



# Technology-Enabled Glycemic Management Leads to Reductions in Variation and Increased Use of Basal Bolus Regimens for Subcutaneous Insulin Therapy



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## BACKGROUND

It has long been understood that basal bolus insulin (BBI) is superior in both safety and efficacy to sliding scale insulin (SSI) for subcutaneous therapy in the acute care setting. To aid clinicians in adopting best practices and transitioning from SSI to BBI, Sentara Healthcare invested in evidence-based technology referred to as the eGlycemic Management System<sup>®</sup> (eGMS<sup>®</sup>). This project sought to further capitalize on the eGMS<sup>®</sup> at Sentara Virginia Beach General Hospital (a 276-bed community hospital in Virginia Beach, Virginia) concurrent to other high-reliability strategies as a means of achieving standardization and quality improvement in glycemic management for patients with and without diabetes.

## AIM

*Decrease clinical practice variation for glycemic management and increase the number of insulin-requiring patients treated with basal bolus versus sliding scale insulin by 100%.*

## METHODS

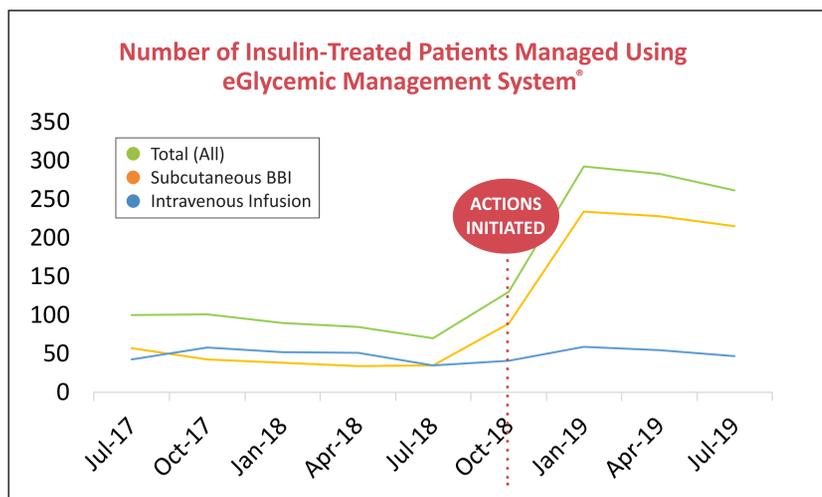
A multidisciplinary Glycemic Management Committee and Glycemic Collaboration Committee were formed to provide overarching governance and facilitate change management. Additionally, a glycemic physician champion was appointed to provide clinical executive leadership. A design for high involvement process improvement was initiated with clearly defined owners, measures of success and a reaction panel. Current state and barrier assessments were performed.



## ACTIONS

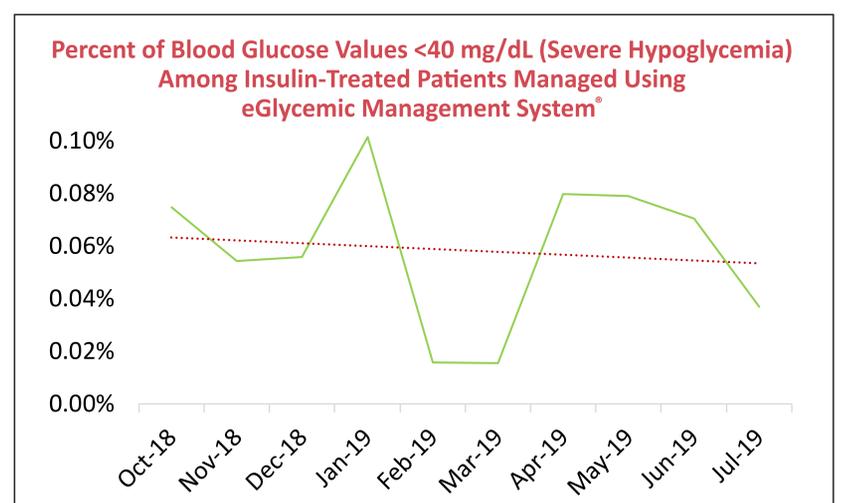
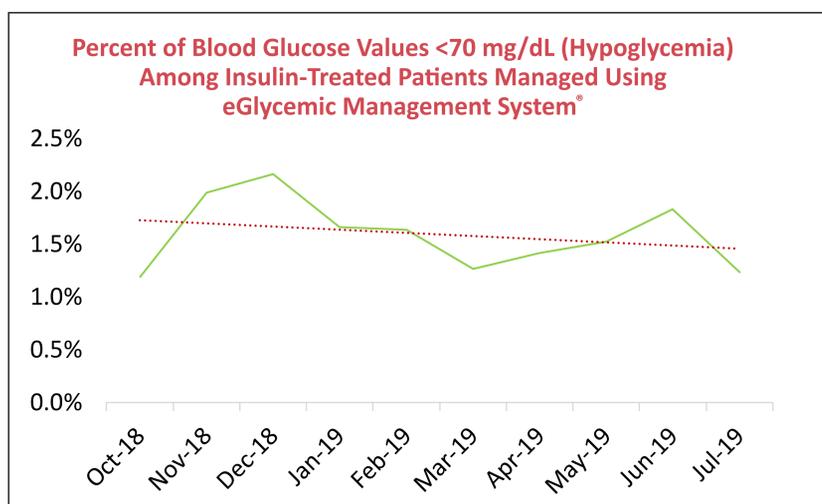
- Redesigned and consolidated insulin order sets for enhanced clarity and simplification.
- Delivered role-based education to nurses and physicians; also mandatory sessions for new staff (monthly).
- Set up real-time monitoring of all insulin-requiring patients managed on eGMS<sup>®</sup>.
- Created nurse-driven process allowing for automatic insulin order initiation in response to hyperglycemia.
- Established eGMS<sup>®</sup> super users within each unit to answer questions and provide one-on-one assistance.

## RESULTS



## CONCLUSIONS

The total number of insulin-treated patients managed using evidence-based best practices in concert with the eGMS<sup>®</sup> increased 162%, from 100 in July 2017 (15 months prior to our improvement initiatives) to 262 in July 2019 (nine months after our improvement initiatives). This included a 277% increase among patients requiring subcutaneous insulin therapy, from 57 in July 2017 to 215 in July 2019, which exceeded our aim of a 100% increase. These patients received basal bolus insulin therapy as opposed to sliding scale insulin therapy, as recommended by the American Diabetes Association, American Association of Clinical Endocrinologists, Society of Hospital Medicine and other authoritative sources. As a secondary benefit of our improvement initiatives, we experienced a downward trend in the rate of hypoglycemia <70 mg/dL and the rate of severe hypoglycemia <40 mg/dL among insulin-treated patients managed using the eGMS<sup>®</sup>.



## AFFILIATIONS

- Sentara Virginia Beach General Hospital, Virginia Beach, VA
- Glytec, Waltham, MA and Greenville, SC

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