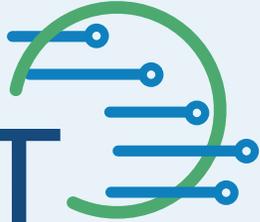


Glytec®

TIME TO TARGET



*Uniting Around
Patient Safety*

Customer Case Studies

Accelerating Change & Optimizing Glycemic Management

Susan M. De Abate, RN, MSN/ED, CDCES

Debra Dudley, BS, CDCES, RN

Angela Hodges, PharmD, LSSYB, BC-ADM

10.26.2021





PHARMACY-LED PRACTICE CHANGE IN THE ICU

Angela Hodges, PharmD, LSSYB, BC-ADM



Diabetes Center of Excellence Manager

Texas Health Huguley Hospital

- Board Certification in Advanced Diabetes Management
- Lean Six Sigma Yellow Belt
- Adjunct Professor for the University of North Texas Health Science Center College of Pharmacy
- Lead author of the case study entitled, "Implementing a Pharmacy Consult Model for Multimodal (Basal-bolus) Insulin Therapy" which was published in the American Journal of Healthy-System Pharmacy

DIABETES CENTER OF EXCELLENCE

- CMS 5-STAR facility
- Joint Commission “Advanced Inpatient Diabetes Care” Certification
- Certified Outpatient Diabetes Education Center – Association of Diabetes Care & Education Specialist (ADCES)
- Insulin Dosing Pharmacy Consult Service since 2011



Fort Worth, Texas

Population: Mixed rural and urban

291 Beds

Acute Care Hospital



THH Glycemic Management Background

Pharmacy-led model for transition and non-critical care, nurse-driven protocol in ICU

Critical Care Units

- Insulin infusion criteria BG >180 mg/dL x2 in 6 hours
- Automatic nurse-driven protocol to initiate an insulin infusion per EndoTool
- Physician to enter separate orders for DKA*/HHS** management
- **No real process for insulin infusion meal-time bolus treatment**

Non-Critical Care Units

- Basal-bolus insulin dosing criteria BG >180 mg/dL x2 in 12 hours
- Automatic pharmacy-driven protocol to initiation basal-bolus insulin therapy
- Pharmacists consulted to transition ICU patients from IV to SubQ insulin over 2 hrs prior to going to next level of care

*DKA: Diabetic Ketoacidosis

**HHS: Hyperosmolar Hyperglycemic State

Change Was Needed

Growing frustration with the previous decision support software not making changes to improve the product

Motivation

- Tech falling behind, not enough support to meet our needs
- New insulin dosing decision support was needed
- Coverage of post-prandial glucose levels with an eGMS insulin infusion

Desired Outcome

- Optimize care of DKA and HHS patients
- Safely transition from IV to SubQ insulin therapy
- Keep great glucometric outcomes while committing to whole care experience

KPIs

DKA & HHS KPI:

- All IVFs, labs, tests, and insulin ordered with single order set “PowerPlans” (vs. 2 separate orders)

Transition KPI:

- Non-ICU Goal of >75% of patient days BG 70-180 mg/dL

Glytec's eGMS, Pharmacy-led process

Change Management: Addressing People, Process, Technology

Solution

- Transition from EndoTool to Glucommander decision support software in the ICU
- Switch from nurse-driven to a pharmacist-led insulin infusion initiation process
- Hospitalists identified as the physician group to dose insulin on critical care units

Challenges

- ICU nurses had a bit of an identity crisis
 - AdventHealth leaders in glycemic management
 - They were the insulin dosing experts in the ICU
 - It was their baby
 - Reluctant to trust a new process
- New roles & responsibilities for pharmacists, nurses and physicians
 - Total culture change
 - New software to learn and trust

Process Change Toolbox



Empowered Leadership

Vision, Prioritization, Resources

- Pharmacy was empowered to drive change
- Ownership is crucial
- Leadership builds trust



Strategic Teams

(Re)Defined Roles, Responsibilities, Collaboration

- Structure & organize collaborative groups
- Collaborate on Processes
- Provide effective training/education
- Recognize challenges
- Share best practices: kick-start innovation



Shared Goals

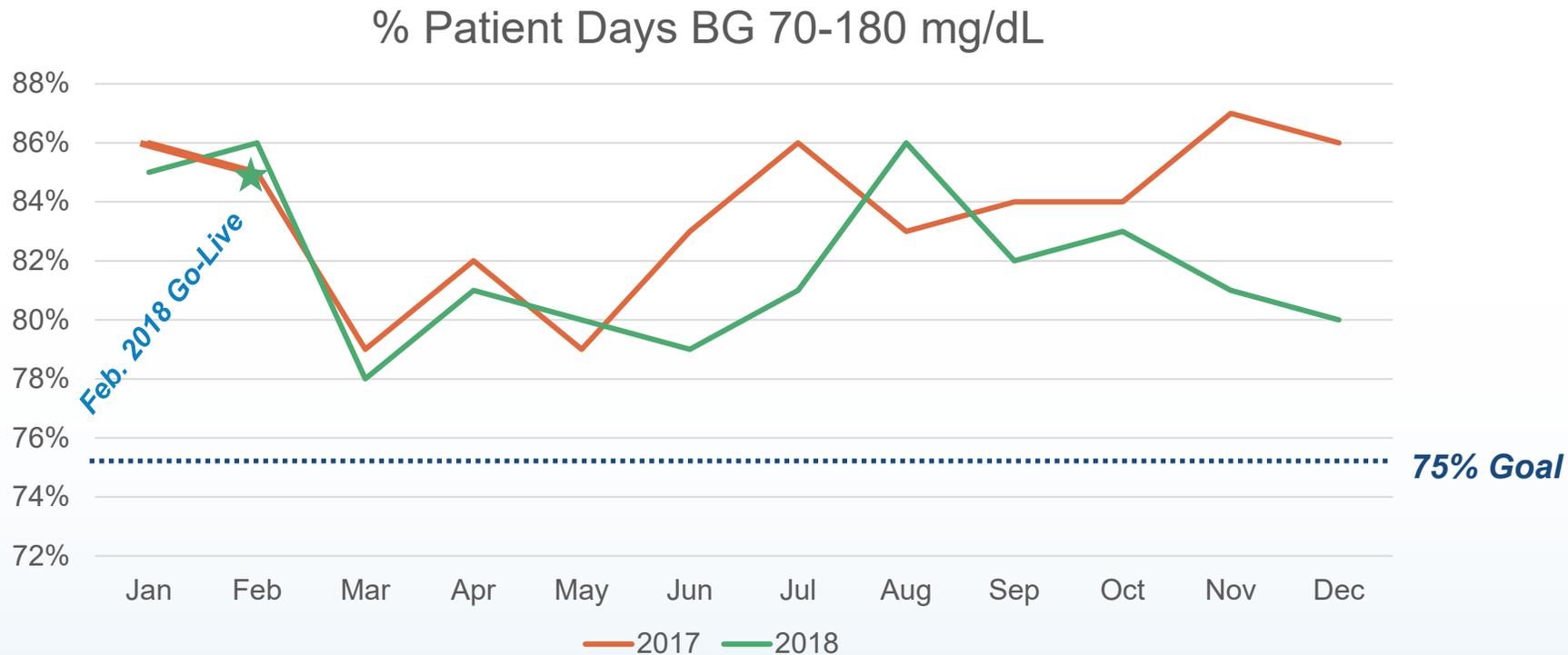
Define Key Metrics Aligned to Improvement Strategies

- Regularly review key performance indicators
- Use data to drive practice change

Glucometrics: ICU Scorecard Metrics

2017: EndoTool / Nurse-Driven

Feb.-Dec. 2018: Glucommander / Pharmacy-Driven



Original Goal:
ICU: 75% of patient days BG 70-180 mg/dL

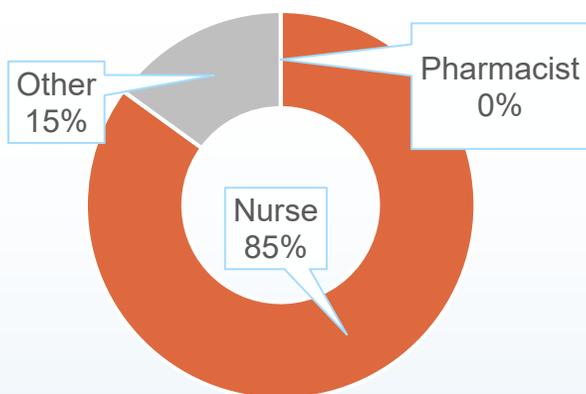
Change management success in 2018:
>80% Patient Days BG 70-180 mg/dL (normoglycemia)

Team: Nurse-Driven to Pharmacy-Driven

Goal: Change to primarily pharmacy-driven insulin order entry in ICU

**3 Months Before:
Nurse-Driven Process**

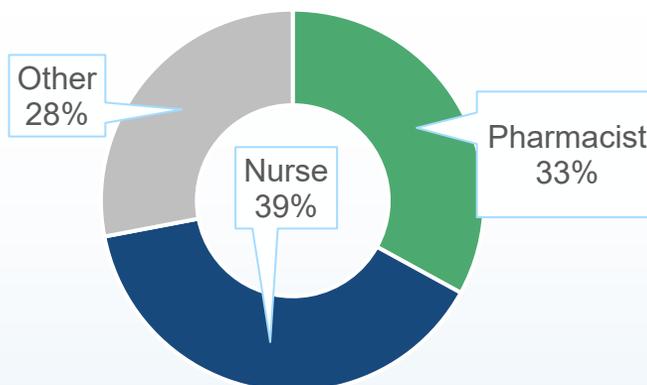
EndoTool Entry



■ Pharmacist ■ Nurse ■ Other

**3 Months After:
Pharmacist-Driven
Early Adoption**

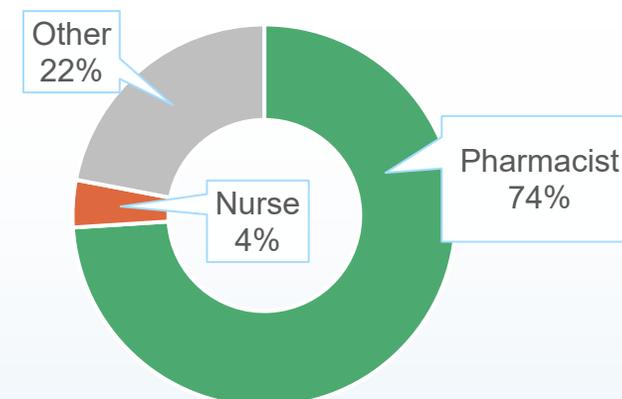
Glucommander IV Entry



■ Pharmacist ■ Nurse ■ Other

**2021 Update:
Change Management
Success**

Glucommander IV Entry



■ Pharmacist ■ Nurse ■ Other

Process Metrics: Standardized Order Sets for DKA/HHS

Goal: Adoption of DKA/HHS PowerPlan orders by Physicians

**Before
Practice Change:**

**Providers/clinicians
had to order 2
separate PowerPlans
for insulin orders &
DKA/HHS-related
orders**

**3 Months After:
DKA & HHS PowerPlans**

**>79%
of new DKA/HHS
PowerPlan orders
are placed by
Physicians**

**2021 Update:
Change Management
Success**

**>80%
of new DKA/HHS
PowerPlan orders
are placed by
Physicians**

Benefits of a Pharmacy-Led Model



Pharmacy Leaders

- Allows physicians to focus on other important clinical factors
- Pharmacist clinical skills growth → PRIDE



Strategic Teams

- Defined roles and responsibilities within our program
- Reinforced the benefit of interprofessional collaboration



Shared Goals

- Evidence-based practice
- Brought efficiency to a complicated process
- Avoided clinical inertia



angela.hodges@adventhealth.com

Angela Hodges



STANDARDIZING BEST PRACTICE CARE

Susan M. De Abate, RN, MSN/ED, CDCES



**Sentara Diabetes Prevention Program
Coordinator for Hampton Roads**

**Sentara Quality Coordinator for
Hampton Roads**

**Team Coordinator Diabetes Program
SVBGH**

Patient Care Services

Sentara Virginia Beach General Hospital



NURSING EXCELLENCE

- Sentara Virginia Beach General Hospital received Magnet recognition from the American Nurses Credentialing Center in 2019. ANCC's Magnet Recognition Program® identifies superior quality in nursing care and is the highest national honor for nursing excellence. Currently, only approximately seven percent of all U.S. health care hospitals have achieved Magnet recognition.



Virginia Beach, VA

Population: Urban

273 Beds

Acute Care Hospital, Level III
Trauma Center



The Impact of Low Provider Adoption

Change is hard: lack of mandate led to low provider adoption for Glucommander SubQ

Inpatient Providers Focusing on Primary Diagnosis

- Not focusing on how much of an impact diabetes, poor glycemic control has on increasing length of stay, complications in the acute care setting, etc.
- Too much focus on fear of hypoglycemia leading to untreated hyperglycemia
- Glucommander usage was optional

Unintended Consequences of Education Gaps & Optional Usage

- Education was not mandatory in initial roll-out for all nurses
- Lack of widespread adoption meant when Glucommander SubQ was ordered, nurses were out of practice
- Nurse skill for protocols follows provider orders and creates a vicious cycle: uneven adoption -> forget training -> more calls -> less adoption
 - Created perception that Glucommander was difficult to use

Solution: Redeploy with New Rules

Mandated (it's the standard, not the exception) use of Glucommander SubQ

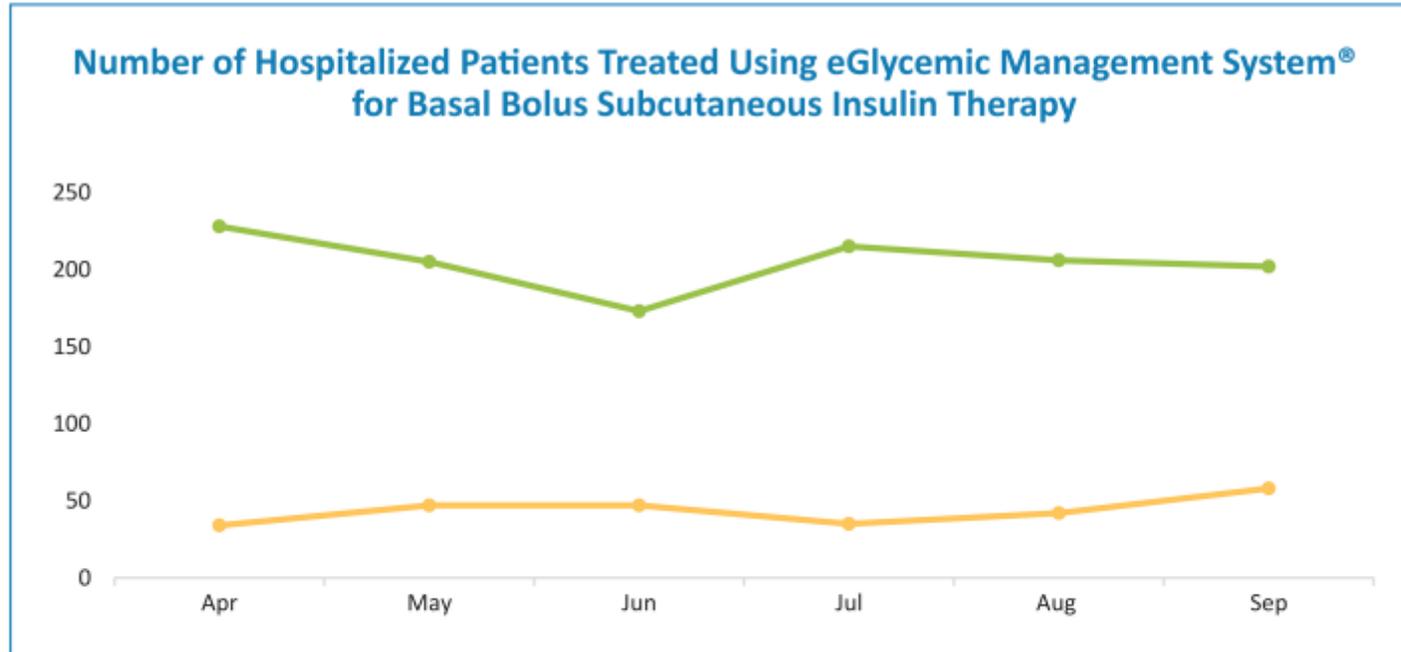
Providers Drive The Adoption & Use

- VP of Medical Affairs reinforced the value & mandated Glucommander for SubQ insulin
 - Providers need to justify reason for exception
 - Nurses used Glucommander regularly
 - Regular use & training led to fewer calls to physicians for help

Address Order Set Process & Education

- Order sets redesigned
 - Improved, bundled (Epic update), with more guidance for providers
- Provider Education
 - Provide the “why”: bring data to show benefits, explain best practice
 - Walk providers through process and understand pain points
- Nurse education revamp
 - Role-based education, training
 - At redeploy and ongoing
 - CBT to scale new hire or remedial training

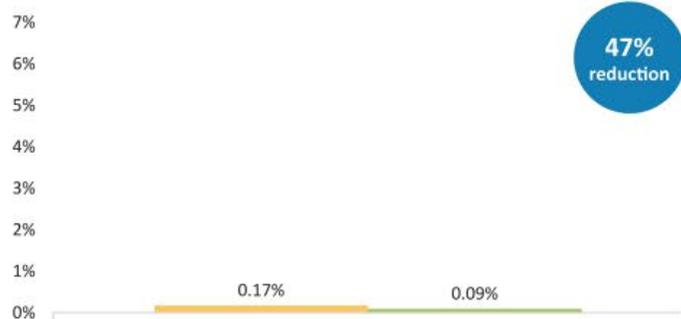
Results



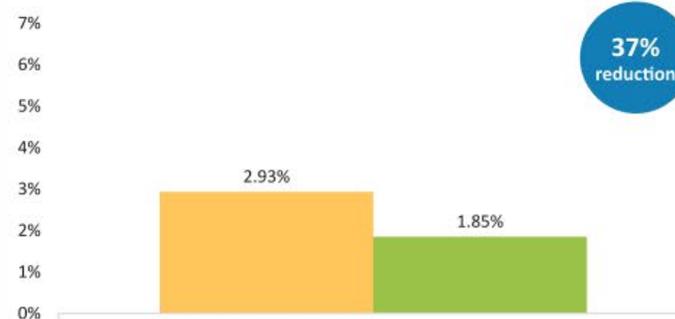
- Before High-Reliability Interventions (April to September 2018)
- After High-Reliability Interventions (April to September 2019)

Results

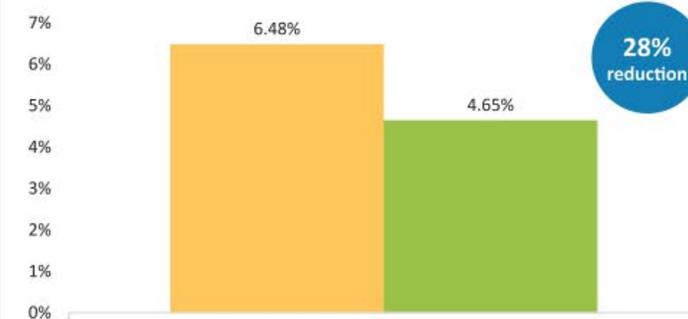
Incidence of Hypoglycemia <40 mg/dL (% BGs)



Incidence of Hypoglycemia <70 mg/dL (% BGs)



Incidence of Hyperglycemia >300 mg/dL (% BGs)



Key Takeaways



Make it
Mandatory



Executive
Buy In



Ongoing
Education

Thank you!



SENTARA®

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(757) 395-8837

Susan De Abate



USING FACILITY-LEVEL PILOTS TO DRIVE SYSTEM-WIDE CHANGE

Debra Dudley, BS, CDCES, RN



Clinical Diabetes Educator

AdventHealth Waterman

- 50-year career in the nursing field
- 25 years specializing in diabetes education and glycemic management
- Extensive experience in Pediatrics, NICU and Maternal Child Health
- Industry leader in providing support for those with a diagnosis of diabetes or pre-diabetes and improving their self-management through informative discussions, classes and support groups

AdventHealth Waterman



Tavares, FL

300 Beds

Community Hospital

PILOT STUDY FACILITY FOR ADVENTHEALTH SYSTEM

- Utilized for pilot studies for the entire Advent Health system
- Treats 13,653 patients admitted annually
- 4300 annual admissions require insulin
- 350 annual open-heart surgeries
- Critical Care features ECMO, Impella and CRRT machine
- Utilizes APACHE II Scoring System for critical care



AHWaterman Glycemic Management Background

Before Practice Change

Large population of patients living with diabetes

Patient Background

- **30%** of inpatient population living with diabetes
- **35%** of emergency department population living with diabetes

Previous Processes

- Insulin is used for 100% open heart CVI patients
- Basal/Bolus insulin therapy utilized since 2013
- No Endocrinologists at AHWaterman
- EndoTool, an insulin dosing software, was used for IV insulin in ICU, CVI and PCU from 2013-2017

Change Was Needed

Clinical & Workflow Challenges

- **Severe Hypoglycemia**
 - > 250 BGs <40mg/dL in 2017
- **Prolonged Hyperglycemia**
 - Patients with BGs >300mg/dL were not receiving optimal treatment
- **Workflow Challenges**
 - >3000 monthly calls to providers for glycemic management

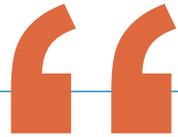
Known Challenges

- **Providers were reluctant** to begin insulin therapy
- Providers would begin insulin therapy on patients **when unnecessary**
- **Needed to improve insulin dose adjustments** when acuity and insulin needs decreased/increased
- Nurses often stacked insulin due to **inconsistent meal times** which caused hypoglycemia

KPIs

- **Severe Hypo Events**
- **Provider Call Volume to change insulin dosing**

Barriers to Success



Nurses already
have too much to do



I'm too busy to
go to classes



I am so
good at
dosing
insulin,
no software
can do
better



We don't need
technology
for insulin



I already know
how to use
computer software

A Marriage of Culture & Technology

Change Management: Addressing People, Process, Technology

Solution: Technology

- **Implementation plan** for Glucommander
- Enforced **mandatory utilization** of Glucommander on all inpatients requiring insulin

Solution: People, Process

- **Engage Providers**
- **Educate** medical and nursing staff to think differently
- **Consistent communication** to maximize end user engagement
- **Implemented** carb counted menus
- **Streamlined** 14 glycemic policies to 3
- **Process** improvement

Using an eGlycemic Management System to Improve Patient Safety and Reduce Clinical Errors

Dudley D, Narapanya, G, Yurso M, Gaines M, Crowe J. Reducing Critical Hypoglycemia Through Quality Improvement Initiatives and Implementation of an eGlycemic Management System®. IHI National Forum on Quality Improvement in Health Care. 2019

Analyzed any severe hypoglycemic event (Blood glucose level <40mg/dL) in a:



269 BED
Hospital



OVER 12
Months

Root Cause of Critical Hypoglycemia:

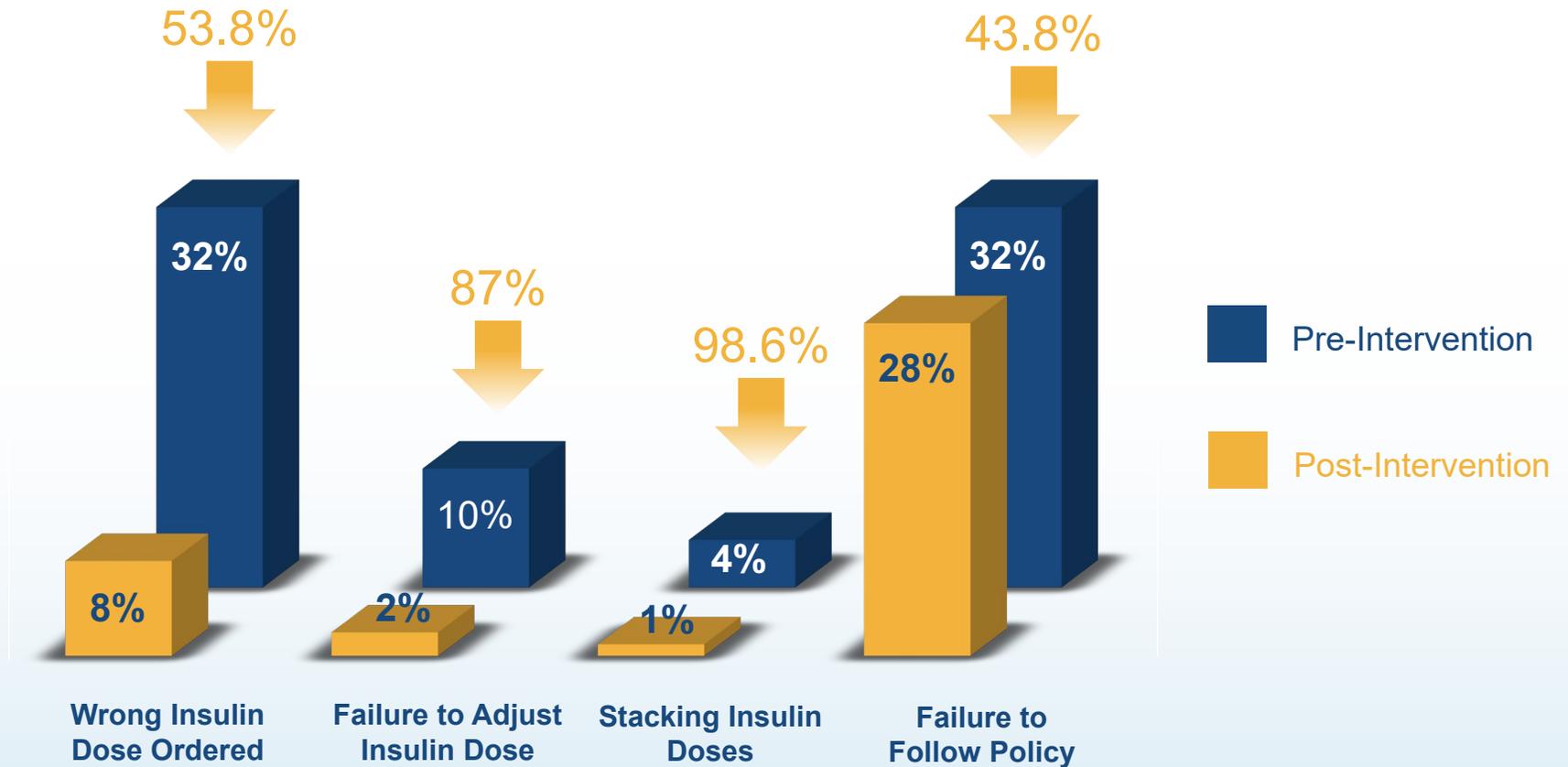
1. Wrong Insulin Dose Ordered and Administered
2. Failure to Adjust Insulin Doses for Patient's Changing Needs
3. Stacking Insulin Doses
4. Failure to Follow Policy

Intervention:

- Utilize education & accountability
- Implement workflow and policy measures
- Utilized eGlycemic Management System

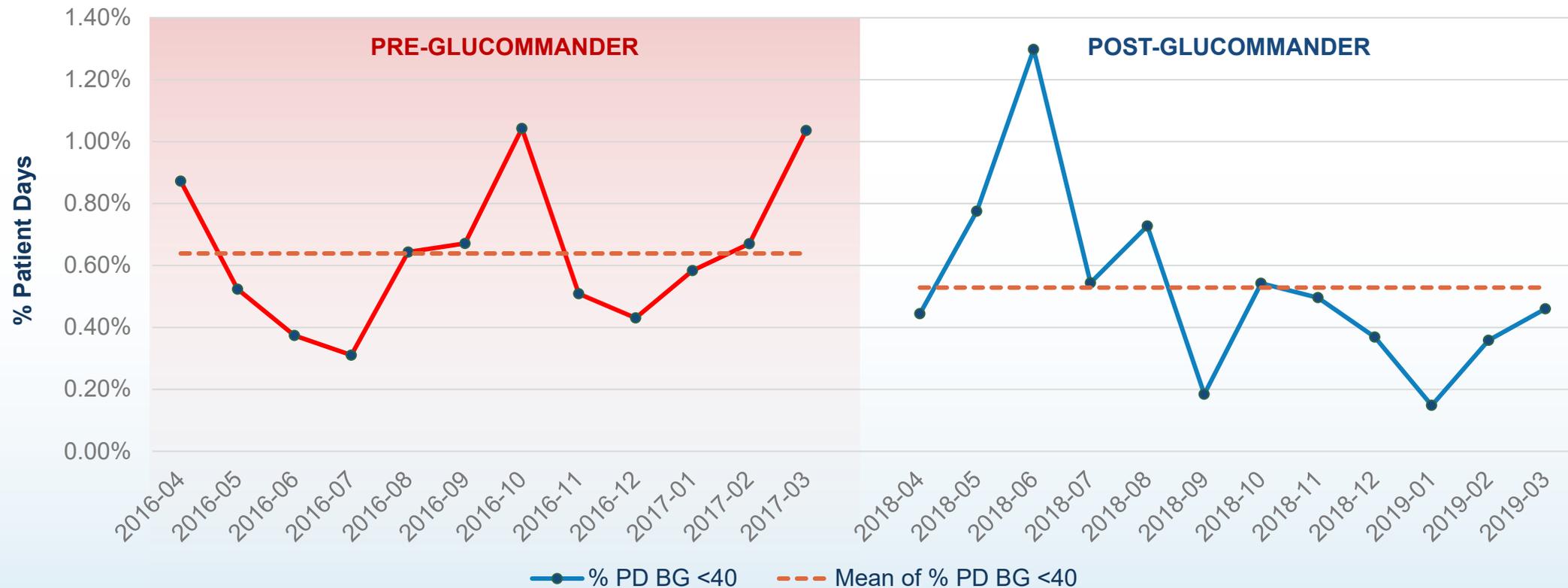
Using Glucommander to Improve Patient Safety and Reduce Clinical Errors

Hypoglycemic Events



Monthly Reduction In Critical Hypoglycemia Pre and Post Glucommander

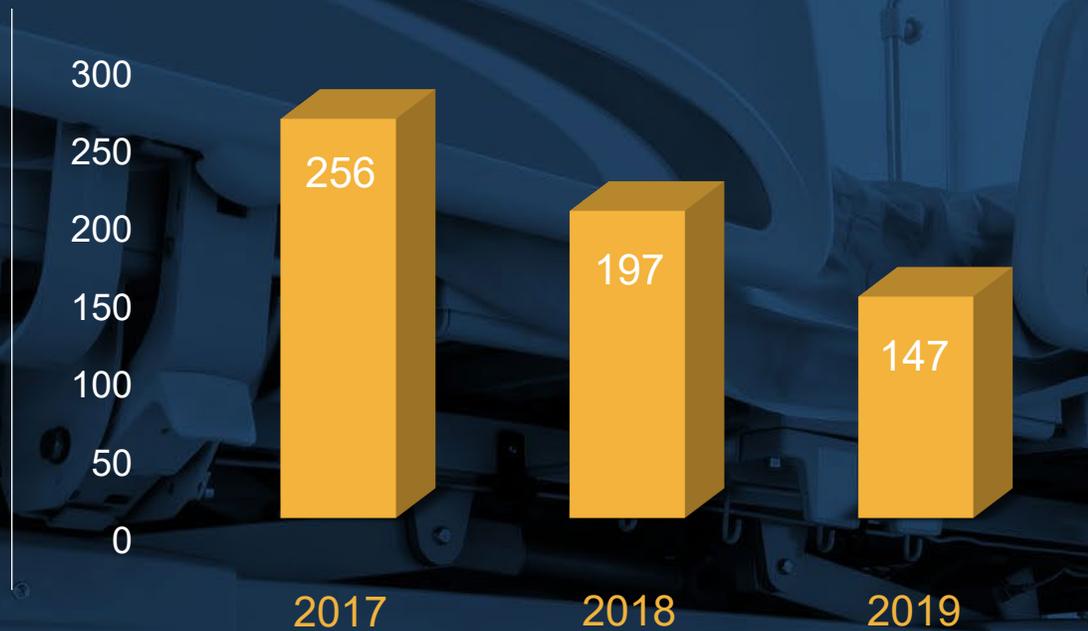
Percent of Patient Days (PD) with Blood Glucose Levels < 40 mg/dL



2-Year Reduction of Severe Hypoglycemic Events¹

Number of Severe Hypoglycemic Events (blood glucose <40mg/dL)

■ BG <40



Resulted Cost Savings after one year²

\$350,000



SUCCESSFULLY CHANGING THE CULTURE



“

I confess, I was the biggest opponent of Glucommander. But now, **I am the biggest proponent.** It really works. ”

Ajay Bisht, M.D.

Unexpected Benefits



Greater adherence to Hospital Policies



Improved rates of A1C testing on all insulin users



Easier transition for patients using insulin from hospital to home



75% reduction in 1st time calls to providers to change glycemic management

Lessons Learned



Education

- There will be challenges and barriers
- Assume there are knowledge deficits at every level
- Don't get discouraged, there is a learning curve



Change Management

- Change in culture is difficult for everyone
- Be patient – it takes time



Collaboration

- Be transparent, especially with leadership
- Celebrate and share the successes



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Debra Dudley

Thank you!



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