Creating a Hybrid Database by Adding a POA Modifier and Numerical Laboratory Results to Administrative Claims Data

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Overview

- Alternative databases for performance monitoring
- Comparative performance of alternative databases
- Present-on-admission coding
- Numerical laboratory data
- Vital signs and other clinical data
- The bottom line

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Data for Monitoring Clinical Performance

- Claims Data – from HCFA Mortality Reports and HealthGrades.com to HCUP Quality and Patient Safety Indicators

- Clinical Data – from APACHE, Pennsylvania Health Care Cost Containment Council and Cleveland Health Quality Choice to Specialty Society Registries (e.g., STS, ACC)

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Claims Data Versus Clinical Data

- Data serves as the basis for:
  - public reporting
  - reimbursement
  - quality improvement initiatives
- Must balance the need for data to support
  - accurate measurement of risk-adjusted clinical performance
  - ease and cost of data collection

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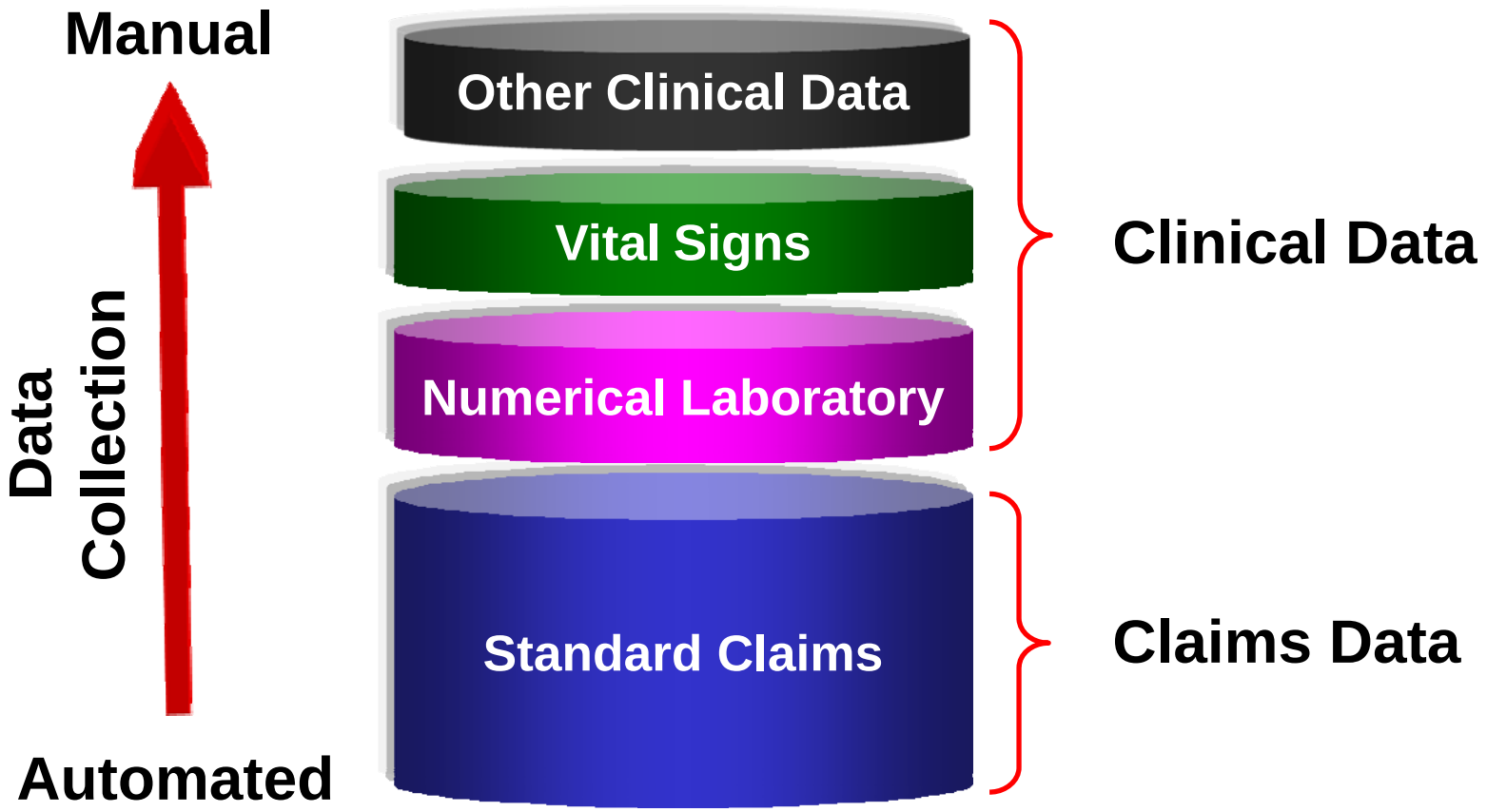
Relative Ease of Data Collection



Efficient Use of Clinical Data

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

Enhancing Claims Data

- Present-on-Admission Coding – from the Mayo Clinic, New York State's SPARCS database, and California's OSHPD database to the UB-04 and CMS's new coding requirements
- Numerical Laboratory Data – from Michael Pine and Associates to the Agency for Healthcare Research and Quality (AHRQ)
- New Hybrid Databases – AHRQ's Pilot Projects

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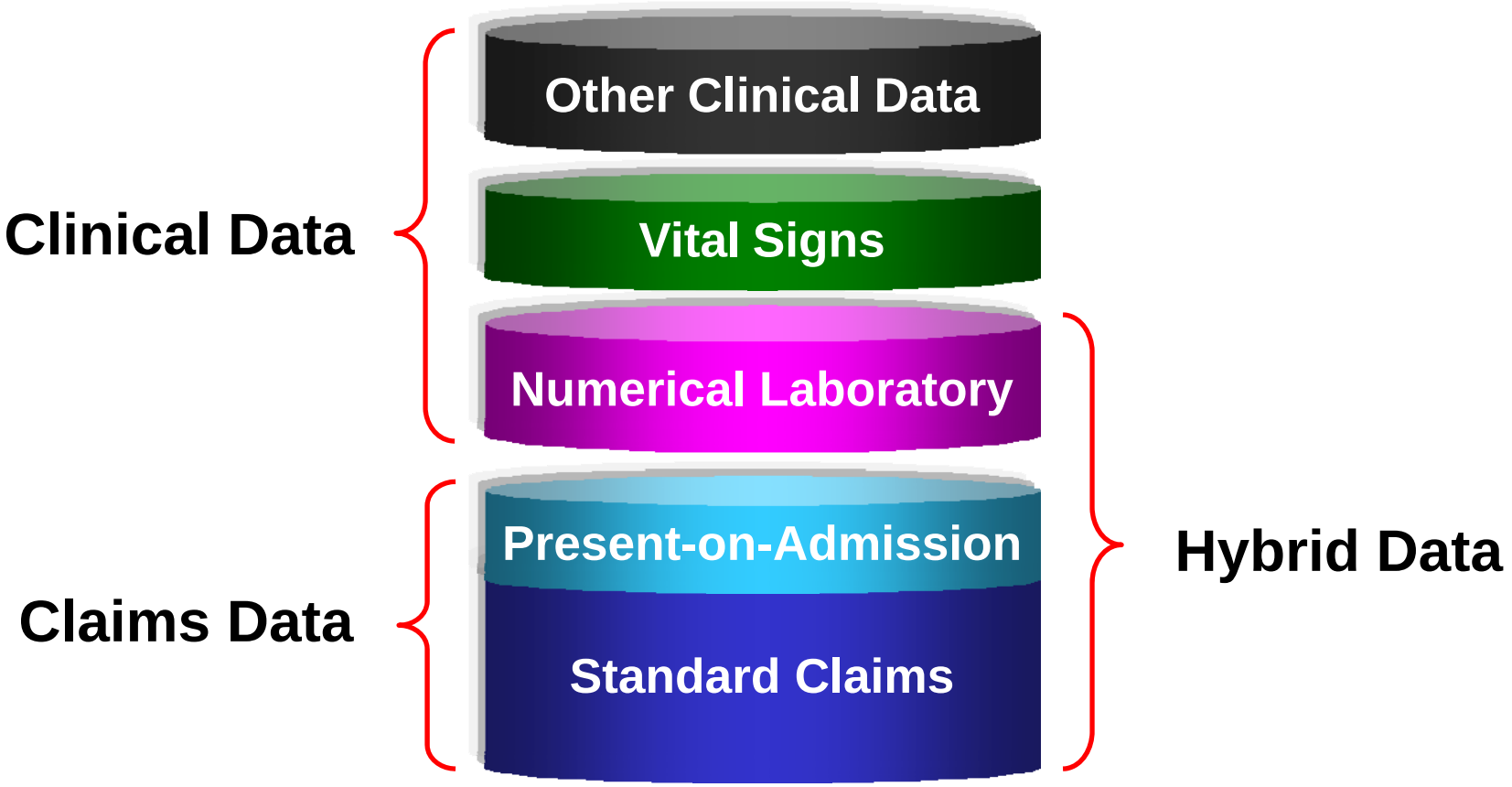
Creating a Hybrid Database



Potential Benefits of Enhancing Claims Data

- Better distinguish between comorbidities and complications
- Add objective findings to more subjective diagnostic designations
- Provide finer definition of progression of disease and underlying pathophysiology than do diagnostic codes alone

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Comparative Performance of Alternative Databases

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 only infrequently acquired during hospitalization
- Selected surgical procedures

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Data Used in HYBRID Models

- All data used in CLAIMS models
- Additional secondary diagnoses when clinical data establish that they were present on admission
- Numerical laboratory data (e.g., creatinine, white blood cell count) generally available in electronic form

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Data Used in CLINICAL Models

- All data used in HYBRID models
- Vital signs and laboratory data not in HYBRID models (e.g., blood culture results)
- Key clinical findings abstracted from medical records (e.g., immunocompromised)
- Composite clinical scores (e.g., ASA class)

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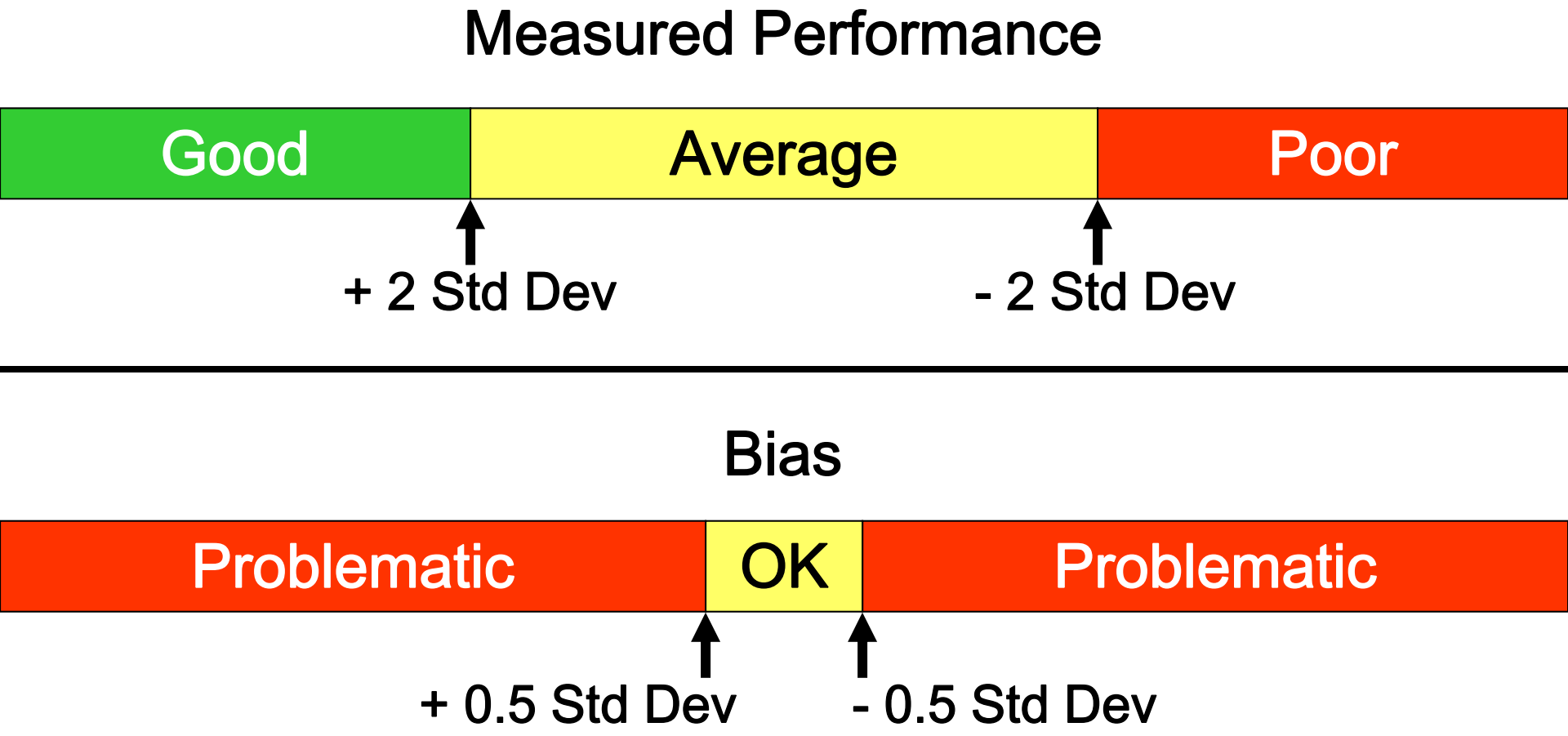
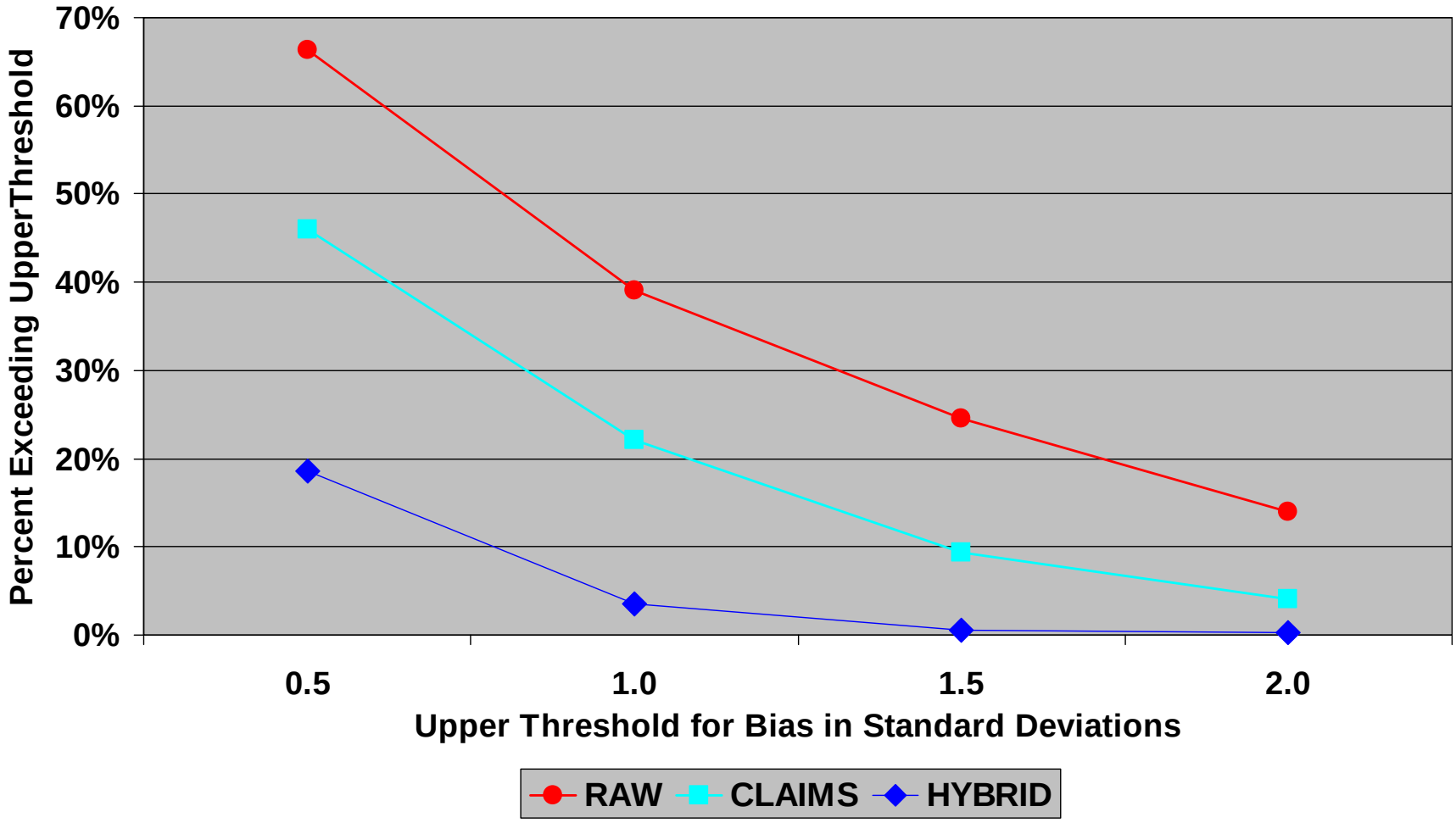
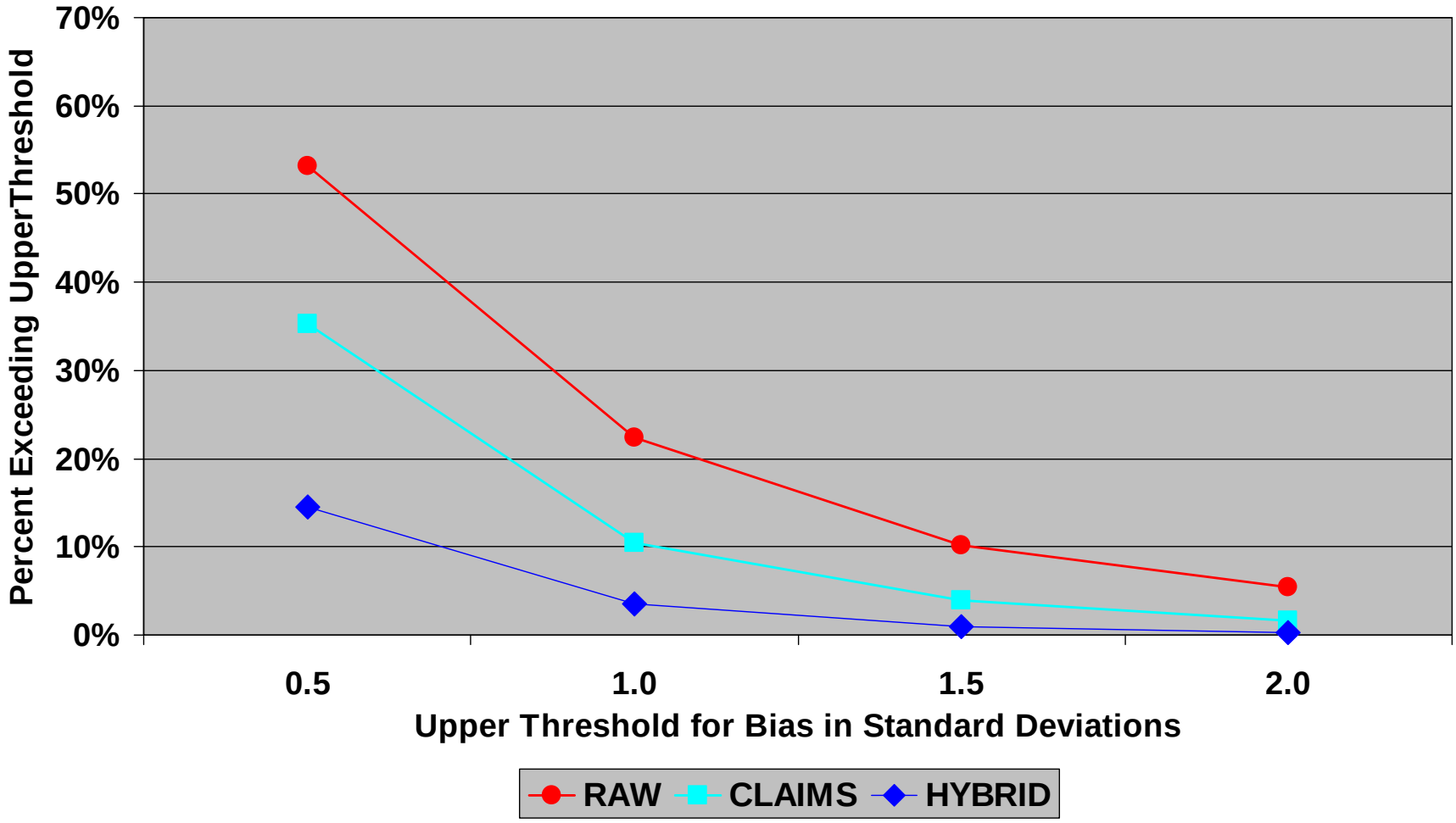
Bias Due to Suboptimal Risk-Adjustment



Bias Due to Suboptimal Data (IQIs)



Bias Due to Suboptimal Data (PSIs)



POA Coding

New Information Derived from POA Coding

- In the past, difficult to determine whether coded secondary diagnoses described:
  - Comorbid conditions present on admission
  - Complications that occurred in hospital.

- Newly mandated POA distinguishes between:
  - Comorbidities that increase the likelihood of adverse outcomes and higher costs
  - Inpatient complications possibly due to suboptimal care.

General Guidelines for POA Coding

- With rare exceptions, a POA modifier must be assigned to each principal and secondary diagnosis code on a hospital claim.
- A diagnosis should be coded as present on admission if it is present at the time the order for inpatient admission occurs.
- All POA coding must be supported by medical record documentation by a qualified healthcare practitioner.

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Valid POA Codes

- Blank, 1, or E = diagnosis exempt from POA reporting
- Y = present at time of order to admit
- N = not present at time of order to admit
- W = practitioner unable to determine if Y or N
- U = insufficient information to determine if Y or N after good faith attempt to resolve uncertainty with qualified practitioner

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Rules for POA Coding (1)

- Chronic conditions are coded as POA=Y regardless of when they are diagnosed.

- A diagnosis of an acute condition is coded as POA=Y when:
  - documented as present, suspected, or impending at the time of or shortly prior to admission even if the definitive diagnosis is made during hospitalization
  - signs or symptoms of the diagnosis are documented as present on admission.

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Rules for POA Coding (2)

- An acute exacerbations of a chronic condition is coded as POA=Y only when the acute exacerbation is present on admission.
- A diagnosis is coded as indeterminate (W) only when a qualified practitioner documents that s/he cannot determine if diagnosis was present on admission.
- A diagnosis is coded as unknown (U) only when a coder cannot obtain information needed to assign another POA modifier.

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Rules for POA Coding (3)

- For obstetrical codes, POA assignment:
  - based on relation of pregnancy-related diagnoses to admission
  - not affected by whether or not the patient delivers.

- If obstetrical code includes more than one diagnosis, POA=Y only if all diagnoses are present on admission.

Rules for POA Coding (4)

- For newborns, admission occurs at the time of birth. Therefore, POA=Y for all congenital conditions and anomalies, all *in utero* conditions, and all complications that occur during delivery.

- For accidents (i.e., E codes), POA codes are based on the relation of the time of injury to the time of admission. Therefore, POA=Y only when injury occurs prior to admission.

Rationale for POA Quality Screening

- Accurate coding requires expertise and teamwork.
- Inaccurate coding may affect performance assessments and reimbursement.
- Chart reviews to detect coding errors are expensive.
- Well-designed screens can detect problems efficiently.

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POA Quality Screens

- Developed using New York State hospital discharge data from 2003 through 2005.
- Screens high-risk conditions, elective surgical procedures, and inpatient childbirth.
- Employs 12 screens for inconsistent and implausible coding.
- Provides composite scores and performance profiles.

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Distribution of Hospital 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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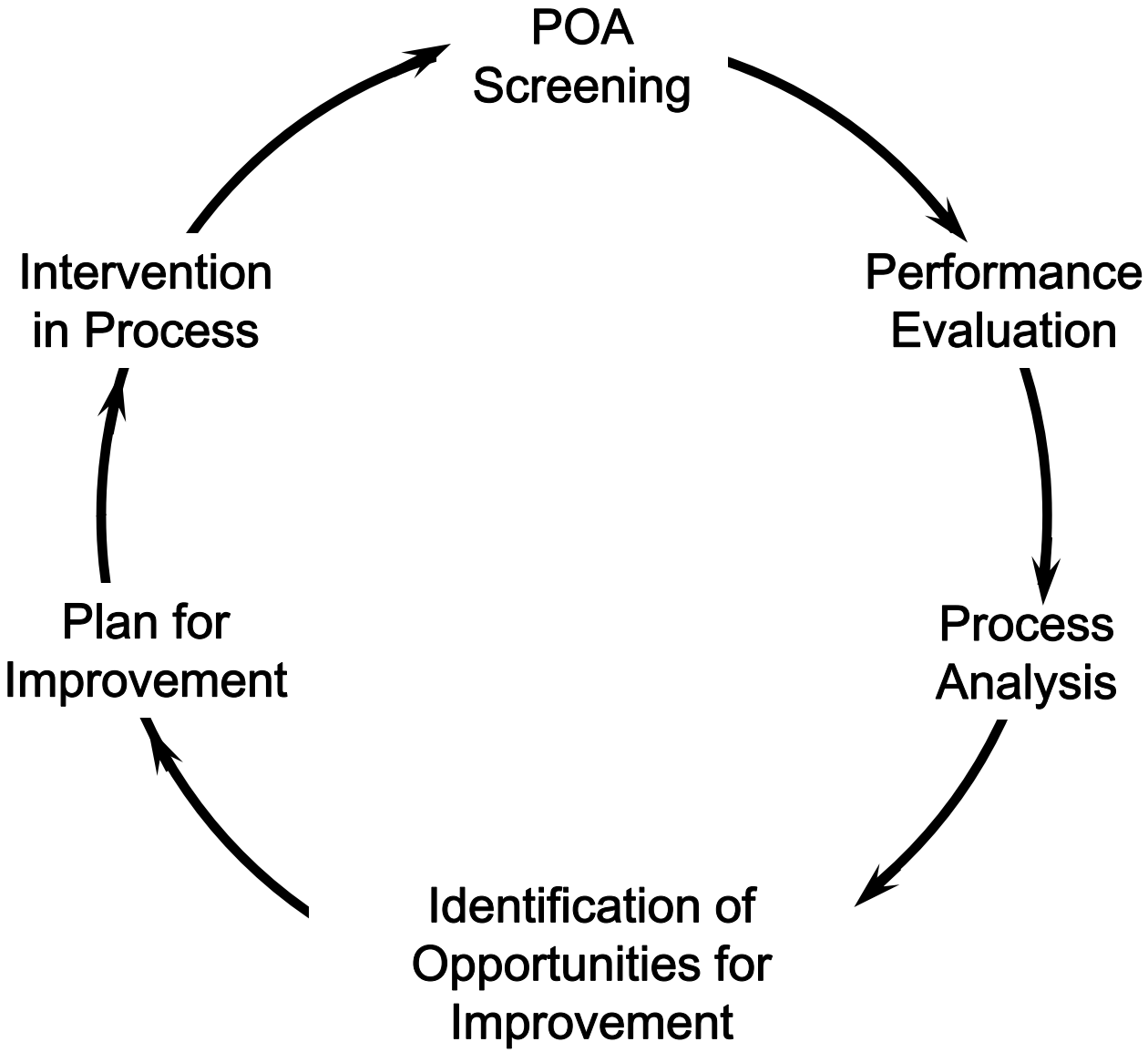
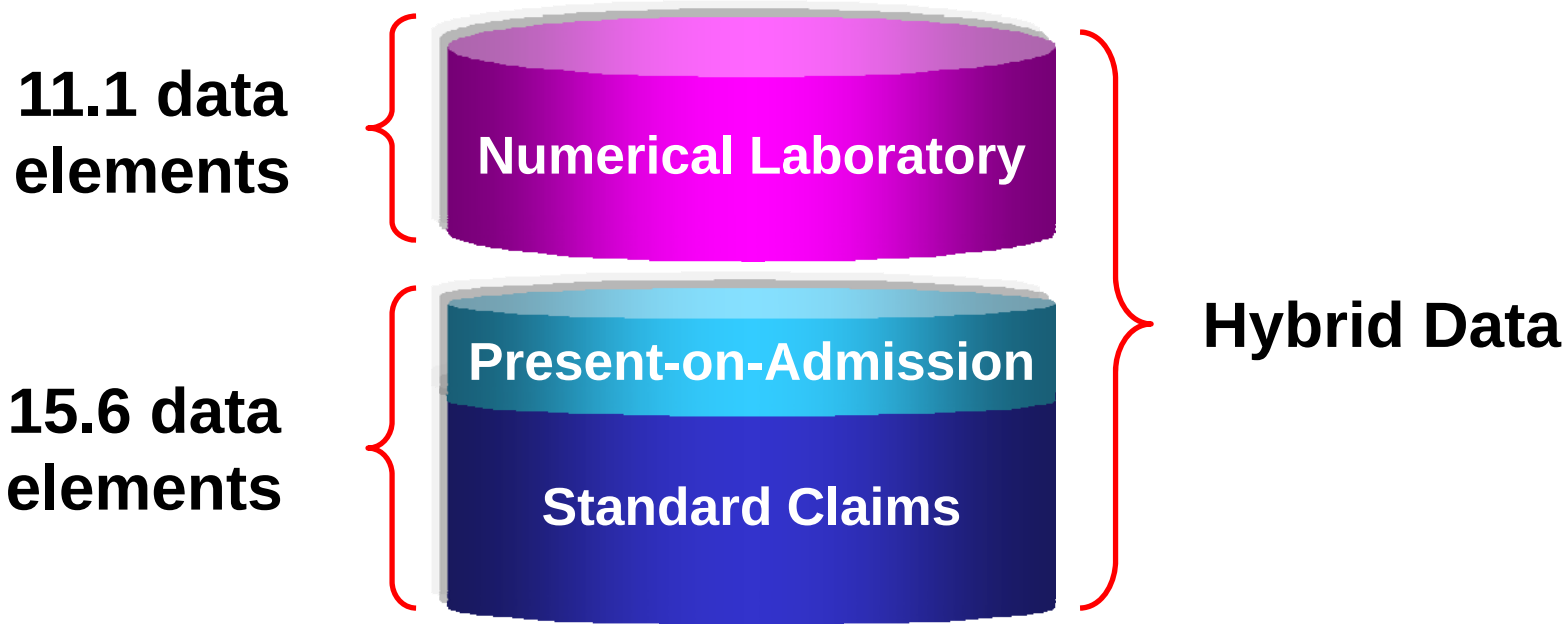
Screening and Improvement of POA Coding

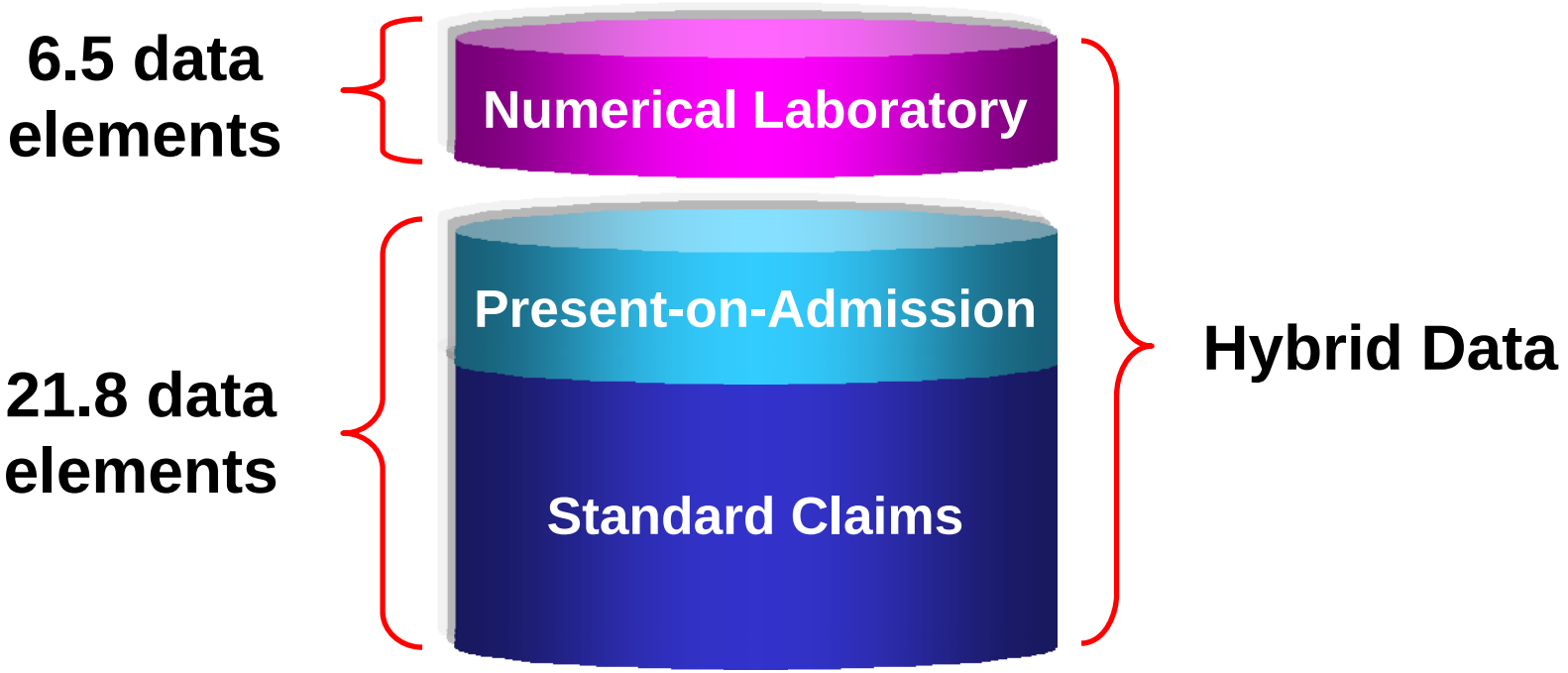


Numerical Laboratory Data

Types of Data in HYBRID IQI Models



Types of Data in HYBRID PSI Models



Numerical Laboratory Data

- 22 Laboratory Tests Enter At Least 1 Model
- 14 of These Tests Enter 4 or More Models
  - pH (11)
  - Prothrombin Time (10)
  - Sodium (9)
  - White Blood Count (9)
  - Blood Urea Nitrogen (8)
  - pO2 (8)
  - Potassium (7)
  - SGOT (7)
  - Platelet Count (7)
  - Albumin (5)
  - pCO2 (4)
  - Glucose (4)
  - Creatinine (4)
  - CPK-MB (4)

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Recommended Chemistry Data

- Aspartate Aminotransferase
- Albumin
- Alkaline Phosphatase
- Amylase
- Bicarbonate
- Bilirubin (Total)
- B Natriuretic Peptide
- Calcium
- C-Reactive Protein
- Creatine Kinase
- Creatine Kinase MB
- Creatinine
- Glucose
- Lactic Acid
- Potassium
- Pro-B Natriuretic Protein
- Sodium
- Troponin I
- Troponin T
- Urea Nitrogen

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Other Recommended Lab Data

Blood Gas	Hematology
• Arterial O_2 Saturation	• Hemoglobin
• Arterial pCO_2	• International Normalized Ratio
• Arterial pH	• Neutrophil Bands
• Arterial pO_2	• Partial Thromboplastin Time
• Base Excess	• Platelet Count
• Bicarbonate	• Prothrombin Time
• FIO_2 (if electronic)	• White Blood Count

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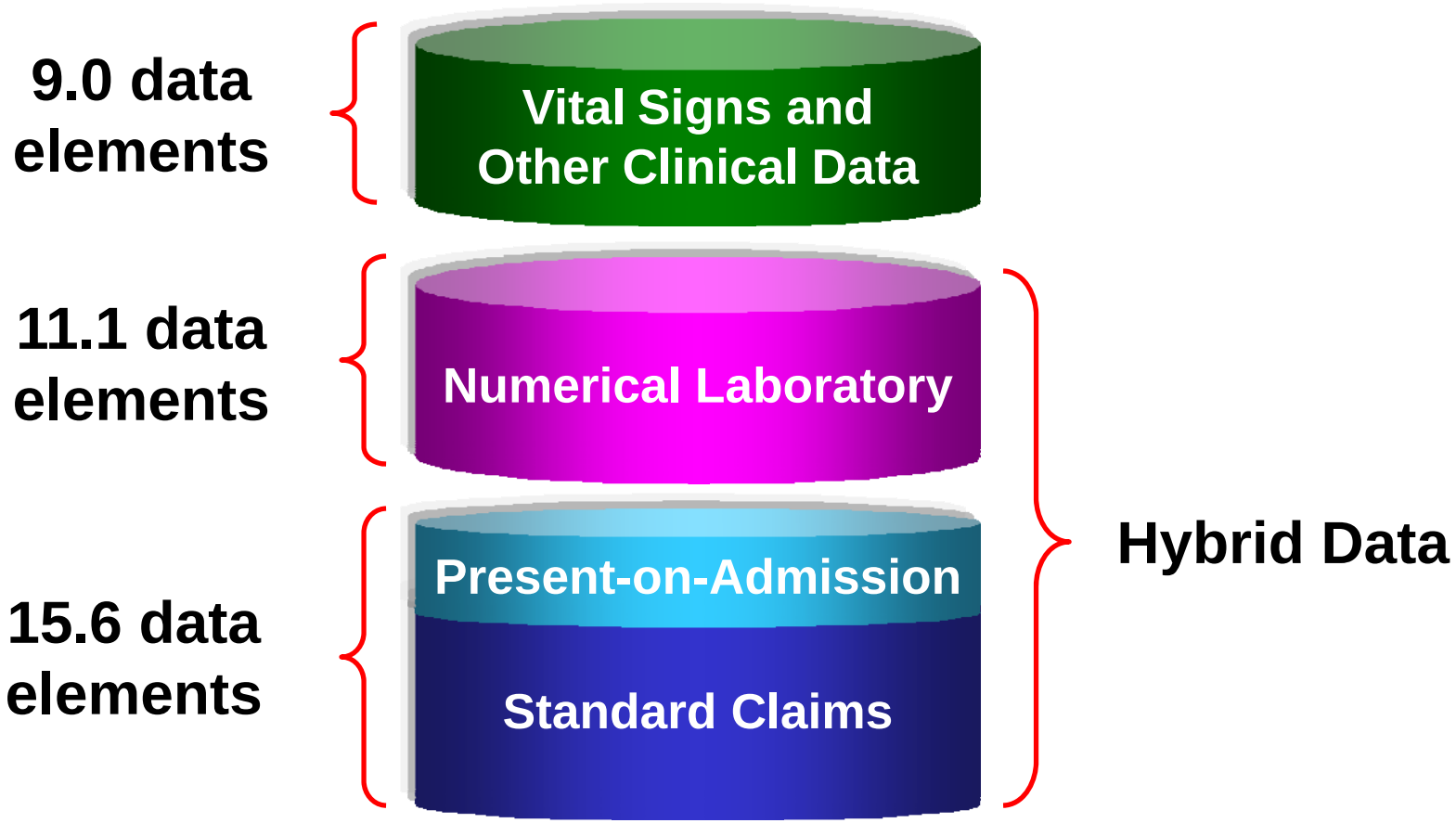
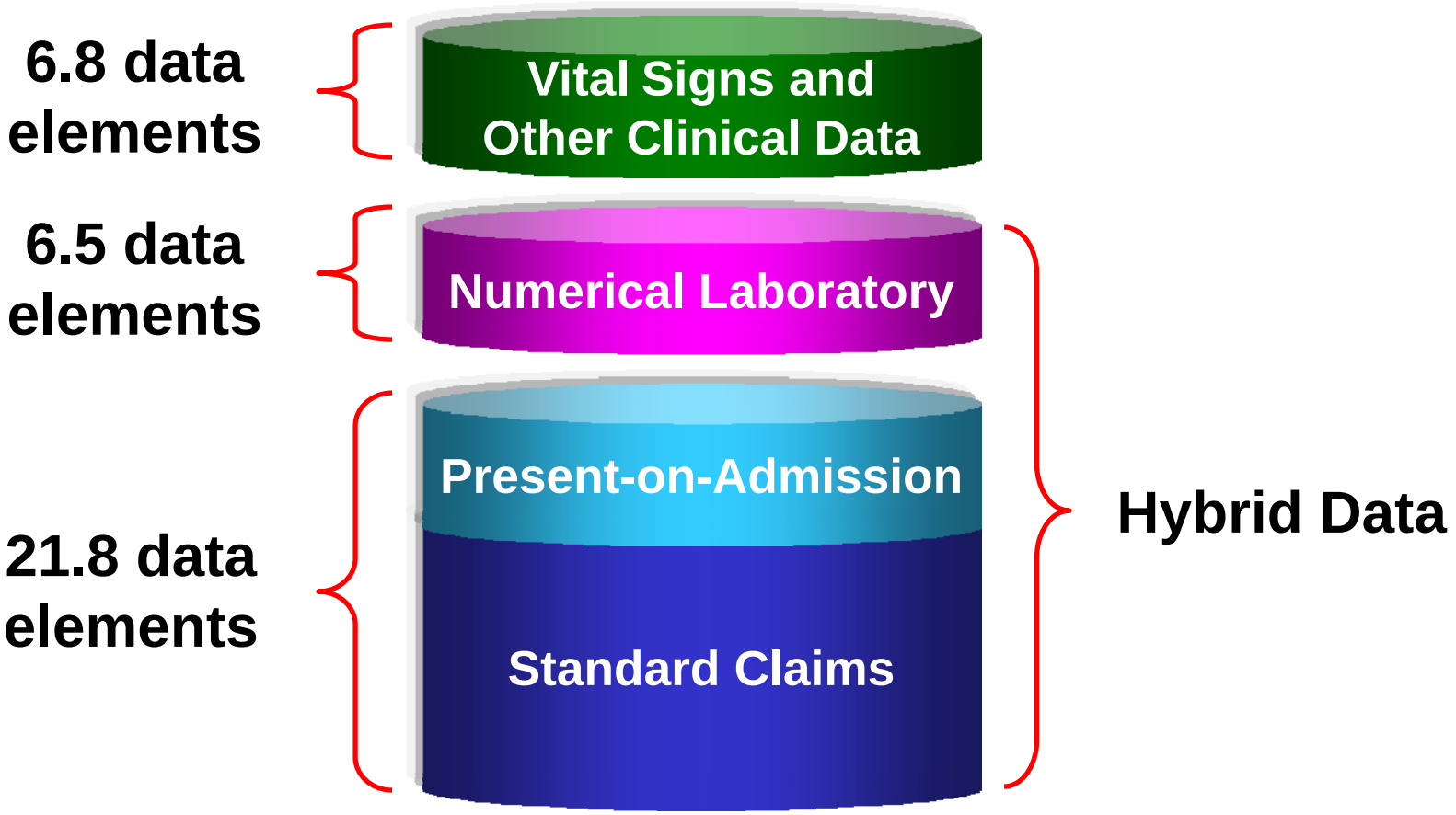
Vital Signs and Other Clinical Data

Types of Data in CLINICAL IQI Models



Types of Data in CLINICAL PSI Models



Vital Signs, Other Lab Data, Scores

- All Vital Signs Enter 4 or More Models
  - Pulse (8)
  - Blood Pressure (6)
  - Temperature (6)
  - Respirations (5)
- Ejection Fraction and Culture Results Each Enter 2 Models
- Both Composite Scores Enter 4 or More Models
  - ASA Classification (6)
  - Glasgow Coma Score (4)

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Abstracted Key Clinical Findings

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

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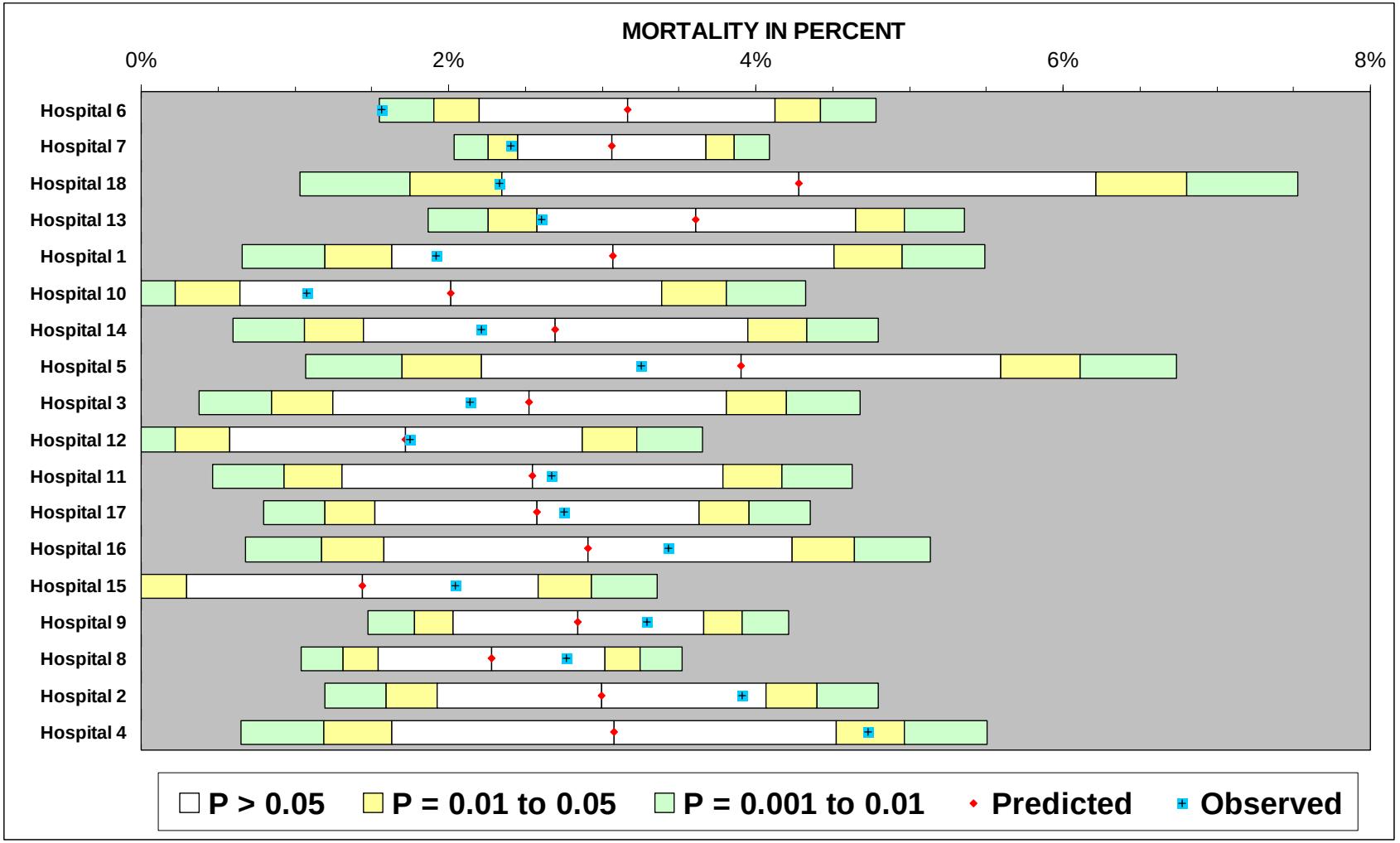
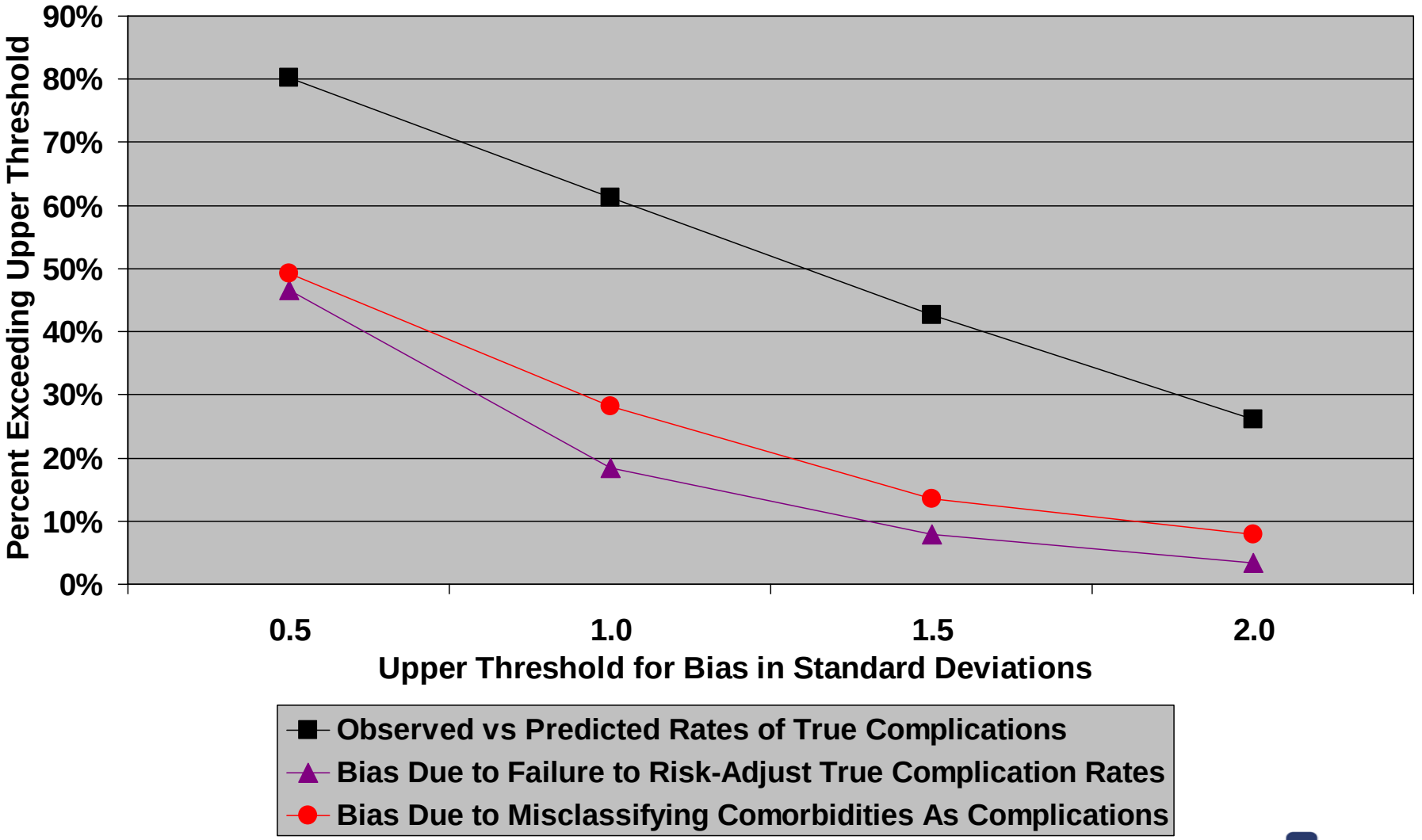
The Bottom Line

Risk-Adjusted Mortality in CABG Surgery



Bias in Measurement of PSIs



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Carpe Diem!