

Evaluation of Sliding Scale Insulin as Primary Antihyperglycemic Agent in Non-Critically Ill Hospitalized Patients

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BACKGROUND

In hospitalized patients, hyperglycemia, hypoglycemia, and wide ranges of blood glucose variability are associated with poorer outcomes. Guidelines recommend insulin therapy for management of persistent hyperglycemia for most non-critically ill patients.¹ A common misconception is that sliding scale insulin provides adequate glycemic control while minimizing the risk of hypoglycemia. For these reasons, it has long been a mainstay of inpatient glycemic management.² Due to its reactive nature, patients receiving sliding scale insulin as their sole therapy for hyperglycemic management are often poorly controlled. Even when patients are not eating, a basal regimen with a correctional sliding scale is the preferred regimen.¹

DESIGN

Inclusion Criteria

- Age ≥ 18 years
- Active order for sliding scale insulin
- Admitted on a general medicine floor for ≥ 1 day

Exclusion Criteria

- Active order for oral/parenteral antihyperglycemic agent on day of sliding scale initiation
- Requiring ICU level care at any point

METHODS

- Single-center, retrospective chart review from May through June of 2023
- Approved by the Pharmacy and Therapeutics Committee at Kaleida Health

OBJECTIVES

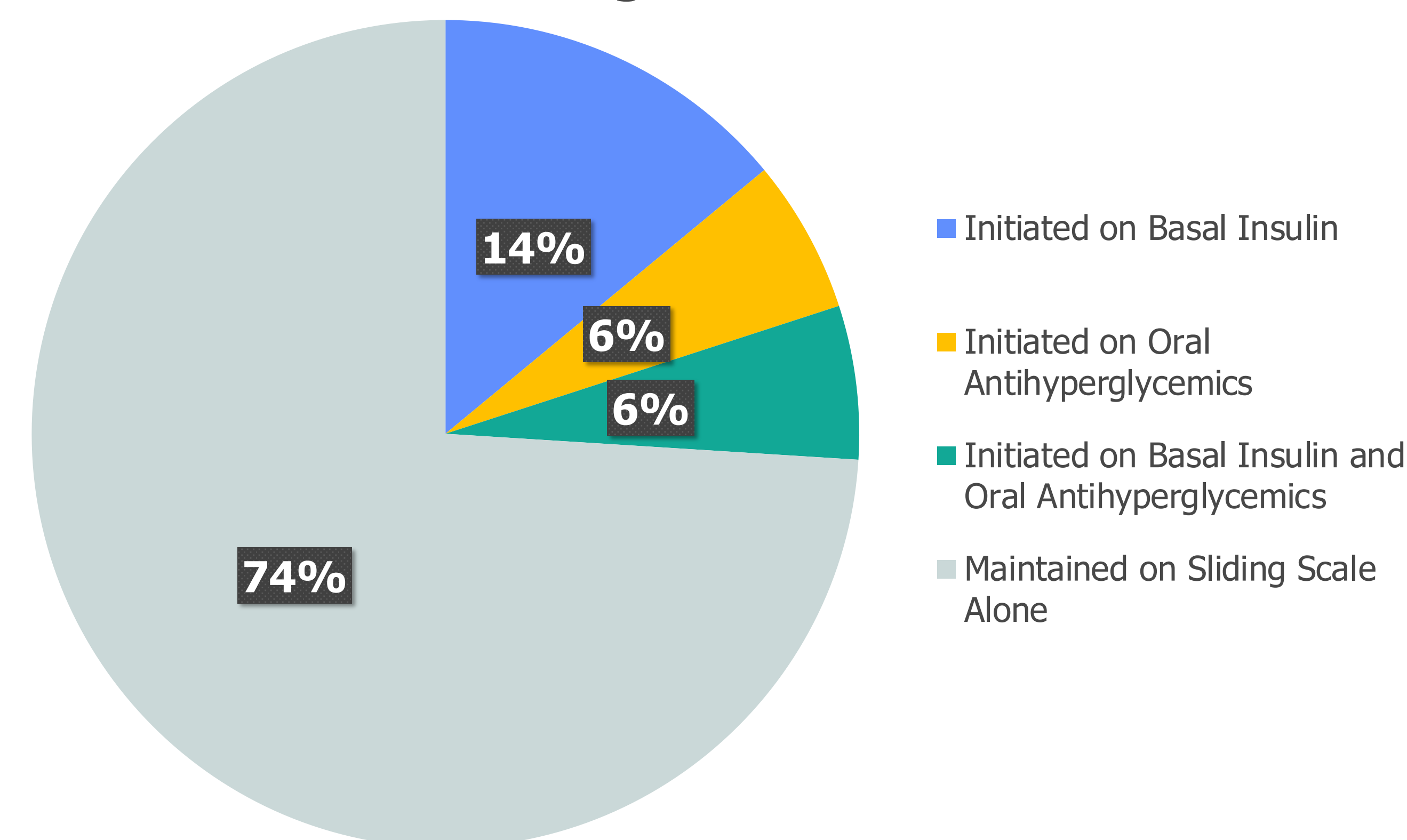
- The purpose of this study is to evaluate the use of sliding scale insulin alone for inpatient management of hyperglycemia.
- Secondary objectives include evaluating the frequency and timing of transition to a basal-bolus insulin regimen or oral antihyperglycemic agents, and to quantify the number of patients discharged on sliding scale insulin.

RESULTS

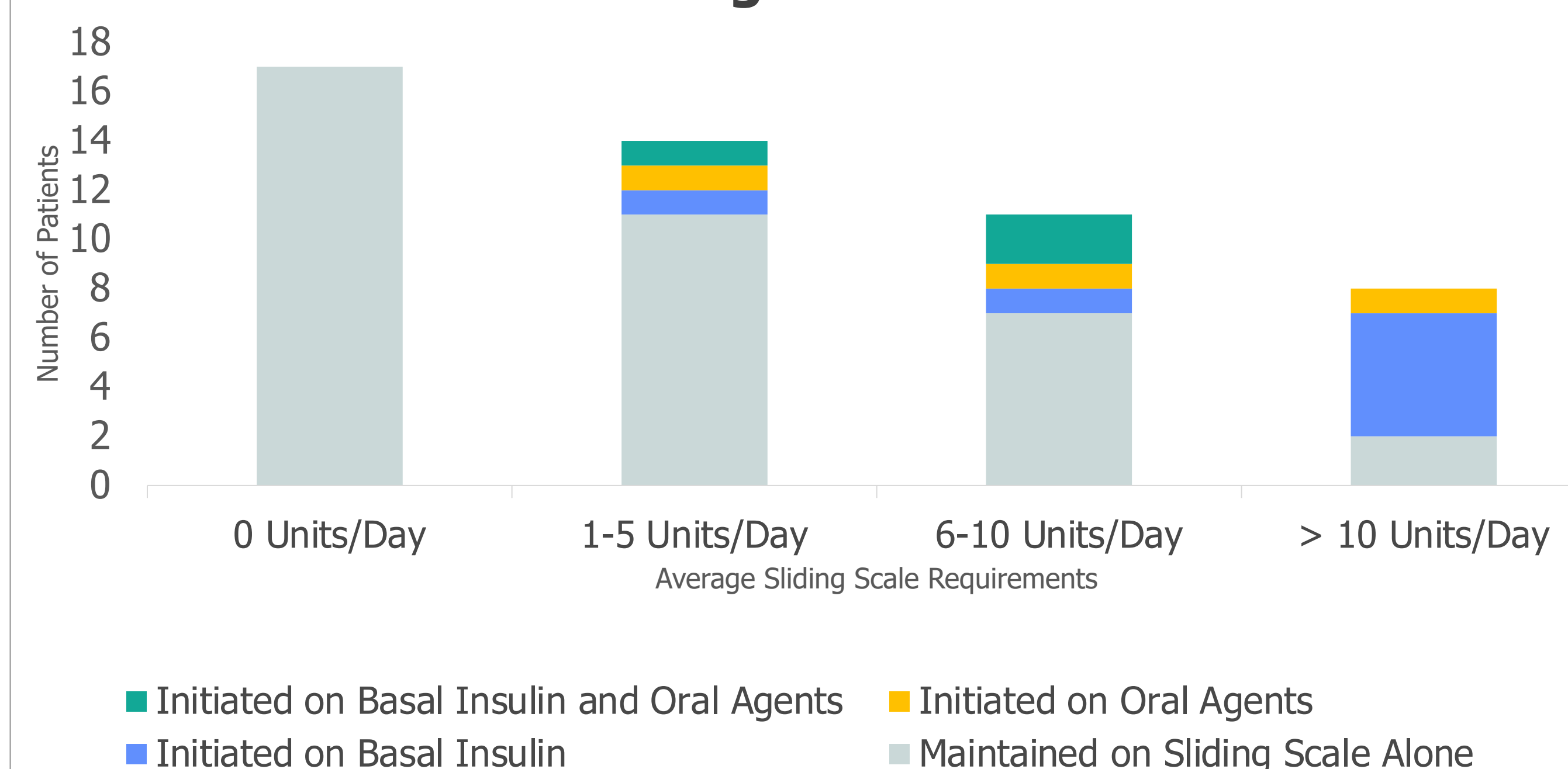
Demographics (n=50)	
Females, n (%)	19 (38.0)
Age, mean ± SD	66.5 ± 13.8
Ethnicity, n (%)	
White	29 (58.0)
African American	14 (28.0)
Asian	2 (4.0)
Hispanic	1 (2.0)
Other	4 (8.0)
BMI (kg/m ²), mean ± SD	29.6 ± 8.0
HbA1c within 3 mos. of admission (n=34), mean ± SD	7.3 ± 2.4

SD = standard deviation; BMI = body mass index

Glycemic Management Following Initiation of Sliding Scale Insulin



Average Sliding Scale Requirements and Associated Regimen Modifications

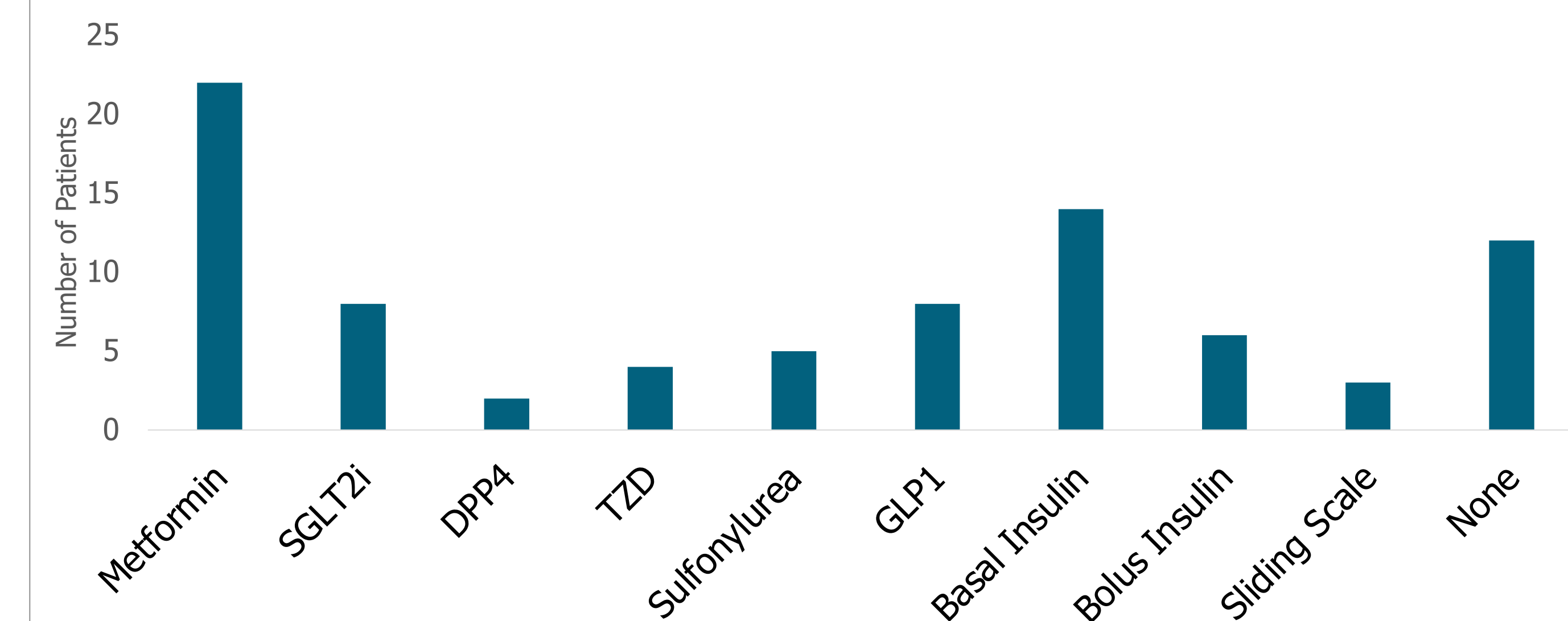


RESULTS

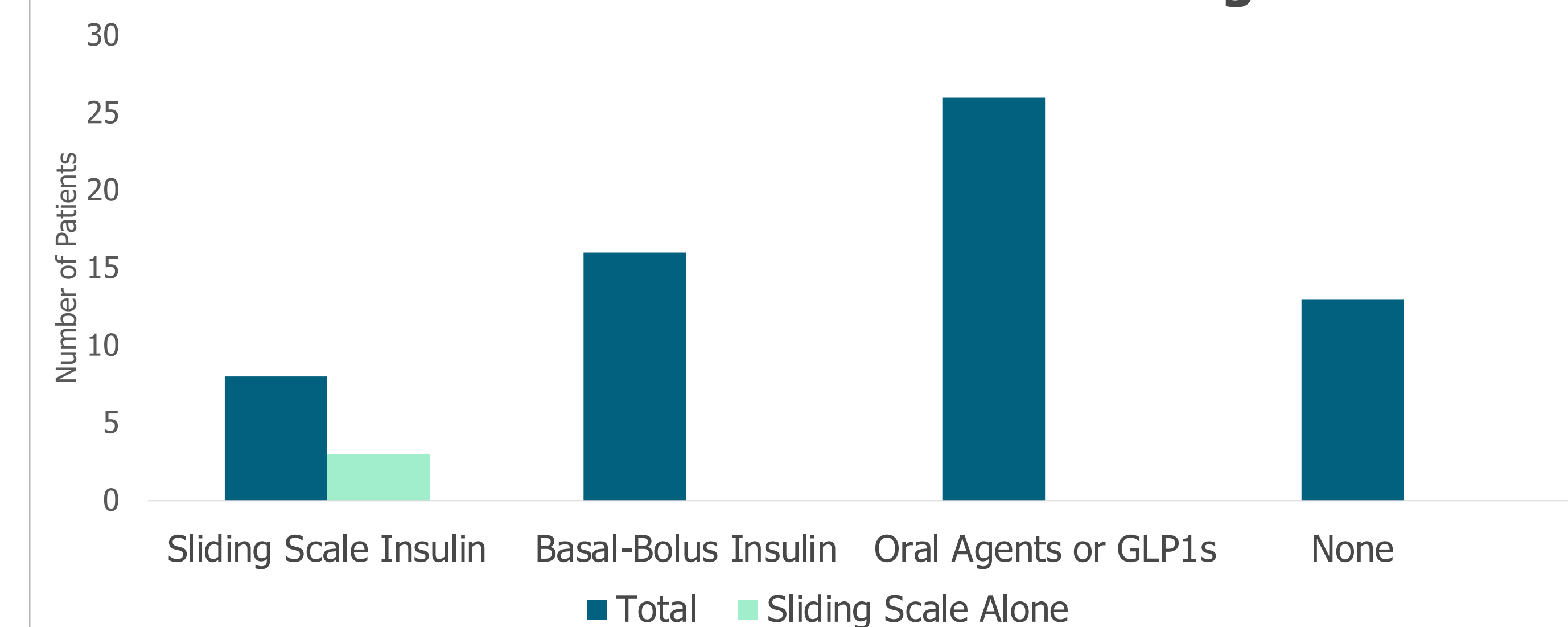
Patients with Median Requirements of 0 Units/Day (n=17, 34%)

Duration of Hospitalization (days), mean ± SD	12.2 ± 17.5
Duration of Active Sliding Scale Order (days), mean ± SD	10.4 ± 16.2

Diabetes Medications Prior to Admission



Diabetes Medications at Discharge



* Patients may have been discharged on any combination of these agents unless otherwise specified

CONCLUSIONS

The majority of patients initiated on sliding scale insulin were continued without regimen modifications for the duration of their hospitalization. Patients with higher insulin requirements were more likely to be transitioned to an appropriate regimen. Opportunity exists for standardization of this process to optimize antihyperglycemic regimens and minimize associated costs.

Disclosure

Authors of this presentation have the following to disclose concerning possible financial or personal relationships with commercial entities that may have a direct or indirect interest in the subject matter of this presentation:

Allison Holdsworth: Nothing to disclose; Brian Kersten: Nothing to disclose; Stephanie Seyse: Nothing to disclose; Collin Clark: Nothing to disclose.

References

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2. Migdal AL, Fortin-Leung C, Pasquel F, Wang H, Peng L, Umpierrez GE. Inpatient Glycemic Control With Sliding Scale Insulin in Noncritical Patients With Type 2 Diabetes: Who Can Slide?. J Hosp Med. 2021;16(8):462-468. doi:10.12788/jhm.3654