

# eGlycemic Management Solution Provides Safe and Effective Meal Coverage for Critical Care and Surgery Patients Managed with IV Insulin in the Hospital

Joseph Aloï <sup>1</sup>, Jagdeesh Ullal <sup>2</sup>, Paul Chidester <sup>3</sup>, Amy Henderson <sup>4</sup>, Raymie McFarland <sup>4</sup>, and Robby Booth <sup>4</sup>

## OBJECTIVE

The management of post-operative and critically ill patients frequently requires the use of prolonged intravenous insulin infusions (IVI). Current approaches (such as increasing IVI rate before or during meal, or bolus with intravenous (IV) or subcutaneous (SubQ) for management of hyperglycemia in patients on IVI are varied and generally unsuccessful at maintaining patients within the targeted blood glucose range; either by exceeding target blood glucose (BG) or inducing hypoglycemia. We examined the efficacy and safety of a carbohydrate based IVI adjustment algorithm in maintaining targeted blood glucoses in patients consuming meals while on IVI.

## METHODS

Five hundred ten critical care and surgical patients requiring treatment with IVI therapy were included in this retrospective study. Patients consuming carbohydrates were evaluated to determine the safety and efficacy of Glucomander (GM) Meal Coverage option in maintaining BG targets.

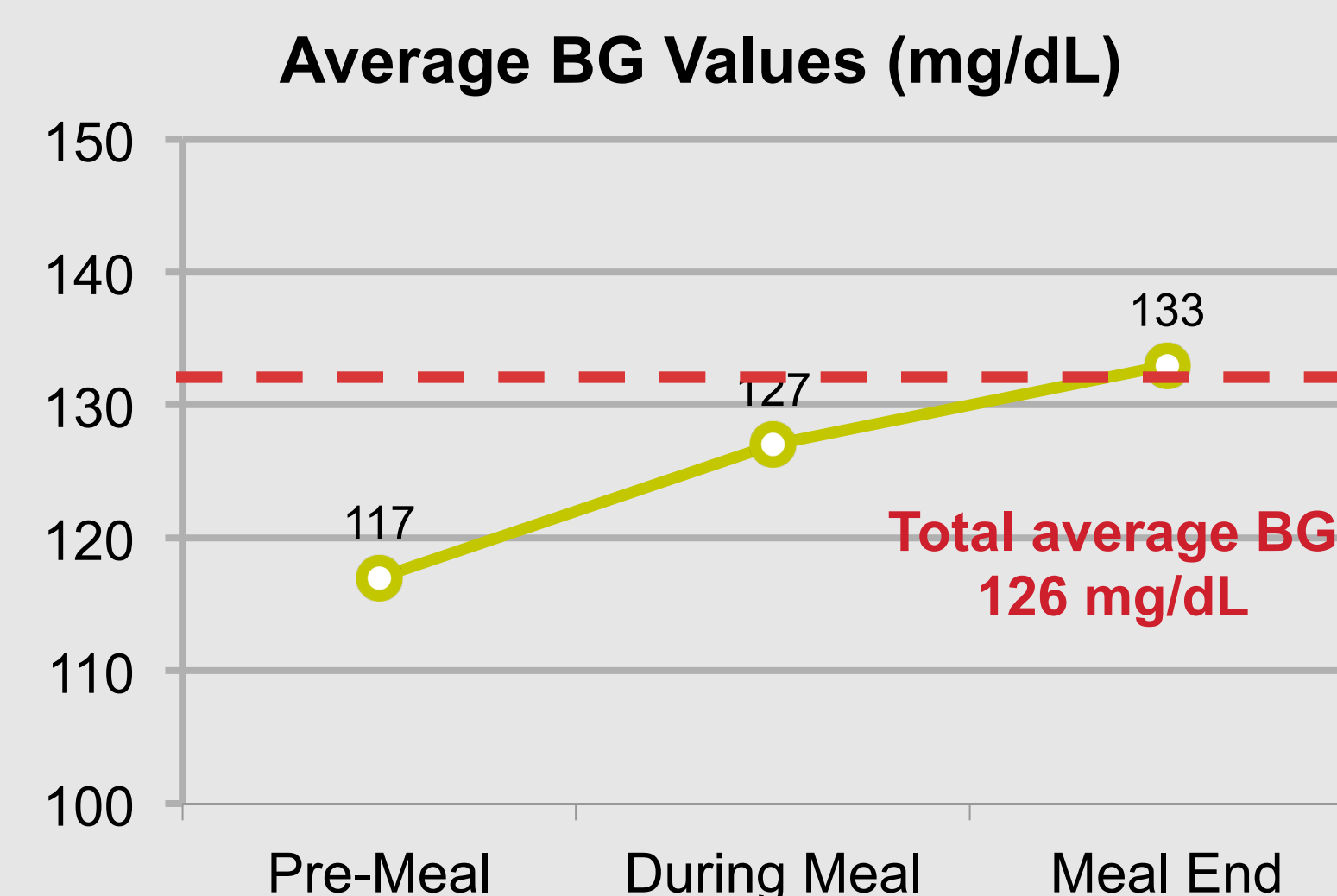
GM Meal Coverage calculates an incremental IVI rate change based on patients pre-meal BG and grams of carbohydrate consumed. Qualifying patients with BG above 180 mg/dL were treated with IV insulin using Glucomander (GM). Prescribed glucose target was 100-140 mg/dL for all patients studied. Efficacy and safety were evaluated by the following parameters: (1) BG Average (mg/dL) at 3 main measurement points Pre-meal, During Meal and At Meal End (2) Percentage of hypoglycemic events <40 and <70 mg/dL pre-meal, during meal and meal end (3) average BG during total meal (4) percent of glucose readings in target (5) Number of meals covered.

## RESULTS

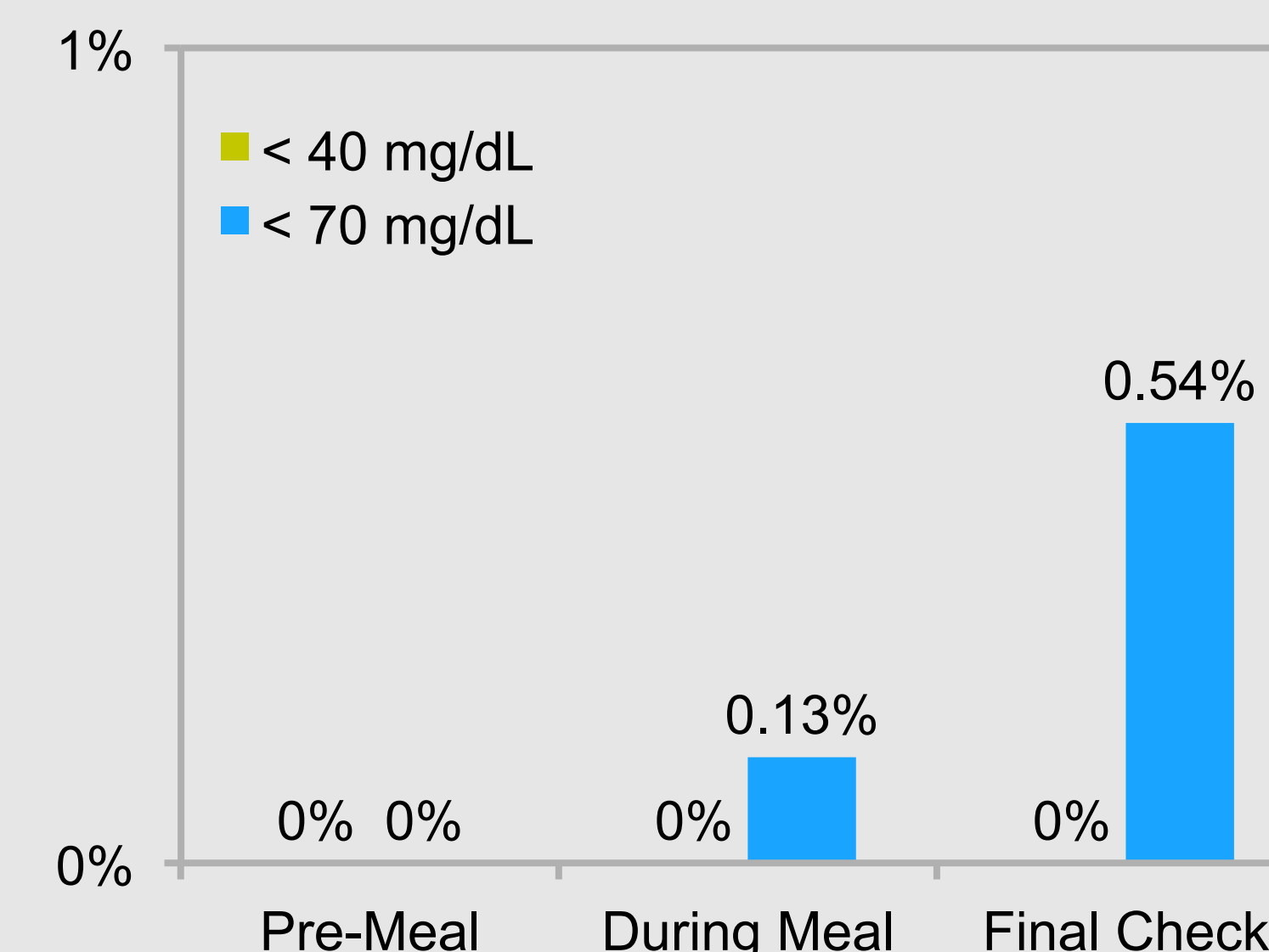
Patients placed on GM Meal coverage had an average BG of 117 mg/dL pre-meal, 127 mg/dL during meal, and 133 mg/dL at meal end. Hypoglycemic events <40 mg/dL was 0.0% for all measurement periods.

Hypoglycemic events <70 mg/dL = 0.0% at initial check BG, 0.0% at plate check BG, post-plate check BG 0.13% and final check BG 0.54%. The average BG during total meal coverage was 126 mg/dL. The percent of glucose readings in target was 95.2% during the treatment window. There were 929 meals covered during the study period.

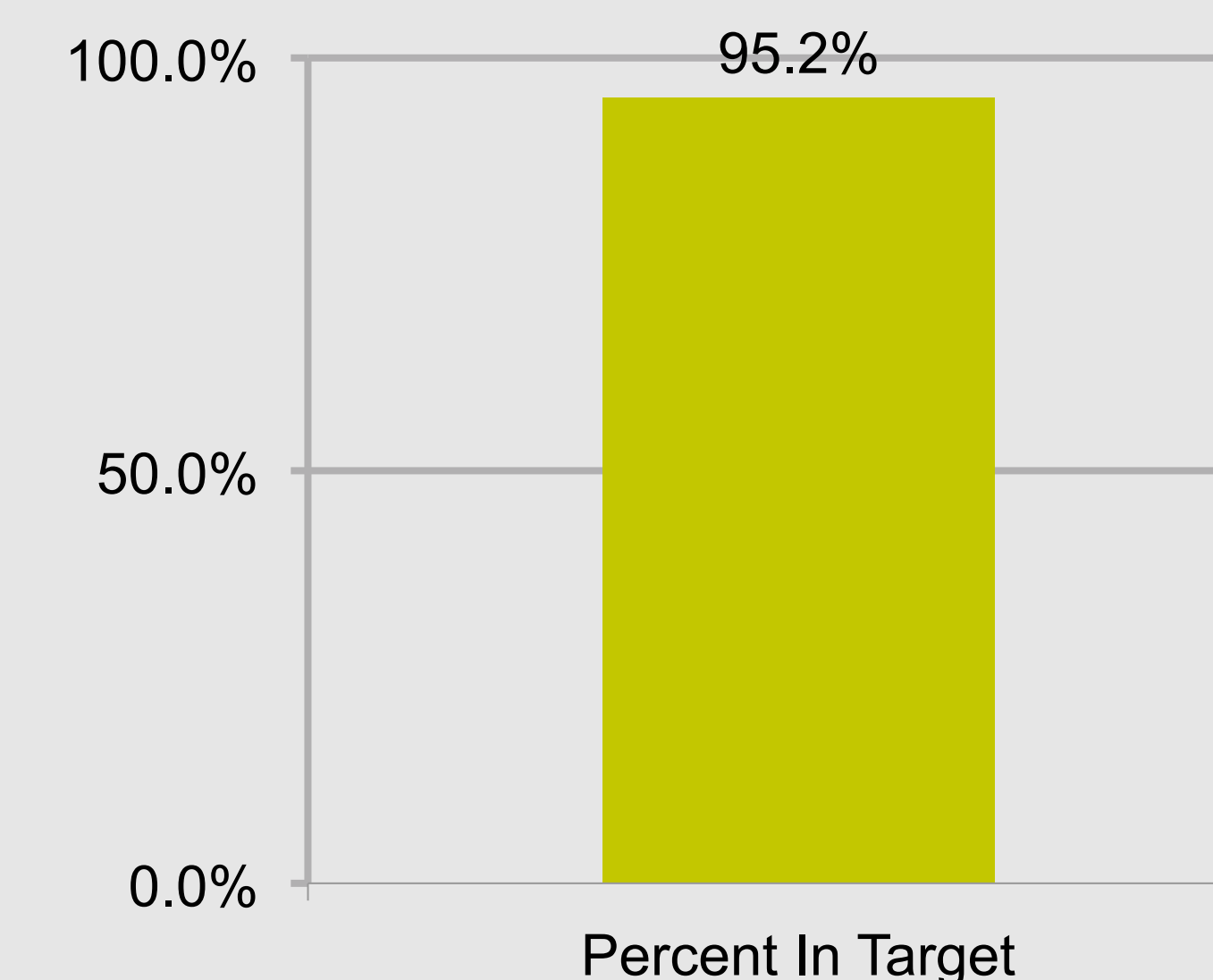
Table 1	
Patients	510
Gender	Male/Female
Initial BG	117 mg/dL
Meals Covered	929



## Hypoglycemia



## Percent in Target



## DISCUSSION

Patients using the Meal Coverage option in GM achieved a significant number of BG values within the prescribed target range regardless of pre, during, or post meal timeframe, with a very low incidence of hypoglycemia (<70 mg/dl) and no incidence of critical hypoglycemia (<40 mg/dl).

## CONCLUSION

These results suggest GM can safely maintain prescribed glucose targets with very minimal risk of hypoglycemia for critical care and surgery patients consuming carbohydrates and requiring IV insulin therapy.

## AFFILIATIONS

1. Wake Forest Medical Center, Winston Salem, NC
2. Eastern Virginia School of Medicine, Norfolk, VA
3. Sentara Health, Norfolk, VA
4. Glytec LLC, Waltham, MA