

*“Using Clinically-Enhanced  
Claims Data to Guide Treatment  
of Acute Heart Failure”  
An AHRQ Grant to MHA*



**Background & Research Design**

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# Overarching Goals

- Improve the scope and quality of the Minnesota hospital discharge database
- Evaluate the practicality of studying comparative effectiveness of alternative drug therapies using clinically-enhanced hospital claims data
- Determine the comparative effectiveness of alternative drug therapies for patients hospitalized for acute decompensated heart failure
- Recommend alterations in current practices to improve clinical outcomes for patients hospitalized for acute decompensated heart failure

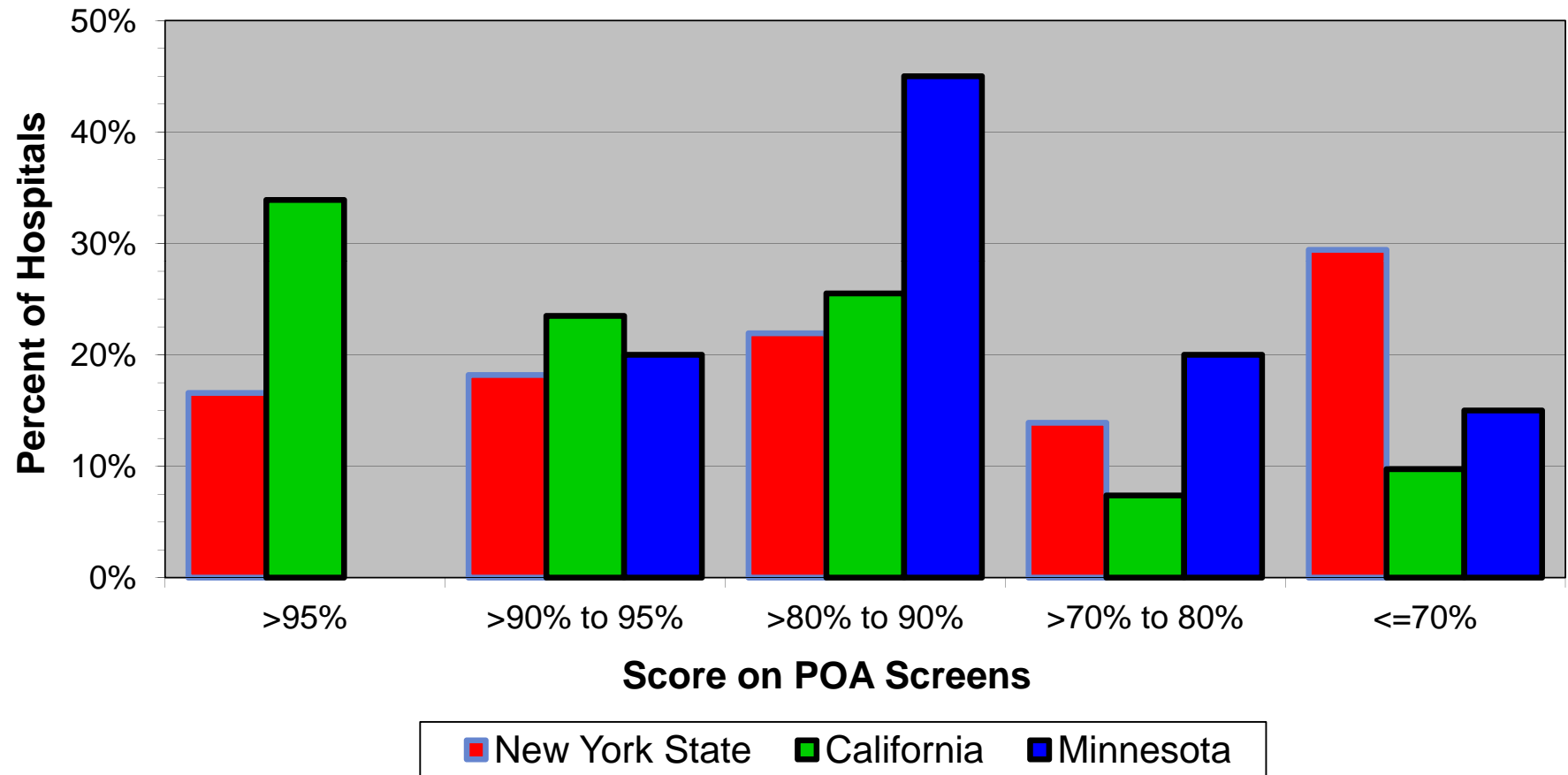
# Minnesota's Hospital Discharge Database

- Standard hospital claims data
  - Patient demographic data
  - Principal and secondary diagnosis codes
  - Inpatient procedures
- Full implementation of Present-on-Admission codes
  - Screens for accuracy of coding
  - Use in measuring risk-adjusted clinical outcomes
- Previous pilot adds numerical laboratory test results
- Proposed addition of a limited set of pharmacy data

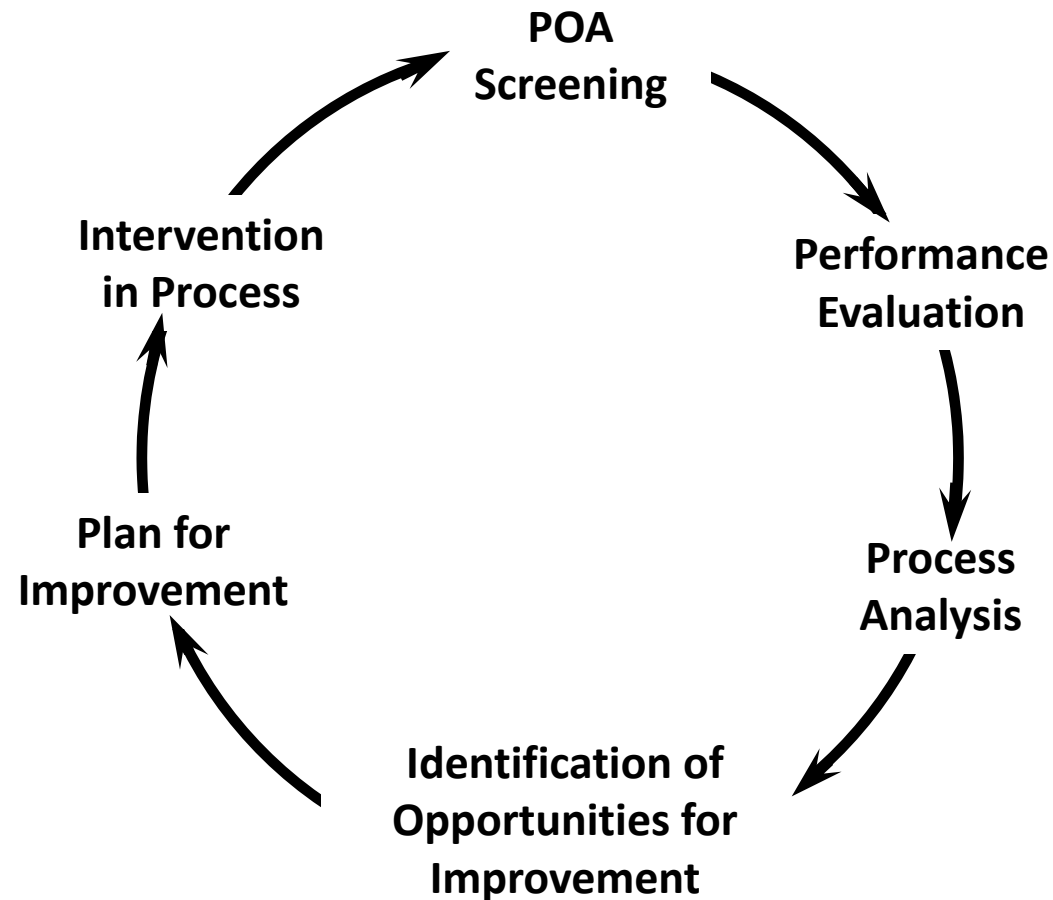
# Screens for Accuracy of POA Coding

- Fifteen individual screens
  - Three general screens
  - Four screens for high-risk acute medical admissions
  - Four screens for elective surgical cases
  - Four screens for obstetrical cases
- Aggregate scores characterize overall performance
  - Very good to excellent -  $>90\%$
  - Satisfactory –  $>80\%$  to  $90\%$
  - Marginal -  $<70\%$  to  $80\%$
  - Unsatisfactory -  $\leq 70\%$

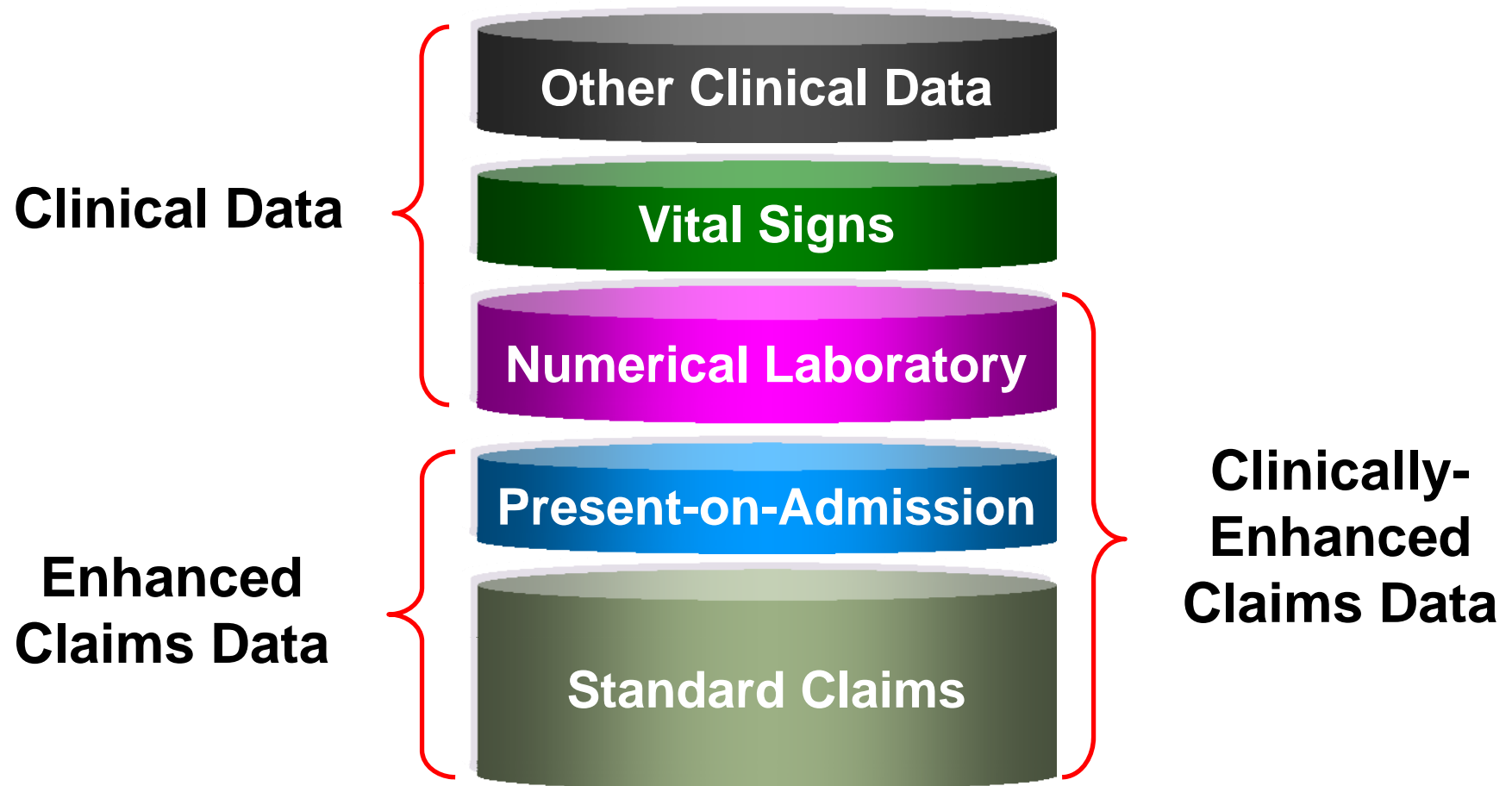
# Distribution of Hospital POA Scores



# Screening and Improving POA Coding

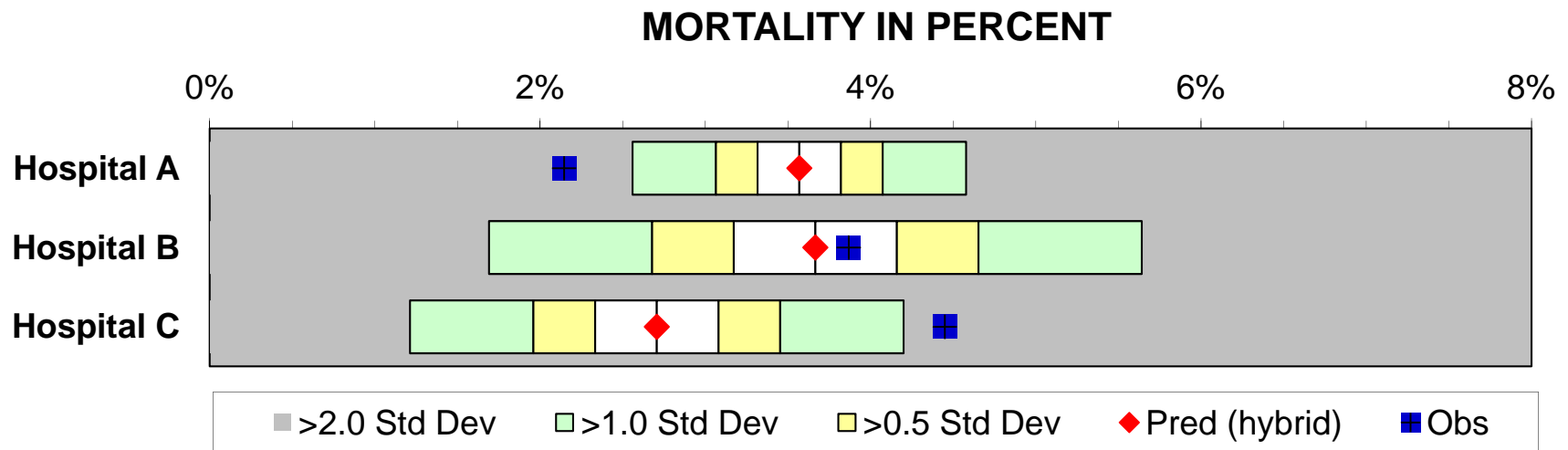
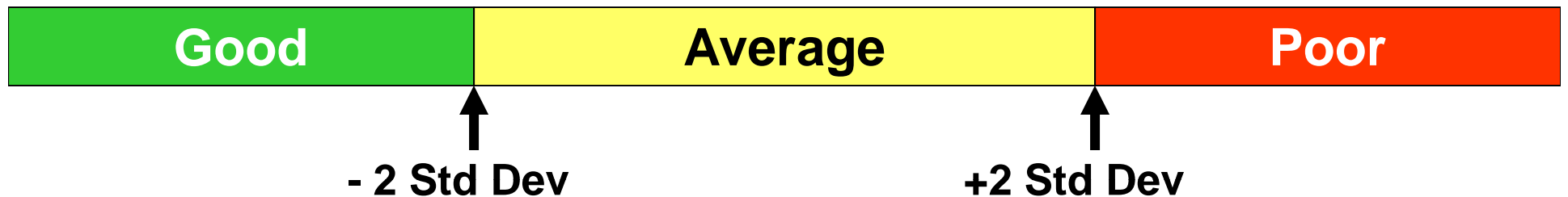


# Databases for Outcomes Assessment



# Risk-adjusted Hospital Mortality

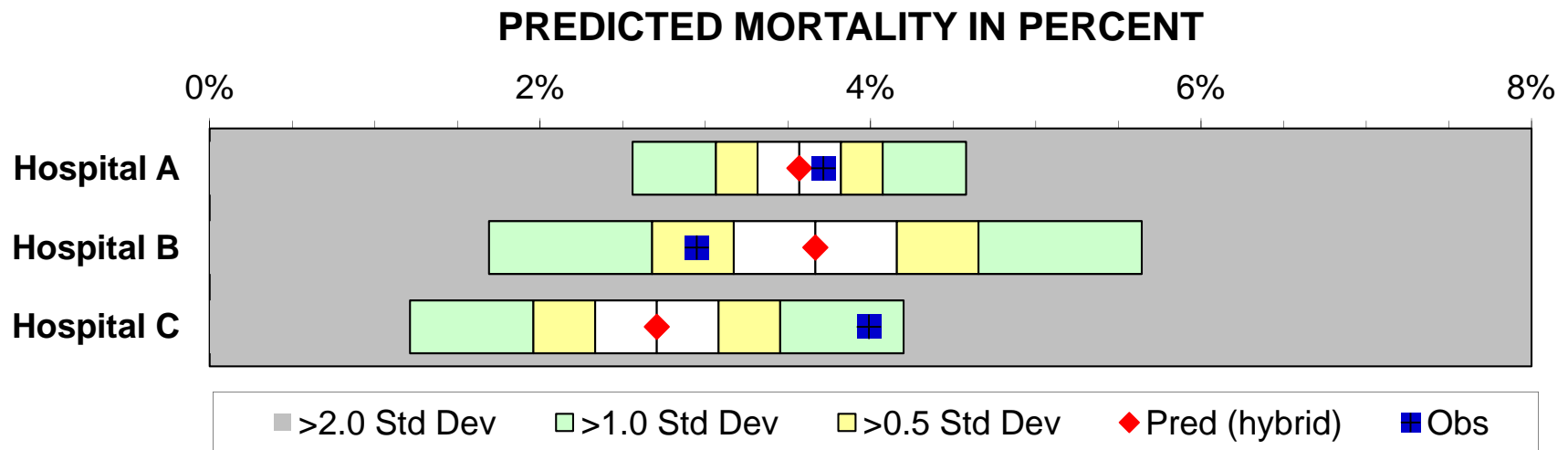
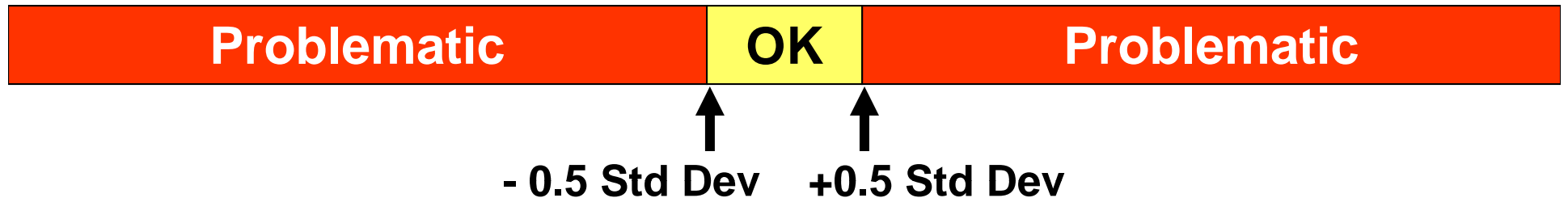
## Measured Performance



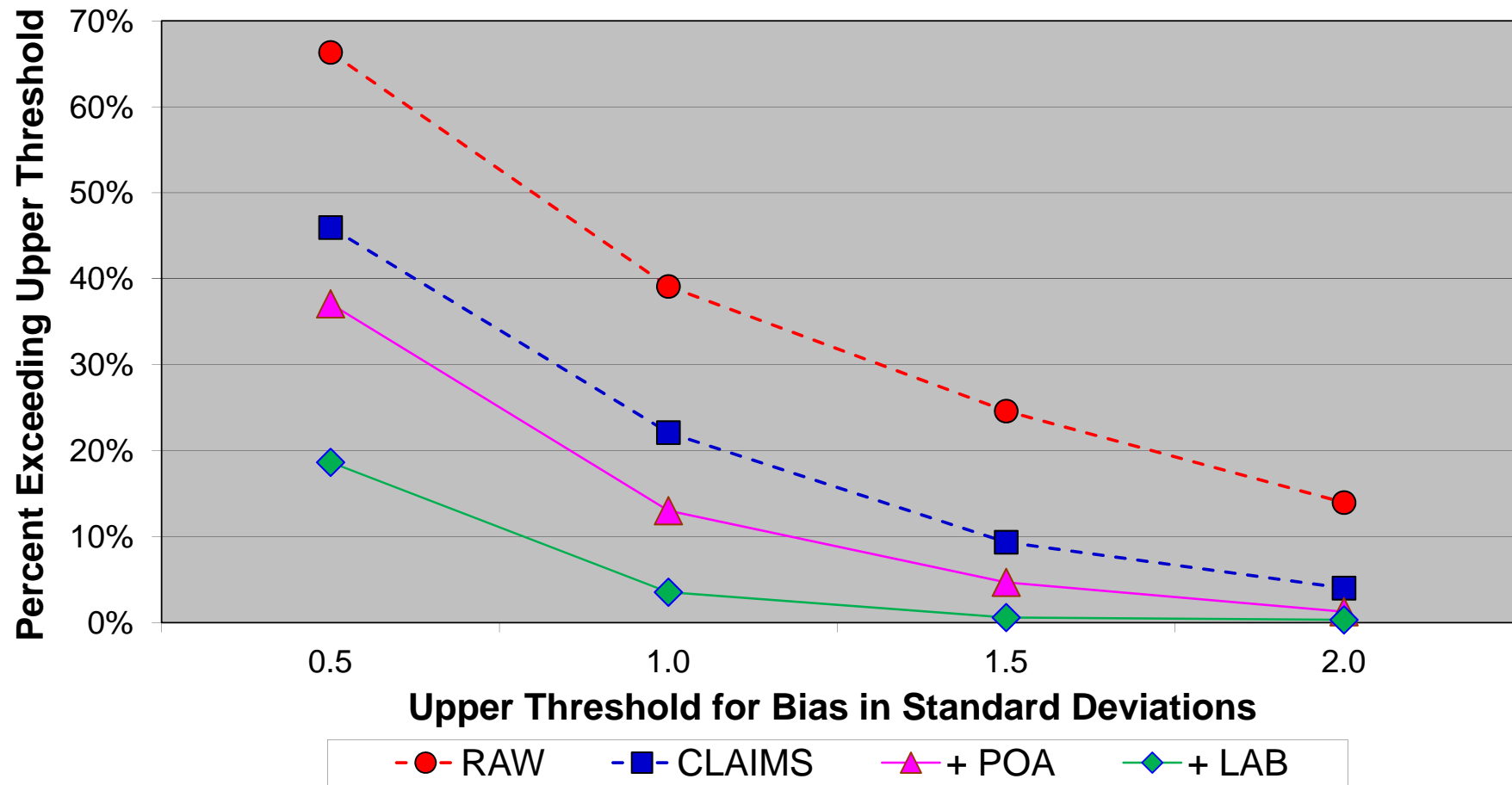


# Bias from Suboptimal Data

## Systematic Error



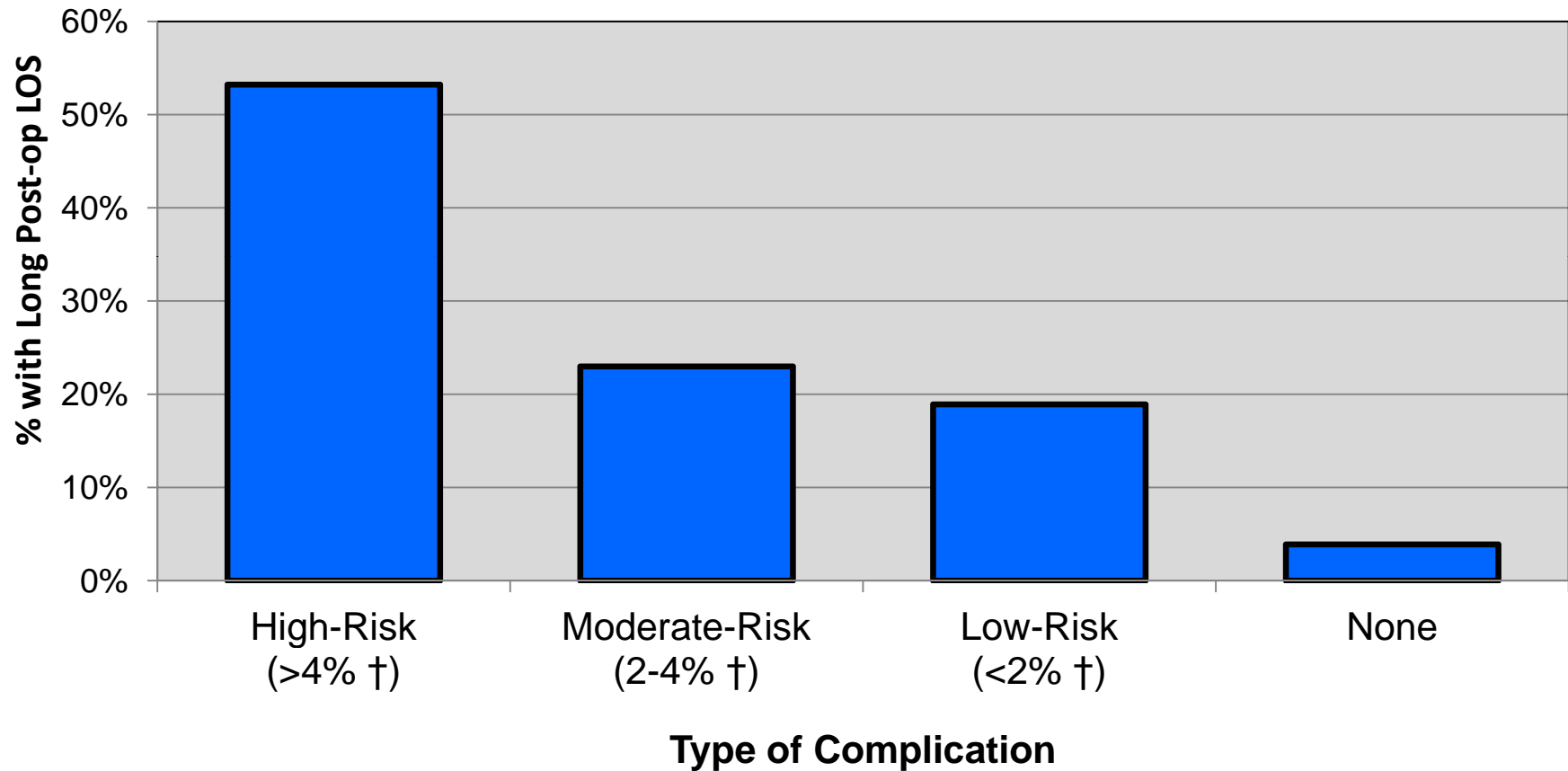
# Measured Hospital-level Bias



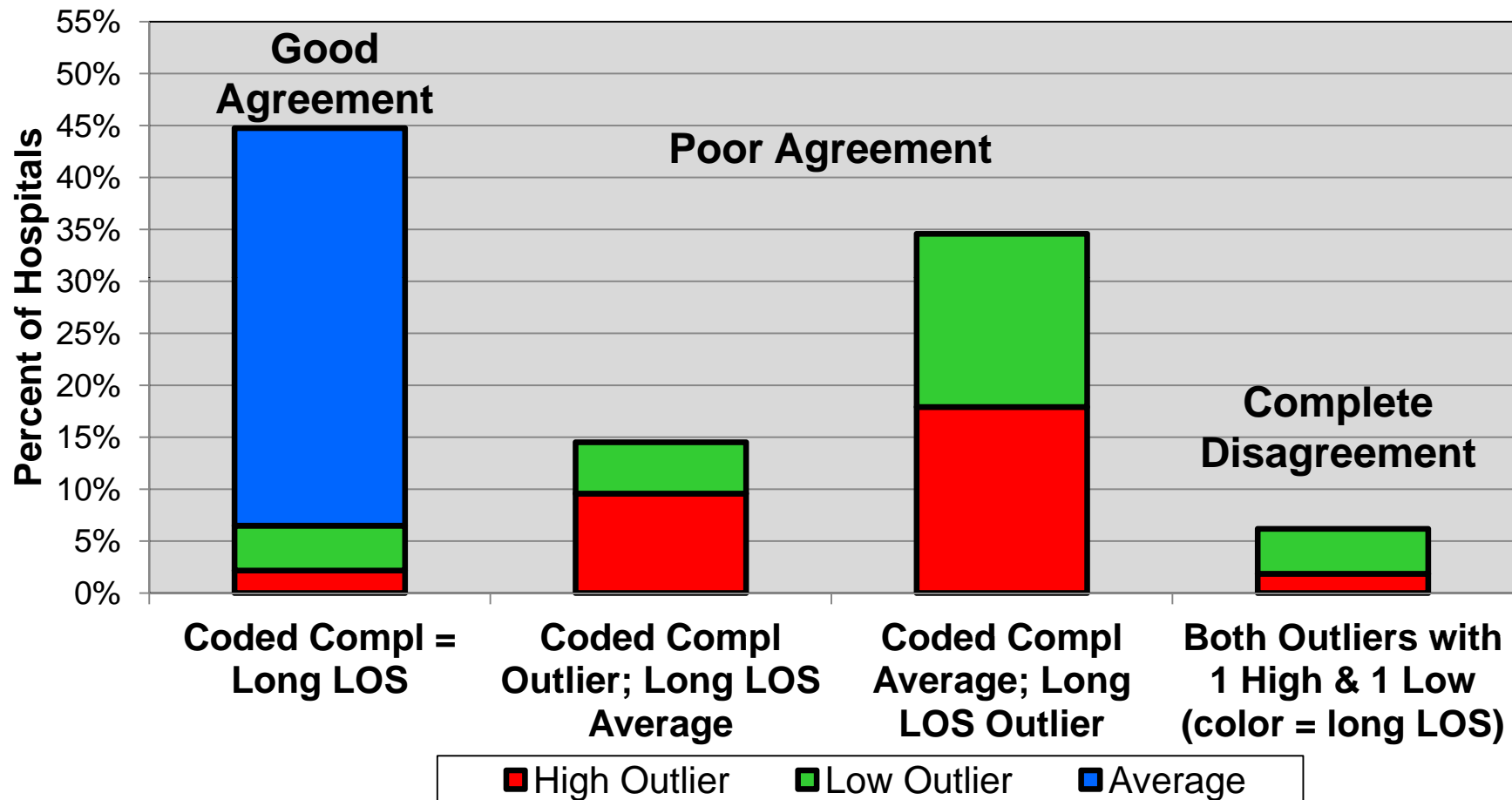
# Measures of Inpatient Complications

- Reported events (e.g., surgical wound infection)
  - are clinically meaningful
  - are subject to reporting biases
- Objective surrogates (e.g., prolonged hospitalization)
  - are more difficult to interpret
  - are less subject to reporting bias
- Combined measures (e.g., coded complication with prolonged risk-adjusted length of stay)

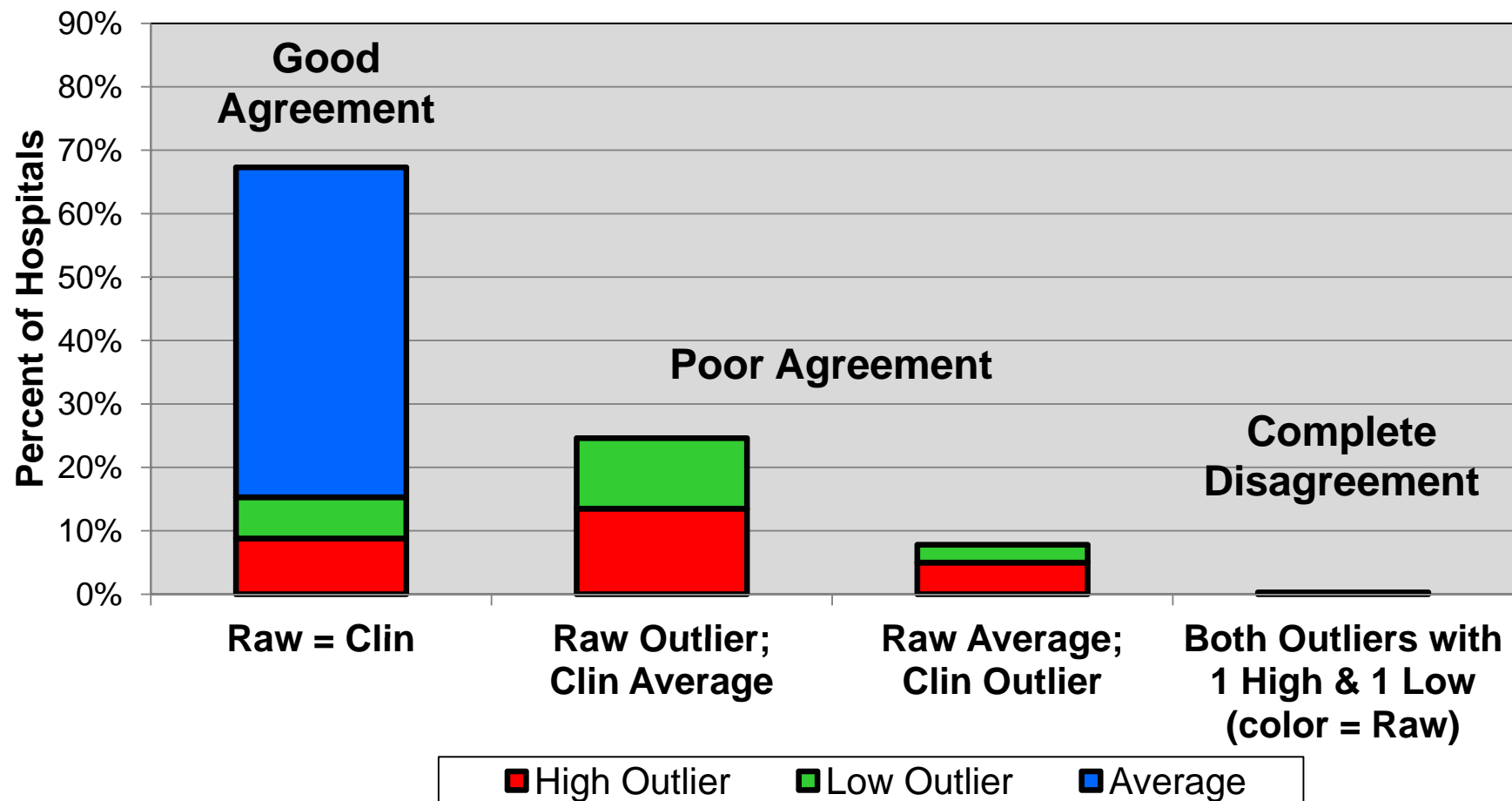
# Complications & Long Post-op LOS



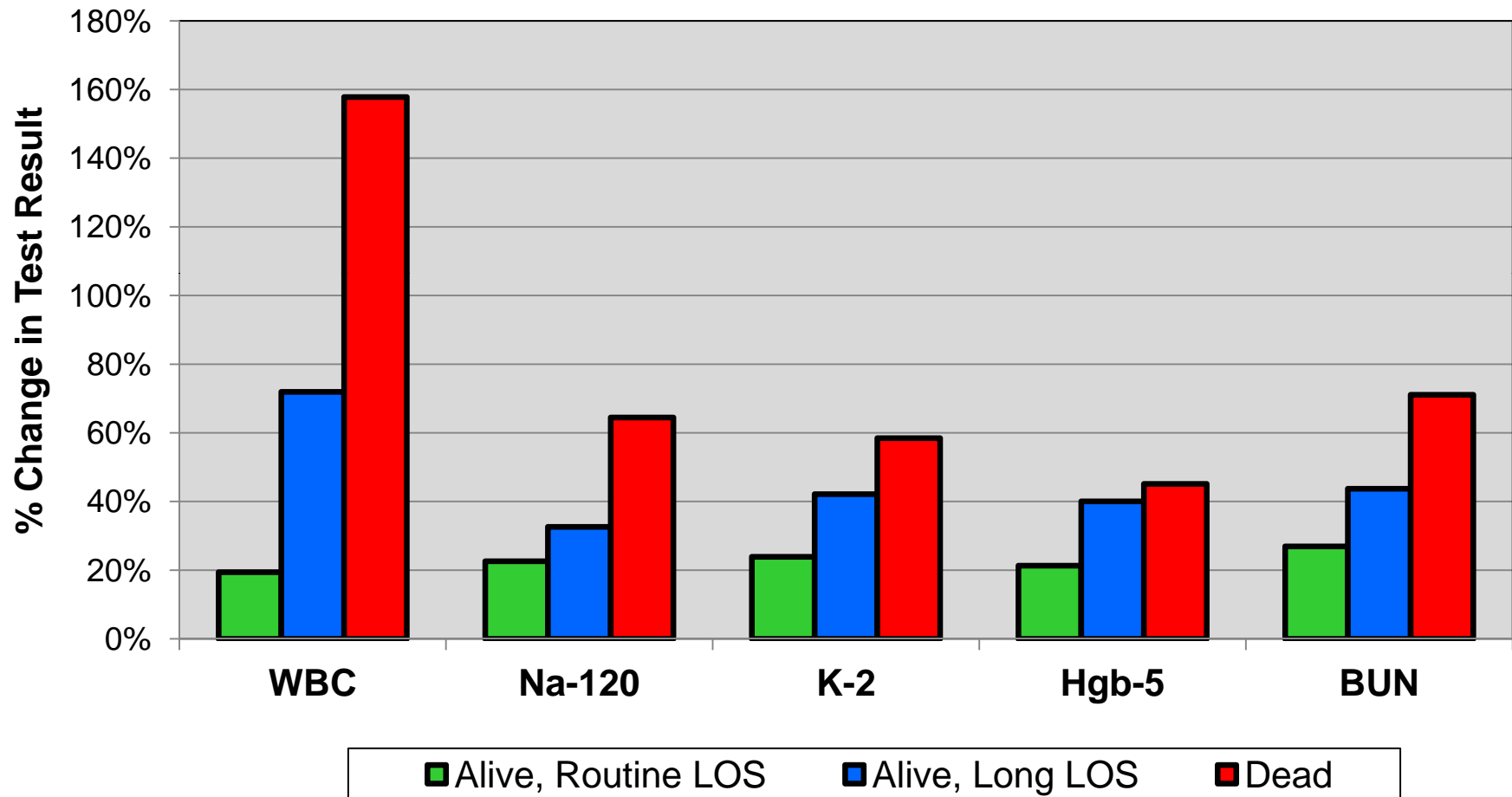
# Long Post-op LOS & Complications



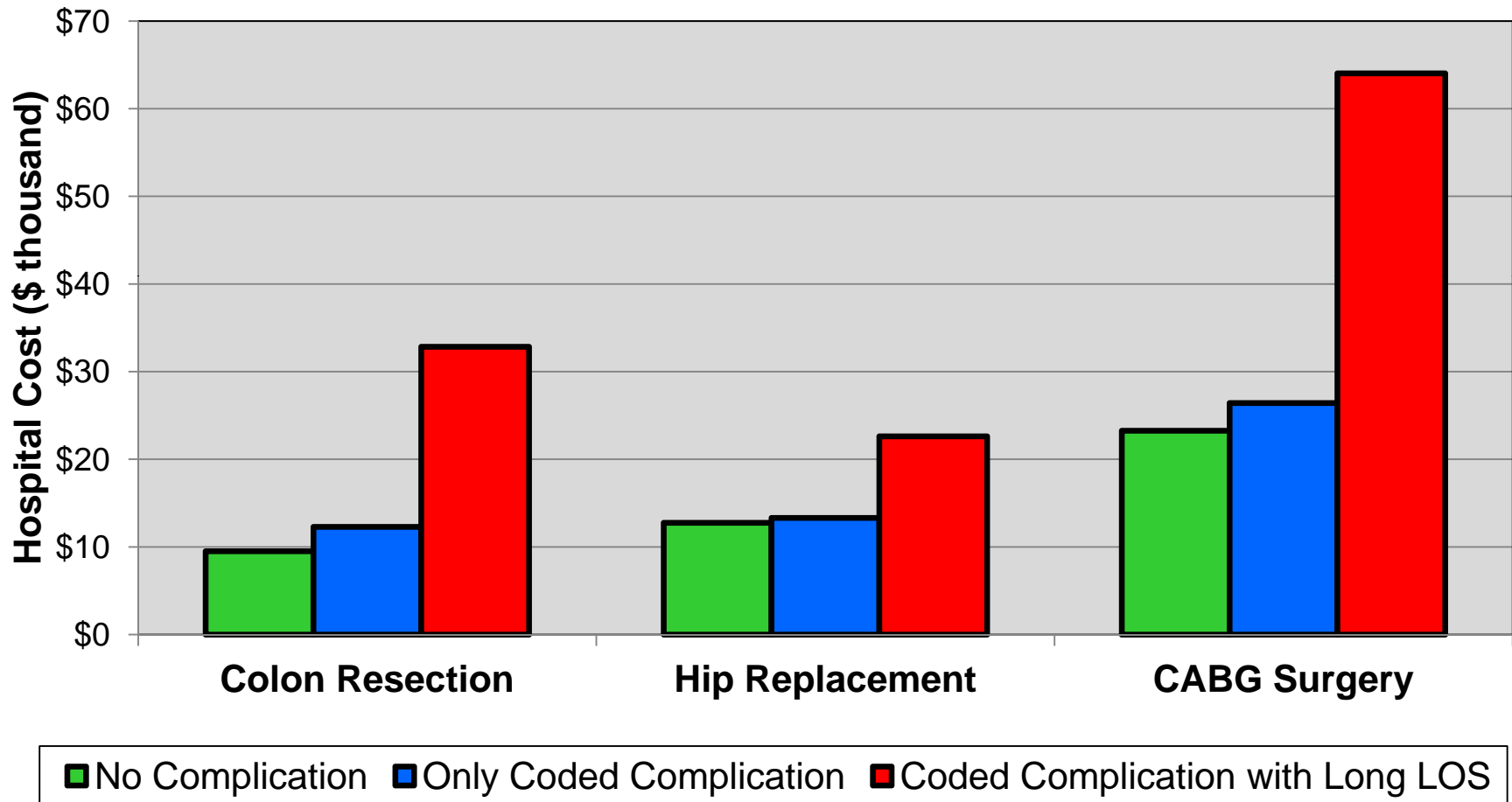
# Risk-adjustment & Mortality



# Laboratory Results & Clinical Outcomes



# Hospital Costs & Clinical Outcomes





# External and Internal Monitoring

## ***External Monitoring***

**Assesses Performance**

- **Provider Selection**
- **Accountability**
- **Payment Reform**
- **Strategic Planning**
- **Marketing**

## ***Internal Monitoring***

**Links Processes to Outcomes**

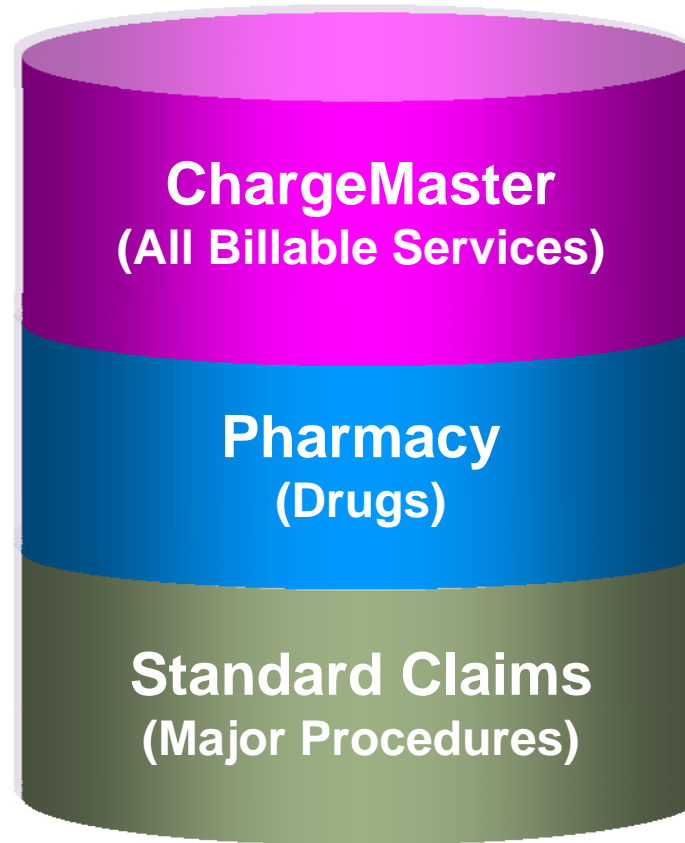
- **Quality Control**
- **Quality Improvement**
- **Cost Management**

# Databases for Process Assessment

**Idiosyncratic**



**Standardized**



**Clinically-Enhanced Claims Data**

# Research Design

- Characterize intrinsic patient & disease characteristics
  - Initial drug therapy for nature of heart failure
  - Risk-adjustment for outcomes of interest
  - Propensity analyses for treatments of interest
- Characterize treatment protocols
- Evaluate alternative treatment protocols
  - Timing of drug administration indicates response to therapy
  - Clinically-enhanced claims data support analyses

# Carpe Diem!

