

NEW INTERFACES FOR eGLYCEMIC MANAGEMENT SYSTEM SAVE NURSING TIME AND IMPROVE PATIENT OUTCOMES: TIME AND MOTION NURSING STUDY

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OBJECTIVE

Hospitalized patients with critical illness require intense monitoring and dose adjustments of intravenous (IV) insulin to maintain glycemic control. Numerous organizations (including the AACE, ADA, AATS, SCCM, and STS) support the need for blood glucose control to optimize patient outcomes, particularly related to post-operative infections. With CMS' Surgical Care Improvement Project item SCIP-Inf-4, hospitals continue to place emphasis on glycemic management. IV Insulin therapy can place time stress on nursing staff managing glucose tests, IV drip rate changes, and documentation. We studied the effect a deeper integration (ADT, LIS, Cerner feeds) of eGlycemic Management System Glucomander (GM) by Glytec has on: nursing time, patient glycemic outcomes, and nursing satisfaction.

METHODS

The study examined nursing time needed for patients requiring IV insulin treatment in critical care units of a 635-bed tertiary care hospital in rural west Tennessee. Group1 (G1) used a non-integrated IV insulin management system and Group2 (G2) used a fully integrated GM system. Time was measured between the two groups by an observer in the unit. Study outcomes included: time to start patients on IV infusion, time to adjust IV drip patients, hypo and hyperglycemic rates, and nursing satisfaction using GM.

Data Overview

	Pre-Integration Data ¹	Post-Integration Data ²
Patient Count	279	268
BG Count	5,661	5,430
Average BG	131 mg/dl	147 mg/dl
Average Initial BG	210 mg/dl	243 mg/dl

1. Pre-Integration Data, — Oct 1 2013-Jan 5, 2014
2. Current Data, — January 6, 2014-April 17, 2014

Glycemic Metric Comparison

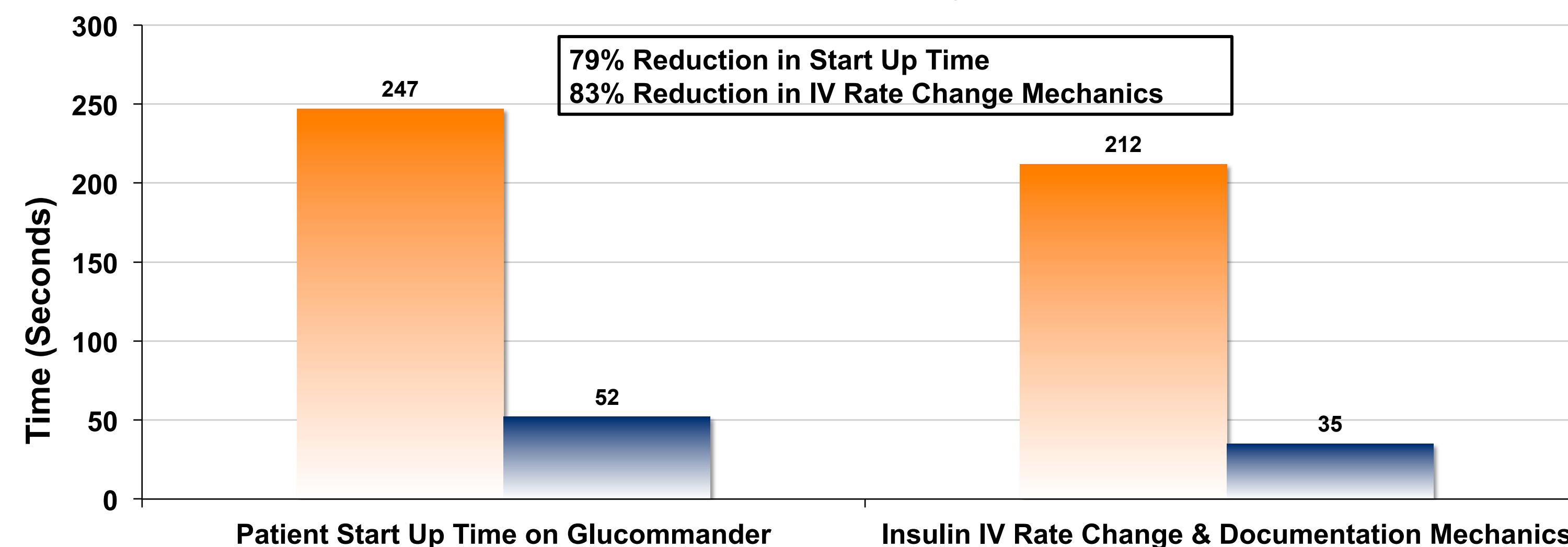
	Pre-Integration Data ¹	Post-Integration Data ²
BG <40 mg/dl*	0.06%	0.06%
BG <50 mg/dl*	0.20%	0.17%
BG <60 mg/dl**	0.67%	0.46%
BG <70 mg/dl**	2.10%	1.58%
BG between 70-180 mg/dl**	64.5%	94.33%

* P = NS
** P = < 0.04

1. Pre-Integration Data — Oct 1 2013-Jan 5, 2014
2. Current Data — January 6, 2014-April 17, 2014

32% Reduction in BGs <60mg/dl
25% Reduction in BGs <70 mg/d
46% Improvement BGs 70-180 mg/dl

Timed Interface Comparison

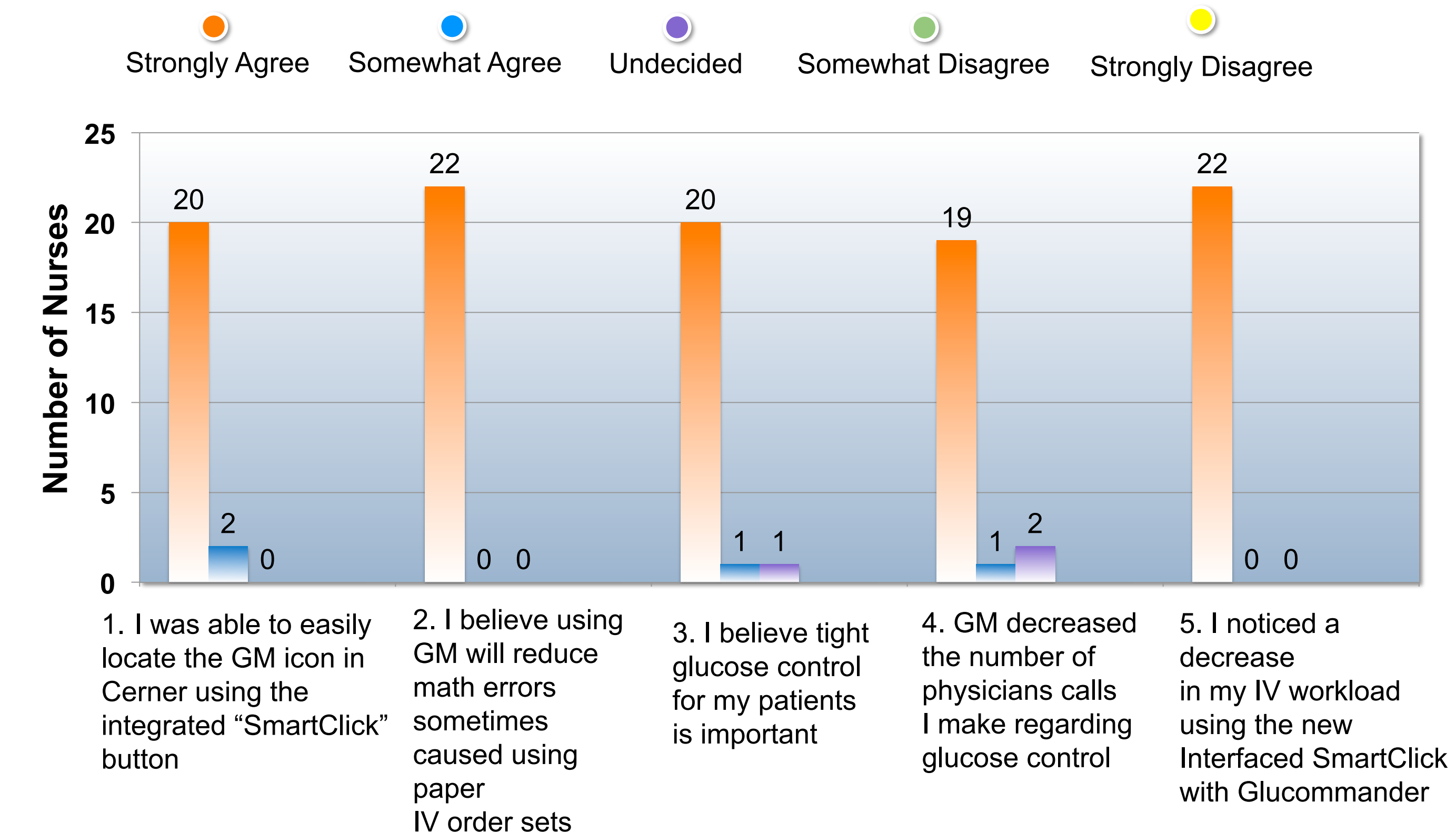


AFFILIATIONS

- Duke University School of Nursing
- Atlanta Diabetes Center
- Jackson-Madison County General Hospital
- Glytec, LLC



JM Glucomander Survey Post GoLive



RESULTS

The time to start IV infusion for G1 was 247 seconds compared to 52 seconds for G2. 12 nurses, caring for 8 unique patients were timed in both groups, totaling 118 Point of Care glucose tests to IV change engagements. Group1 had an average time of 212 seconds patient IV encounter compared with 35 seconds for G2. Glycemic control was maintained in both groups: Hypoglycemia rates: <40 = 0%, <70% = 1.58%, Hyperglycemia greater than 180 mg/dl was reduced to <6%; all improvements with GM. Nursing satisfaction scores were 90-100% using GM. Nurses found GM integration with the EHR easy to locate, easy to use, less likely to have insulin/math errors, decreased physician calls, and decreased shift workload.

CONCLUSION

Use of the deeper integrations reduced valuable nursing time in the Post Cardiac, Critical Care, and Surgical Care units. Up to 72 minutes/nurse/patient were reduced with GM for patients using IV insulin. An additional 3 minutes was saved per patient starting IV insulin drips. Nursing satisfaction was extremely high using the GM integration in their EHR. Finally, glycemic control was well maintained, exceeding expectations for previous (at time of study) and current CMS measures without increasing rates of hypoglycemia. Our results suggest using an interfaced GM product will save nursing time and improve satisfaction while treating patients with IV insulin and improving blood glucose control.