

The impact of standardizing preoperative insulin instruction and glucose optimization on postoperative patient outcomes.

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Introduction

- Hyperglycemia in the perioperative period is associated with increased perioperative complications.
- There is limited research regarding the relationship between standardization of pre-operative diabetic medications and rates of surgical outcome.
- In January 2019, the anesthesia preoperative center (APEC) at Penn State Hershey Medical Center implemented the standardization of preoperative diabetic medication instructions, for both oral hypoglycemics and insulin.
- The aim of this change was to improve perioperative glucose management on the day of surgery with the hope of decreasing complications in the perioperative period.

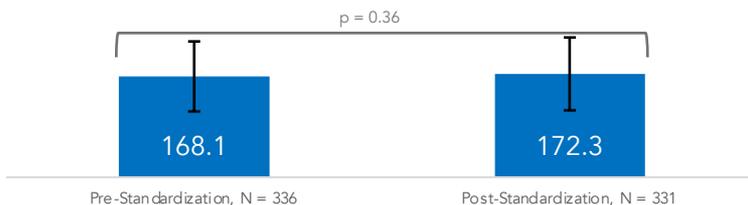
Methods

- A retrospective review was performed on patients:
 - who were on oral hypoglycemic or insulin medication for diabetes mellitus
 - were admitted for elective non-cardiac surgery
 - had been evaluated by APEC between 1/1/2018-12/31/2018 (pre-standardization) and 1/1/2019-12/31/2019 (post-standardization).
- The primary outcome measured was postoperative point of care glucose levels.
- The secondary outcomes measured were post-operative infections, rate of diabetes complications (DKA, HHS), 30-day hospital readmission rate, return to the operating room and postoperative surgical site infections.

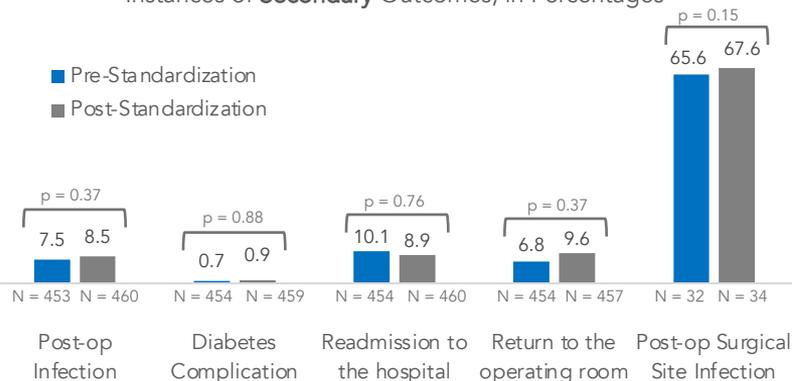
Results

- A total of 917 patients were included. 454 were in the pre-standardization group, 463 were in the post-standardization group.

Average Postoperative Glucose



Instances of Secondary Outcomes, in Percentages



Conclusions

- There is no statistically significant difference in perioperative outcome before and after the standardization of preoperative diabetic medication instruction.
- This was most likely due to a low incidence of surgical complications in both populations.
- Future studies may include larger sample sizes to evaluate the efficacy of standardization on perioperative diabetes medication instructions and perioperative outcome measures.

Literature cited

1. Frisch A, Chandra P, Smiley D, Peng L, Rizzo M, Gatcliffe C, Hudson M, Mendoza J, Johnson R, Lin E, Umpierrez GE. Prevalence and clinical outcome of hyperglycemia in the perioperative period in noncardiac surgery. *Diabetes Care*. 2010; 33(8):1783-8.
2. Duggan, EW, Carlson, K, Umpierrez, GE; Perioperative Hyperglycemia Management: An Update. *Anesthesiology* 2017; 126(3):547-560.