Linking Incomes to Outcomes

Did You Really Get What They Said You Got?

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Overview

- Creating a Value-Driven Health Care Market
- Affordable Data We Can Believe In
- Comparative Performance of Alternative Data Sets
- From Information to Understanding to Action
- Accountability in a Value-Driven Market

Creating a Value-Driven Health Care Market

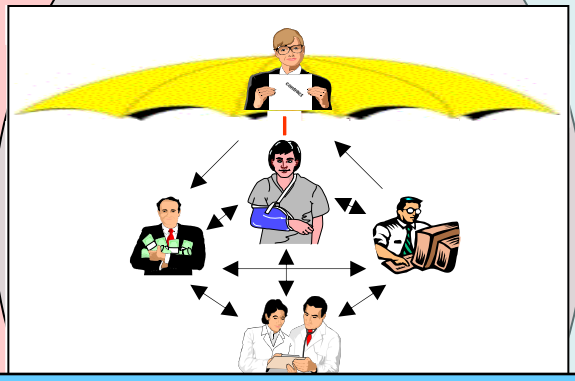
Creating a Value-Driven Health Care Market

Managing Seven Essential Rs

RISKS

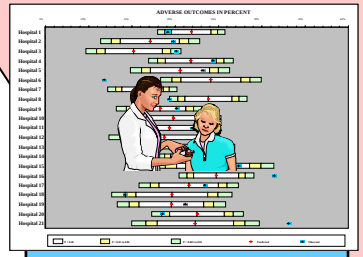
RESPONSIBILITIES

DYNAMIC PROCESSES



STATIC STRUCTURES

RESOURCES, ROLES & RELATIONSHIPS



RESULTS

REWARDS

Characteristics of a Value-Driven Market

- Aligns Risks and Responsibilities
- Links Results and Rewards
- Balances Quality and Cost
- Combines Individual Choice and Market Discipline
- Provides Accurate, Relevant Information
- Holds All Participants Accountable

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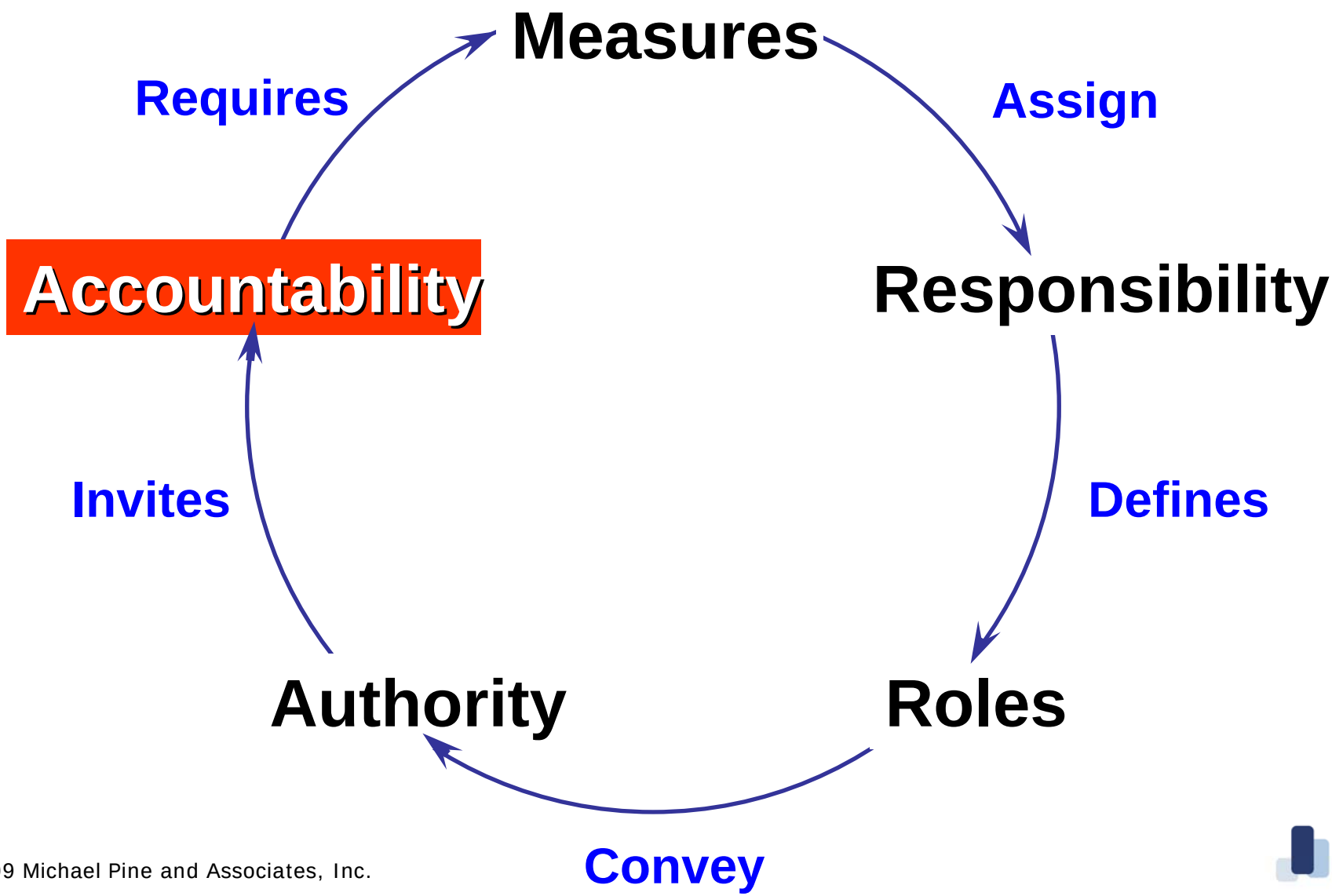
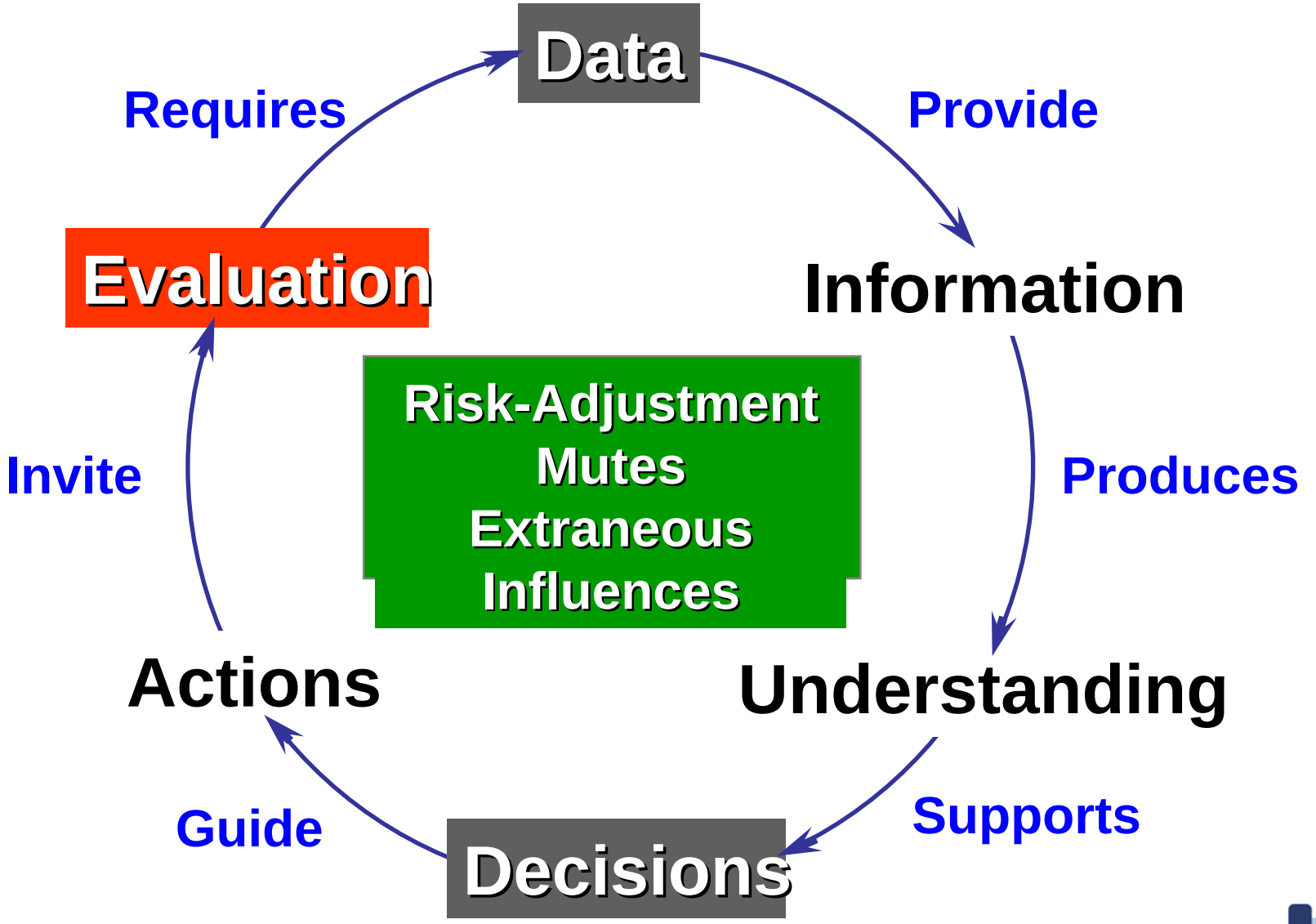
Accountability and Performance Measures

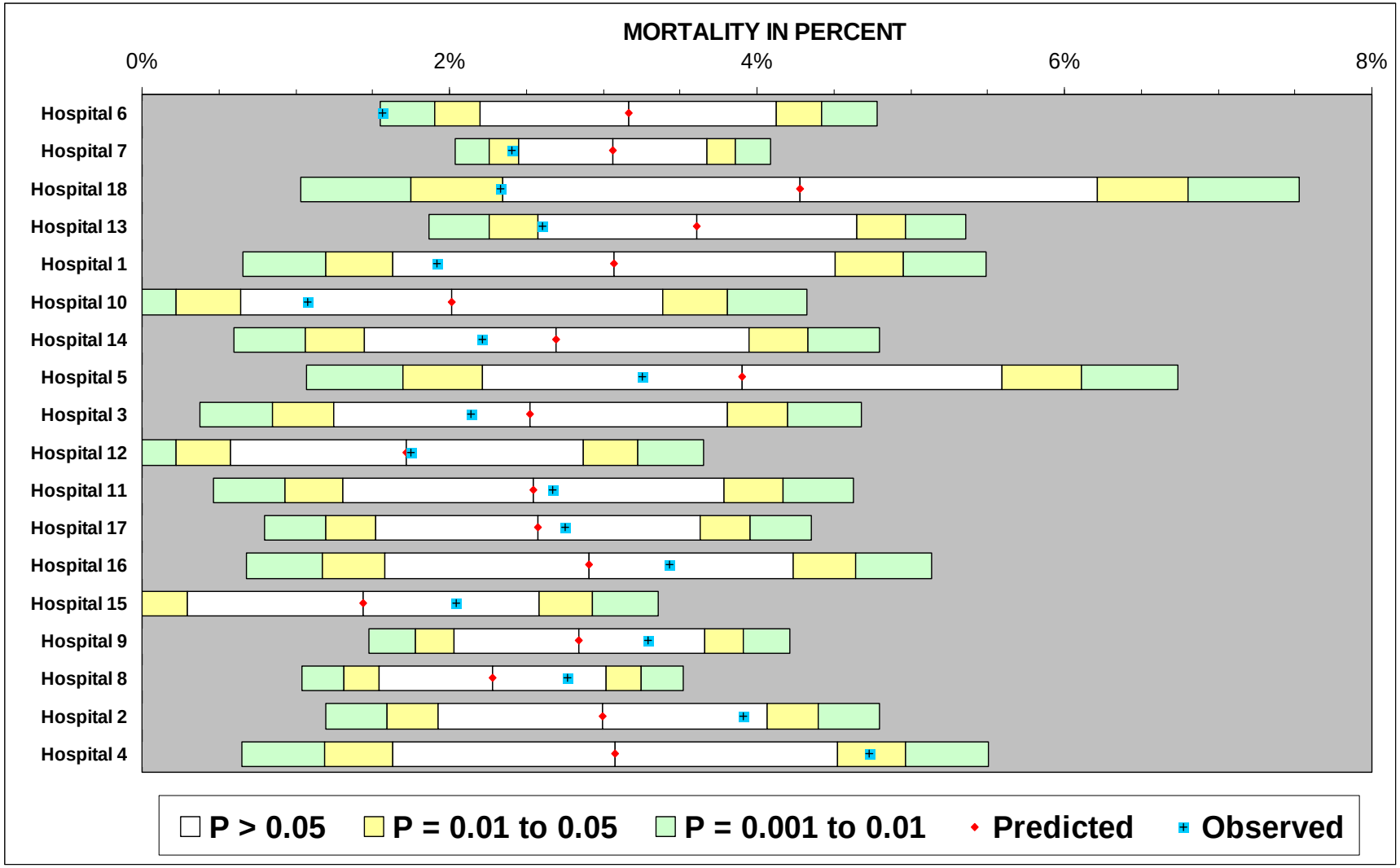


Linking Data, Decisions, and Accountability



Risk-Adjustment and Performance Assessment

Mortality in CABG Surgery



Affordable Data
We Can Believe In

Data for Monitoring Clinical Performance

- **Claims Data**
  - HCFA Mortality Reports
  - HealthGrades.com
  - HCUP Inpatient Quality and Patient Safety Indicators
- **Clinical Data**
  - APACHE
  - Pennsylvania Health Care Cost Containment Council
  - Cleveland Health Quality Choice
  - Specialty Society Registries (e.g., STS, ACC)

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Claims Data Versus Clinical Data

- **Data Is the Foundation for:**
  - **Public Reporting**
  - **Performance-Based Reimbursement**
  - **Quality Improvement Initiatives**
- **Must Balance the Need for:**
  - **Accurate Measurement of Clinical Performance**
  - **Ease and Cost of Data Collection**

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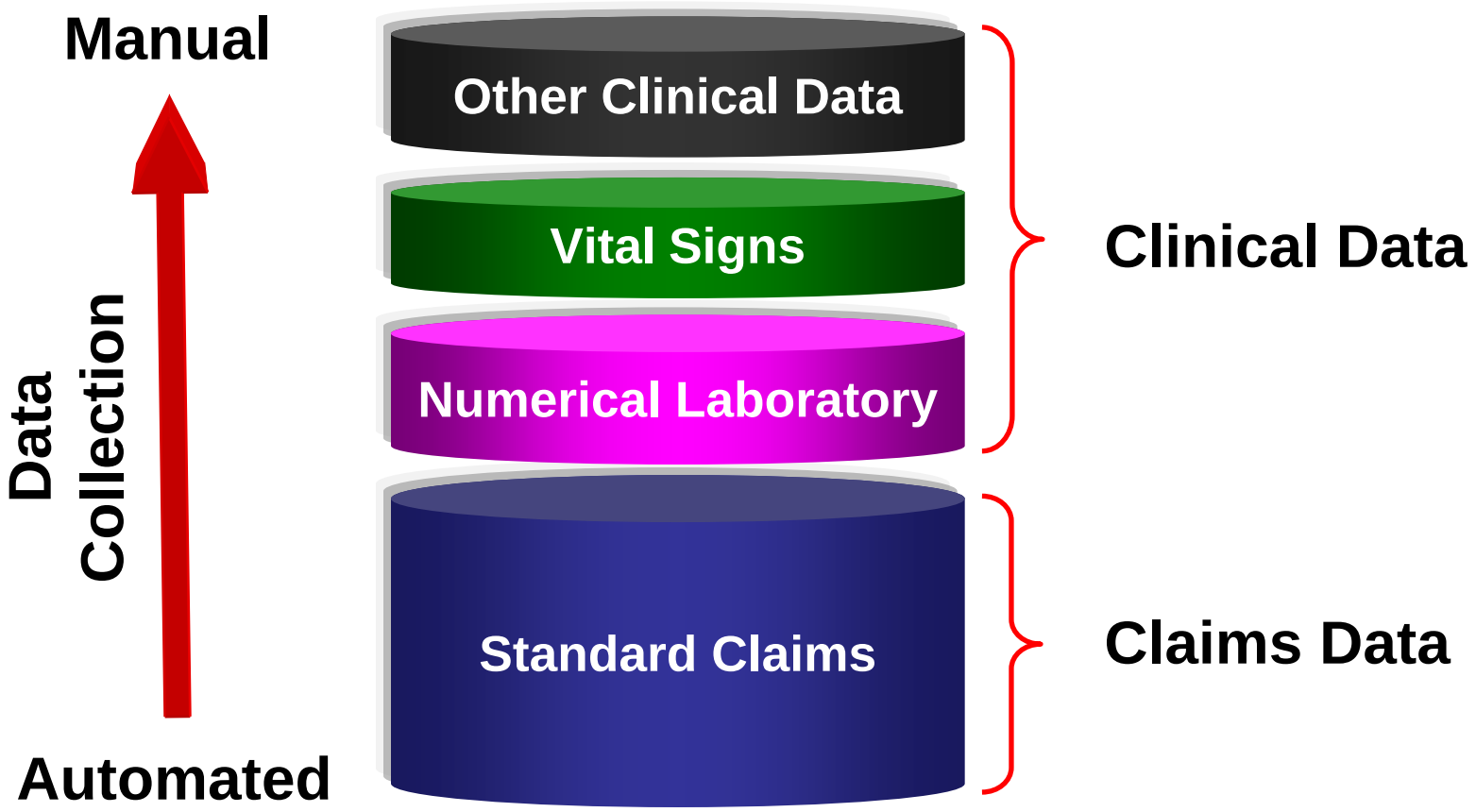
Relative Ease of Data Collection



Efficient Use of Clinical Data

Analytic Power	Cost to Collect: Low	Cost to Collect: High
High	**Albumin**	**Mental Status**
Low	**Hemoglobin**	**FEV1**

Enhancing Claims Data

- **Present-on-Admission Coding**
  - **Mayo Clinic**
  - **New York State's SPARCS Database**
  - **California's OSHPD Database**
  - **UB-04**
  - **CMS's New Coding Requirements**
- **Numerical Laboratory Data**
  - **Michael Pine and Associates**
  - **Agency for Healthcare Research and Quality (AHRQ)**
- **AHRQ's New Hybrid Database Demonstrations**

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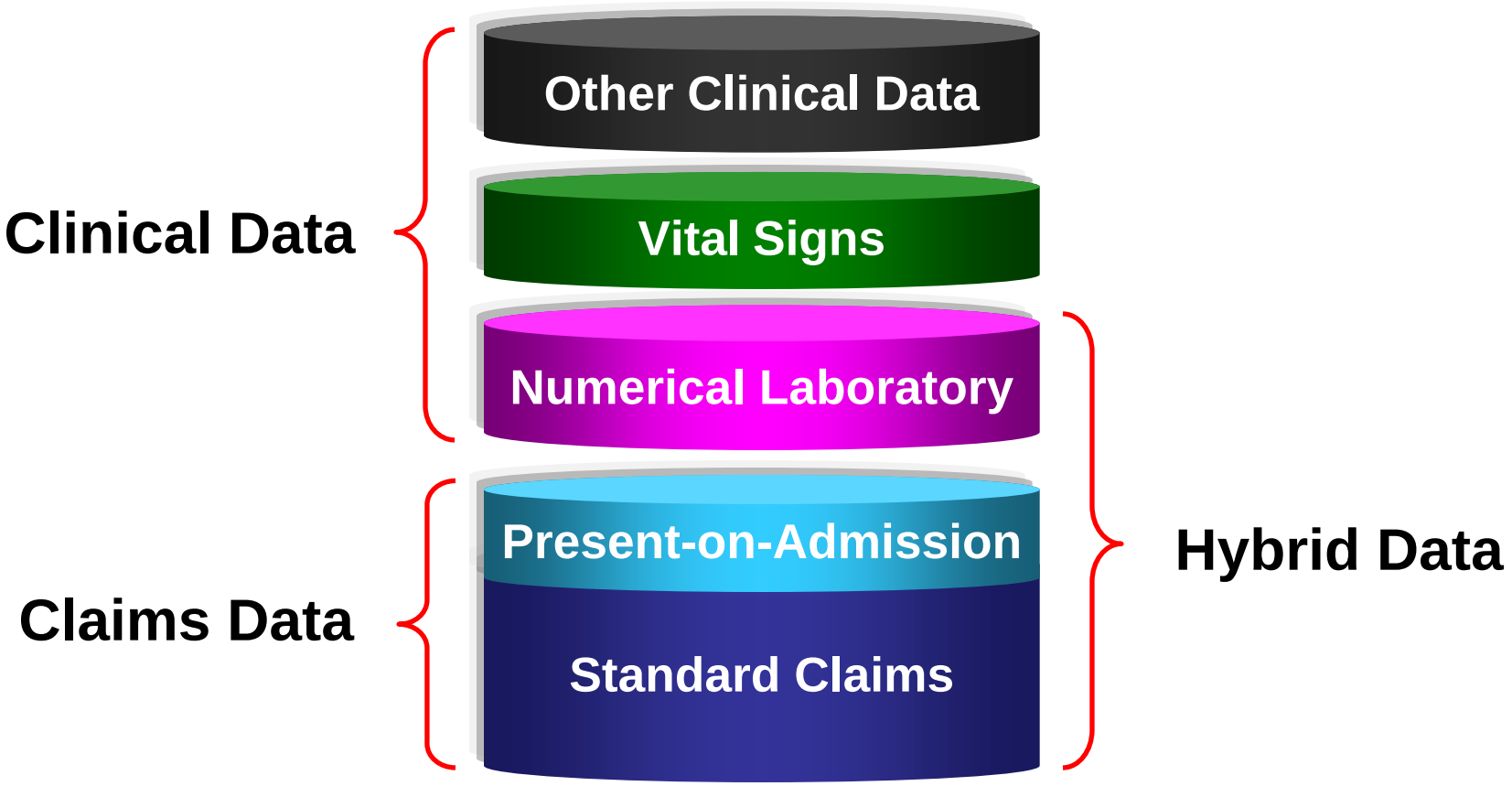
Creating a Hybrid Database



Potential Benefits of a Hybrid Database

- **Explicitly Distinguish Between**
  - **Comorbidities That Are Present on Admission**
  - **Complications That Occur During Hospitalization**
- **Provide Objective Clinical Data**
  - **Validate the Subjective Assignment of Diagnoses**
  - **Aid in Defining the Severity of Diagnosed Conditions**
  - **Aid in Delineating Underlying Pathophysiology**

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Comparative Performance of Alternative Data Sets

Sources of Data for Analysis

- **188 Pennsylvania Hospitals for Primary Analyses**
  - **Claims Data for Discharges from 7/00 to 6/03**
  - **Corresponding Atlas™ Clinical Data**
    - **Abstracted from Medical Records**
    - **Hospital Day Recorded for Each Data Element**
- **New York and California Claims Data**
  - **Identify Potentially Problematic Risk Factors**
  - **Assess Effect of Improperly Designated Complications**

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Inpatient Quality Indicators (Mortality)

- **Medical Conditions**
  - Acute Myocardial Infarction
  - Cerebrovascular Accident
  - Congestive Heart Failure
  - Gastrointestinal Hemorrhage
  - Pneumonia
- **Surgical Procedures**
  - Abdominal Aortic Aneurysm Repair
  - Coronary Artery Bypass Graft Surgery
  - Craniotomy

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Patient Safety Indicators (Complications)

- **Elective Surgical Procedures**
- **Complications**
  - **Physiologic / Metabolic Abnormalities**
  - **Pulmonary Embolus / Deep Vein Thrombosis**
  - **Sepsis**
  - **Respiratory Failure**

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Data Used in CLAIMS Models

- Age and Sex
- Principal Diagnosis
- Secondary Diagnoses
  - Chronic Conditions
  - Conditions Generally Present on Admission
- Selected Surgical Procedures

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Data Used in POA and HYBRID Models

- **POA Models**
  - All Data Used in CLAIMS Models
  - Additional Secondary Diagnoses
    - Frequently Hospital-Acquired
    - Used When Clinical Data Establish Presence on Admission
- **HYBRID Models**
  - All Data Used in POA Models
  - Numerical Laboratory Data
    - Routine Chemistry, Hematology, and Blood Gas Analyses
    - Available in Electronic Form from Most Hospitals

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Data Used in CLINICAL Models

- **All Data Used in HYBRID Models**
- **Vital Signs**
- **Laboratory Data Not in HYBRID Models**
  - **e.g., bacteriological analyses, cardiac ejection fraction**
- **Key Clinical Findings from Medical Records**
  - **e.g., immunocompromised, lethargic**
- **Composite Clinical Scores**
  - **e.g., ASA Classification, Glasgow Coma Score**

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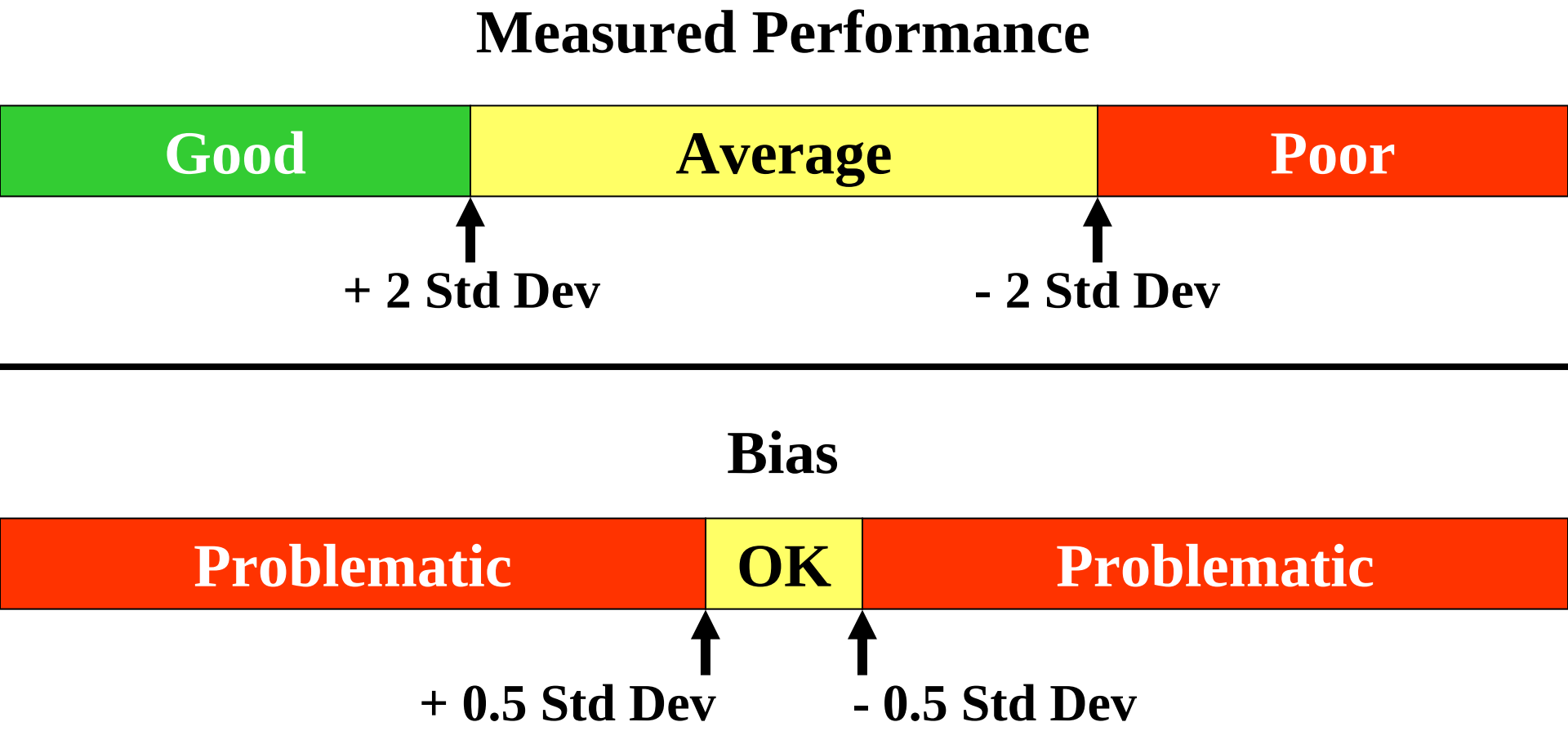
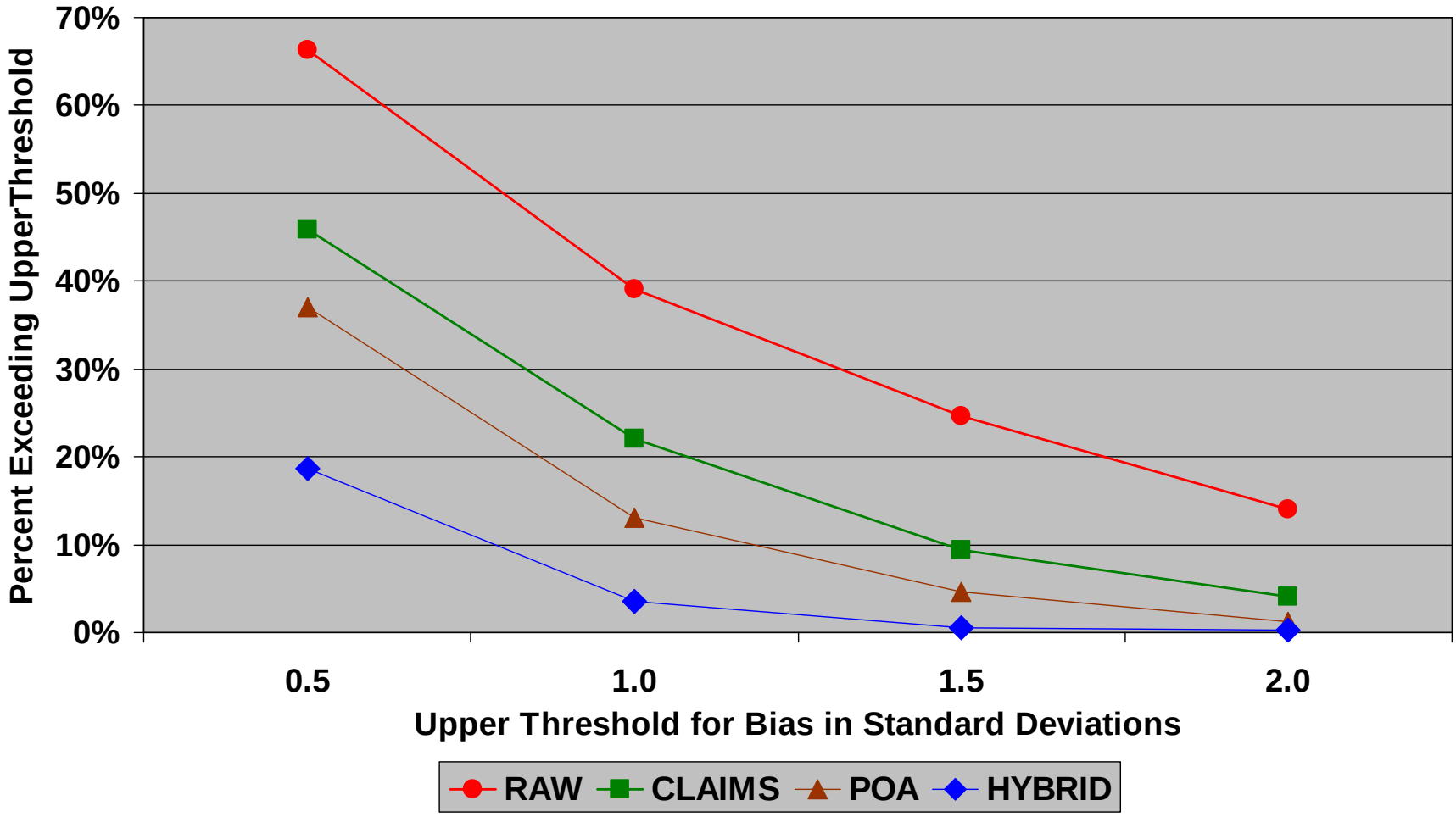
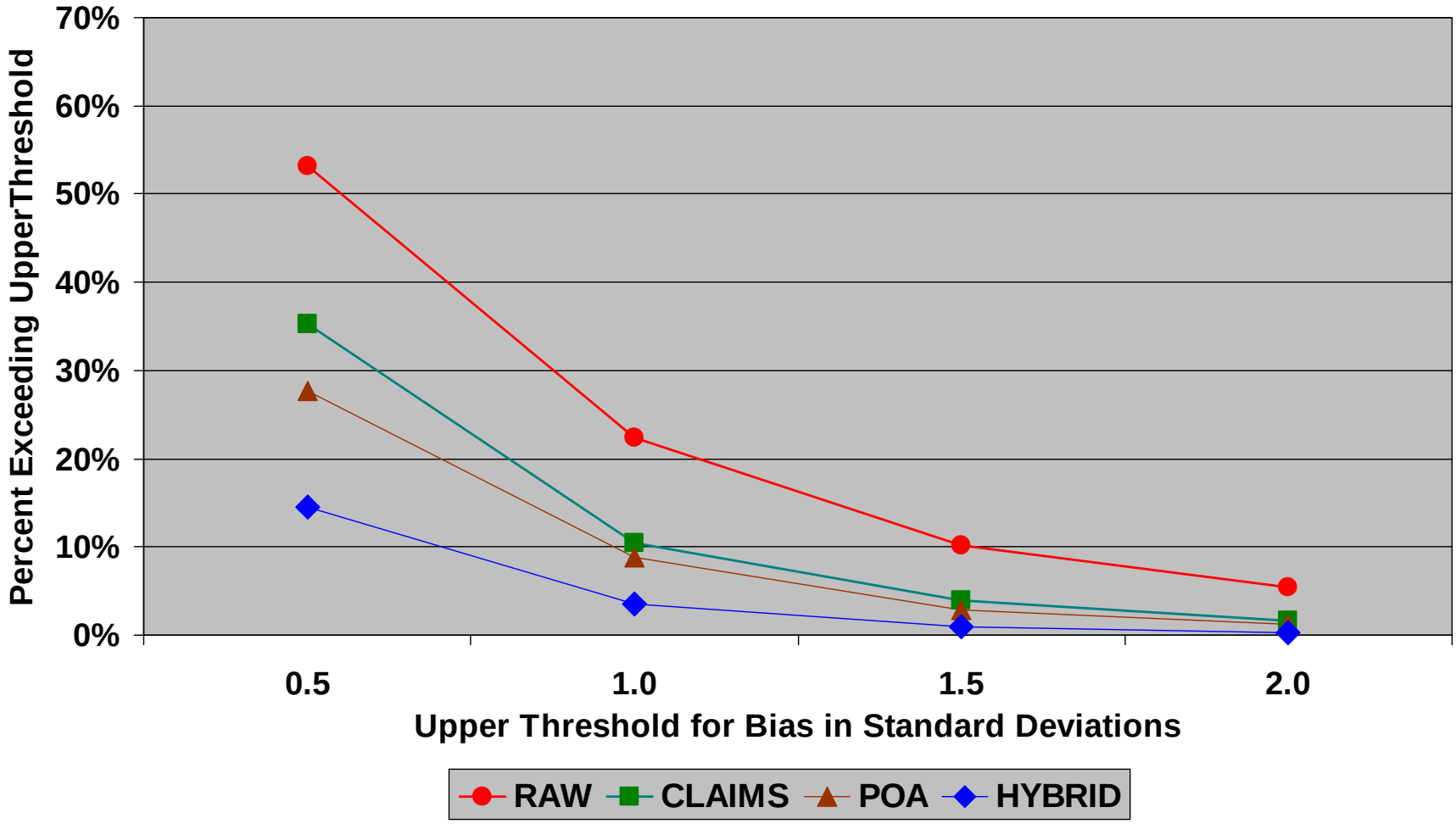
Bias Due to Suboptimal Data



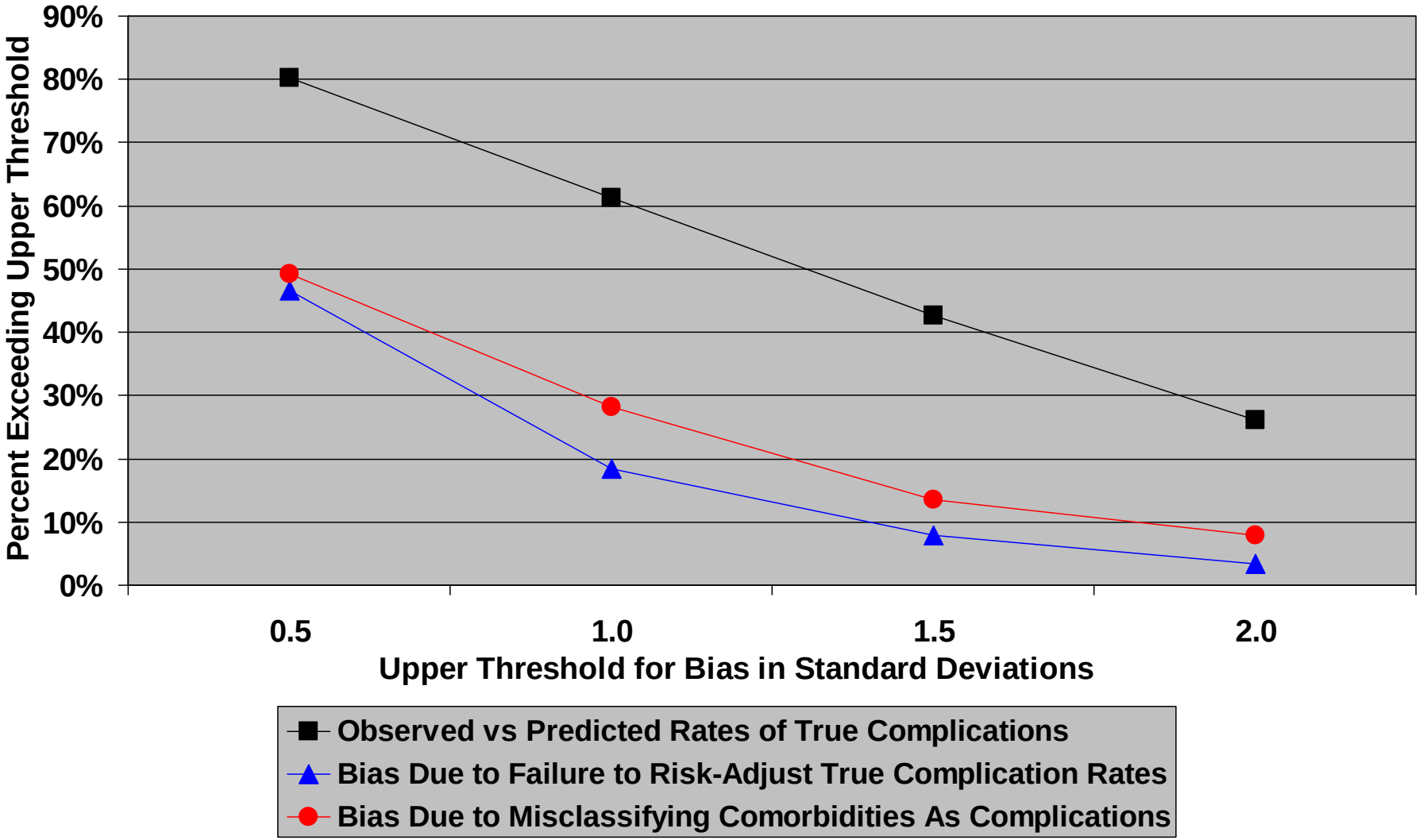
Bias Due to Suboptimal Data (Mortality)



Bias Due to Suboptimal Data (Complications)



Bias in Measurement of Complications



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Numerical Laboratory Data

- 22 Tests Enter At Least 1 Model
- 14 of These Tests Enter 4 or More Models

• pH (11)	• SGOT (7)
• Prothrombin Time (10)	• Platelet Count (7)
• Sodium (9)	• Albumin (5)
• White Blood Count (9)	• pCO_2 (4)
• Blood Urea Nitrogen (8)	• Glucose (4)
• pO_2 (8)	• Creatinine (4)
• Potassium (7)	• CPK-MB (4)

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Vital Signs, Other Lab Data, Composite Scores

- **All Vital Signs Enter 4 or More Models**

•Pulse (8)	•Blood Pressure (6)
•Temperature (6)	•Respirations (5)

- **Culture Results Enter 2 Models**
- **Ejection Fraction Enters 2 Models**
- **Both Composite Scores Enter 4 or More Models**

•ASA Classification (6)	•Glasgow Coma Score (4)

Abstracted Key Clinical Findings

- 35 Clinical Findings Enter At Least 1 Model
- Only 3 of These Enter More Than 2 Models
  - Coma (6)
  - Severe Malnutrition (4)
  - Immunosuppressed (4)
- 14 Have Corresponding ICD-9-CM Codes

  e.g., coma, severe malnutrition
- Coding Regulations Limit Utility of Claims Data

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The Bottom Line

Claims Data Enhanced with Present-on-Admission Modifiers and Numerical Lab Data Can Support Accurate Performance Assessment

From Information to Understanding to Action

From Information to Understanding to Action

Information

↓

Knowledge

↓

Explanation

Understanding

↓

Motivation

↓

Action

Three Barriers to Effective Decision Making

- Inconsistent Reporting of Complications
- Dissociation of Services and Clinical Benefits
- Inability to Relate Outcomes to Processes of Care

Coding Hospital-Acquired Complications

- **Potential Barriers to Accurate Coding**
  - Expertise and Teamwork Required for Accurate Coding
  - Difficulty Achieving Consistency in Reporting
  - Benefits to Hospitals of Not Coding Complications
- **Consequences of Inconsistent Coding**
  - Affects Comparative Assessments of Clinical Quality
  - Affects Reimbursement
- **Detection of Coding Errors**
  - Chart Reviews Are Inefficient and Costly
  - Well-Designed Screens Can Detect Problems Efficiently

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Screens for Correct Coding of Complications

- **Types of Admissions Screened**
  - Admissions for High-Risk Medical Conditions
  - Admissions for Elective Surgical Procedures
  - Admissions for Childbirth
- **Nature of Screens**
  - Coding of Chronic Conditions
    - Without Acute Component
    - With Acute Component
  - Coding of Conditions That Often Are Hospital-Acquired
  - Relation of Mortality Rates to When Condition Occurred
  - Relation of Coded Complications to Lengths of Stay
  - Internal Consistency of Obstetrical Coding

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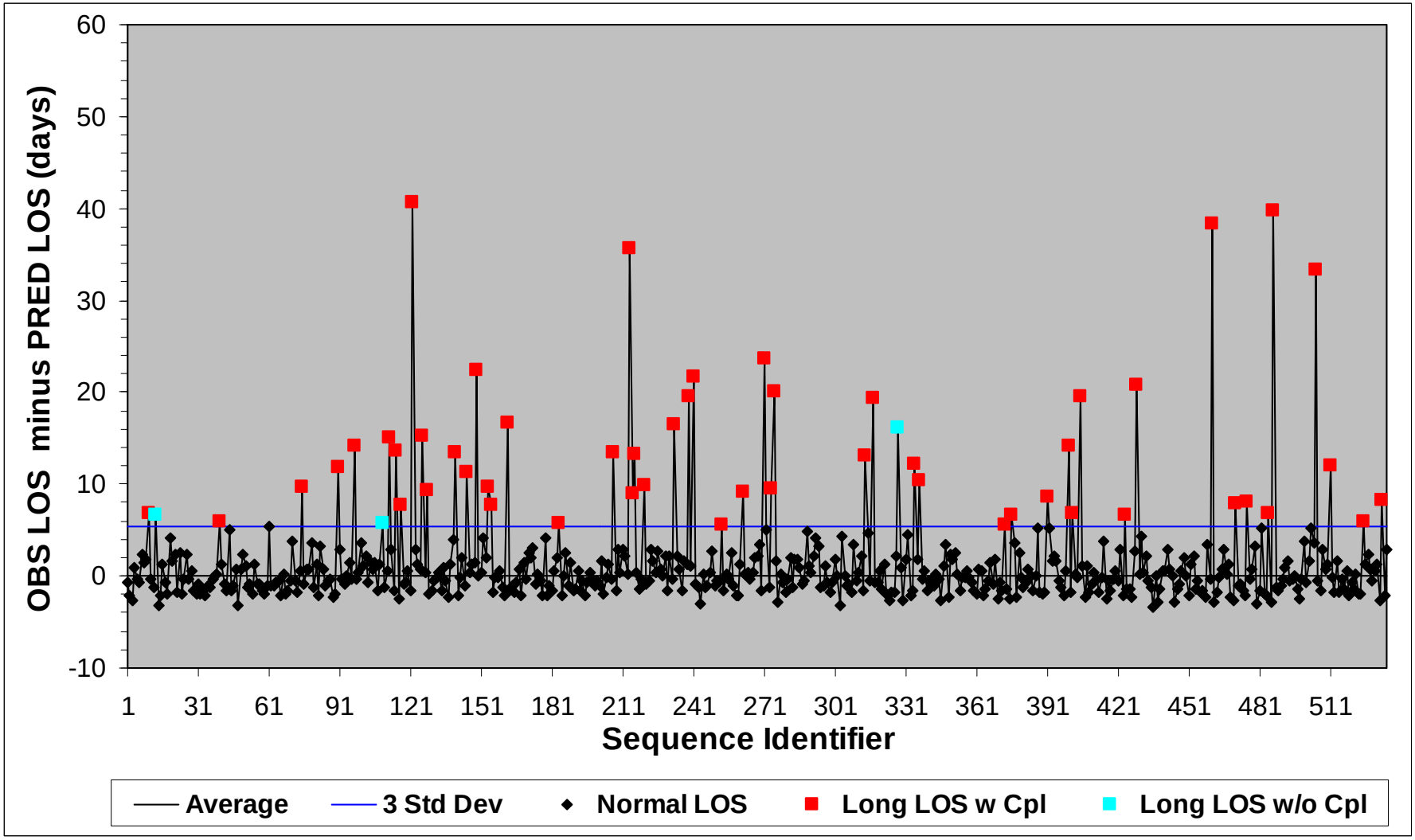
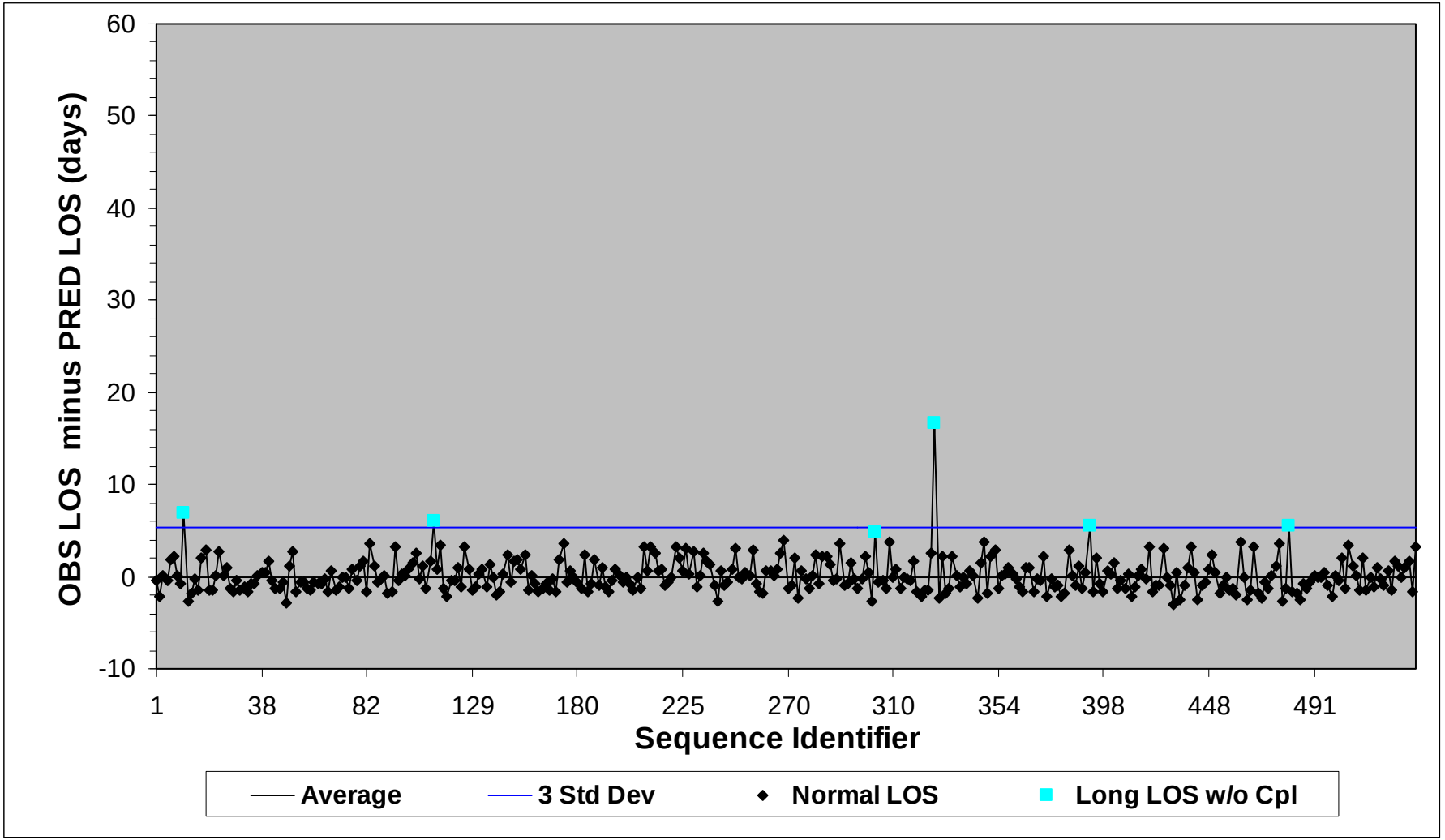
Risk-Adjusted Post-Operative Lengths of Stay

All Live Discharges



Risk-Adjusted Post-Operative Lengths of Stay

Live Discharges without Reported Complications



Distribution of Hospital POA Coding Scores

Score	Hospitals (#)	Hospitals (%)
>90%	65	39.4%
>80% to 90%	41	24.8%
>70% to 80%	26	15.8%
>60% to 70%	19	11.5%
60% or lower	14	8.5%
Total Scored	165	100%
>10% Unknown	22	n/a

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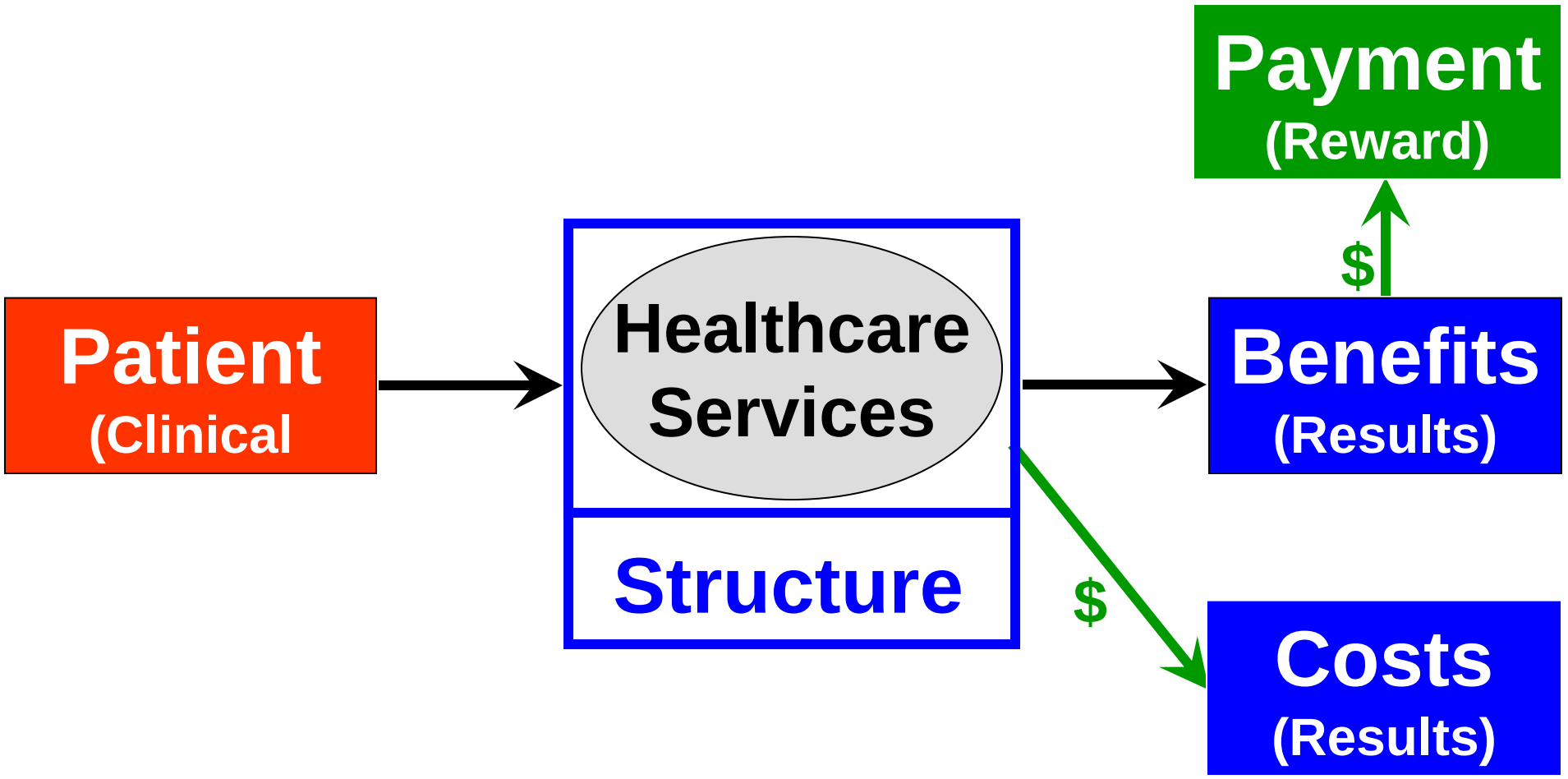
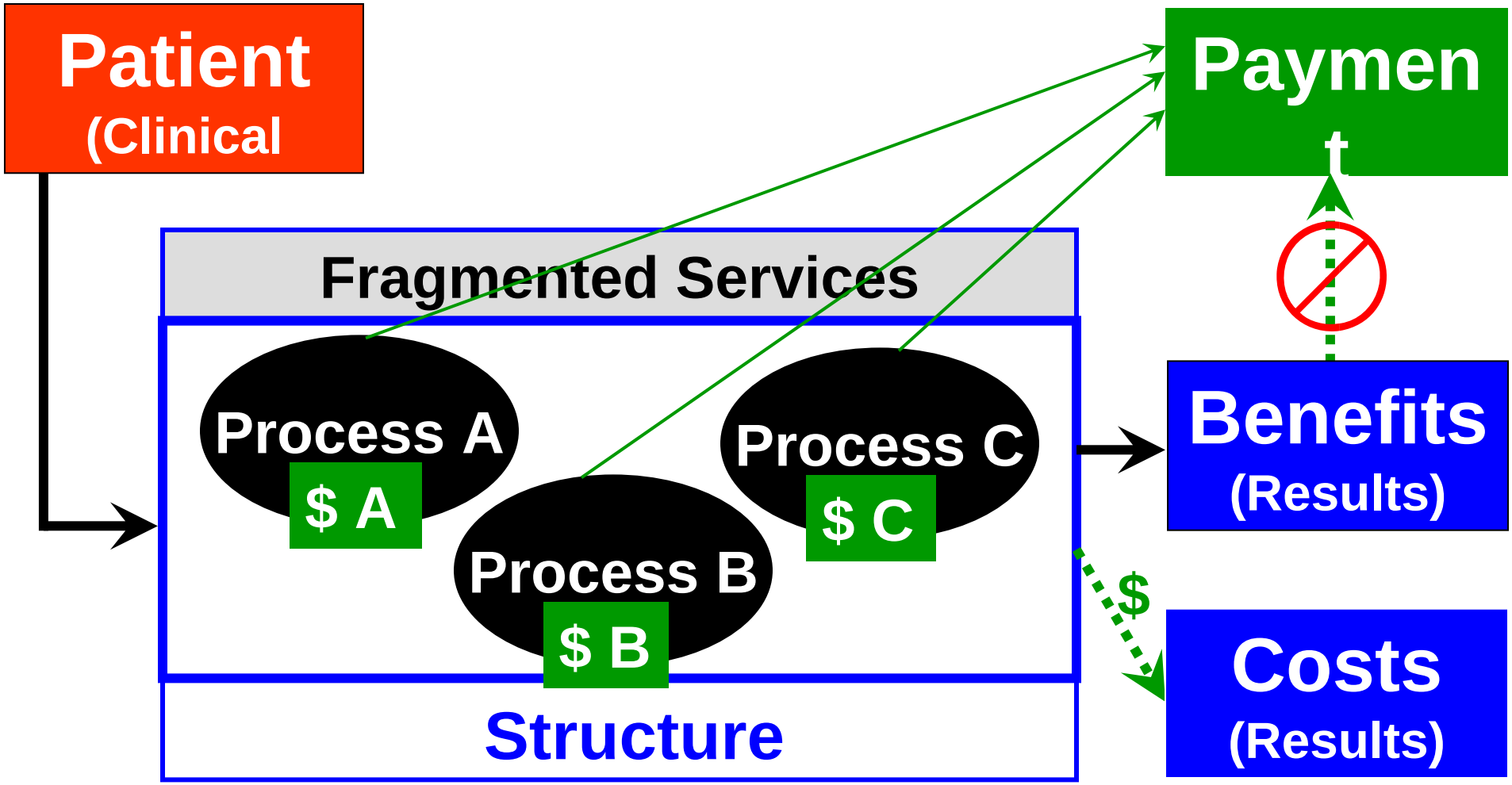
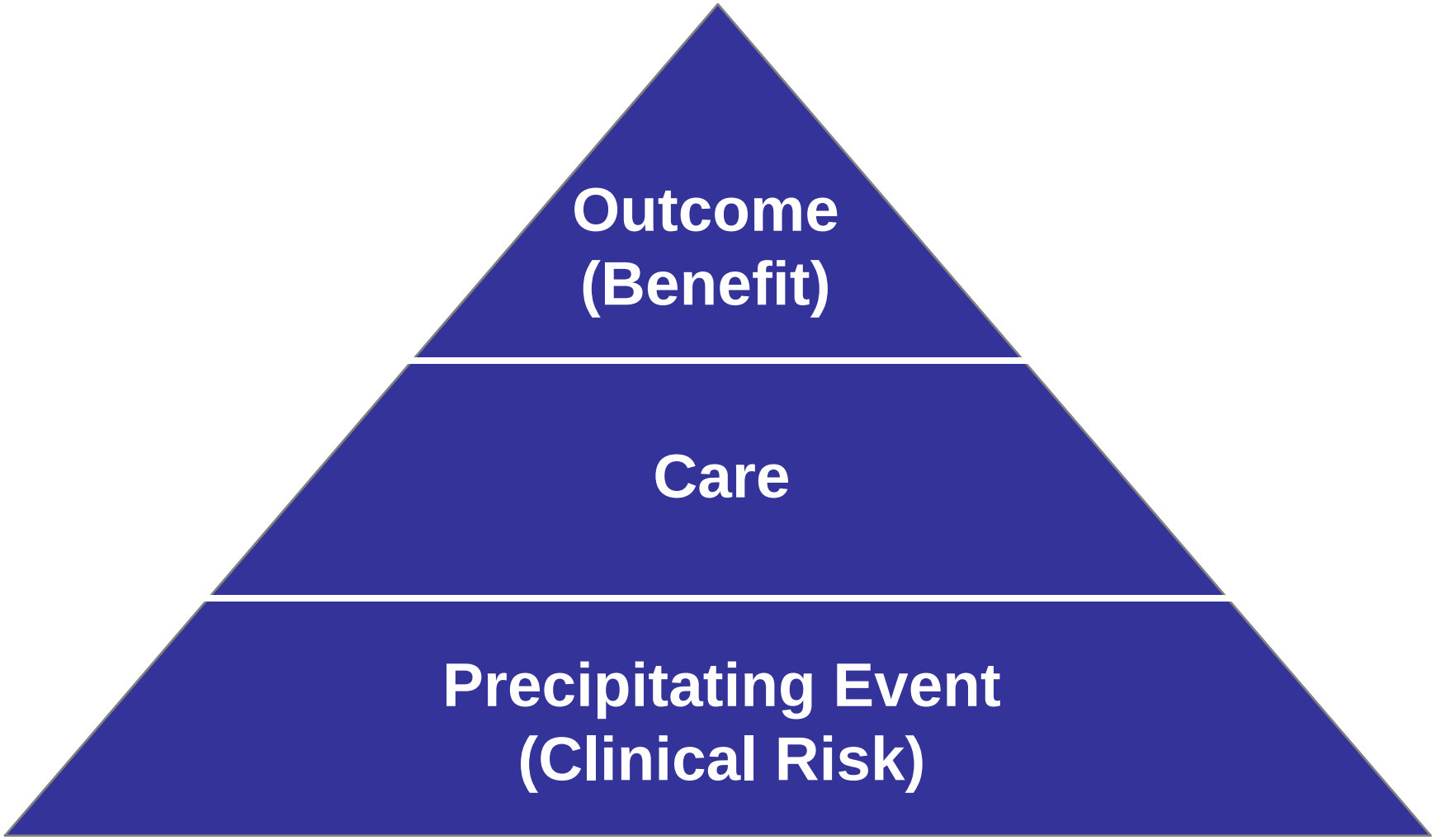
Linking Results and Rewards



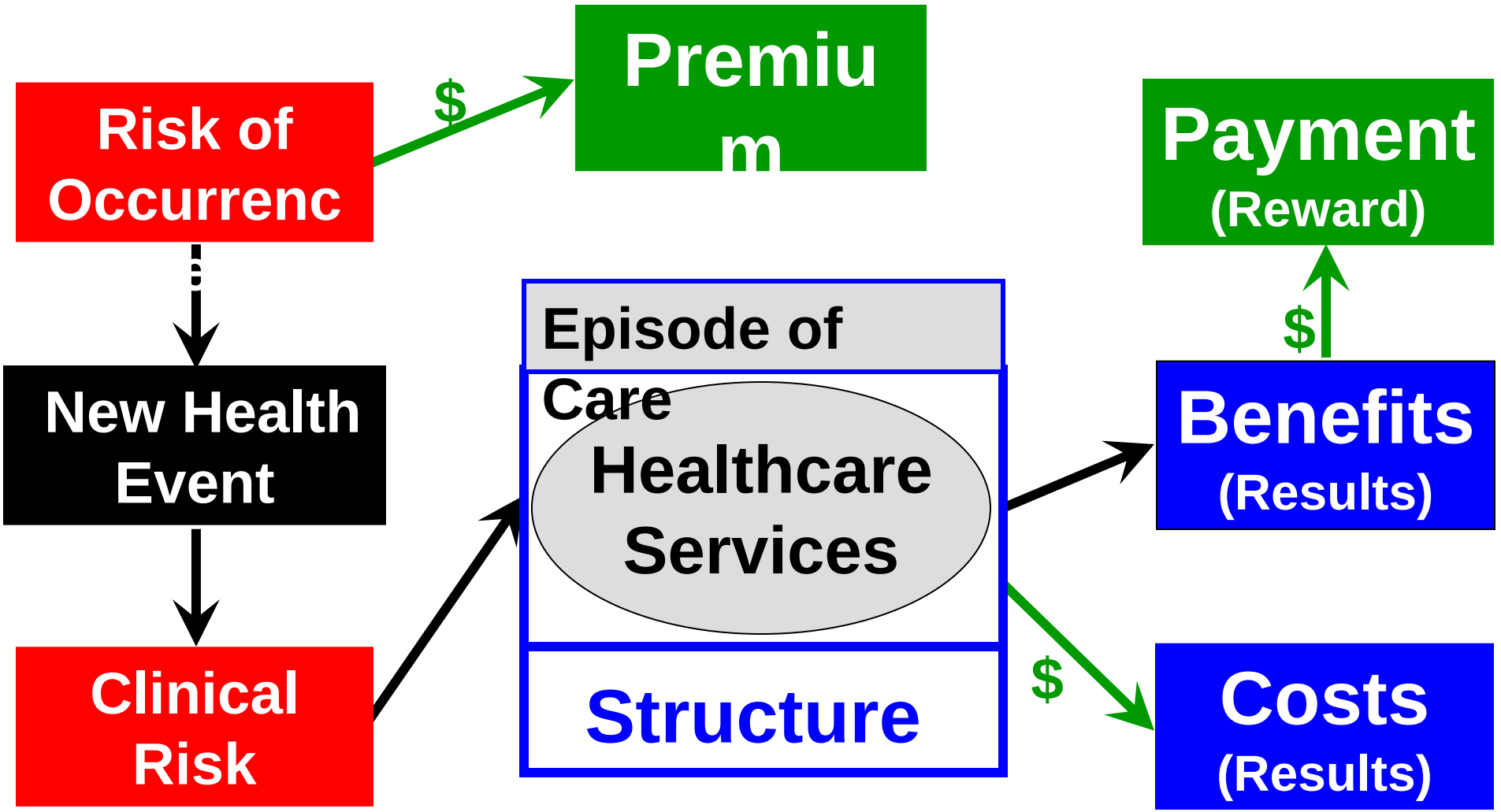
Pricing Fragmented Components of Care



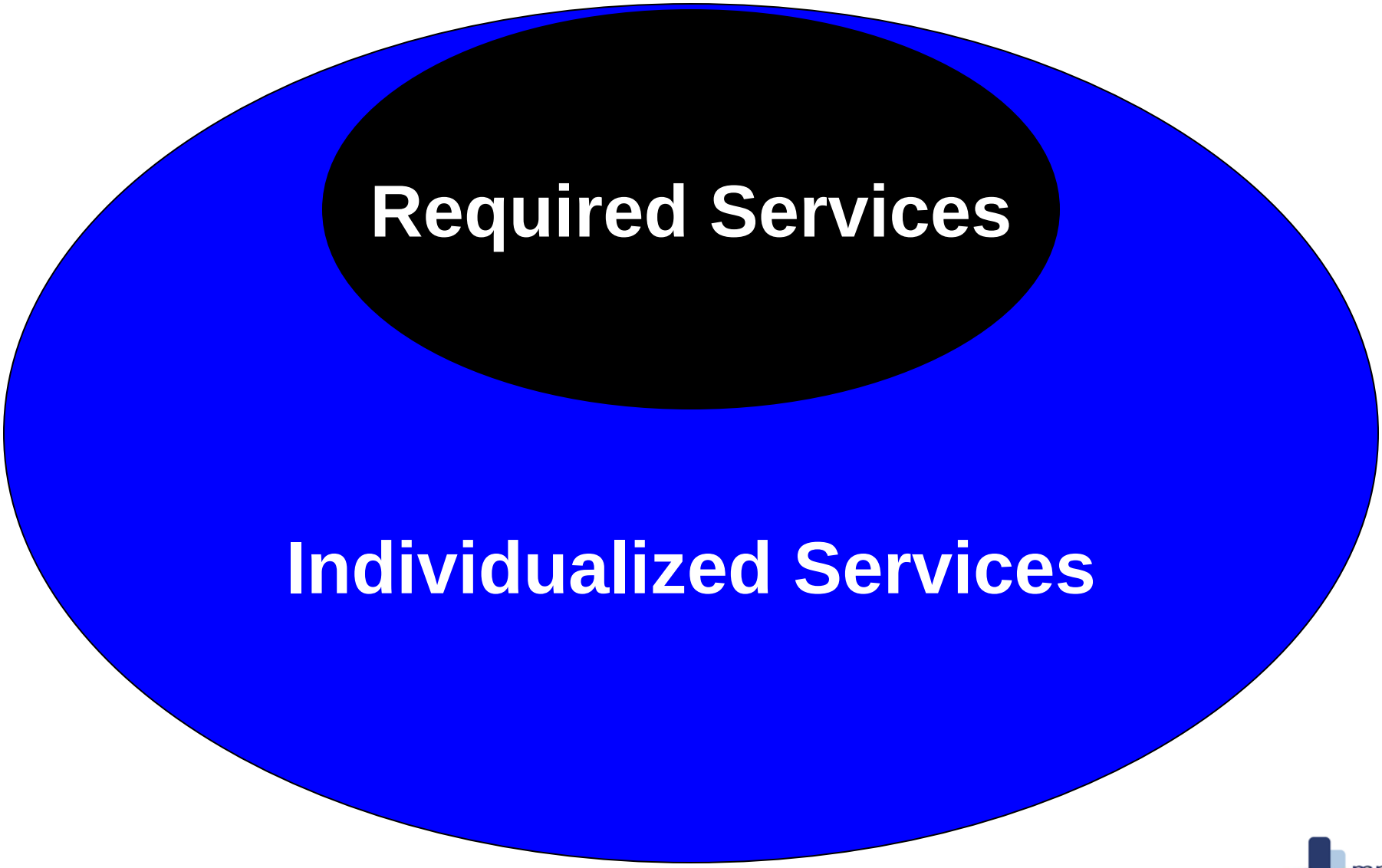
Components of an Episode of Care



Reimbursement for Episodes of Care



Services Associated with an Episode of Care



Alternative Practice Patterns

Optimum Care

Inefficient Care

Ineffective Care

**Ineffective,
Inefficient Care**

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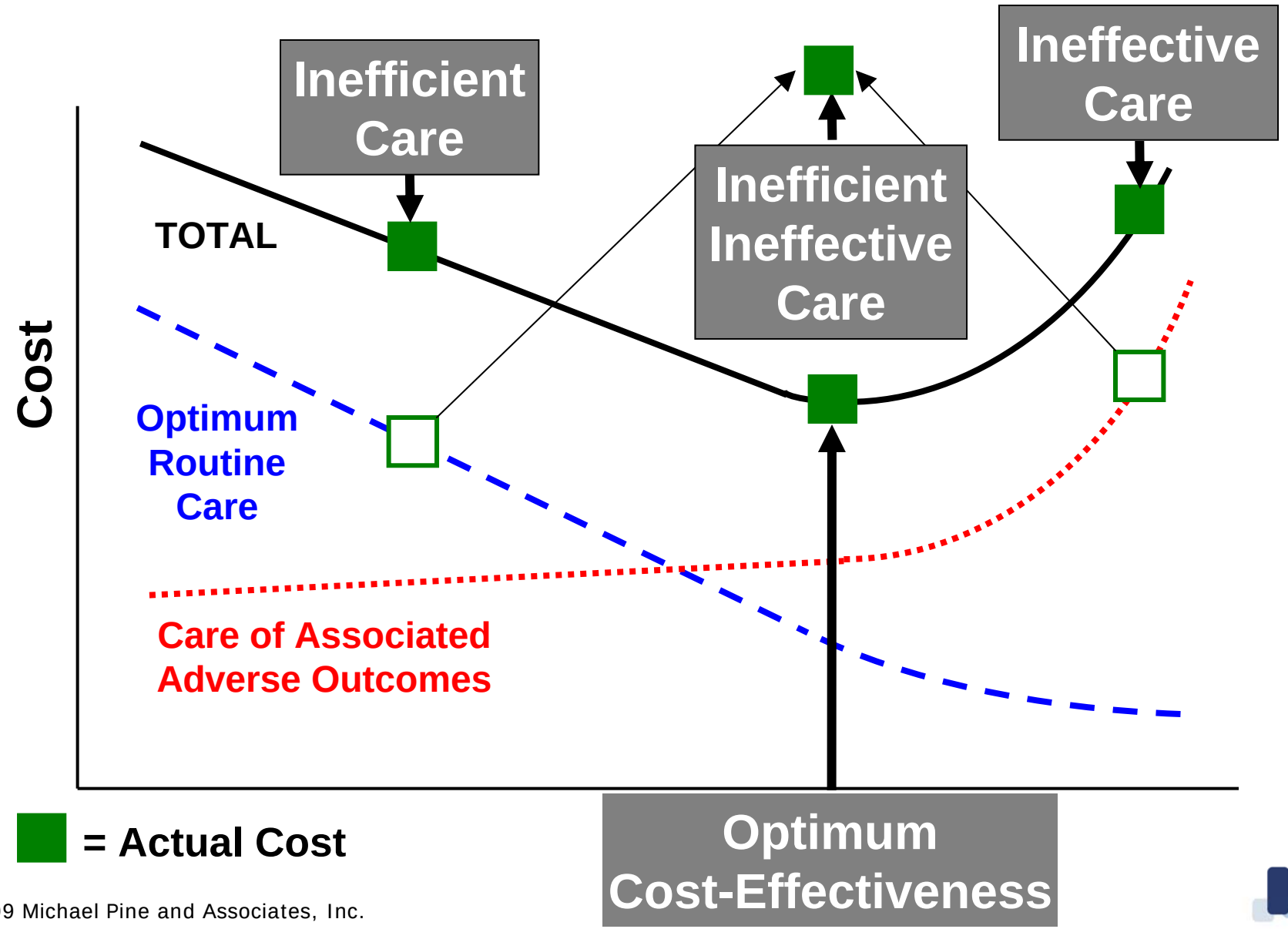
Costs of Alternative Practice Patterns



Payment in a Value-Driven Market

- ***Insurance for Risk of Occurrence:***
  Capitation **By Beneficiary**

- ***Evidence-Based Care Required by Population:***
  Fee-for Service **By Encounter**

- ***Individualized Health Care Services*:**
  Global Fee **By Episode of Care**

- ***Care of Potentially-Avoidable Complications:***
  Warranty **For Episode of Care**

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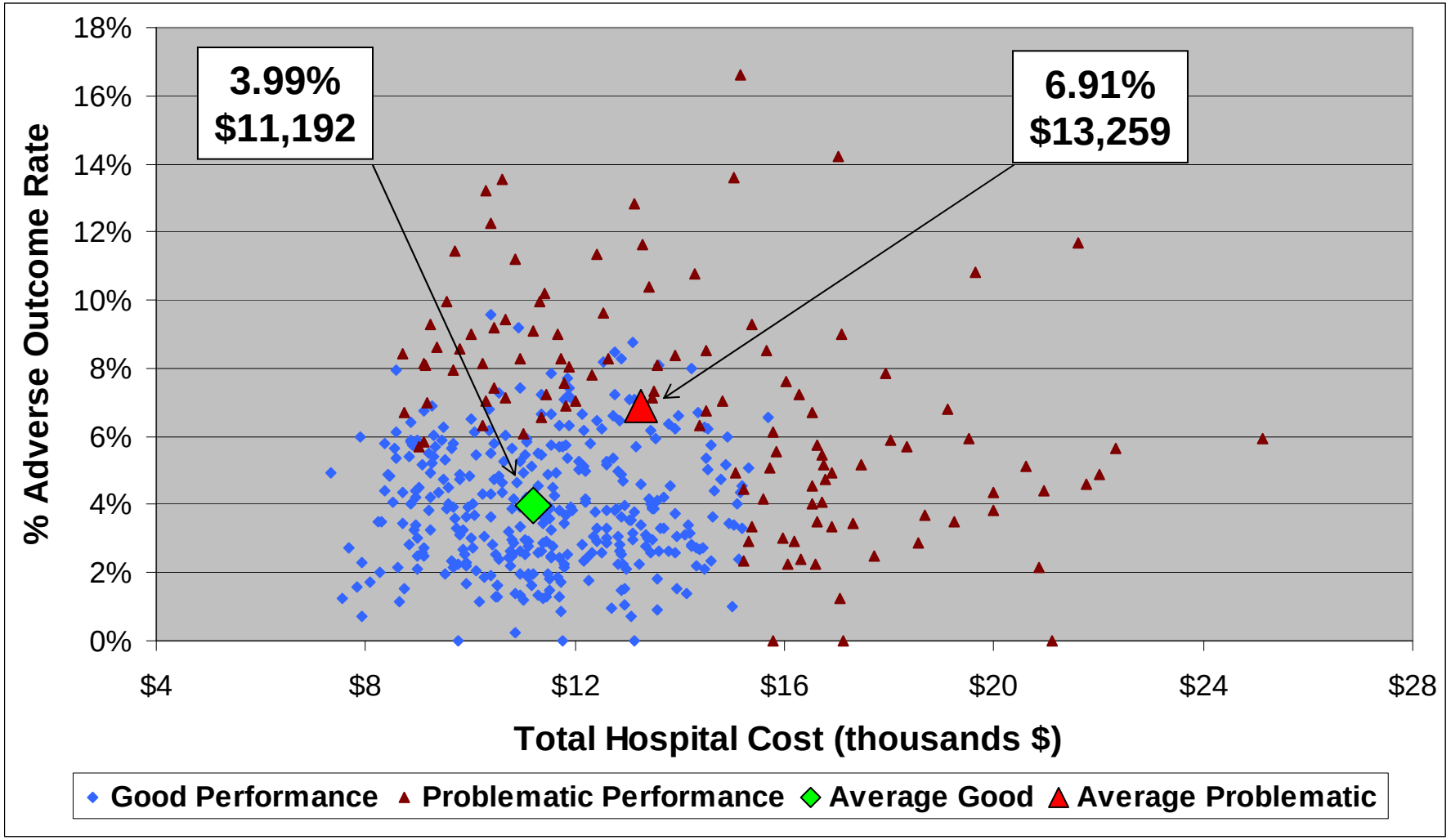
Use Fair Empirically-Derived Standards

To Set Global Fees and Warranties

Standardized Hospital Costs and Adverse Outcomes

350 High Performing & 113 Suboptimally Performing Hospitals



Aligning Risks, Responsibilities, and Rewards
In a Virtual Partnership

- **Payer Bears Risk of Occurrence**
- **Managing Organization (e.g., Physician-in-Charge)**
  - **Receives Standard Negotiated Payment Minus Withhold**
  - **Overruns in Total Cost of Episode Covered by Withhold**
  - **Total Savings Shared with Payers**
- **Participating Caregiver**
  - **Receives Standard Negotiated Payment Minus Withhold**
  - **Achievement of Intermediate Milestones Determines:**
    - **Return of Withhold**

External and Internal Monitoring

External Monitoring

Assesses Performance

- **Provider Selection**
- **Network Formation**
- **Reimbursement**
- **Accountability**
- **Strategic Planning**
- **Marketing**

Internal Monitoring

Links Processes to Outcomes

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

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Traditional Mortality and Morbidity Review

- Analyses of Single Cases with Adverse Outcomes
- Peer Review Aided by Medical Literature
- Objectives Vary
  - Identify and Correct Substandard Practice
  - Educate Participants
  - Improve Processes of Care
- Problems Abound
  - Rarely Affects Individual Practice
  - Divorced from Organizational Decision Making
  - Lacks Scientific Credibility

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Fallacy of Generalizing from Single Cases

One Tree

Does Not a Forest Make

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Designing Robust Observation Studies

- **Strengths of Randomized Controlled Clinical Trials**
  - **Randomization Is Performed Prior to Intervention**
  - **Treatment and Control Groups Are Similar**
- **Overcoming Weaknesses of Observational Studies**
  - **Treatments Usually Are Not Randomly Administered**
  - **Select Controls with Same Likelihood of Treatment**
  - **Propensity Analyses Match Important Characteristics**

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Relating Clinical Processes to Outcomes

- **Clinical Care Often Is Individualized**
- **Risk Profiles Affect Outcomes and Routine Care**
  - **Complications Often Are Related to Higher Initial Risk**
  - **Treatment May Vary with Initial Risk**
  - **Differences in Risk Profiles Confound Comparisons**
- **Matching by Predicted Outcome Reduces Bias**
  - **Match Cases with and without Complications**
  - **Compare Potentially Important Elements of Care**
  - **Differences Suggest Opportunities for Improvement**
  - **Chart Abstraction Often Required to Assess Processes**

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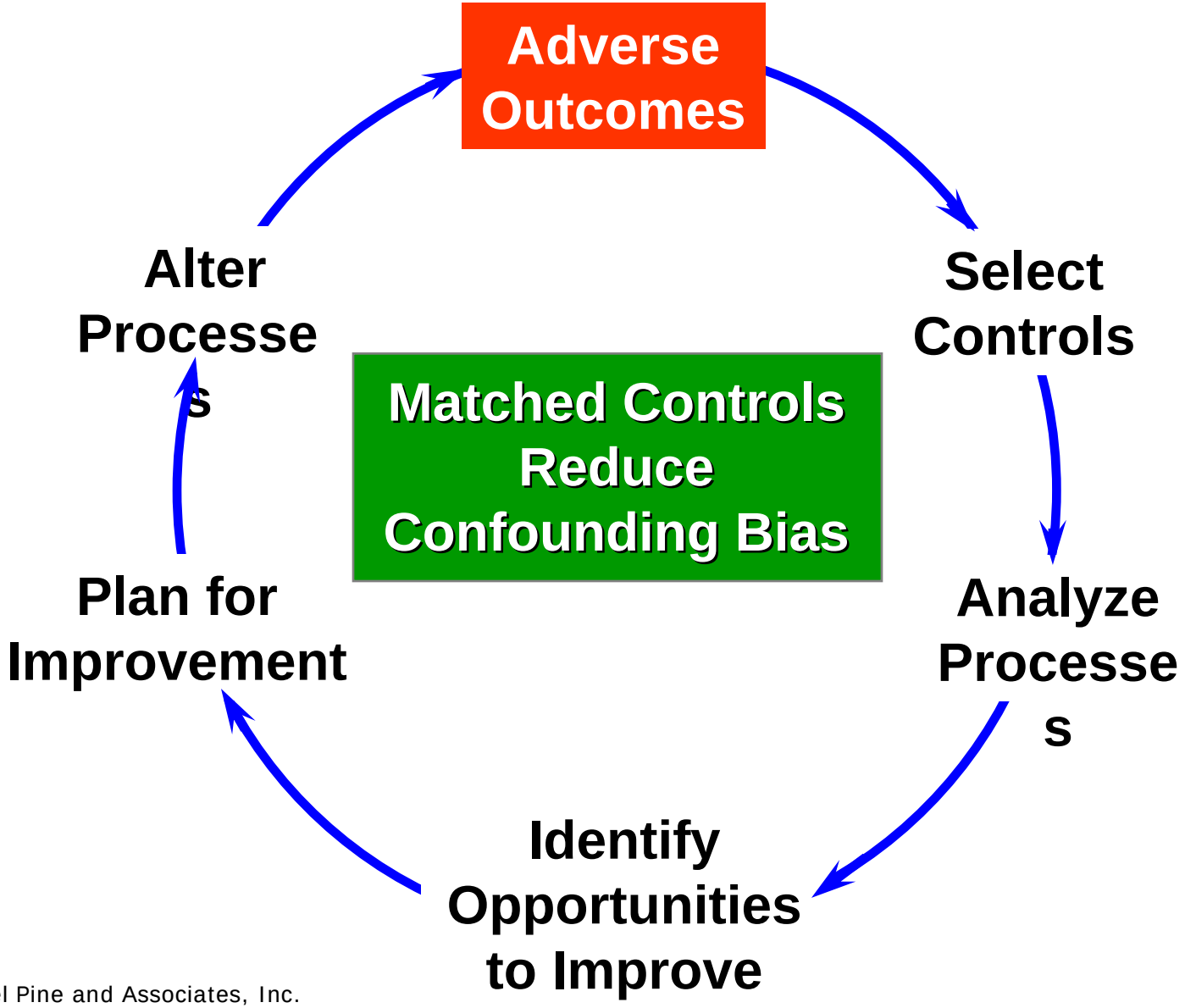
A Cycle of Continuous Quality Improvement



Accountability in a Value-Driven Market

- ***Information*** **about risks and results guides:**
  - **purchasing decisions and reimbursement**
  - **performance improvement initiatives**
- ***Evaluation*** **focuses on episodes of care, not on individual cost centers**
- ***Margin*** **and** ***market share*** **accurately reflect:**
  - **quality of care**
  - **clinical efficiency**

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Yes We Can!