

Quality Improvement Initiative to Reduce Severe Hyperglycemia in Hospitalized Patients Receiving High-dose Glucocorticoids

Lindsay Carafone, MD¹, Yumiko Esaki, MD¹, Chandni Bheeman, DO¹, Neesha Desai, MD¹, Tony Sun, MD¹, Tania Arous, MD², Heidi Kipp, NP¹, Danielle Frumusa, PAC¹, Renee Davis, RD, CDCES¹, Sean McMahon MBA, BS, BA¹, Sara Rose MacLeod, DO, MPH¹, Marilyn Augustine, MD¹

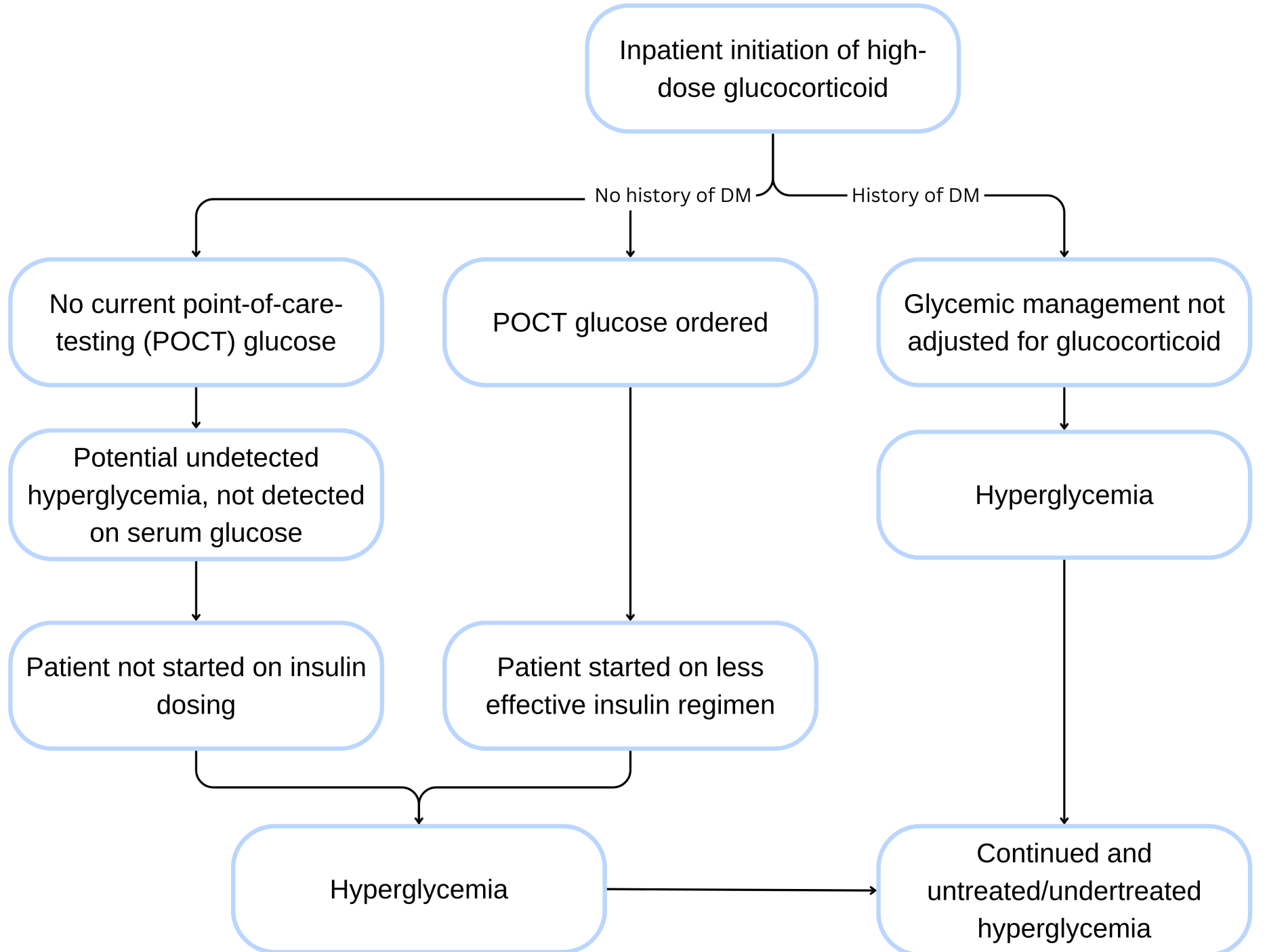
¹Division of Endocrinology, Diabetes, and Metabolism, University of Rochester Medical Center, Rochester, NY, ²Division of Endocrinology, Loma Linda University Health, Loma Linda, CA

Project Aim: Improve detection of hyperglycemia related to administration of high-dose glucocorticoids in hospitalized patients with cancer, and to aid the primary oncology team with hyperglycemia management.

Background

- Inpatient hyperglycemia has been associated with increased length of stay, and higher morbidity and mortality.
- Glucocorticoids are associated with an increased risk of hyperglycemia and the development of overt diabetes.
- Glucocorticoid induced hyperglycemia is most often post-prandial therefore often not identified on morning and overnight basic metabolic panels.
- Glucocorticoid induced hypoglycemia is commonly unidentified and undertreated despite the well-established negative impact it can impart to patients.

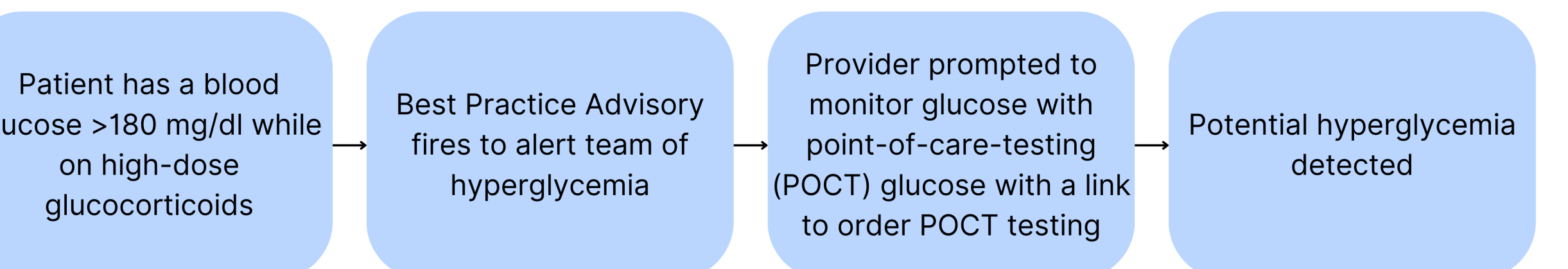
Problematic Workflow



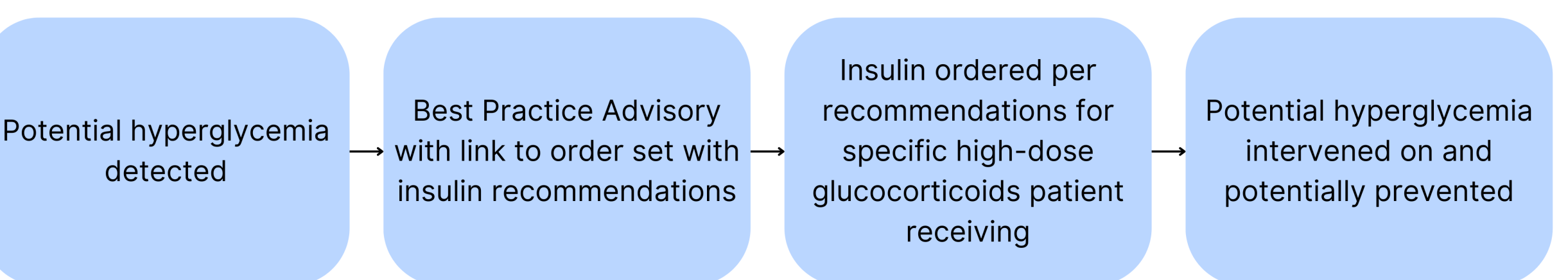
Methods

- The target population consisted of patients admitted to Wilmot Cancer Center, a high-level cancer care facility in a large academic medical center, who were receiving high-dose glucocorticoids and had a blood glucose >180 mg/dl.
- Baseline measurements:
 - Baseline diabetes status and home diabetes regimen
 - Percentage with severe hyperglycemia and intervention that occurred
 - Readmission rates and glycemic related hospitalizations subsequently

Intervention #1: Best Practice Advisory



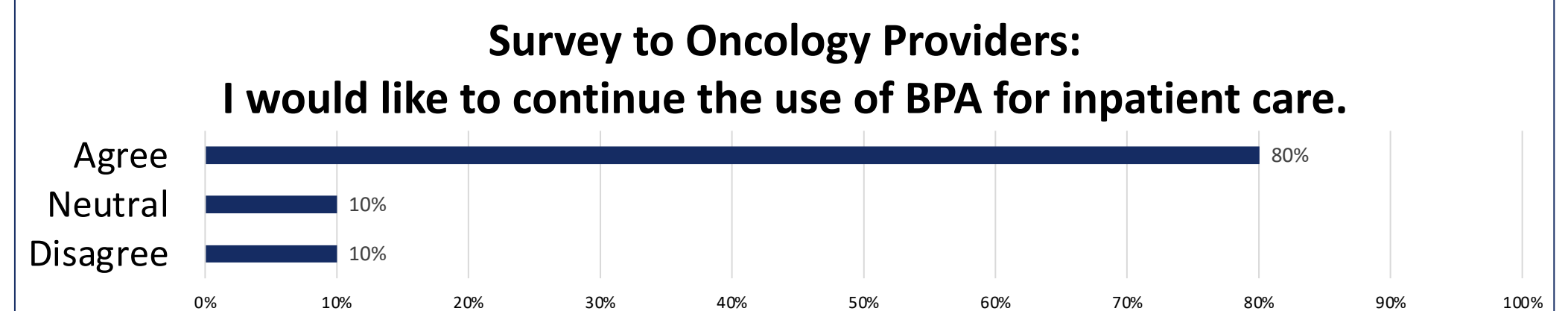
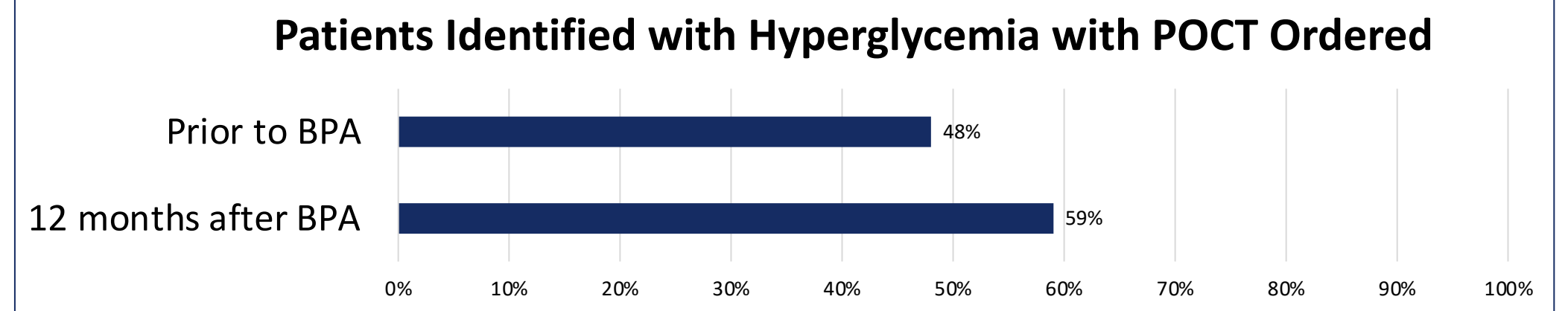
Intervention #2: Insulin Management Guide



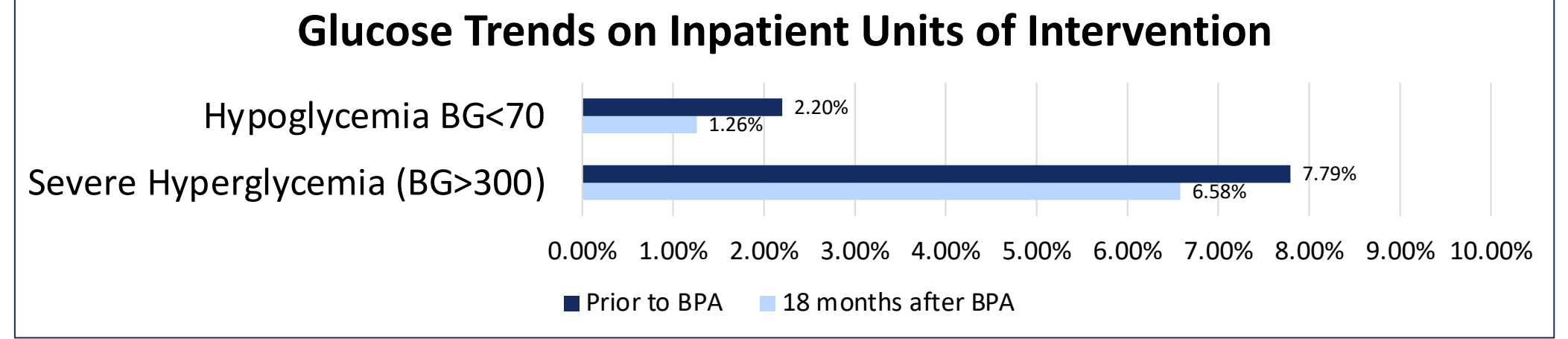
Intervention #3: Patient Education Tool

Patient education tool on hyperglycemia curated by a registered dietician containing information about hypoglycemia, hyperglycemia, and carbohydrate counting.

Outcomes



- 18-month data review shows the BPA continues to help identifying patients with hyperglycemia in whom POCT testing is indicated.
- POCT testing rates and rates of BPA firing appear stable.
- Generally, less insulin than recommended was ordered.



Future Plans

- Explore why POCT testing not ordered when indicated.
 - Intentional, alarm fatigue, other?
- Explore barriers to using Insulin Management Guide.
 - Intentional, unfamiliar providers, other?
- Assess readmission rates of patients, diabetes development and use of project tools long term.