Optimizing Opioid Prescribing Practices Post Thyroidectomy: A Quality Improvement Intervention

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Introduction

- Overprescription of opioids for acute surgical pain has been identified as a significant contributor to chronic opioid use, misuse & diversion[1,2]
- In the province of Alberta alone, in 2017, 66% of opioid-related accidental deaths occurred within 30 days of filling an opioid prescription[3]
- Studies have shown a large degree of heterogeneity in opioid prescription after thyroid surgery, ranging between 18-270 milligram morphine equivalents (MME)[4]
- Even though multimodal and non-opioid analgesia regimens have been proposed, no standardized regimen has been proposed in the literature or by clinical practice guidelines
- To address this gap, this project sought to implement a quality improvement intervention (QI) to standardize and reduce opioid prescriptions following adult total and hemi-thyroidectomy

Methods and Materials

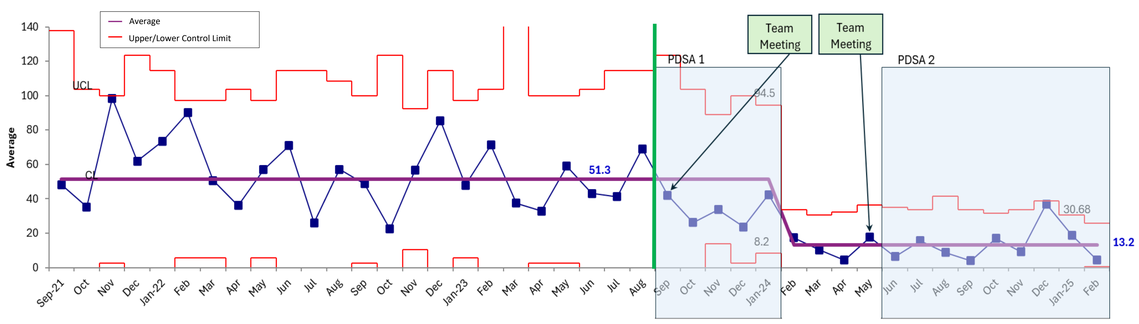
A multimodal post-thyroidectomy pain management protocol based on literature review and expert opinion was established, and a target dosage of 10 MME was chosen. To measure patients' opioid prescriptions, a unique linkage between a citywide, multi-institutional electronic medical record (Epic) and outpatient pharmaceutical database was developed. Control charts were utilized to compare measures between pre- and post-intervention groups. Plan-do-study-act (PDSA) cycles were used to (1) standardize discharge of opioid prescriptions and (2) implement distribution of patient handouts on opioids.

The QI intervention was initiated on Sep. 1, 2023. The following variables were measured:

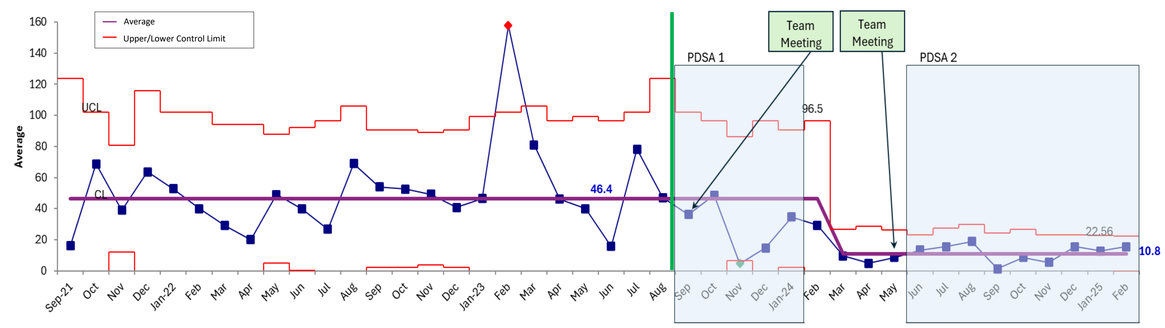
- Outcome Measure: Opioid medications filled within 3-days after discharge (MME)
- Process Measure: Percentage of discharge prescriptions exceeding target MME
- Balancing Measure: Opioid prescription refills, between 4-90 days after discharge

Results

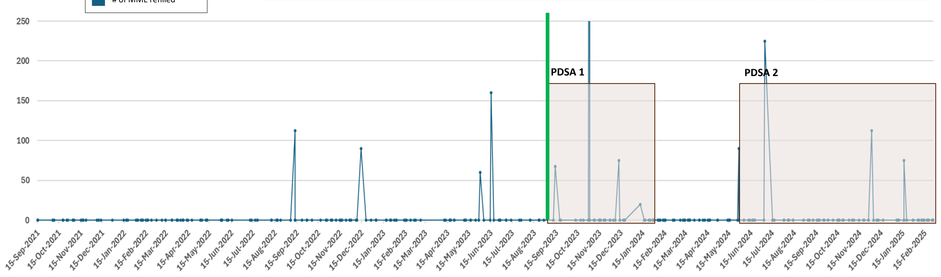
a) **Total Thyroidectomy – 0 to 3 days MME – Process Measure**



b) **Hemi Thyroidectomy – 0 to 3 days MME – Process Measure**



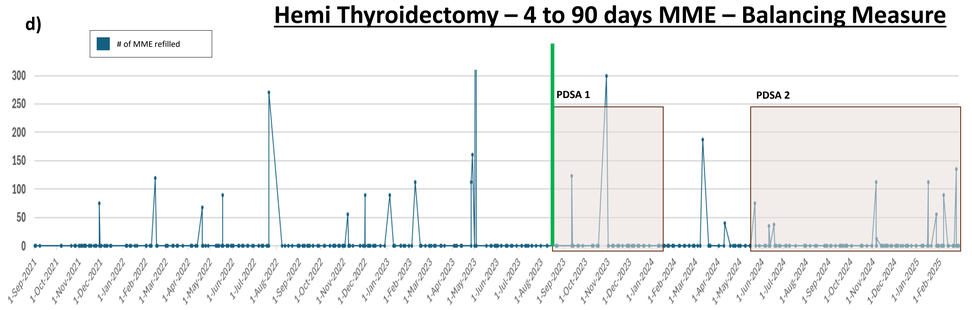
c) **Total Thyroidectomy – 4 to 90 days MME – Balancing Measure**



Before PDSA1	
Rx>10 MMEs	4
Total Rx	156
Rx>10 %	2.56%

After PDSA1	
Rx>10 MMEs	8
Total Rx	171
Rx>10 %	4.68%

d) **Hemi Thyroidectomy – 4 to 90 days MME – Balancing Measure**



Before PDSA1	
Rx>10 MMEs	12
Total Rx	258
Rx>10 %	4.65%

After PDSA1	
Rx>10 MMEs	13
Total Rx	237
Rx>10 %	5.49%

Figure 1. Green line denotes the date of initiation of the quality improvement intervention. Two plan-do-study-act (PDSA) cycles were completed during the intervention period. Average MME of discharge prescriptions within 3-days after **(a)** total thyroidectomy and **(b)** hemi thyroidectomy. Outcome measures are an X-bar chart of opioid discharge prescriptions. Number of MME refill prescriptions between 4-90 days after **(c)** total thyroidectomy and **(d)** hemi thyroidectomy

A total of 79 total and 133 hemi-thyroidectomy opioid-naïve patients (ONPs) were included in the pre-intervention phase, with 102 and 141 ONPs in the post-intervention phase.

Total thyroidectomy: A mean of 51.3 MME was prescribed during pre-intervention, compared to 13.2 MME post-intervention. Pre-intervention, 70% of patients were given prescriptions exceeding 10 MME, compared to 36.5% post-intervention.

Hemi-thyroidectomy: A mean of 46.4 MME was prescribed during pre-intervention, compared to 10.8 MME post-intervention. Pre-intervention, 55.8% of patients were given prescriptions exceeding 10 MME compared to 32.1% post-intervention.

No meaningful difference was observed in prescription refills 4-90 days after discharge between ONPs in pre- and post-intervention phase.

Limitations

1) Unclear Medication Use: No data available on whether prescribed medications were consumed by the patient, as dataset only captured dispensing quantity
2) Lack of Patient Perspective: Missing patient-reported outcomes and insights into whether this protocol was sufficient in controlling pain, as well as reasons behind patient seeking more opioids
3) Unmodifiable Factors: Study did not explore non-adherence related to structural or systemic barriers beyond clinical control

Conclusion

- This QI initiative was able to achieve a significant reduction in opioids prescribed at discharge, with no reciprocal increase in refill requests.
- Control charts have shown to be a valuable and effective tool in monitoring and sustaining improvements in a QI initiative.
- Future efforts will incorporate patient-reported outcomes, as well as better elucidate factors behind non-adherence to recommendations.

Contact

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References

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