

Time To Target Using eGMS To Manage Inpatient Subcutaneous Insulin Basal Bolus Regimen

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OBJECTIVE

The importance of inpatient glycemic control on outcomes not only applies to patients managed with IV insulin in critical care areas but also patients on general surgical and medical wards. In such patients, hyperglycemia is associated with increased length of stay, infection, mortality, and readmissions. Time to target glucose is important for success of a subcutaneous (SubQ) insulin regimen in any inpatient setting. This study evaluated the effectiveness of an Electronic Glycemic Management System (eGMS) to achieve prescribed glucose target ranges on SubQ insulin therapy while measuring incidence and severity of hypoglycemia.

METHODS

This retrospective study evaluated 5,718 hyperglycemic patients who required SubQ insulin with eGMS. They were admitted to one of 7 hospital systems over 45 months from 02/2013 to 11/2016. Insulin regimens were targeted to glucose ranges of 100-140, 120-160 or 140-180 mg/dL using the eGMS SubQ program Glucommander™ (GM). Primary outcome measure was mean Time-To-Target (TTT). Secondary measures included: average initial BG (SD), daily BG average, time on eGMS, hypoglycemia <40 & <70 mg/dL, and percent of BG readings and patient days in target once target was reached.

RESULTS

Patients reached their prescribed target in 0.8 days. Average initial BG was 261.7 mg/dL (SD+/- 129.2), Median time on eGMS was 4.56 days with 67.9% of BG readings and 68.5% of patient day values remaining 70-180 mg/dL once prescribed target was reached. Hypoglycemia was <40 = 0.0011% & <70 mg/dL = 0.013%.

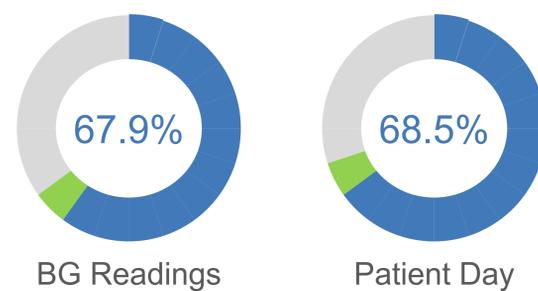
Acknowledgements

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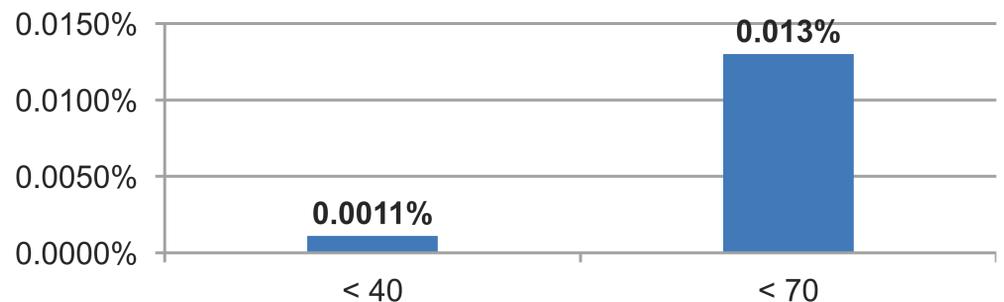
Table 1. Clinical Characteristics and Outcomes

Patients	5,718
Average Initial BG	261.7 mg/dL (SD +/- 129.2)
Average BG	162.35 mg/dL (SD +/- 65.4)
Median Time on GM SubQ	4.56 Days
Median Time to Reach Prescribed Target	0.8 Days

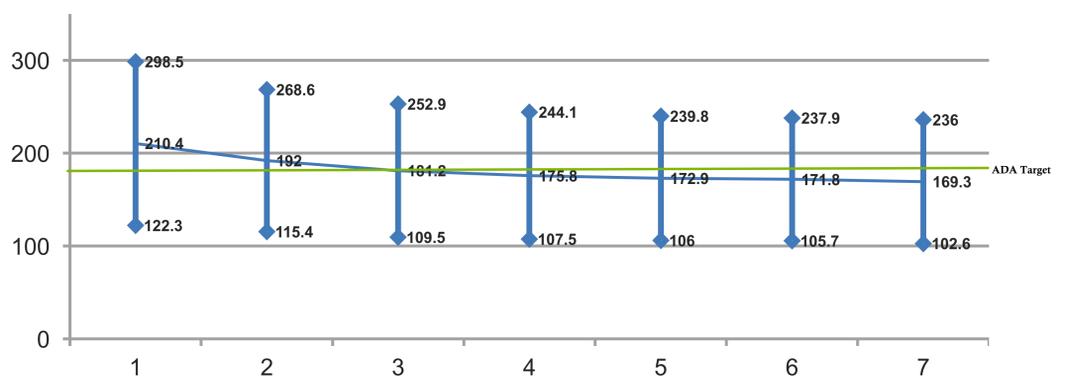
Graph 1. Values remaining 70-180 mg/dL once prescribed target was reached.



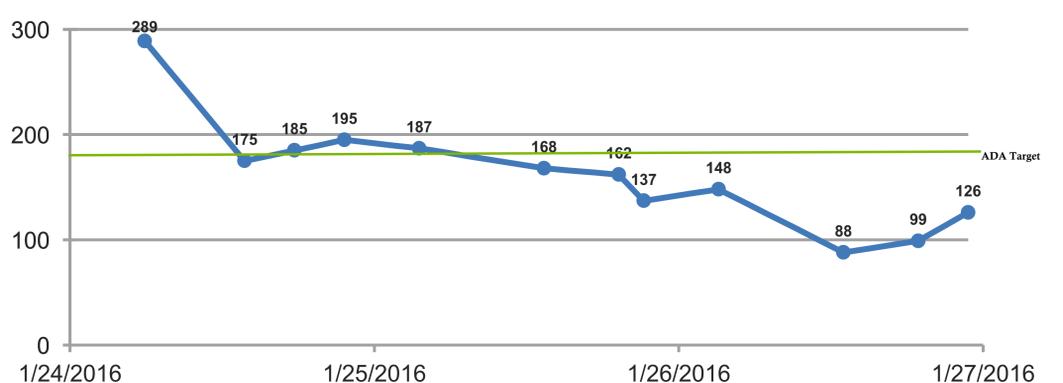
Graph 2. Severe and Mild-Moderate Hypoglycemia Rates Once Target is Reached and the Next 24 Hours



Graph 3. All Patients Daily Glucose Averages



Graph 4. Patient (# 101) Glucose Trend Example



CONCLUSION

These results suggest that eGMS can achieve a prescribed target range quickly while maintaining glucose targets during the hospital stay and patients experienced very limited mild or severe hypoglycemia.