

5-1-2013

A Retrospective Analysis of Opioid Consumption Among Different Orthopedic Surgeons for Total Joint Replacement

Costas J. Gioules

University of Massachusetts Medical School, Costas.Gioules@umassmed.edu

Hayden B. Rockson


University of Massachusetts Medical School, Hayden.Rockson@umassmed.edu

Russell M. Flatto

University of Massachusetts Medical School, Russell.Flatto@umassmemorial.org

See next page for additional authors

Follow this and additional works at: <http://escholarship.umassmed.edu/ssp>

 Part of the [Anesthesiology Commons](#), [Chemical Actions and Uses Commons](#), [Orthopedics Commons](#), and the [Surgery Commons](#)

Repository Citation

Gioules, Costas J.; Rockson, Hayden B.; Flatto, Russell M.; Almeda, Arnel J.; and Schwagerl, Anthony L., "A Retrospective Analysis of Opioid Consumption Among Different Orthopedic Surgeons for Total Joint Replacement" (2013). University of Massachusetts Medical School. *Senior Scholars Program*. Paper 151.
<http://escholarship.umassmed.edu/ssp/151>

This material is brought to you by eScholarship@UMMS. It has been accepted for inclusion in Senior Scholars Program by an authorized administrator of eScholarship@UMMS. For more information, please contact Lisa.Palmer@umassmed.edu.

A Retrospective Analysis of Opioid Consumption Among Different Orthopedic Surgeons for Total Joint Replacement

Authors

Costas J. Gioules, Hayden B. Rockson, Russell M. Flatto, Arnel J. Almeda, and Anthony L. Schwagerl

Comments

Medical student Costas Gioules participated in this study as part of the Senior Scholars research program at the University of Massachusetts Medical School.



A Retrospective Analysis of Opioid Consumption Among Different Orthopedic Surgeons for Total Joint Replacement



C.J. Gioules, H.B. Rockson, R.M. Flatto, A.J. Almeda and A.L. Schwagerl

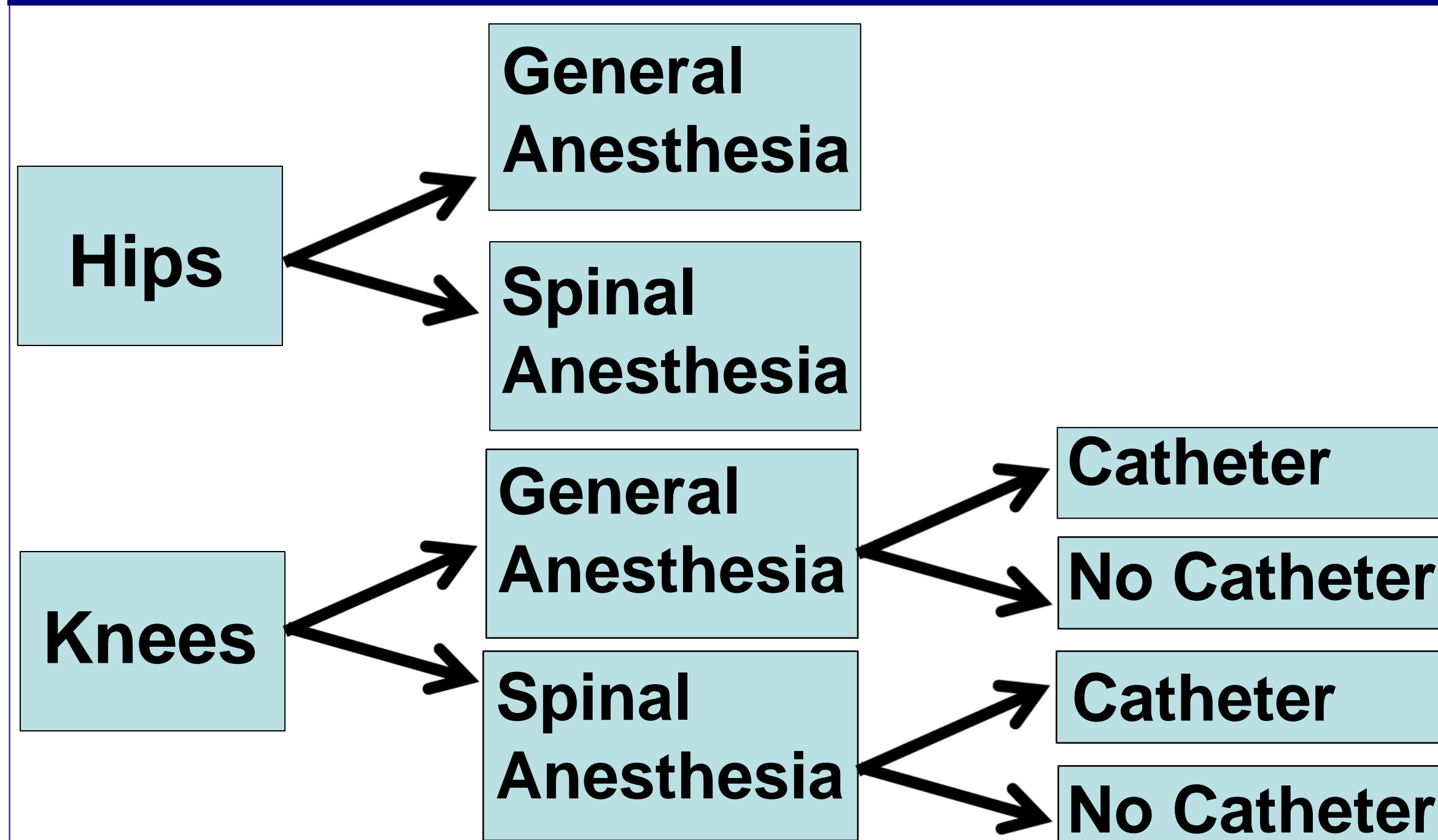
Hypothesis

- ❖ Is there a significant variability between surgeons in terms of perioperative opioid consumption?
- ❖ Is there a difference in opioid consumption postoperatively whether general or spinal anesthesia was used intraoperatively?
- ❖ Does an indwelling catheter influence postoperative opioid consumption?

Introduction

- ❖ Throughout the world, baby boomers reaching their sixth, seventh, and eighth decade of life are requiring a significant number of total joint replacements (TJR). Because of these trends, a detailed understanding of the perioperative issues, specifically pain management is extremely important to a successful and effective procedure.
- ❖ In an effort to address pain management, an in-depth retrospective analysis of opioid consumption for TJR was conducted, evaluating the effect of the type of anesthetic, presence of indwelling catheters, and inter-surgeon variability. The results were obtained by analyzing intraoperative, postoperative, and total opioid consumption for 192 patients over 10 months.

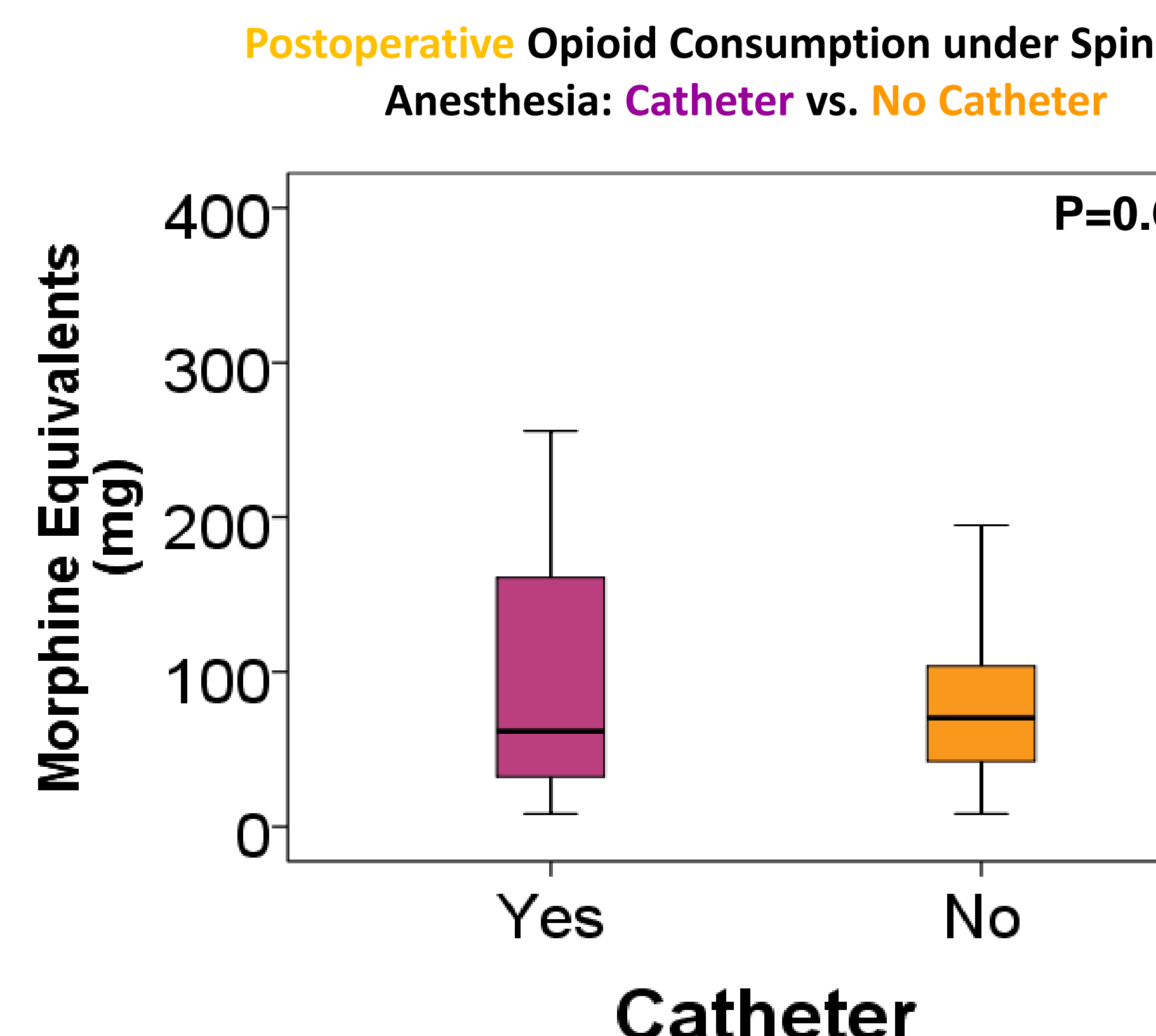
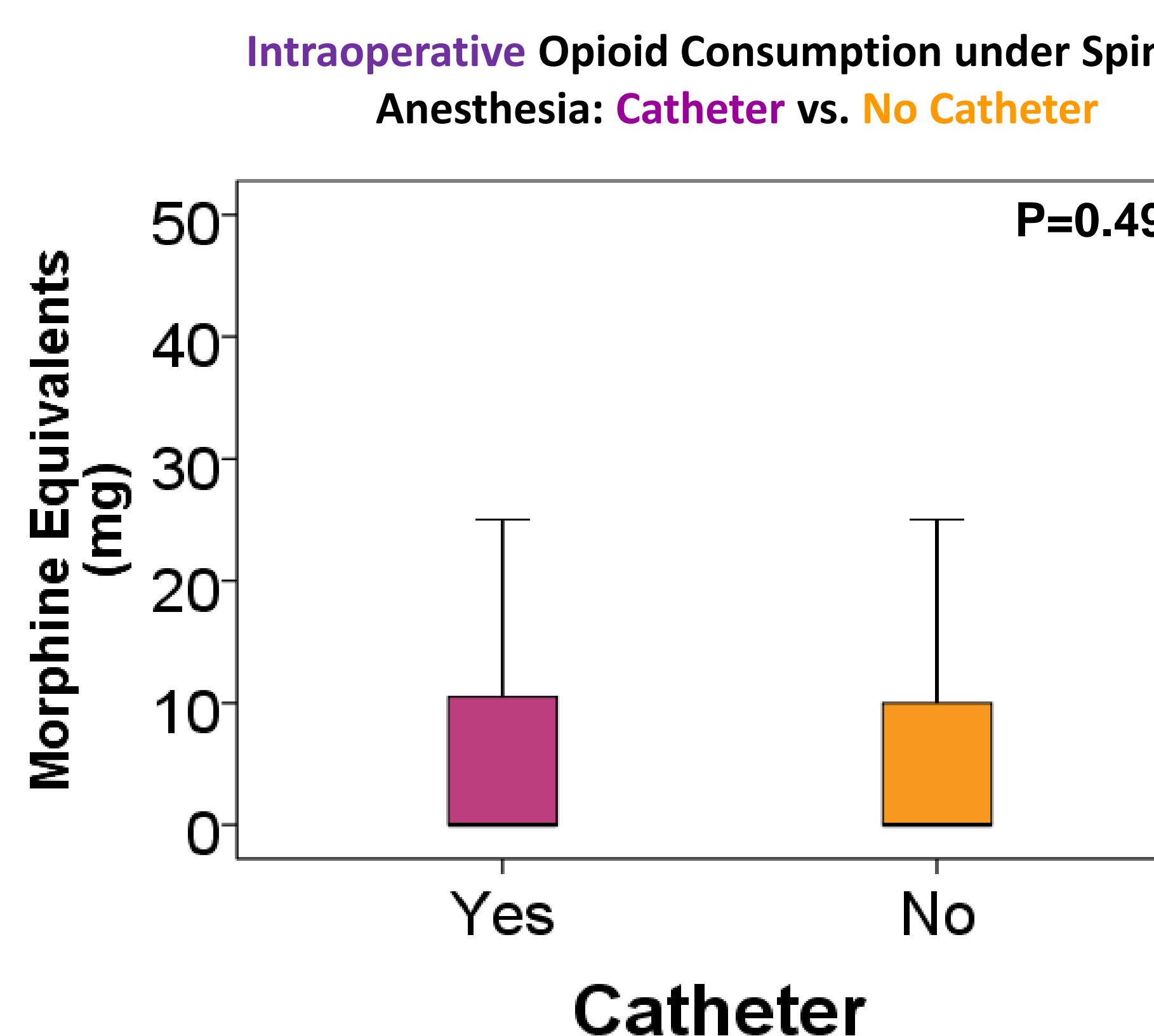
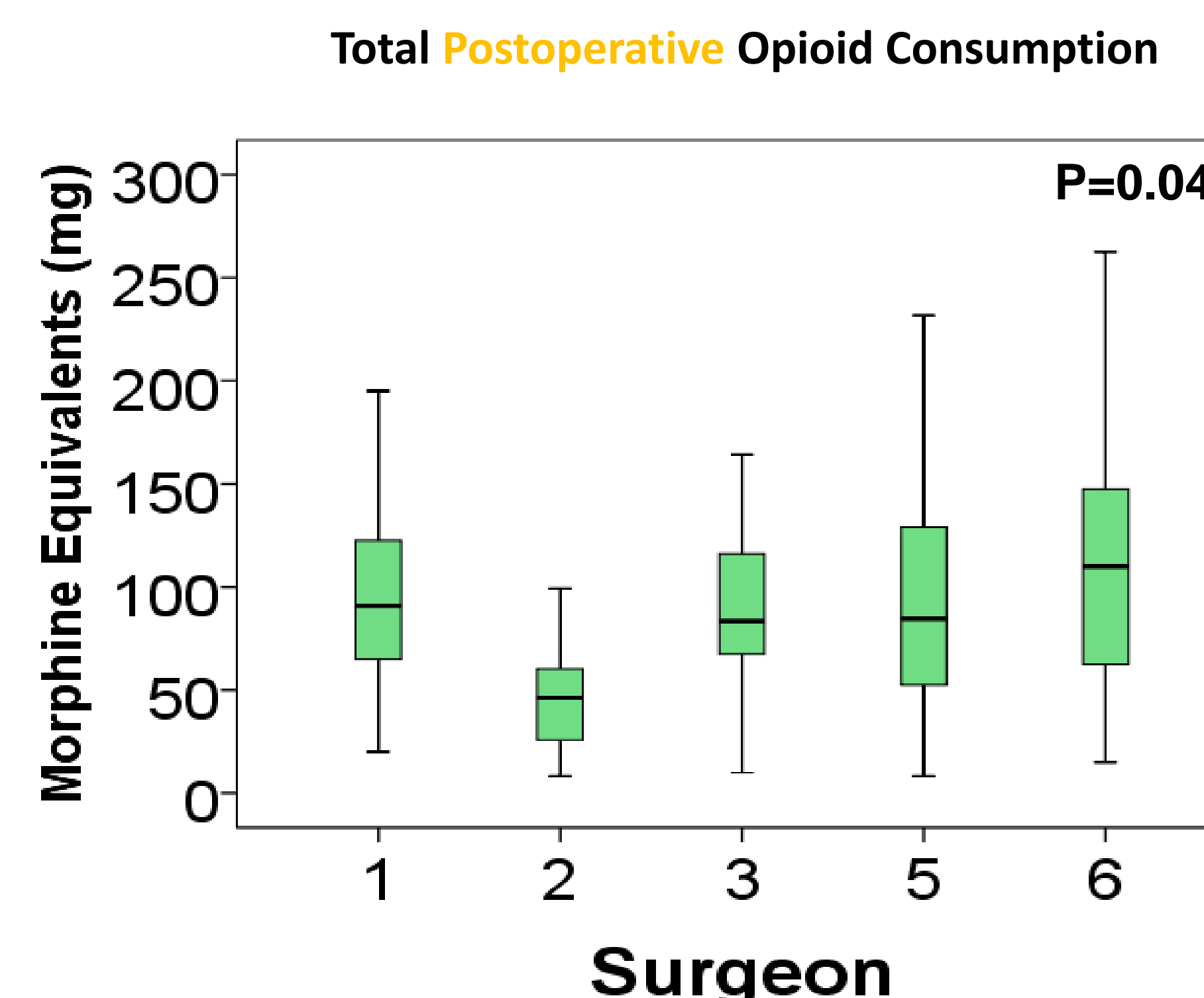
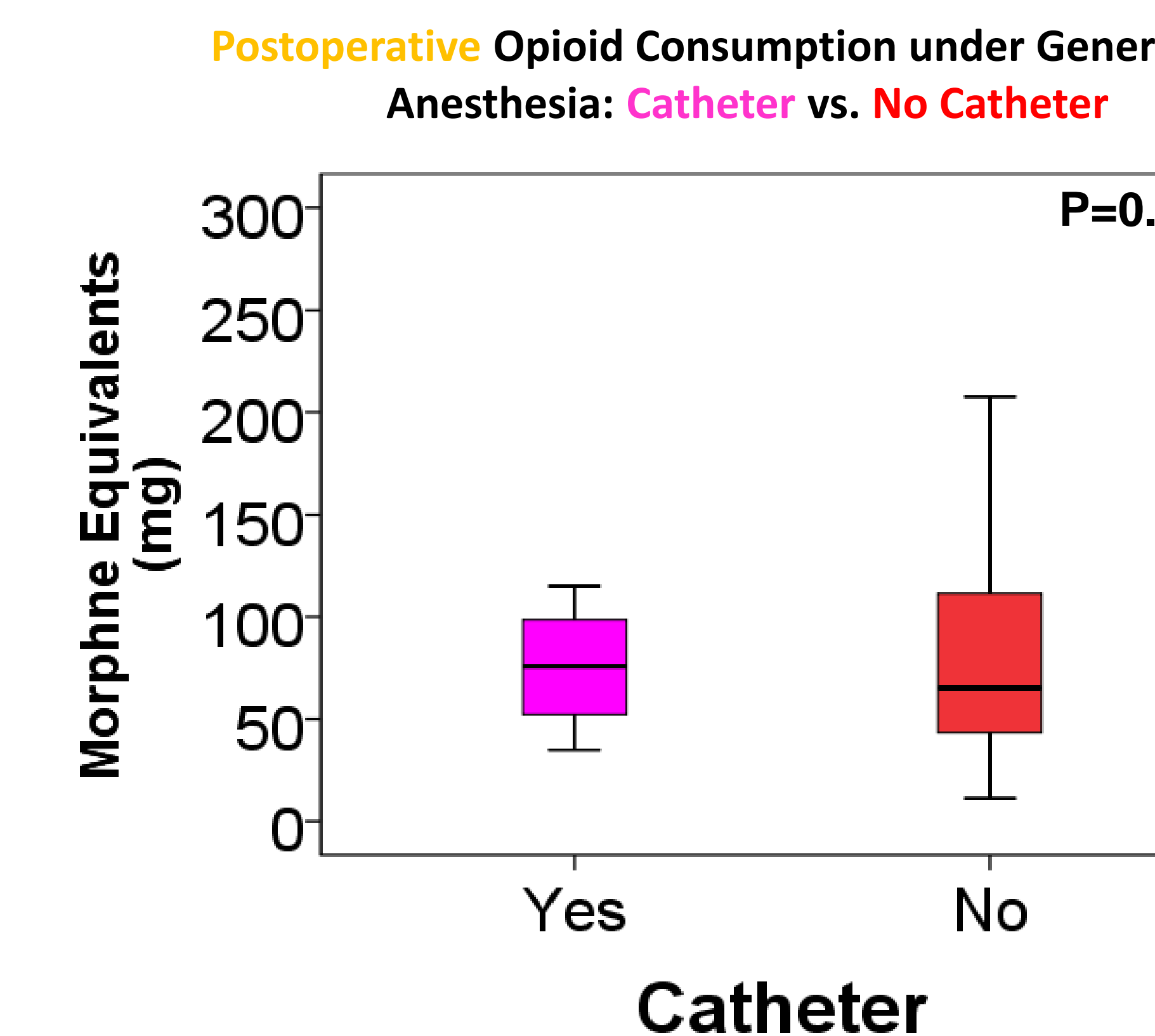
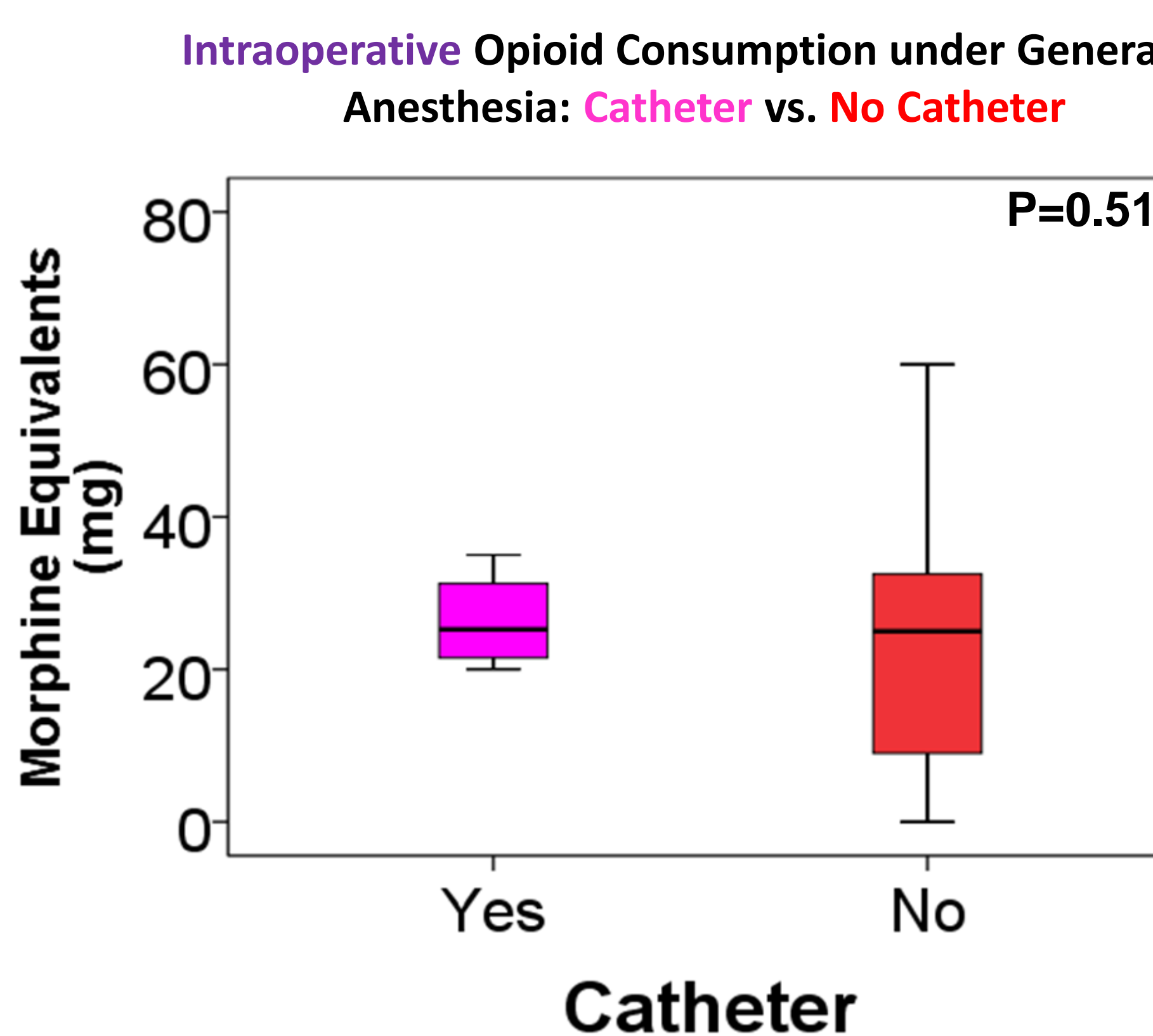
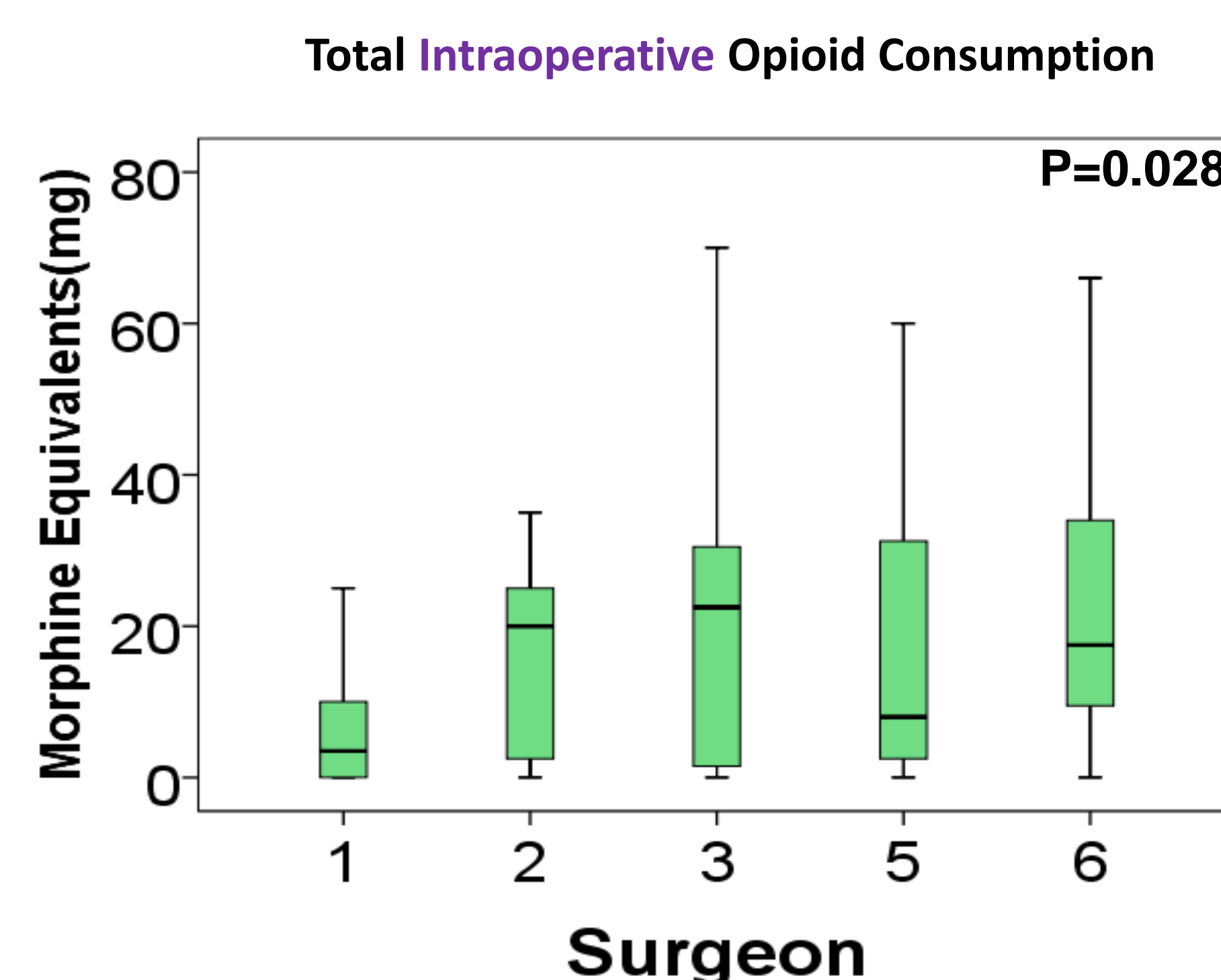
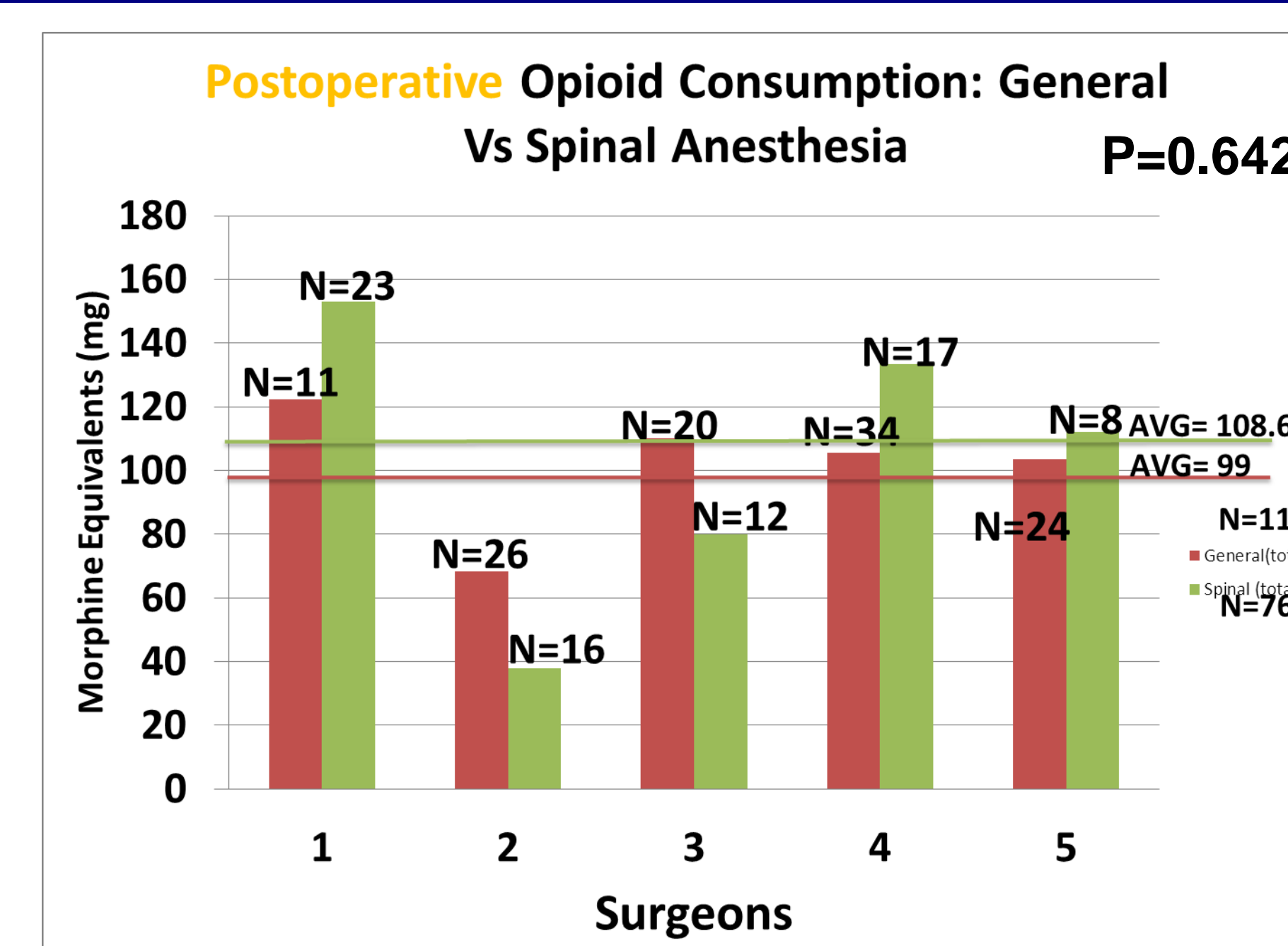
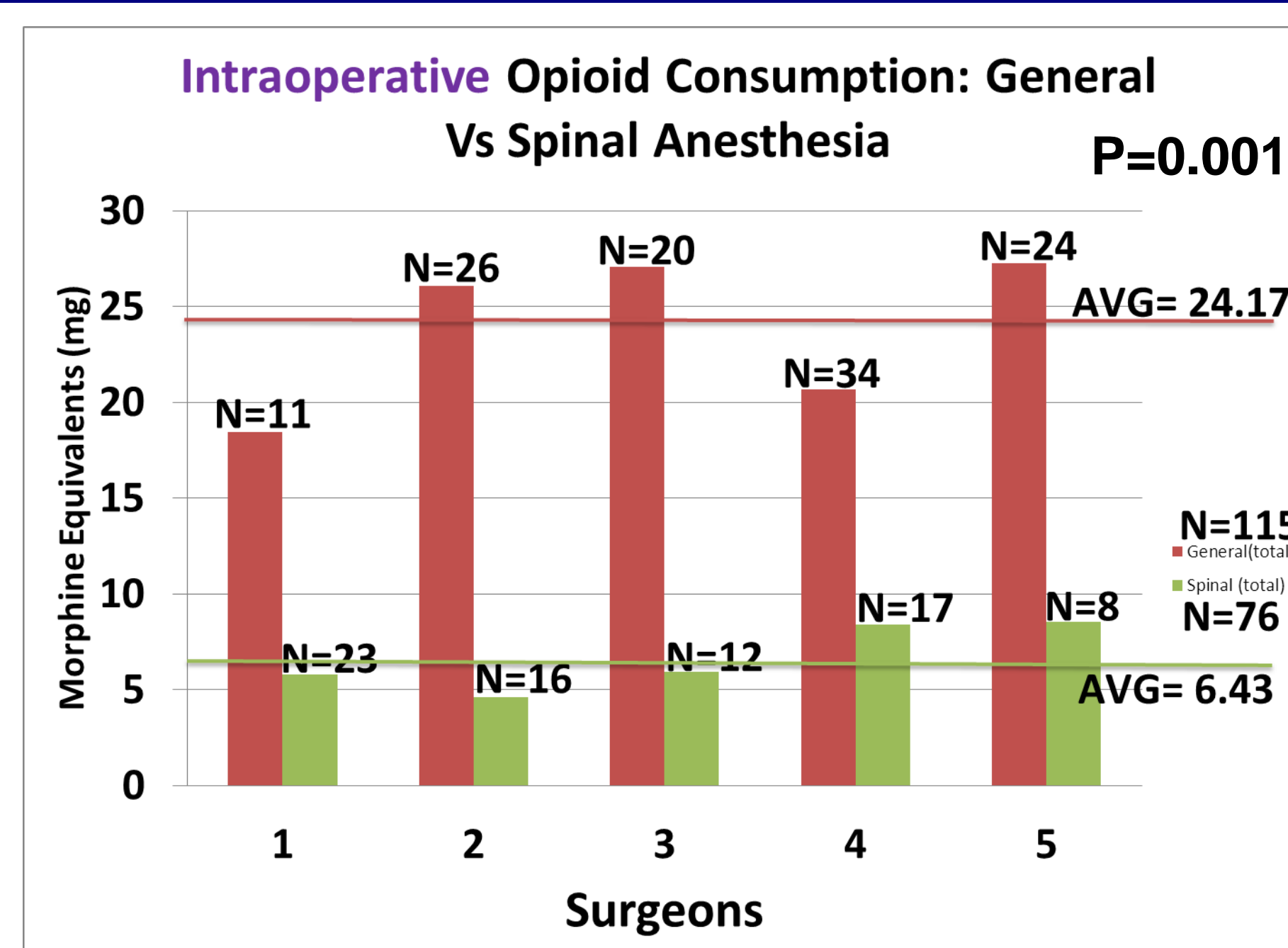
Methods



Variables Under Examination

- 1) Type of Anesthetic: General or Spinal
- 2) Catheter Use: Yes or No
- 3) Intraoperative Opioid Use
- 4) Postoperative Opioid Use
- 5) Total Opioid Use
- 6) BMI vs. Opioid Use
- 7) Age vs. Opioid Use
- 8) Patient Satisfaction vs. Opioid Use
- 9) Statistical method used: ANOVA

Results



Summary

- ❖ **Type of Anesthetic:** The patients undergoing spinal anesthesia used statistically significant ($p < 0.001$) less opioids intraoperatively, but not postoperatively, compared to general anesthesia.
- ❖ **Indwelling-Catheters:** As for catheter use, surprisingly, there was no significant difference ($p > 0.05$) in opioid consumption, intraoperatively or postoperatively, compared to the non-catheter counterpart.
- ❖ **Surgeon:** The data showed inter-variability amongst the surgeons in terms of total intraoperative ($p = 0.028$) and postoperative ($p = 0.042$) opioid consumption.

Conclusions

- ❖ **Surgeon:** The inter-variability amongst surgeons may be secondary to surgical technique or the demographics of the patient population. Further studies to examine these potential etiologies might lead to better pain control and less opioid consumption across all joints with all surgeons.
- ❖ **Perioperative Period:** One major limitation was the absence of a standardized protocol in opioid delivery, intraoperatively.
- ❖ **Catheters:** Limitations include small sample size and the fact that many of the catheters were used in opioid-tolerant individuals. A larger sample size might show statistical significance.

Acknowledgments

Statistician Louise Maranda, PhD, and Quantitative Health Sciences

Chairman Stephen Heard, M.D., Vice Chairman Stephen Kapaon, M.D., and the UMass Memorial Department of Anesthesiology

Drs. Ayers, Johnson, Katzen, Metzmaker, and Most of the UMass Department of Orthopedics