

eGMS® Enables New and Improved Standard of Care for CABG Patients

Grady Health System has proved that intensive glycemic control, rather than conservative control, is safe and better for patients.



Introduction

Dr. Priyathama Vellanki hates needlessly high costs.

Too many times, the Associate Professor, Division of Endocrinology, Metabolism & Lipids at Emory University School of Medicine has seen how exorbitant healthcare costs negatively impact medical facilities and their patients — it’s enough to make a person sick.

And while some are happy to accept the status quo at any cost, Dr. Vellanki consistently directs the focus of her research on driving down costs in ways that maintain or improve patient outcomes. And with the advent of new technology, there’s no shortage of spaces to investigate.

One that recently caught her eye was the glycemic management of CABG patients. The vast majority of cited research pre-dates the advent of eGlycemic Management System® (eGMS) technology, and is predicated on a cost-benefit analysis that heavily weighs the risk of hypoglycemia. But with algorithm-driven dosing support and safety guardrails, Dr. Vellanki hypothesized that the risk of hypoglycemia could be all but eliminated leaving her with the opportunity to test for a truly optimal target range.

To test her hypothesis, Dr. Vellanki designed a GLUCO-CABG study and cost analysis that looked at Grady Memorial patients who had undergone coronary artery bypass grafting (CABG) surgery. Her methodology relied on Glytec’s Glucomander™ as the insulin dosing software at the heart of eGMS, and she felt strongly that her hypothesis would be proven right. But only time would tell.

HOSPITAL:
Grady Health System

FACILITY TYPE:
Urban safety-net hospital

FACILITIES:
1

BEDS:
400

LOCATION:
Georgia

SYNOPSIS

With the help of Glytec’s innovative eGMS featuring Glucomander, Grady Memorial Hospital was able to prove that intensive glycemic control can be consistently and safely achieved for CABG patients, and when used in favor of the current standard of care can reduce complications by 20%, decrease length of stay by 37%, and ultimately save hospitals \$3,654 per case.

Established in 1892, Grady Memorial Hospital is a public, 400-bed teaching hospital that works closely with Emory University School of Medicine and other nearby medical schools in downtown Atlanta. Day in and day out, they prioritize affordable healthcare without ever compromising their status as innovative leaders in the field.

Never afraid to challenge the status quo and with a belief that available technology should be leveraged to its fullest extent, Dr. Vellanki set out to see if she could improve upon the long-established standard of care for CABG surgeries.

The Problem

It's commonly understood that control of hyperglycemia is crucial for patients with and without diabetes in all areas of the hospital, but what's less known is how prevalent it can be - afflicting 70% of patients with diabetes, and 30% of patients without.

This is not only dangerous, but can get expensive quickly for both patients and healthcare systems - a cost that's felt acutely in public hospitals like Grady. But fortunately, Grady has prioritized the implementation of innovative technology over the years, and thanks to their status as a teaching hospital has built-in access to thought-leaders and their groundbreaking research.

Dr. Vellanki is one of those leaders, and regularly investigates whether or not costs can be cut without compromising patient outcomes. Her latest research question - whether intensive glycemic control can slash expenses while maintaining or potentially even improving CABG patient outcomes - has many very excited at the possibilities.

Although a [past study](#) in Belgium by Greet Van den Berghe demonstrated that intensive control — glucose ranges from 80-110 mg/dL — in the ICU decreases complications, subsequent studies have so far been unable to replicate that result. In fact, the large-scale 2009 [NICE-SUGAR study](#) found that patients with intensive control (81-108 mg/dL) had higher mortality risks due to hypoglycemia (1.5x higher in those with moderate hypoglycemia and 3x higher in those with severe hypoglycemia).

Recognizing that technology has advanced our ability to manage hypoglycemia, and feeling that the existing research was inconclusive Dr. Vellanki decided to conduct her own study to determine whether intensive or conventional control was optimal in terms of resource utilization, length of stay and rate of complications.

The GLUCO-CABG Study

To identify the ideal blood glucose target range for CABG patients, Dr. Vellanki conducted a study where participants were randomized to either an intensive control group (target range: 100-140mg/dL) or conventional control group (target range: 140-180mg/dL). These ranges were safely achieved and maintained using Glucommander.

By leveraging Glytec's technology, Dr. Vellanki effectively created an environment that eliminated the risk of hypoglycemia and could therefore test how blood glucose target ranges affect aspects of CABG surgery recovery for both patients and hospitals. Specifically, she measured impact on length of stay, resource utilization, and complications while differentiating between patients with and without diabetes.



The Study Results

The results of Dr. Vellanki's study were irrefutable - technological advancements allow for the safe and intensive control of CABG patients' blood glucose and when compared to the standard of care is far less expensive, not to mention better for patients.

Dr. Vellanki was thrilled. Not only had she improved upon the established standard of care, but she had brought real-world results to her hospital:

Through intensive glyceimic control, Grady Memorial Hospital saw average cost savings of \$3,654 per patient.

The facility saw a 37% decrease in patient length of stay. Intensive control with eGMS led to fewer perioperative complications, which reduced length of stay by four full days.

Patients had 20% fewer complications with intensive control. Perioperative complications were reduced from 52% to 42% of patients, a 20% reduction compared to the conservative control group.

“Intensive control using Glucomander is cost-saving and may benefit patients who've had surgery, especially ones in the ICU.”

Priyathama Vellanki, MD
Associate Professor, Division of Endocrinology, Metabolism & Lipids Emory University School of Medicine

In Conclusion

The world is changing fast, and thought-leaders like Dr. Priyathama Vellanki understand that what worked yesterday won't always work tomorrow. They also recognize that new technology can dramatically shift the paradigm, reframing what we've always believed to be true. For example, older guidance led clinicians to believe that intensive glyceimic control was just too risky to consider as a viable option for patients recovering from CABG surgery - hypoglycemia loomed as too big of a threat.

This is no longer true.

Times are changing, and technology puts us in the position to ask questions once considered non-starters. Here at Glytec, we can't wait to help.

**Get the full story
from Dr. Vellanki**

WATCH VIDEO

The eGlycemic Management System® is a modularized solution for glycemic management across the care continuum that includes Glucommander™. Glucommander™ is a prescription-only software medical device for glycemic management intended to evaluate current as well as cumulative patient blood glucose values coupled with patient information including age, weight and height, and, based on the aggregate of these measurement parameters, whether one or many, recommend an IV dosage of insulin, glucose or saline or a subcutaneous basal and bolus insulin dosing recommendation to adjust and maintain the blood glucose level towards a configurable physician- determined target range. Glucommander™ is indicated for use in adult and pediatric (ages 2-17 years) patients. The measurements and calculations generated are intended to be used by qualified and trained medical personnel in evaluating patient conditions in conjunction with clinical history, symptoms, and other diagnostic measurements, as well as the medical professional's clinical judgment. No medical decision should be based solely on the recommended guidance provided by this software program.

Glucommander™ is only available for use in the United States.

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Customer service: (888) 458-2683

