

Perioperative Hyperglycemia Prevention for Patients Undergoing Colorectal Surgery

Tucker Devore, BSN, RN; Chika Igwe, BSN, RN, CCRN; Matthew Mustard, BSN, RN, CCRN; Julie Bonom, DNP, CRNA; Michael Godbold, MD

BACKGROUND

- Poor perioperative glycemic control is associated with increased infection rates, poor wound healing, and death for patients undergoing colorectal surgery.¹
- According to Reudnik et al. (2021), only 5% of colorectal surgery patients with intraoperative blood glucose (BG) levels between 101-125mg/dL experienced anastomotic leak (AL), compared to 15% of patients whose BG levels were over 200 mg/dL.³
- Perioperative BG levels less than 200 mg/dL have been identified as a nationally accepted benchmark for all surgical patients.²
- A concise perioperative glycemic control protocol is essential to reduce perioperative BG levels for this patient population.¹

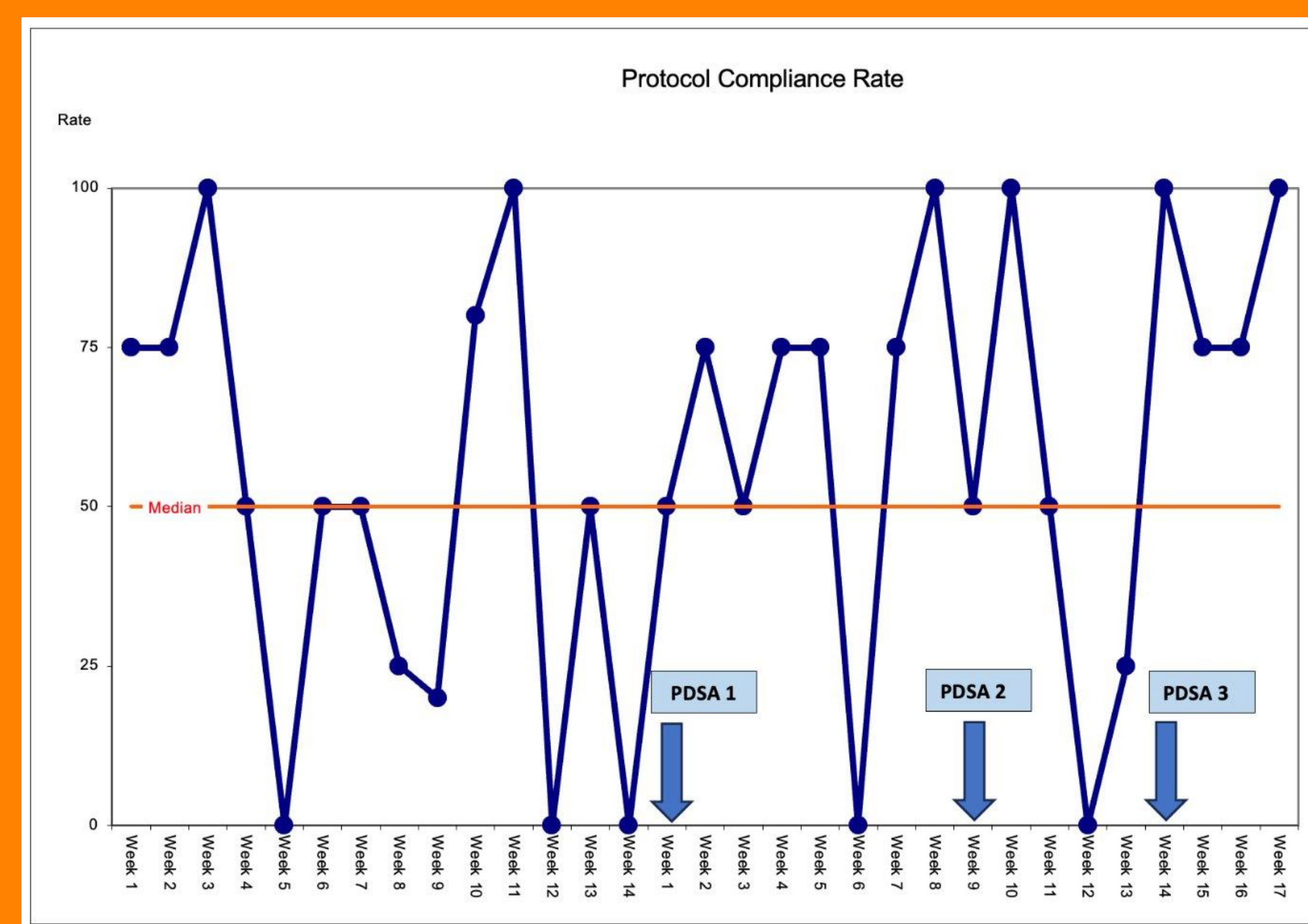
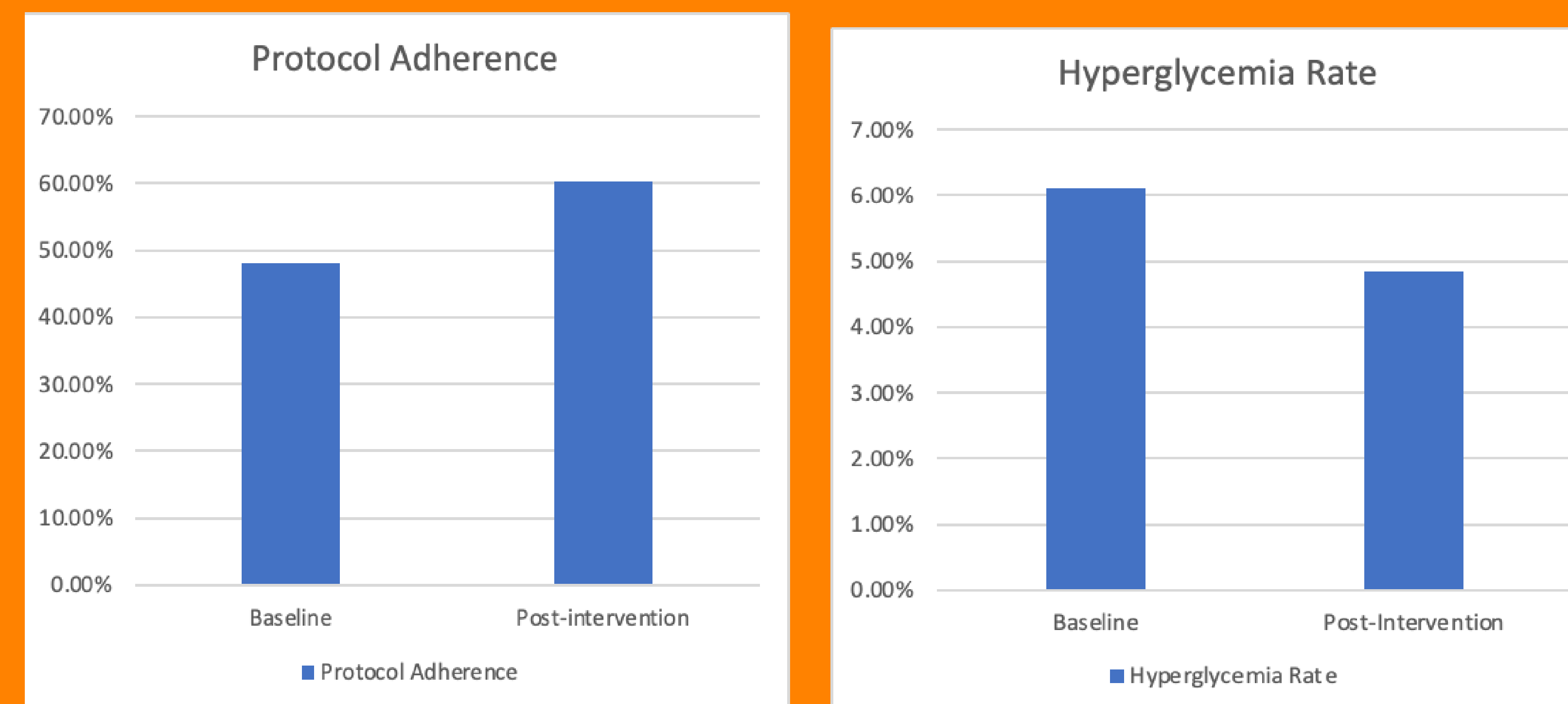
LOCAL PROBLEM

- The project site is a large academic Magnet-recognized medical center in the US with level 1 trauma & emergency centers and 685 operational patient beds.
- The project focused on patients undergoing colorectal surgery involving bowel anastomosis.
- Adherence to the perioperative glycemic control protocol at the project site is inconsistent.
- The perioperative glycemic control protocol establishes the goal of maintaining intraoperative BG values < 200 mg/dL.
- The purpose of our project is to determine how a clearly-defined perioperative glycemic control protocol affects the incidence of hyperglycemia for our patient population.
- The aim of our project was to decrease the current rate of hyperglycemia among patients undergoing colorectal surgery by 50% by August 2024 at the project site.

METHODS

- The Evidence-based Practice Improvement process model was used as the framework for this project.
- Review of the literature demonstrated that the use of a perioperative glycemic control protocol led to decreased rates of hyperglycemia.¹
- Post-operative hyperglycemia rates and protocol compliance were measured over a 3-month baseline period, as well as over a 3-month period after implementation.

A perioperative glycemic control protocol decreases rates of postoperative hyperglycemia among colorectal surgery patients undergoing bowel anastomosis.



INTERVENTIONS

- PDSA 1: An intraoperative glycemic control protocol was developed for anesthesia providers that details the frequency of BG checks during colorectal surgery. This information was emailed to anesthesia staff.
- PDSA 2: Education was provided to anesthesia providers, preoperative nurses, and PACU nurses in the forms of in-person education and flyers.
- PDSA 3: Communication with the perioperative clinical nurse specialist revealed that a preoperative glycemic control protocol already exists that instructs nurses to check a preop BG for all colorectal surgery patients. Preop nurses were then educated in person regarding the protocol's details.
- Cases were then marked compliant if a preoperative BG level was assessed.
- All data were re-evaluated with the new definition of compliance.

RESULTS

- The rate of hyperglycemia at the project site decreased by 40%.
- Incidence of PACU hyperglycemia (BG > 200 mg/dL) decreased from 6.12% to 4.84%.
- Glycemic control protocol adherence rates increased from 48.08% to 60.27%.

CONCLUSIONS

- After preoperative nurses were made aware of the details of the existing perioperative glycemic control protocol, rates of protocol compliance increased, and postoperative hyperglycemia decreased.
- Increased preoperative compliance with the existing perioperative glycemic control protocol resulted in a clinically significant reduction in postoperative hyperglycemia rates.



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References provided upon request.

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