



Patient Safety and Clinical Quality Update

NIH CC Research Hospital Board

April 12, 2019

Laura M. Lee, RN, MS

Director, Office of Patient Safety and Clinical Quality

Board Recommendations: Follow-Up

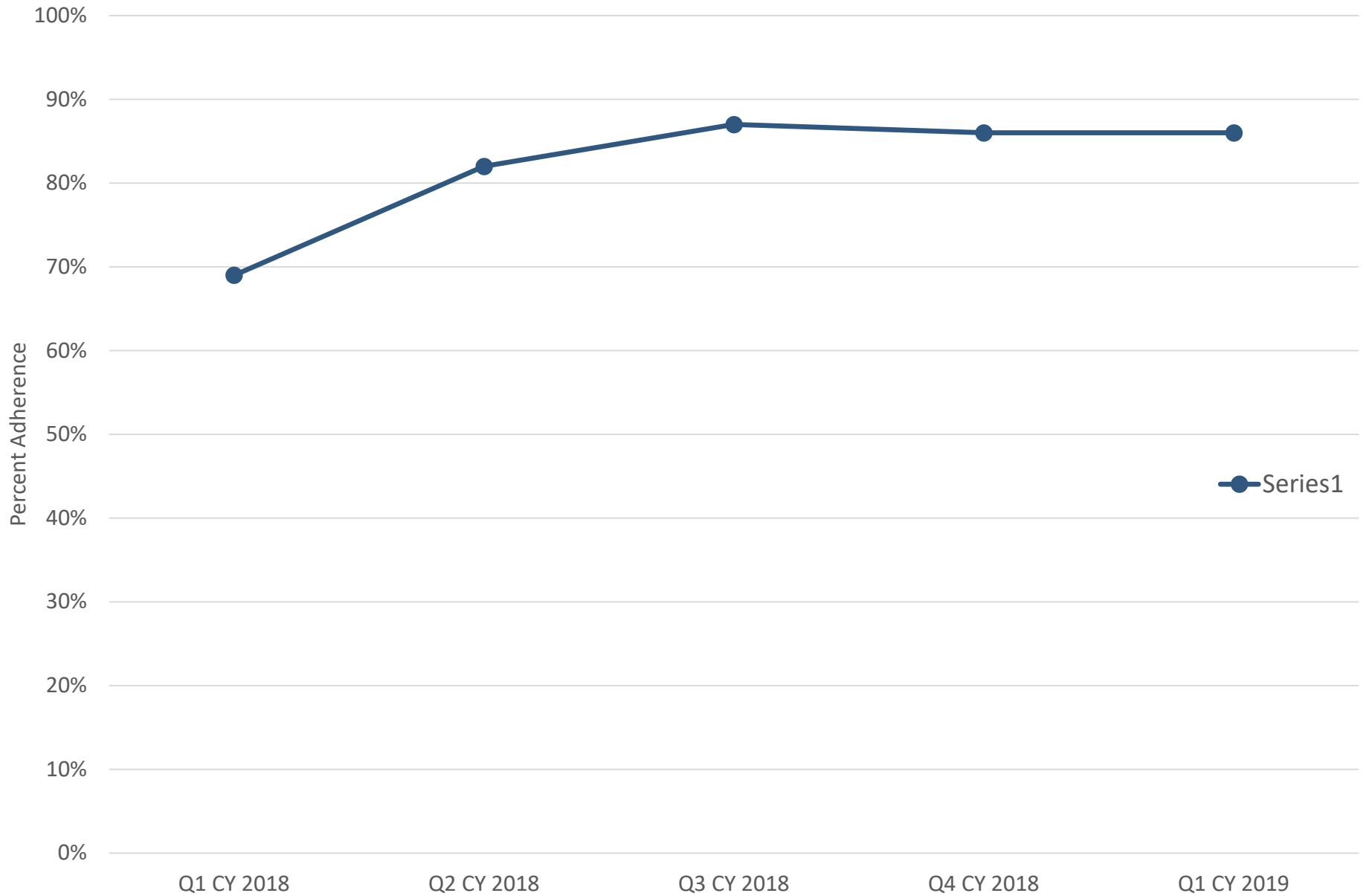
Board Recommendations: Status

Follow-Up Item	Status
For future presentations, the CCRHB asked Ms. Lee to present data on the rates of all inpatient falls, along with data categorized as (a) falls with injury and (b) falls without injury.	Complete
For future presentations, the CCRHB asked Ms. Lee to present data on total prevalence of pressure injuries, as well as of grade 3/4 pressure injuries.	Complete
The CCRHB recommended revising the procedures for rapid responses to allow family members or patients to call for a rapid response.	In progress
The CCRHB would like more information about the trend over the past three quarters indicating that more patients are transferring to different units after a rapid response.	Complete
For future presentations of data on transfusion reactions, the CCRHB asked that data on anaphylactic reactions be separate from data on “other” types of reactions.	Complete
The CCRHB asked that goals for countersignature compliance and avoidance of abbreviations be set at 100%. For abbreviation data, a footnote should be added to clarify how much of noncompliance is attributable to unplanned system downtime.	Complete

Safety Performance Metrics

Infection Control Metrics

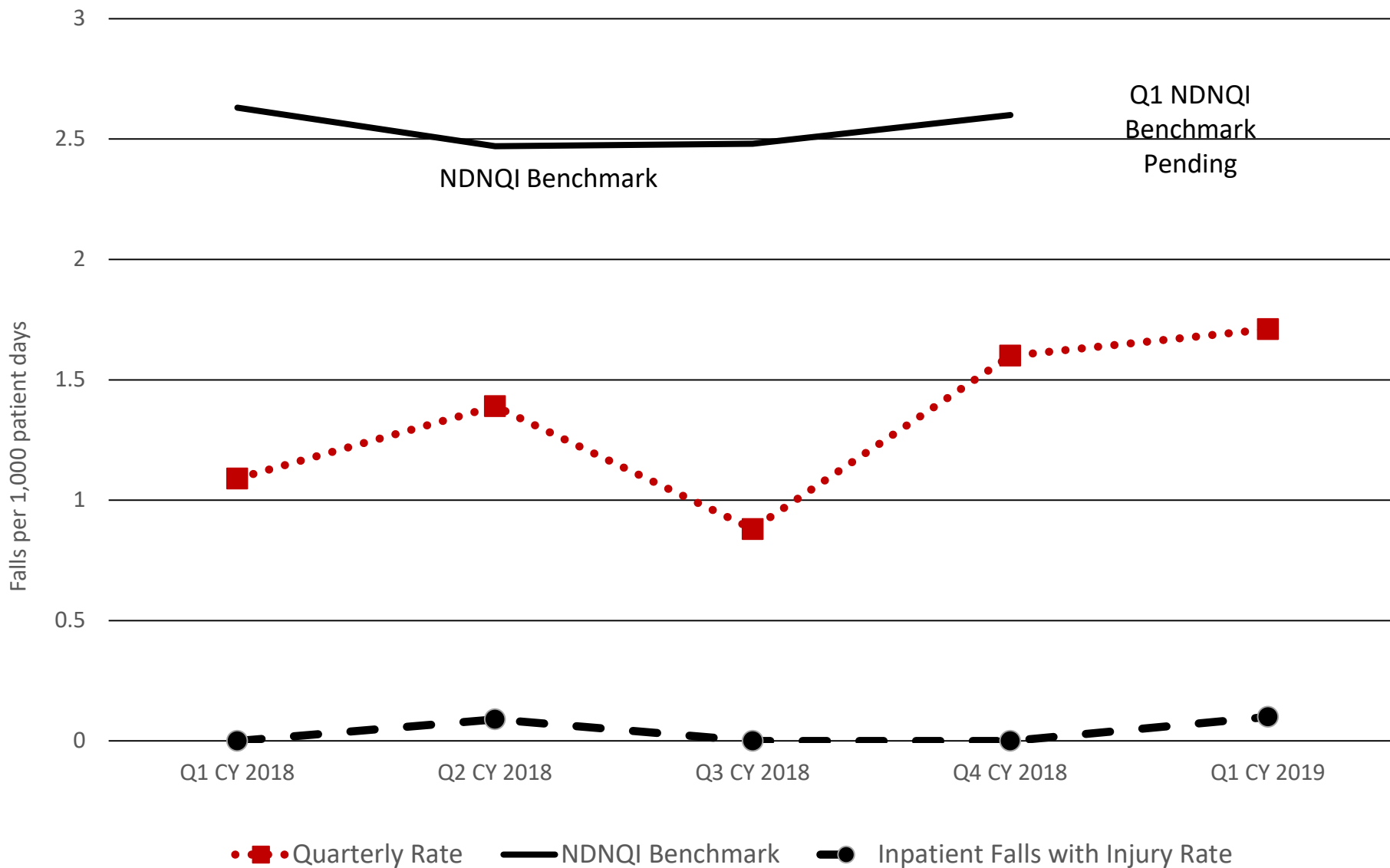
Hand Hygiene Compliance



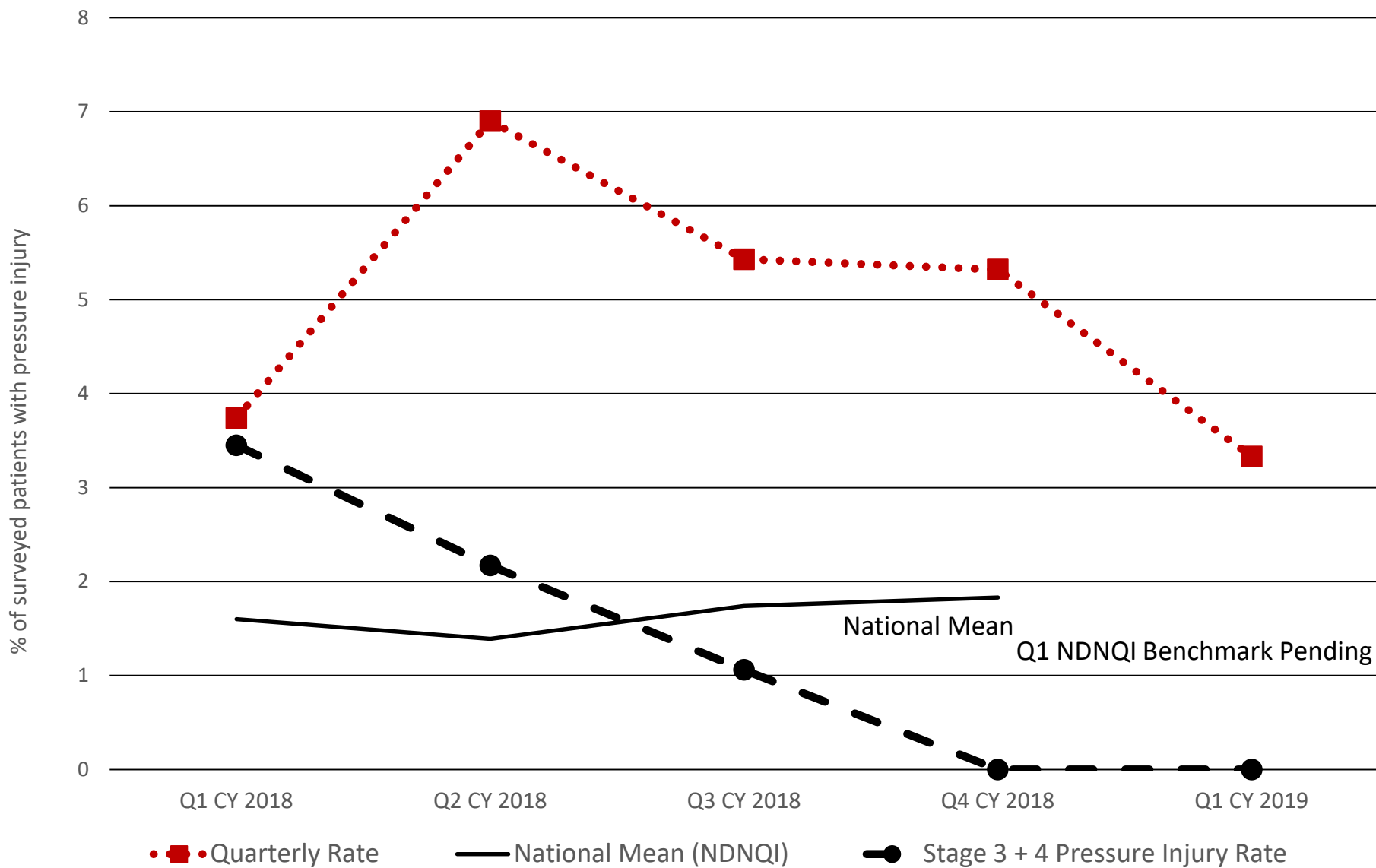
Nursing Quality Metrics

- Falls
- Pressure Injury
- Medication Administration Barcoding

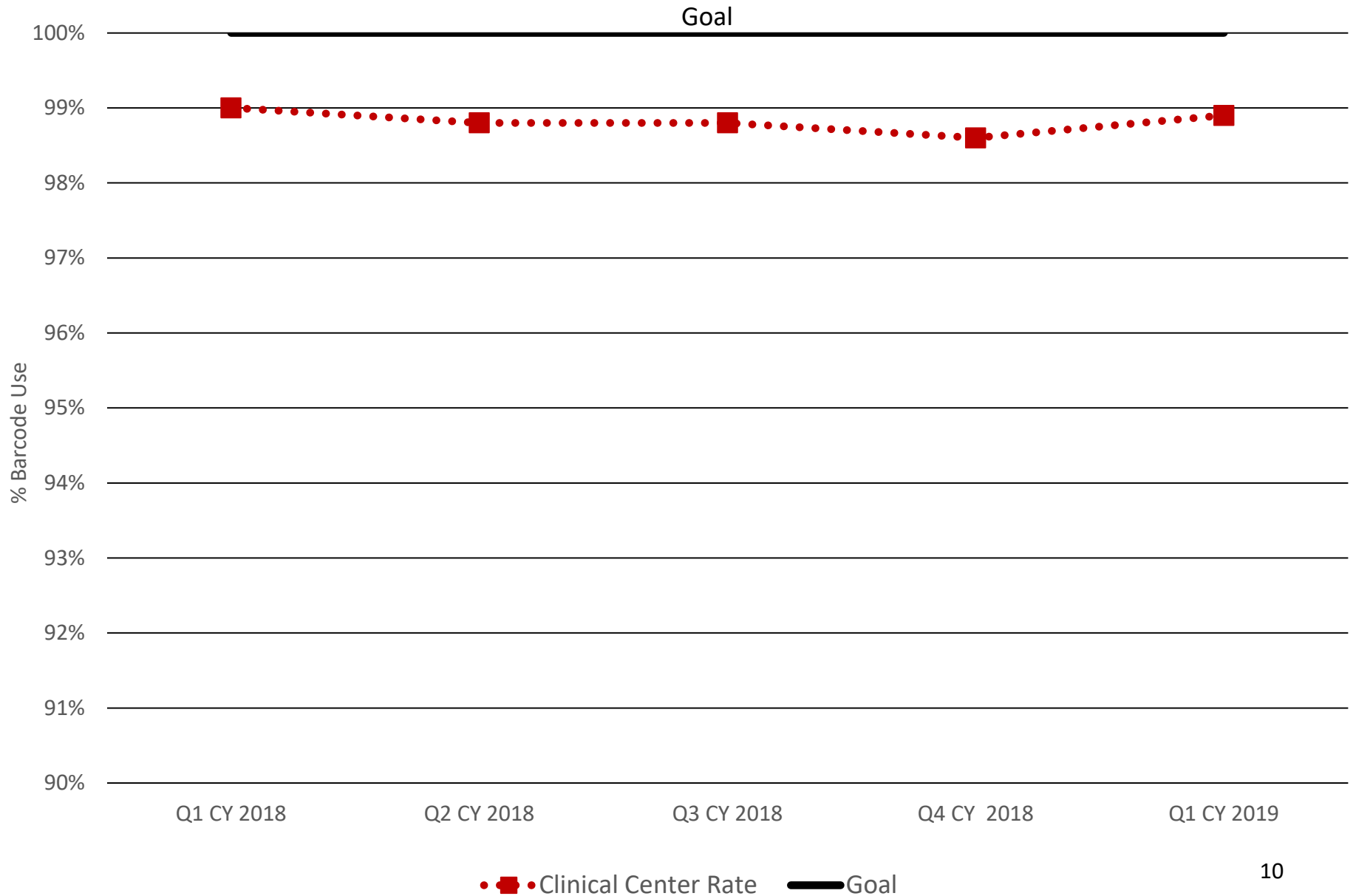
Inpatient Falls Rate



Pressure Injury Prevalence



Medication Administration Barcode Use



Clinical Outcomes Update

Complicated *C. difficile* infection and fecal transplants, 1/2017-4/2019

- Complicated *C. difficile* infection:
 - 1 patient in 2018 – metastatic cancer, admitted to the ICU with bleeding from duodenal ulcers, pneumonia, and fulminant *C. difficile* with ileus. *C. difficile* responded to aggressive medical management, but patient did not recover from multiorgan failure and eventually transitioned to comfort care.
- Fecal microbiota transplantation:
 - Four patients had recurrent or refractory *C. difficile* infection and received fecal microbiota transplantation.
 - All four responded (one after a second transplant).

Inpatient Diabetes Program

To provide:

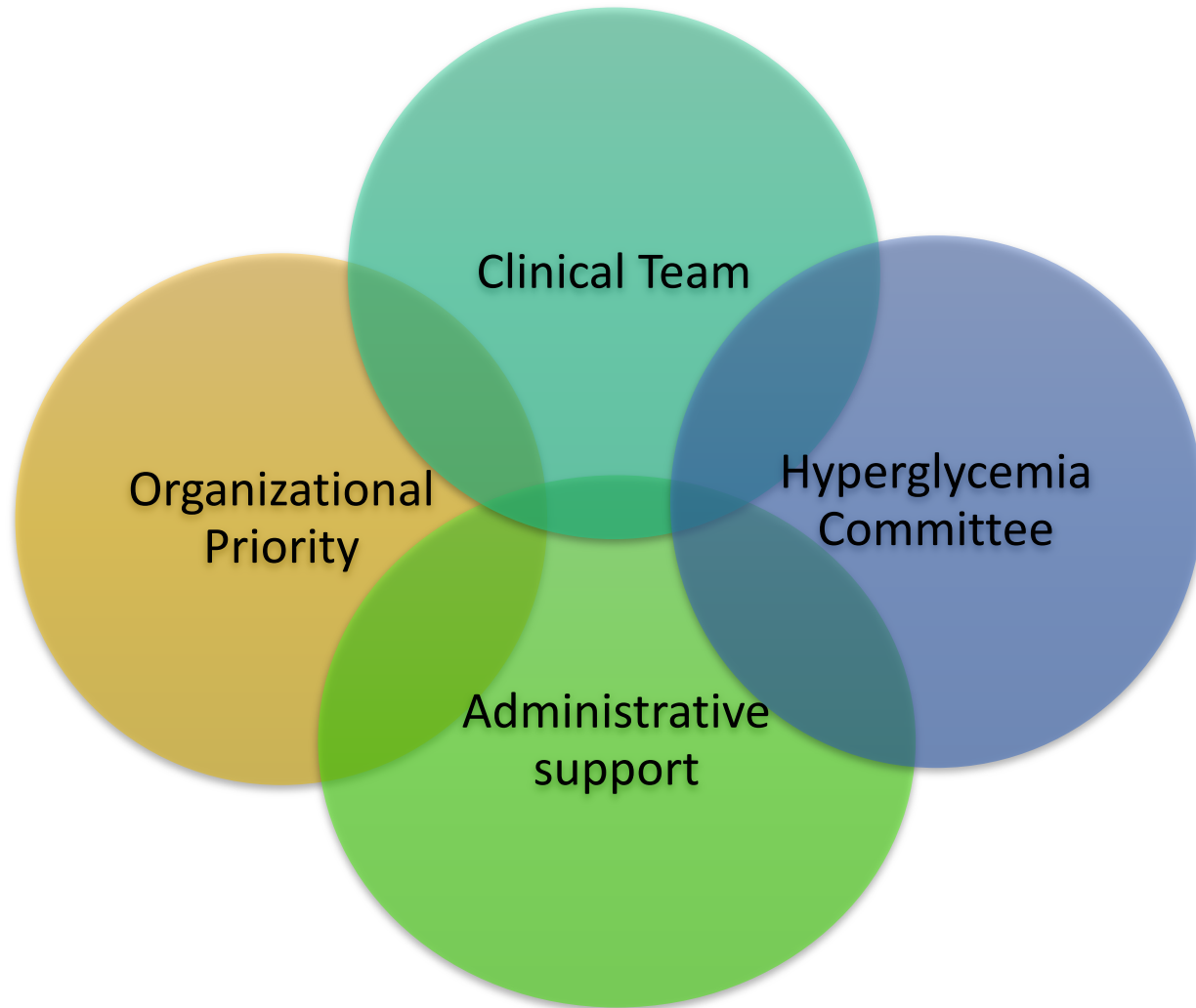
- rational, safe, and quality care to inpatients with diabetes mellitus
- comprehensive training in inpatient diabetes care to endocrinology fellows

Impact of Hyperglycemia and Diabetes in the Hospital

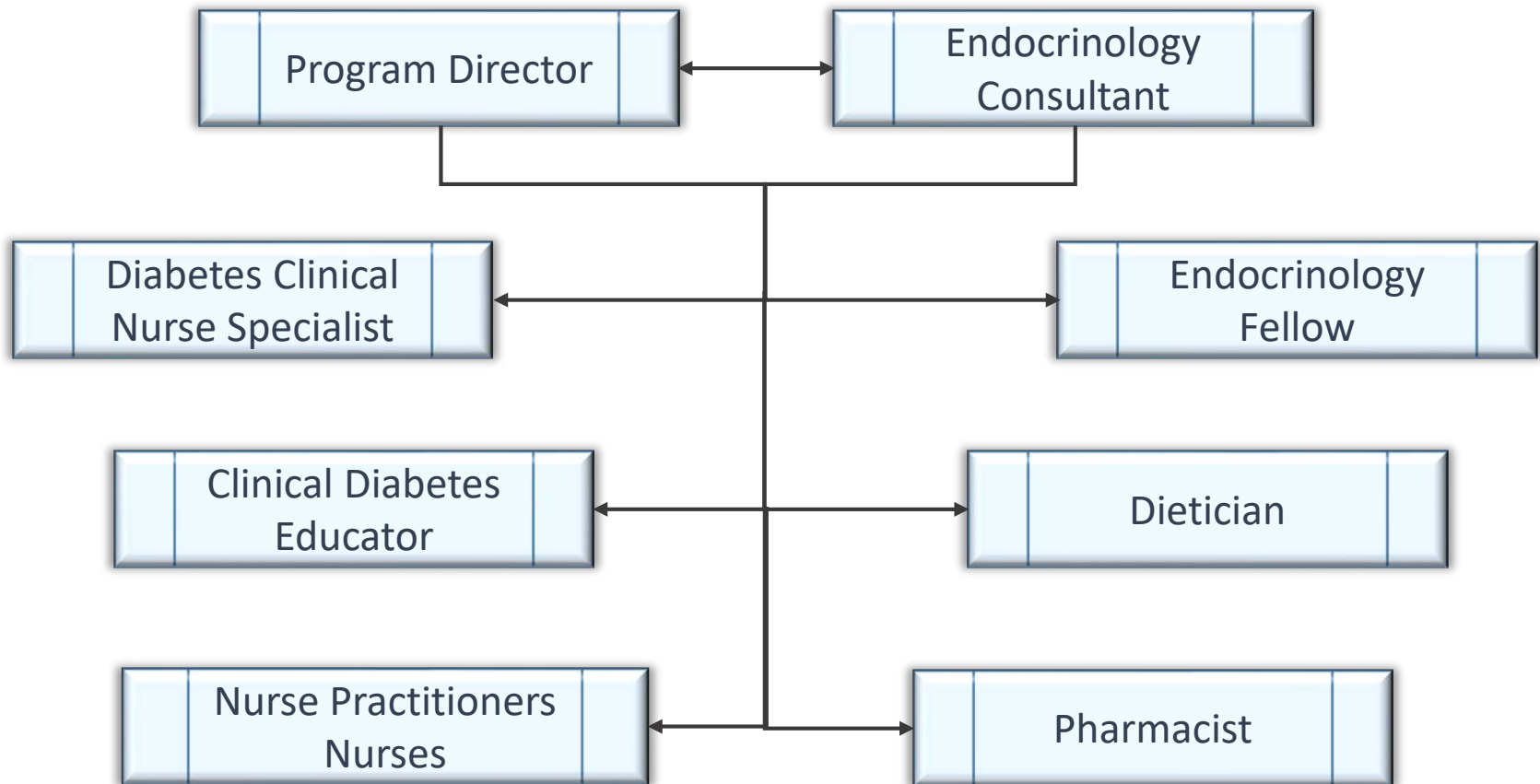
Hyperglycemia on general medical or surgical units is associated with:

- Increase in in-hospital mortality
- A longer length of stay
- More subsequent nursing home care
- A greater risk of infection

Quality Inpatient Glucose Management Program



Inpatient Diabetes Program Structure



Generation of Inpatient Glucometrics



Point of Care (POC) Testing



POC data transfer to the
Clinical Research Information System



Biomedical Translational Research
Information System (BTRIS)



Glucometrics Reports

Glucometrics

Domains of Glucometrics:

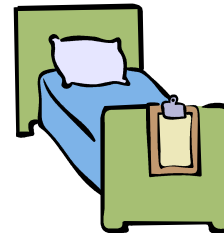
- Glycemic exposure
- Efficacy of control
- Adverse events

Metrics



Patient Day

Average glucose results taken for a single patient on a single day in the CC. All individual patient day means are averaged to calculate the patient day mean for the patient population

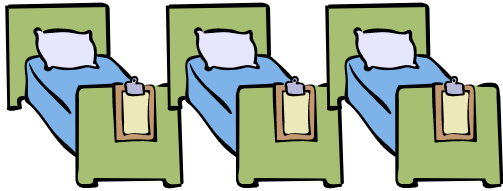


Patient Stay

Sum of the means for each patient day, divided by the number of monitored patient days. A patient stay is defined by consecutive inpatient days for which at least one glucose reading is available for a patient

2018 Glucometrics: Units of Analysis

Point of Care Blood Glucose



Hospital

n=12,950



Patient Day

n=4,295

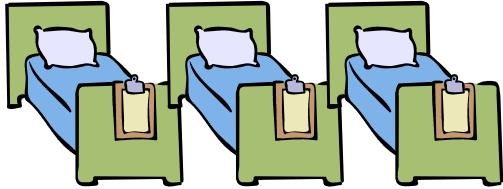


Patient Stay

n=1,054

General Medical and Surgical Units

Glucometrics



Clinical Center

Median: 142 mg/dL
Mean: 159 mg/dL



Patient Day

Median: 140 mg/dL
Mean: 152 mg/dL
(*Top quartile <156 mg/dL)



Patient Stay

Median: 130 mg/dL
Mean: 142 mg/dL
(*Top decile <146 mg/dL)

Glucometrics Metrics Focus



Blood Glucose Within Target Range (70-180 mg/dL)

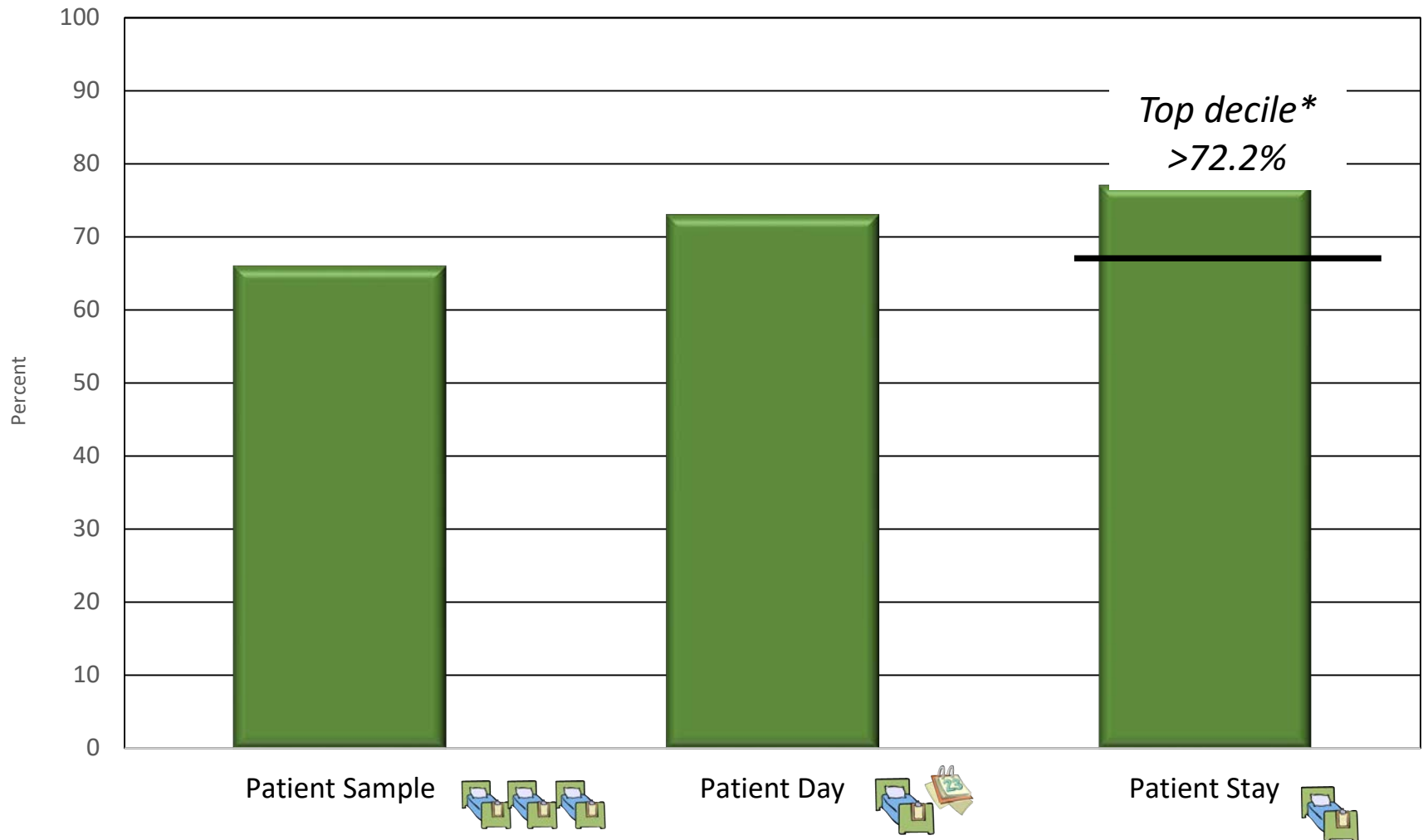


Hyperglycemic Events (Blood Glucose > 300 mg/dL)

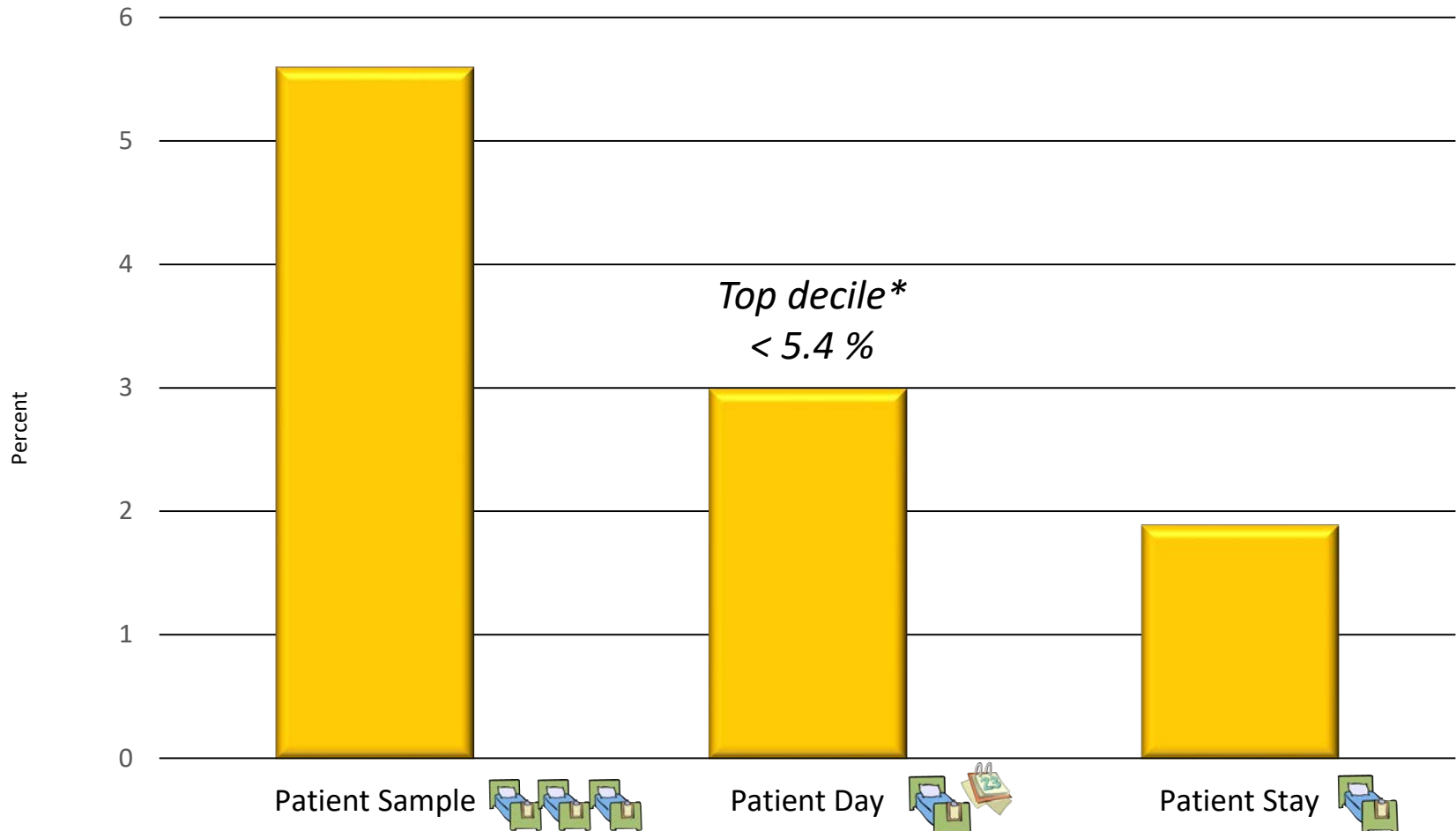


Hypoglycemic Events (Blood Glucose < 70 mg/dL)

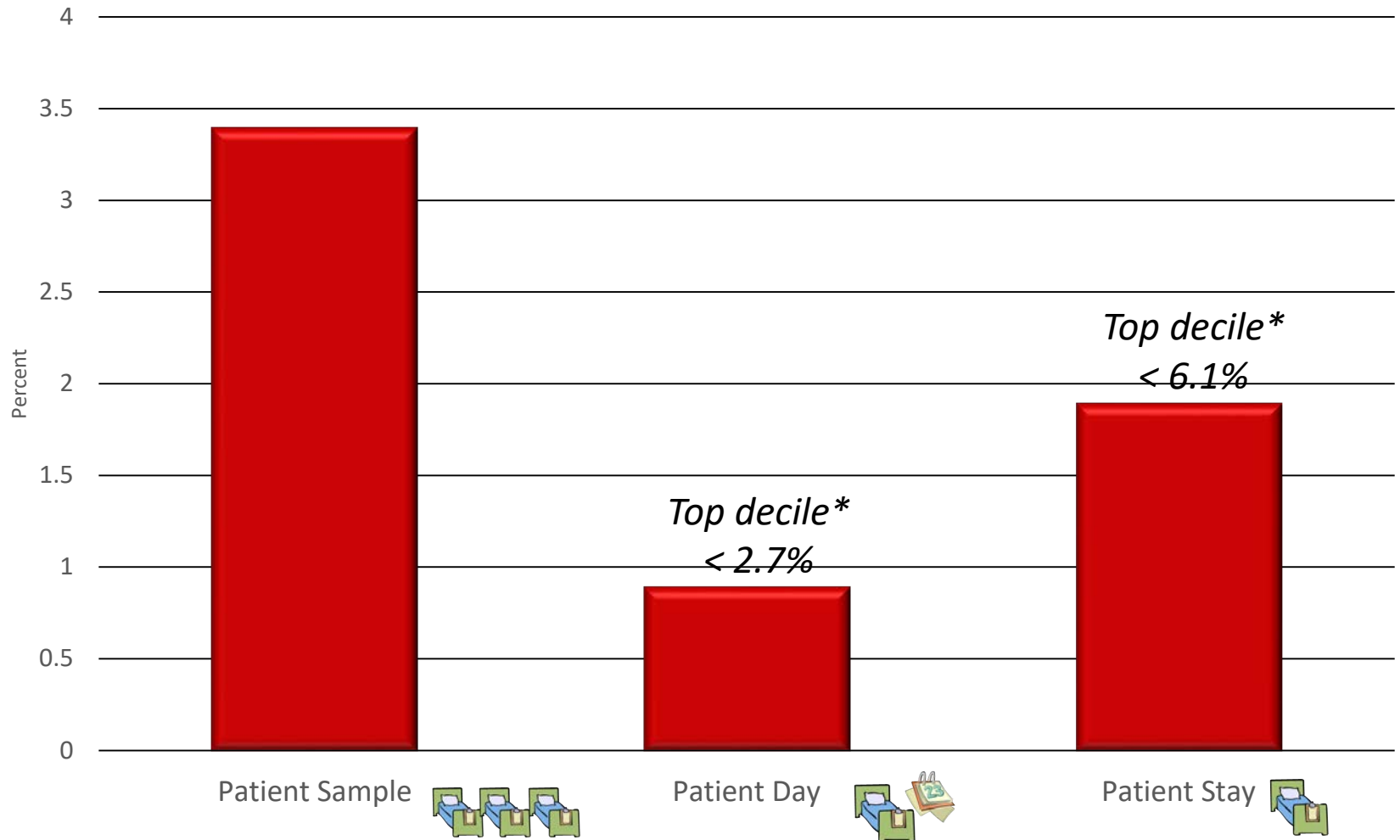
Blood Glucose Within Target Range (70-180 mg/dL)



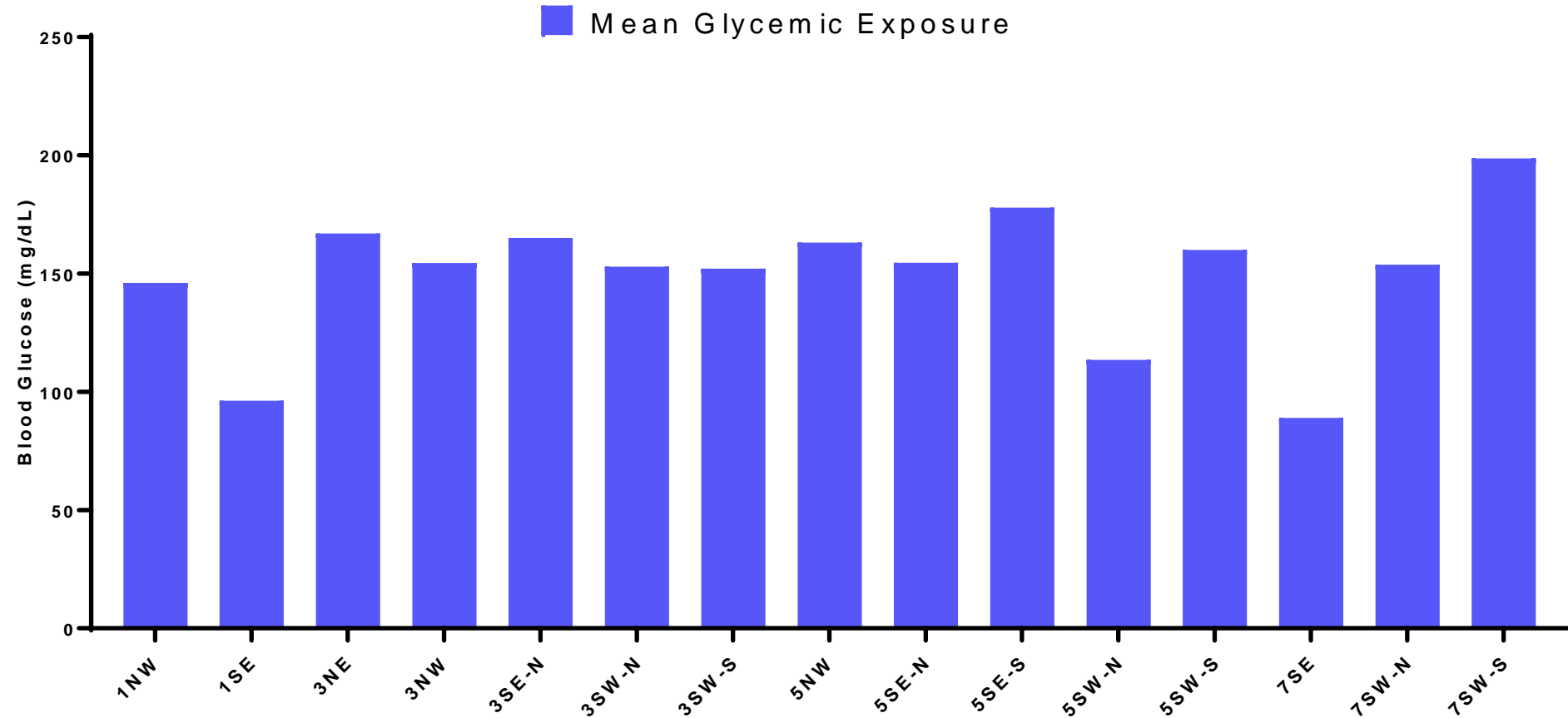
Hyperglycemic Events (Blood Glucose > 300 mg/dL)



Hypoglycemic Events (Blood Glucose < 70 mg/dL)

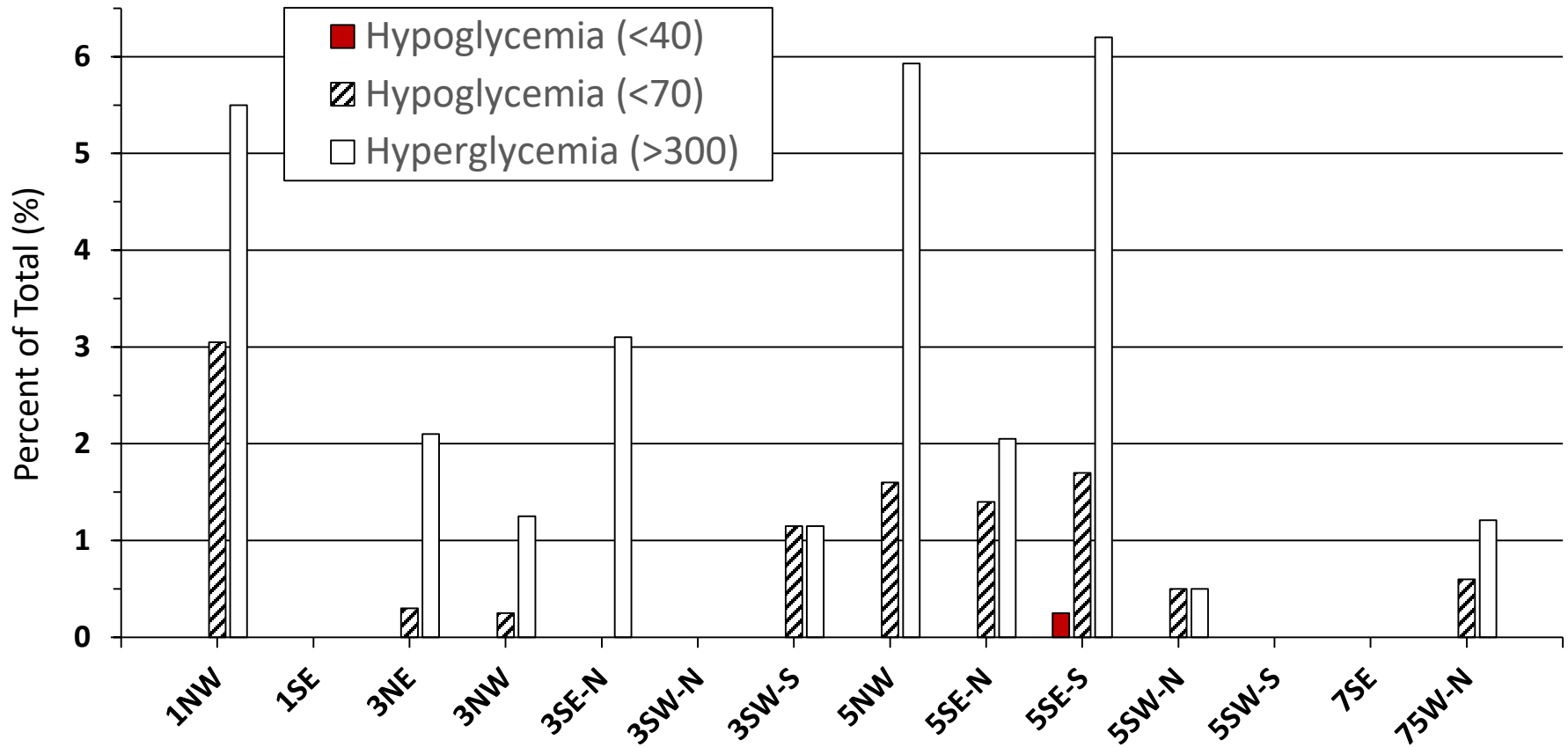


Glycemic Exposure by Patient Care Unit

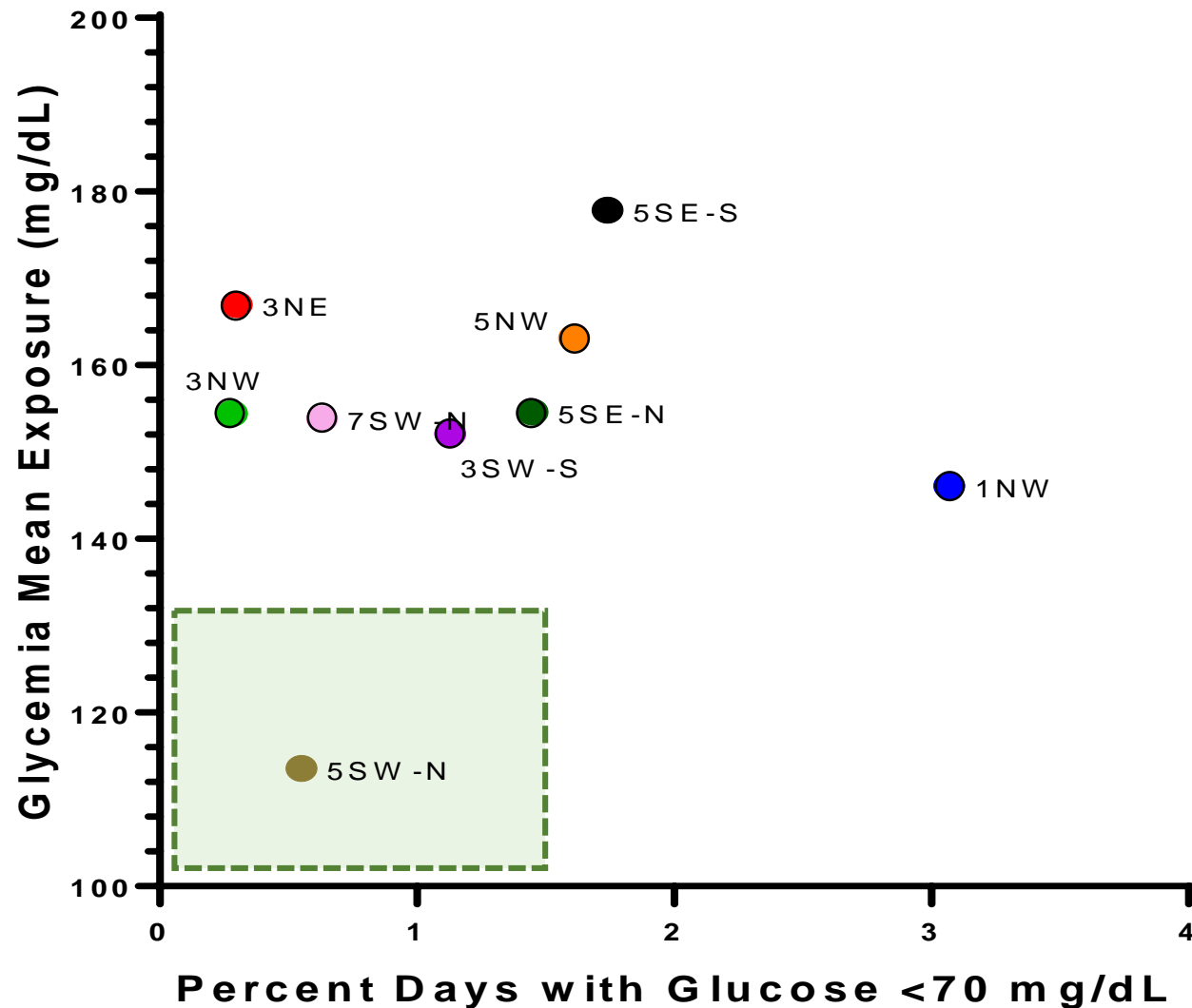


Hypoglycemic and Hyperglycemic Adverse Events

Adverse Event Rate – Percent of Total Patient Days



Towards Better Glycemic Control and Avoiding Hypoglycemia



Future Use of Glucometrics for Clinical Improvement

- Expand metrics to include hypoglycemic management measures (e.g., time to normoglycemia post event)
- Conduct unit-specific and data-informed staff education
- Implement active surveillance program (30-day window), with real-time mitigation of lapses in care
- Design process for organizational learning to share barriers, solutions, and best practices across units through Nurse champions
- Proactively work with investigators to identify high risk protocols
- Standardize glycemic management order sets