



Predicting the Invisible Patient

Using Predictive Analytics to Reduce Suffering, Save Lives, and Optimize Cost of Care

HIMSS

CENTRAL & SOUTHERN OHIO *Chapter*

The Health Care Authority for Baptist Health An Affiliate of UAB Health System*

- Based in Montgomery, Alabama
- 3 Acute care hospitals, 689 licensed beds
- 1 Psychiatric hospital, 60 licensed beds
- Regional Cancer Center; Ambulatory Surgical Center
- Institute for Patient Safety & Medical Simulation
- 7 imaging centers; Array of Disease Management Programs
- 12 Employed physician practices; 2 Teaching programs
- Branch campus of UAB School of Medicine
- Thomson Reuters Top 15 Health System & Top 100 Hospital
- Dominate market share in Central Alabama

**Affiliation Agreement effective 2005 among the University of Alabama Board of Trustees, the UAB Health System and Baptist Health*

Replace text box with chapter logo



What We Will Discuss

- The business case for predictive analytics in healthcare today
- The predictive solution that we implemented at Baptist Health
- Examples of outcomes achieved
- Next steps

Replace text box with chapter logo

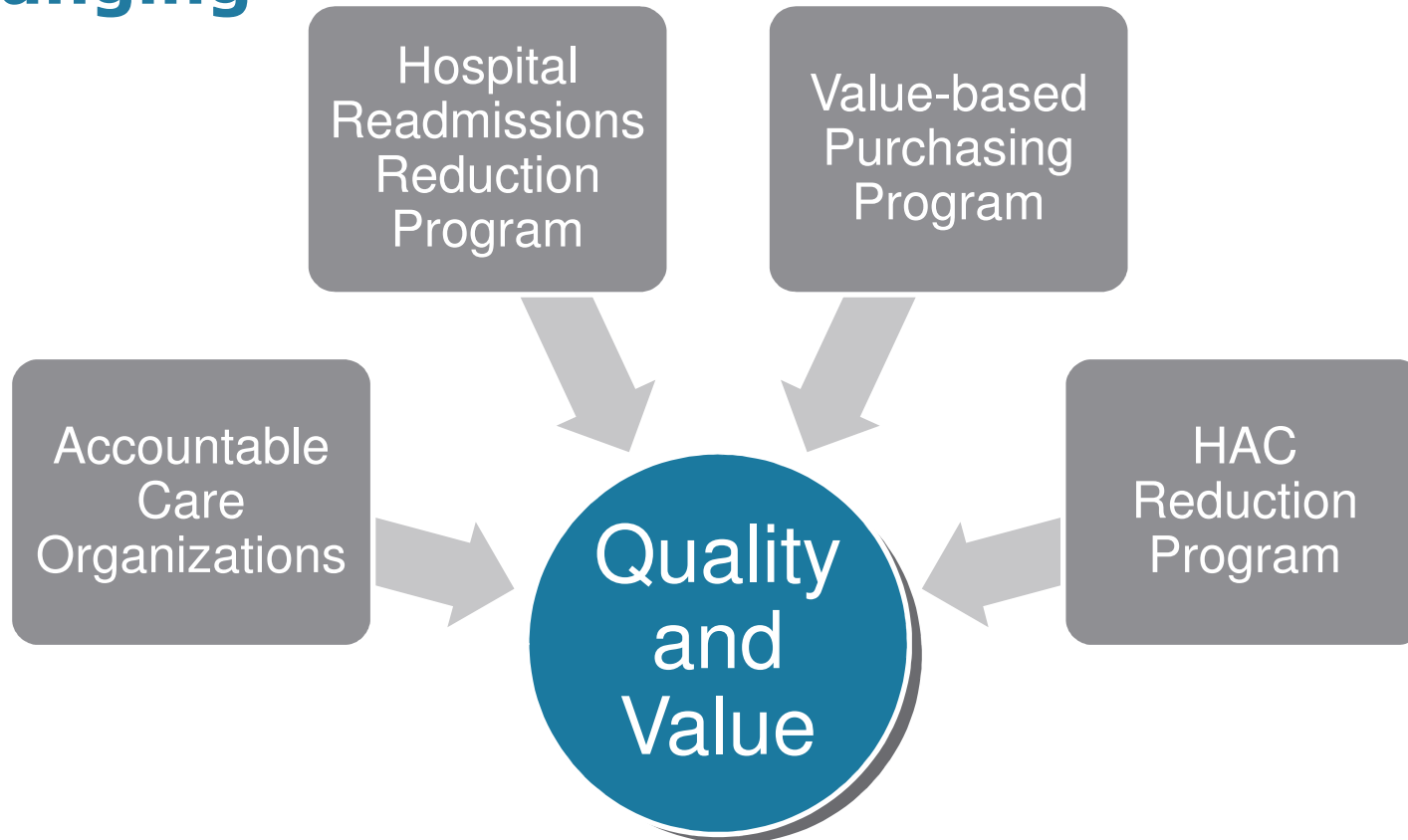


Predicting the Invisible Patient

The Business Case for Predictive Analytics in Healthcare



The Way We “Do” Healthcare Is Changing

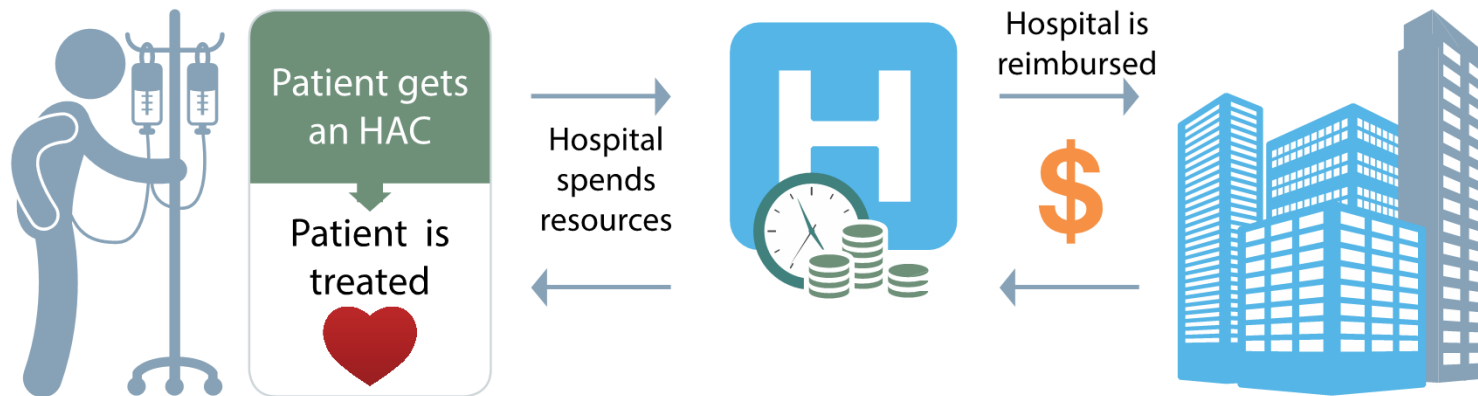


The way we “do” healthcare in the U.S. is changing to focus on **quality and value**

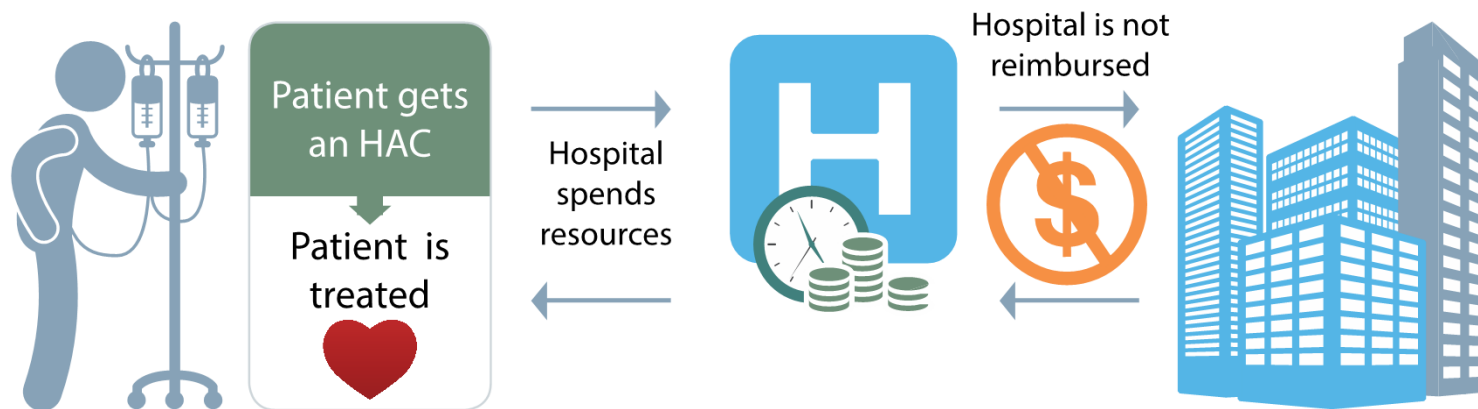
Replace text box with chapter logo

What This Means for a Hospital

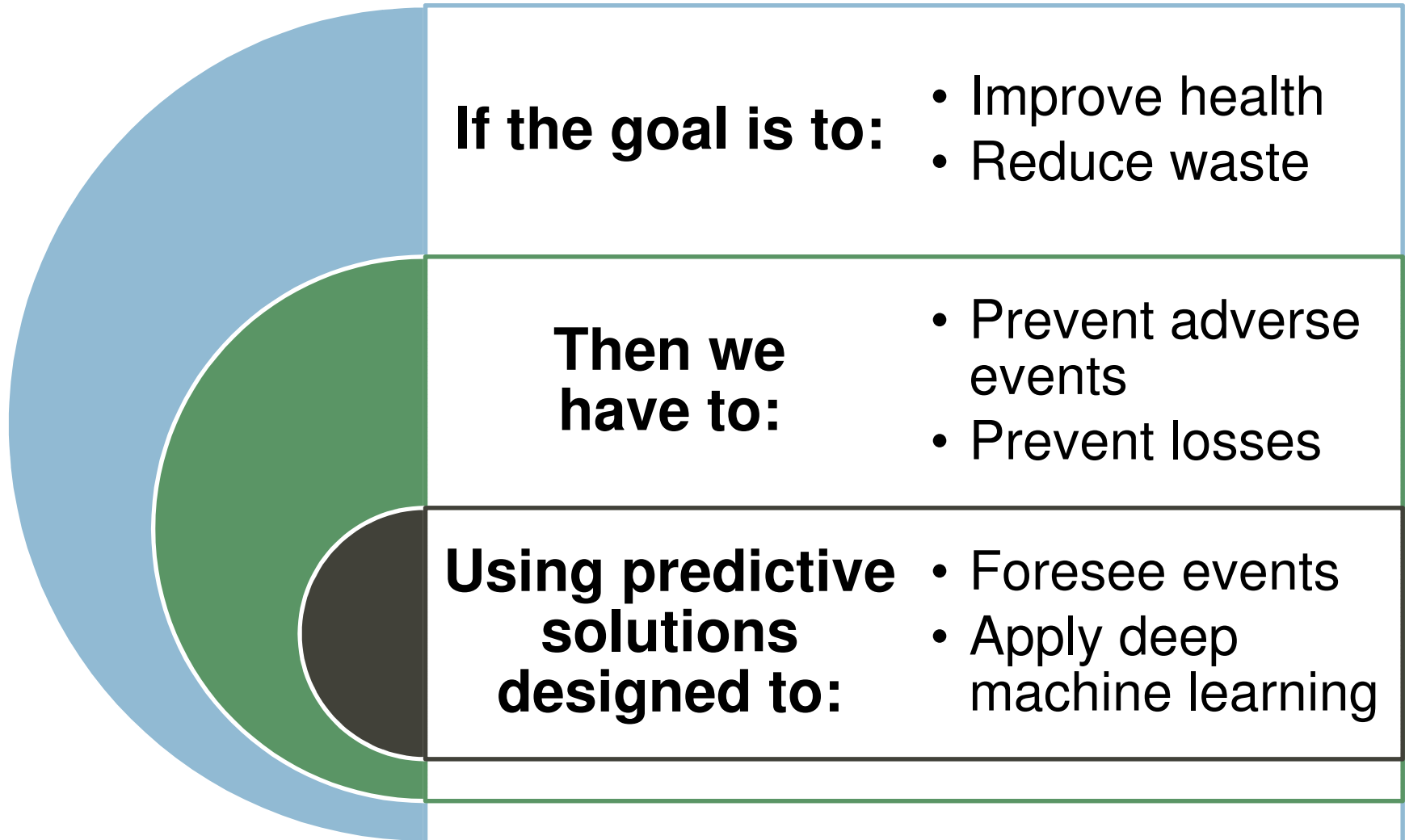
Without Hospital Acquired Condition (HAC) Mandate



With Hospital Acquired Condition (HAC) Mandate Applied



The Case for Predictive Analytics



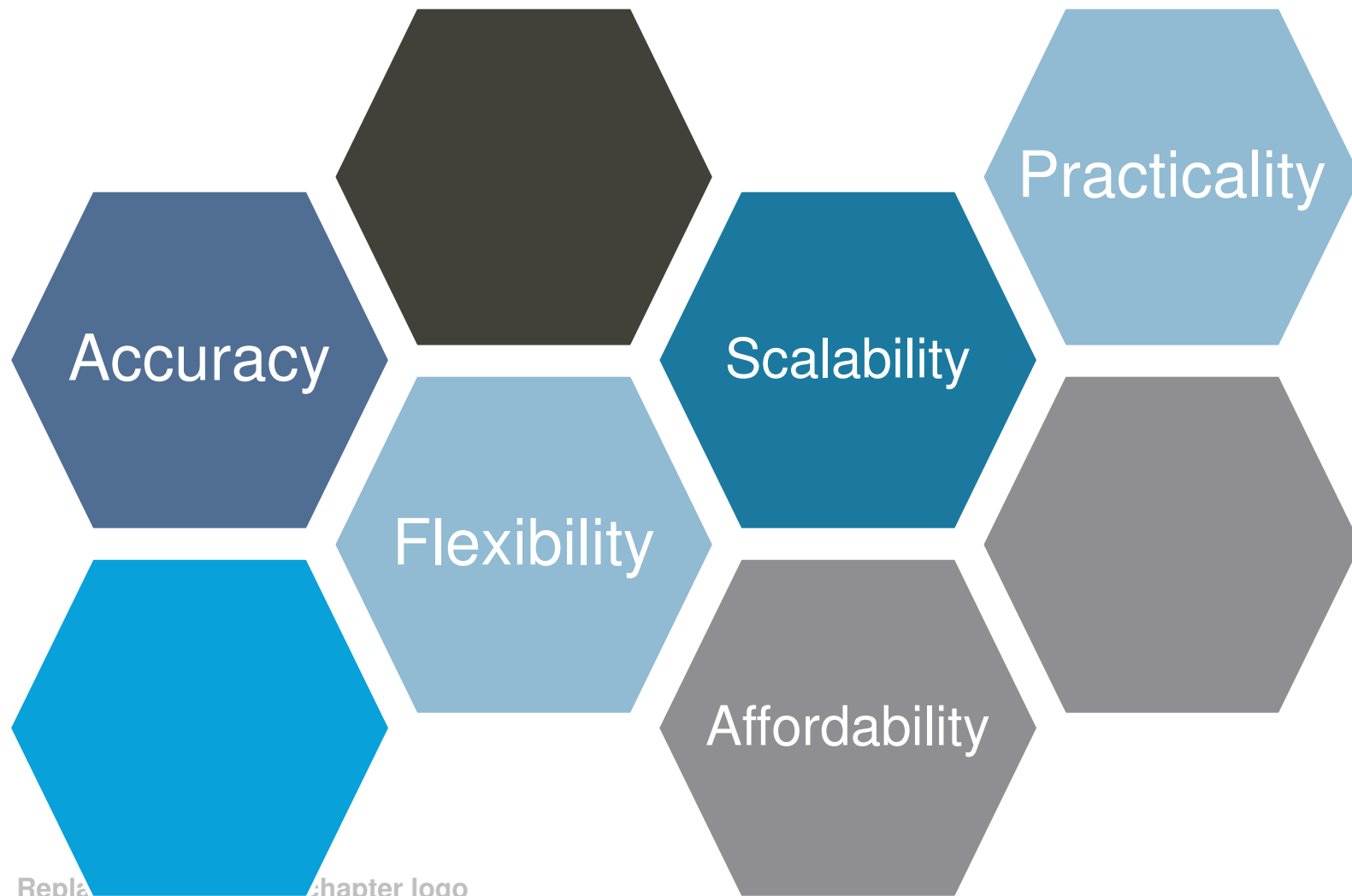
Replace text box with chapter logo

Predicting the Invisible Patient

Baptist Health's Predictive Solution



What Makes A Predictive Analytic Solution Right for Healthcare?

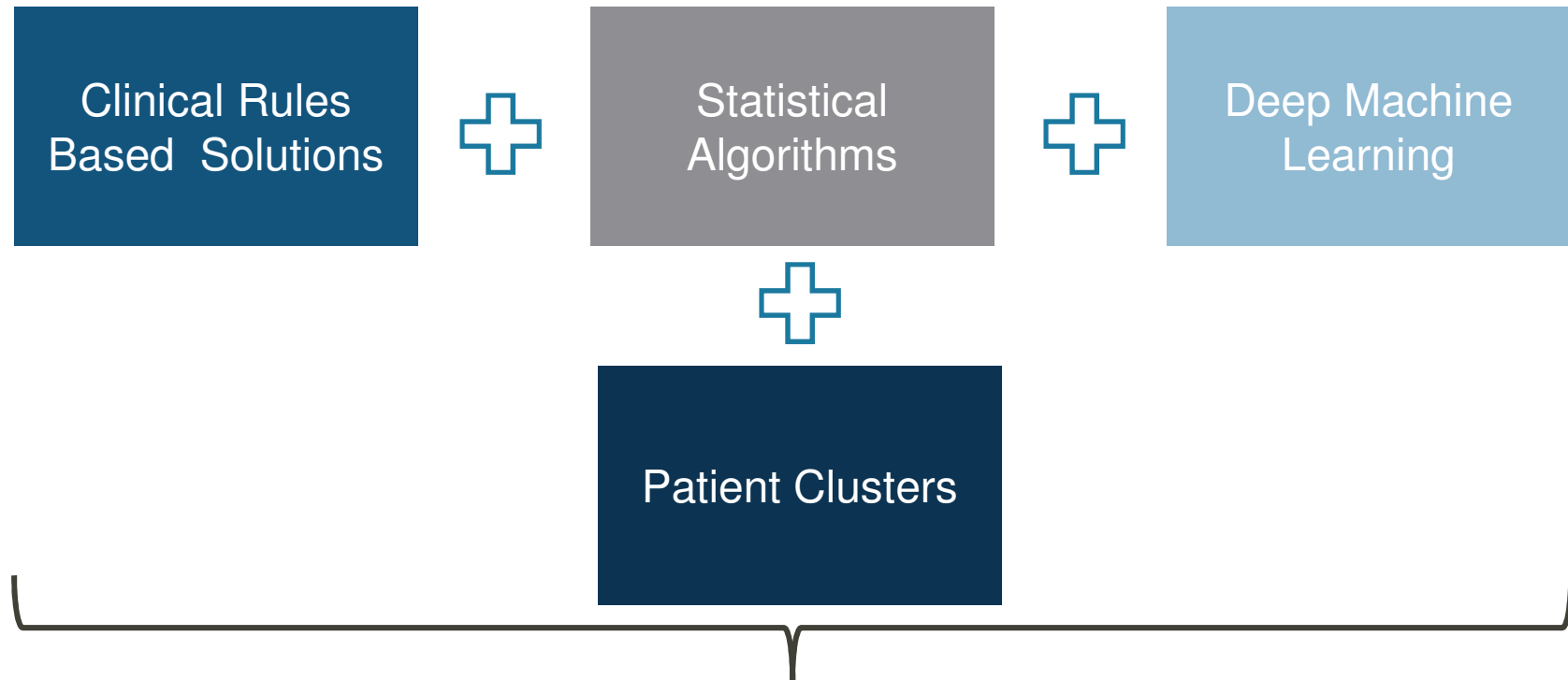


Available Solutions

	Clinical Rules Based Solutions	Statistical Algorithms	Deep Machine Learning
Definition	These solutions compile clinical rules derived from evidence-based clinical studies to identify risk at a defined cohort level	These solutions use statistical algorithms built from evidence-based studies to flag potential risks within a patient population	These solutions use deep machine learning capabilities to identify patient risk. These models are continually refined and more accurate as new data is fed into the system
Examples	Typically integrated into the EHR	LACE scores for 30-day readmissions, Braden scores for pressure ulcers	Predictive analytics companies

Replace text box with chapter logo

Baptist Health's RevEgis Solution

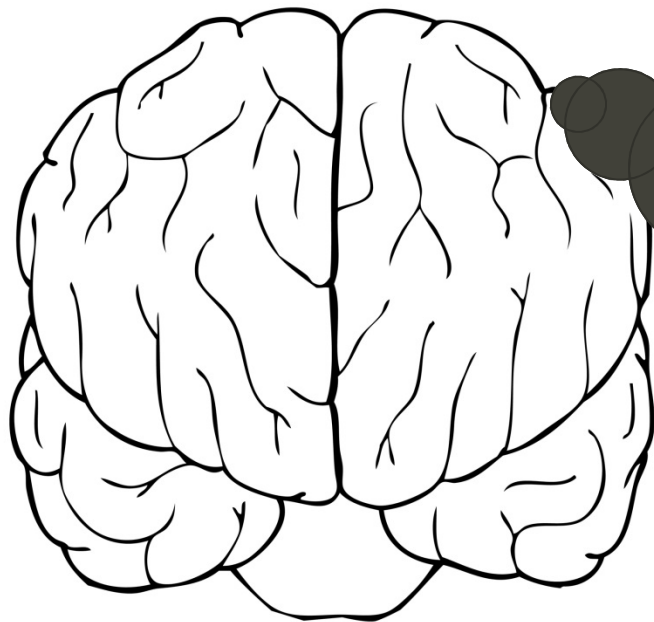


Combined capability to understand what isn't inherently visible with clinical intelligence to more accurately identify, map, and predict patient-level risk

Replace text box with chapter logo

Getting People Engaged

Clinician adoption is critical to success. Baptist Health's solution had to:



- **Easily fit into the clinician's workflow**
- **Demonstrate immediate accuracy and effectiveness**
- **Be proven and hold up to scrutiny**
- **Be easy to use and understand**
- **Be accepted by fellow clinicians**

Replace text box with chapter logo

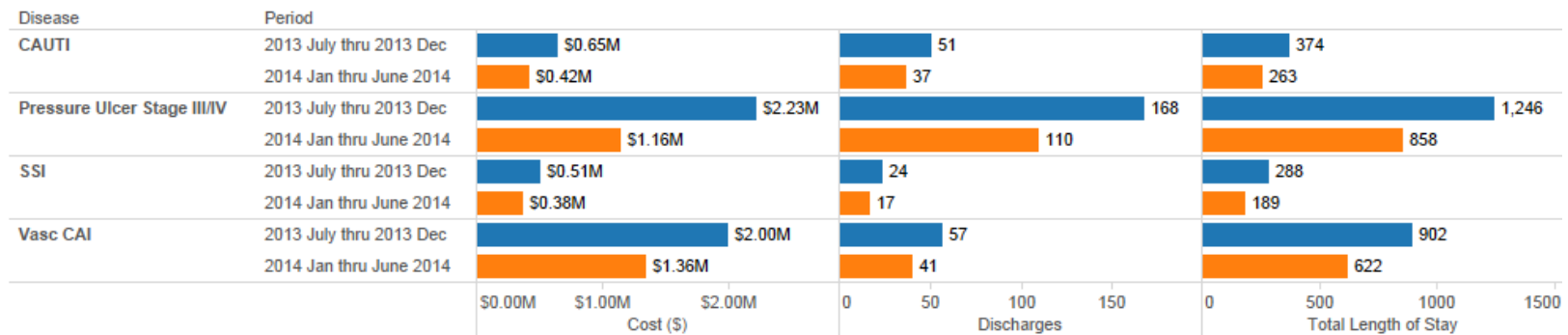
Predicting the Invisible Patient

Initial Results



Clinical Use Case – CAUTI

- CAUTI costs Baptist Health more than half a million in lost revenues
- Additionally, CAUTI influences HAC scores, which can result in a hefty fine from CMS
- Using the system’s predictive solution, we anticipate the following within six months of go-live:
 - A **35%** reduction in financial losses
 - A **27%** reduction in discharges
 - A **30%** reduction in LOS days



Replace text box with chapter page

Clinical Use Case – Pressure Ulcers

- Stage iii and iv pressure ulcers (PUs) cost Baptist Health \$1.07M in lost revenues
- PUs also increase the risk of mortality by 30%
- Using the system's predictive solution, we anticipate the following within six month's of go-live:
 - A **48%** reduction in financial losses
 - A **35%** reduction in discharges
 - A **31%** reduction in LOS days
- In addition to CAUTI and PUs, Baptist Health is applying predictive analytics to surgical site infections and vascular catheter associated infections
- **All total, Baptist Health will avoid \$2.07M in losses within the first six months of implementation**

Additional Key Performance Metrics

- Jump in core/Surgical Care Improvement Project (SCIP) scores from the 50th percentile to 100th percentile
- 73 percentage point improvement in Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) physician communication scores

Predicting the Invisible Patient

Next Steps



The Next Steps in The Journey

- Integrate new forms of data as they become available:
 - Health Information Exchange
 - Referring Physician Offices
 - Patient and Family Inputs
- Expand visibility to care givers outside the walls of the health system
- Continually measure the effectiveness of preventions
- Identify new target areas where we can apply low cost interventions to avoid potentially high cost and high patient suffering events
- Utilize data to transition to new value-based models of reimbursement and care coordination

Predicting the Invisible Patient

Questions?

