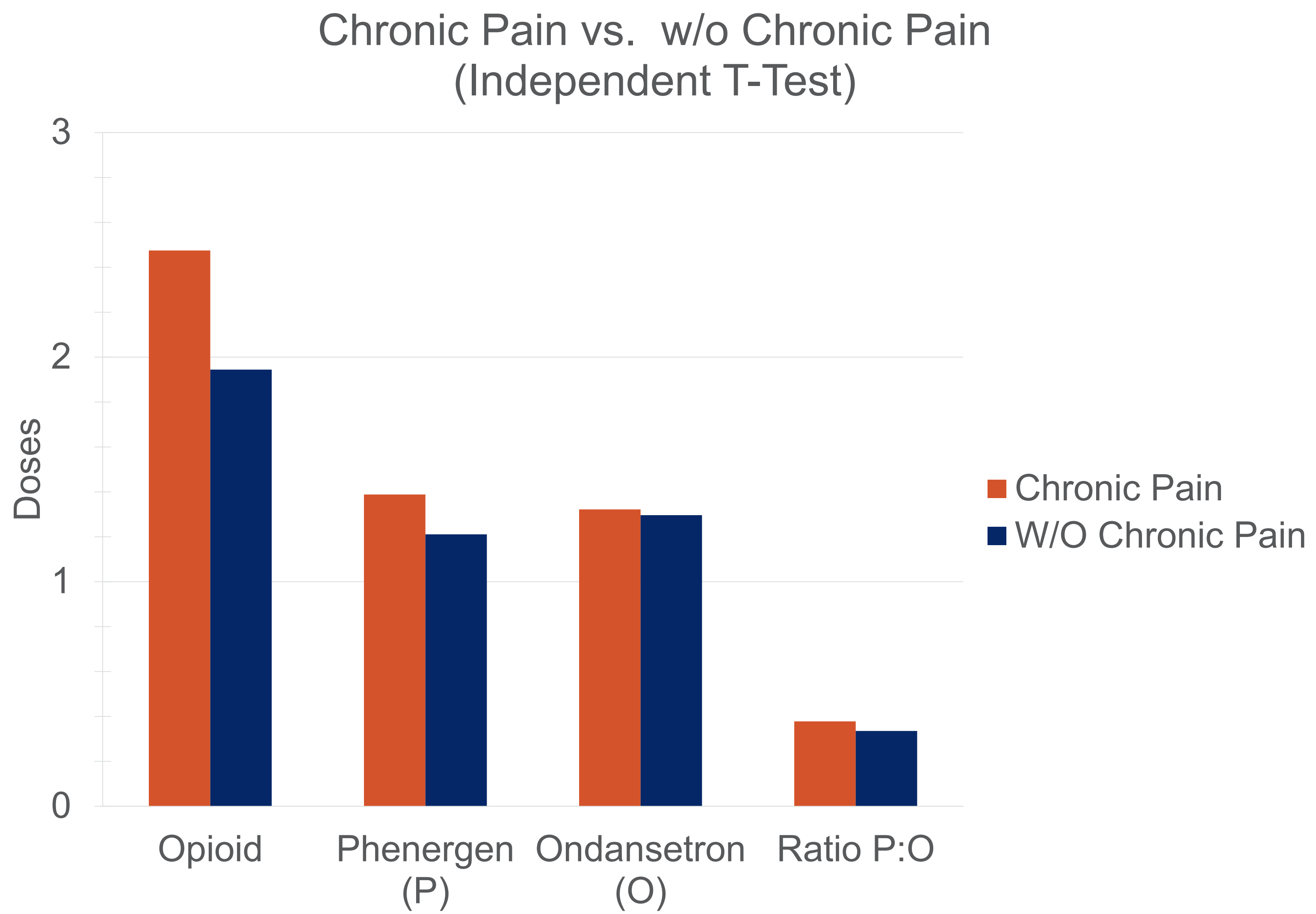
Table 1: Promethazine Administration (Linear Regression N=1,334)

Model	Unstandardized B	P-Value
Chronic Pain	3.547	<0.001
Age	-0.098	<0.001
Sex (Male)	-1.162	0.029

Table 2: Daily MME (Linear Regression (N=19,439)

Model	Unstandardized B	P- Value
Chronic Pain	1.666	<0.001
Age	-0.034	<0.001
Race (Black)	-1.454	<0.001
Uninsured	-1.390	<0.001

Graph 1



P-Value (Equal Variances Not Assumed)	Opioids <0.001	Phenergan <0.001	Ondansetron 0.149	Ratio P:O 0.032
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## Discussion

- Patients with a pre-existing diagnosis of chronic pain, female gender, and decreased age were all associated with a modest increased promethazine usage while hospitalized.
  - Factors that might explain the chronic pain group association include these patients truly experiencing more nausea and/or are seeking out the euphoria of promethazine either consciously or subconsciously.
- Patients with chronic pain are more likely to receive ondansetron doses, but did not end up receiving more ondansetron overall.
  - This could indicate patients with chronic pain are less likely to receive a repeat dose of ondansetron, instead escalating to promethazine. The finding that the chronic pain group received a higher ratio of promethazine to ondansetron is consistent with this theory.
- As expected, based on presumably high rates of home usage, and therefore tolerance, patients with a diagnosis of chronic pain received more opioids while hospitalized.
- Limitations to this study include generalizability, due to the study being conducted from only one institution and inability to establish if increased promethazine use was patient or prescriber driven.

## Conclusion

- The results of this study provide further data to suggest chronic pain patients are more likely to receive promethazine while hospitalized, if that is patient or prescriber driven. It has also further characterized certain demographics that are associated with increased usage of the medication. As healthcare providers it is our duty to be aware of such characteristics and tendencies.
- Further studies, across institutions, are needed to study promethazine use in hospitalized chronic pain patients. In addition, studies examining motives and adverse effects from increased usage in chronic pain patients are necessary.

## References

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