IMPACT OF A PHARMACIST DRIVEN PERIOPERATIVE BLOOD GLUCOSE MANAGEMENT PROTOCOL ON POSTOPERATIVE BLOOD GLUCOSE CONTROL

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DISCLOSURES

- IRB status: not required
- Co-investigators:
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  - Shea Fanning, PharmD, BCPS
  - Taylor Hopson, PharmD
  - Julie Petre, PharmD, BCPS
  - Martin St. John, PharmD, BCPS
- Conflict of interest: none
- Project sponsorship: none

ST PETER'S HEALTH (SPH)



- Non-profit community hospital
- 123 beds
- Serves an estimated 100,000 people across 5 counties
- Wide variety of specialty services and clinics
- Applicable pharmacy services:
  - Surgical Pharmacist
  - Critical Care Pharmacist
  - Internal Medicine Pharmacist

BACKGROUND

A retrospective study evaluated the difference in blood glucose levels postoperatively with a pharmacist driven glycemic model vs standard of care.

- Targeting tight glycemic control (90-180mg/dL) after surgery reduced postoperative infection rates and short term mortality.
- Pharmacist driven protocols improved glycemic control and decreased hypoglycemia.
- Having a pharmacist involved reduced work load of surgical team.

Smith, 2023

BACKGROUND

A retrospective study analyzed rates of severe hypoglycemic before and after implementing a pharmacist driven glycemic control protocol.

- Decreased events in high risk patients to just 1.5 events per 1000 hospitalized patients.
- Reduced cost and strengthened relationships between pharmacists and providers.

Cook, 2020

BACKGROUND

A review article investigated the effect of pharmacists and management of glycemic control.

- Reduction in prescribing errors.
- Reduction in frequency of patients being prescribed short acting insulin with no basal insulin.
- Reduction in hyperglycemia and readmission rates.

Knezevich, 2022

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BACKGROUND

American Diabetes Association (ADA) recommendations:

- Goal BG range for critically ill → 140-180mg/dL
- Goal BG range for non-critically ill→ 100-180 mg/dL
- Initiation of insulin → persistent hyperglycemia at threshold of > 180 mg/dL confirmed on 2 occasions within 24 hours
- Treatment of hypoglycemia → BG < 70 mg/dL

ElSayed, 2024

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PURPOSE

- Develop and implement pharmacist driven perioperative blood glucose management protocol
- Goals:
  - Decrease frequency of uncontrolled BG levels postoperatively
  - Minimize hospitalist consults for BG management
  - Enhance collaboration with providers and pharmacists

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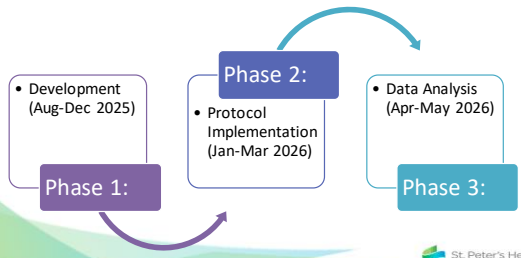
OBJECTIVES

- **Primary objective**
  - Percentage of out of range blood glucose levels for patients admitted longer than 12 hours pre- and post-implementation of protocol
- **Secondary objectives**
  - Percentage of patients with short acting insulin but no basal insulin
  - Time to restart antidiabetic agents
  - Incidence of hypoglycemia and hyperglycemia
  - Time spent for pharmacists
  - Incidence of starting sliding scale insulin
  - Frequency of hospitalist consults pre- and post- implementation

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METHODS



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PHASE 1: DEVELOPMENT

- Conduct literature review
- Develop blood glucose management protocol
- Gain approval from surgical department and hospitalists
- Collect retrospective data

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BLOOD GLUCOSE MANAGEMENT PROTOCOL

Inclusion Criteria:

- Adult, postoperative patients admitted or on observation status

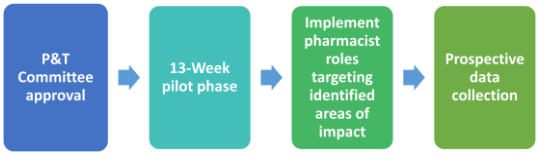
Exclusion Criteria:

- Pediatric patients (age <18 years)
- Obstetric patients
- Patients with a hospitalist consult
- Patient who are postoperative recovering in PACU or SDS
- Patients on ambulatory insulin pumps that will be continued inpatient
- Patient on TPN or continuous enteral feeds
- Patients requiring continuous insulin infusions
- Patients with DKA or HHS

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PHASE 2: PROTOCOL IMPLEMENTATION



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STEPS

- Same day services pharmacist pre screening
- Verification of protocol upon admission
- Surgical floor pharmacist evaluation of patient and implementation of protocol

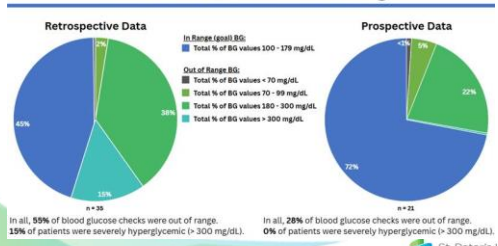
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PHASE 3: DATA ANALYSIS

Retrospective data from January through March 2025 was compared to prospective data collected from January through March 2026.

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RESULTS



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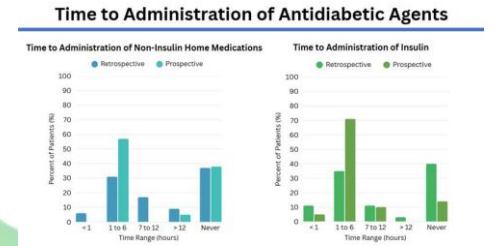
RESULTS

Time to First Glucose Check (minutes)

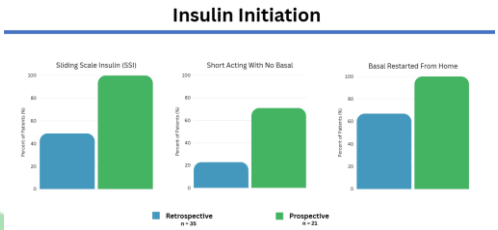
Time (minutes)	Retrospective Data n = 35	Prospective Data n = 21
0 - 15	12	2
16 - 30	8	1
31 - 60	3	4
61+	10	14
None Collected	2	0

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RESULTS



RESULTS



RESULTS

690 minutes total time spent

46 notes

15 minutes per note

RESULTS

- Hospitalist Consults
  - –Retrospectively there were 4 hospitalist consults out of 35 patients.
  - –Prospectively we were able to prevent 4 hospitalist consults by the surgeons having the ability to order the protocol on their patients.

DISCUSSION & LIMITATIONS

Discussion

- Overall, there was a decrease in percentage of blood glucose levels out of range once the protocol was implemented
- After protocol implementation there was no incidence of severe hyperglycemia

Limitations

- Intentional delay in protocol verification led to unintentional delay in glucose checks
- Hospitalist consults being an exclusion factor

CONCLUSIONS

- Having a pharmacist involved in postoperative blood glucose management improved percentage of in-range glucose levels.
- Episodes of severe hypo- and hyperglycemia were avoided when a pharmacist was involved in blood glucose management.
- Appropriate insulin initiation occurred more frequently following protocol implementation.
- Pharmacist management of glucose levels demonstrated positive results while remaining time-effective.

NEXT STEPS

- Re-evaluation of protocol process to reduce time to first glucose check.
- Potential for expanding pharmacist glucose management services to the hospitalist services.

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QUESTIONS?

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