Key Choices in Analyzing Data

AHRQ Quality Indicators (QI) Learning Institute

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Agenda

- Welcome
- Defining the numerator
- Defining the denominator
- Calculating the rate
- Adjusting for case-mix
- Adjusting for "reliability" (hierarchical modeling)
- Questions and discussion

Tentative Webinar Schedule

Orientation:

October - Designing Your Reporting Program

Measures/Data/Analysis:

November - Selecting Measures & Data

Today - Key Choices in Analyzing Data for the Report

January - Classifying Hospitals

Reporting/Disseminating/Promoting:

February - Displaying the Data

March - Web Site Design & Content

April - Marketing & Promoting Your Report

Evaluation:

May - Evaluation of Public Reporting Program

Closing:

June - Highlights From the Learning Institute

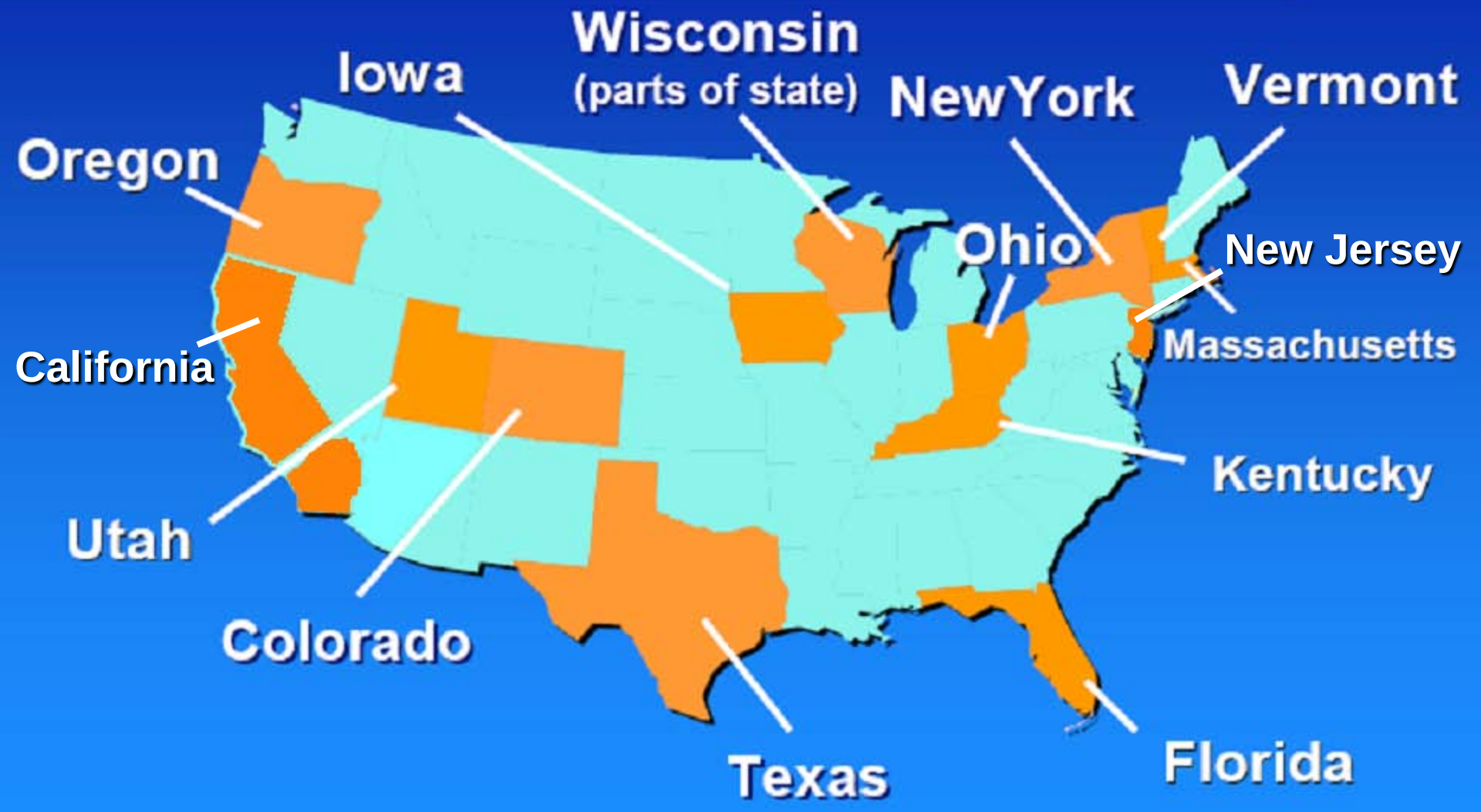
Polling Results

What aspects of quality do you think are most salient to consumers? (Choose all that apply)	
Safety	67%
Patient experience	58%
Clinical effectiveness	39%
Cost/efficiency	36%
Access/timelines	30%
Equity	3%
Other	3%

Polling Results

What concerns about quality indicators do you most frequently receive from providers? (Choose all that apply)	
The risk adjustment is not adequate	64%
The outcome is not preventable	55%
The methods used are not understandable	45%
Collection of the measure is too burdensome	45%
The results are not consistent with other sources of information	41%
The indicator is not clinically important	18%
The patient(s) did not have the outcome of interest	18%
Other	9%

14 States Use QIs for Public Hospital Reporting



QILI Newsletter

Issue 1
December 12, 2008

QILI Newsletter

AHRQ Quality Indicators Learning Institute Biweekly Newsletter — https://ahrqqili.webexone.com

QILI Members (by State)

- Alabama Medicaid Agency
- Livermore, California AHRQ Chartered Value Exchange (CVE)
- Office of Statewide Health Planning and Development, California
- Colorado Hospital Association
- Connecticut Hospital Association
- Delaware Health Statistics Center, Division of Public Health, DHSS
- Florida Agency for Health Care Administration
- Georgia Hospital Association
- Iowa Healthcare Collaborative
- Illinois Department of Public Health
- Illinois Hospital Association
- The Joint Commission
- Indiana Hospital Association
- Kentucky Hospital Association
- Louisiana Health Care Quality Forum (CVE)
- Massachusetts Division of Health Care Finance and Policy
- Centers for Medicare and Medicaid Services
- Maryland Health Care Commission
- Maryland Hospital Association
- Maine Health Data Organization
- Maine Quality Forum
- Alliance for Health, Michigan (CVE)
- North Carolina Hospital Association
- New Jersey Department of Health and Senior Services
- Health Insight, Nevada (CVE)
- Division of Health Care Financing and Policy, Nevada DHHS
- Niagara Health Quality Coalition and Alliance for Quality Health Care
- Greater New York Hospital Association
- New York State Department of Health
- Oklahoma State Department of Health
- Office for Oregon Health Policy and Research, ODHS
- The Hospital & Healthsystem Association of Pennsylvania
- Tennessee Hospital Association
- Air Force Medical Support Agency
- Texas Department of State Health Services
- Health Net Federal Services
- Washington Governor's Office of Financial Management
- Puget Sound Health Alliance
- Center for Health Statistics, Washington State Department of Health
- Employer Health Care Alliance Cooperative, Wisconsin

What's New on the Extranet

Discussions

- *SSN and patient linage data elements* – Planning Committee member Kim Streit from the Florida Hospital Association asked how member programs link patients to data. Five members have replied to date. A Powerpoint presentation given by Susan McBride from Texas Tech University Health Science Center about the AHRQ/ NAHDO Readmissions Conference that addressed this issue was also posted.
- *Jeff Geppert's inquiry on present on admission data* – Faculty member Jeff Geppert inquired about how member programs document present on admission data. Two members have replied to date.
- *Key choices in analyzing data for the report – December Webinar* – There is a discussion folder for each Webinar where members can ask questions about the topic both before and after the events. After the November Webinar there was one member question about IDC-10 codes, which presenter Jeff Geppert answered. Because the December Webinar is a technical topic we anticipate a lot of questions.

Documents

- *CDC ICD-9-CM official guidelines for coding and reporting* – During the Webinar about selecting measures on November 17th there was a question about how to become familiar with ICD-9 codes. Jeff Geppert, suggested these guidelines, which have been posted in a document folder named "Administrative Data Resources."
- *AHRQ draft model reports* – During the Webinar about selecting measures, presenter Shoshanna Sofaer mentioned AHRQ's Model Public Reports. The DRAFT reports are posted in their own folder.

^ *Please post your questions & answers and relevant documents on the extranet so other members and faculty can respond.*

Upcoming Events

Key Choices in Analyzing Data Webinar
Monday, December 15th at 12:00 pm ET

3rd Extranet Training
Week of January 5th

*Emails to follow

December's Program Profile:

Texas Department of State Health Services

To Learn more, visit our extranet site: https://ahrqqili.webexone.com

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Questions? Please e-mail QualityIndicatorsLearning@ahrq.hhs.gov or call 202.292.6730.

AHRQuality Indicators

Agenda

- Welcome
- Defining the numerator
- Defining the denominator
- Calculating the rate
- Adjusting for case-mix
- Adjusting for "reliability" (hierarchical modeling)
- Questions and discussion

Learning Objectives

You will learn how to:

- Identify common sources of variation in ICD-9-CM coding practices that might impact AHRQ QI rates
- Understand the relationship between coding design and indicator structure/denominator
- Identify and explain the difference between the various types of rates calculated for the AHRQ QI
- Identify the patient characteristics used to adjust the AHRQ QI for “case mix” and understand how that adjustment is done
- Describe the basic intent and consequence of using hierarchical modeling methods to adjust the AHRQ QI rates for “reliability”

Defining the Numerator

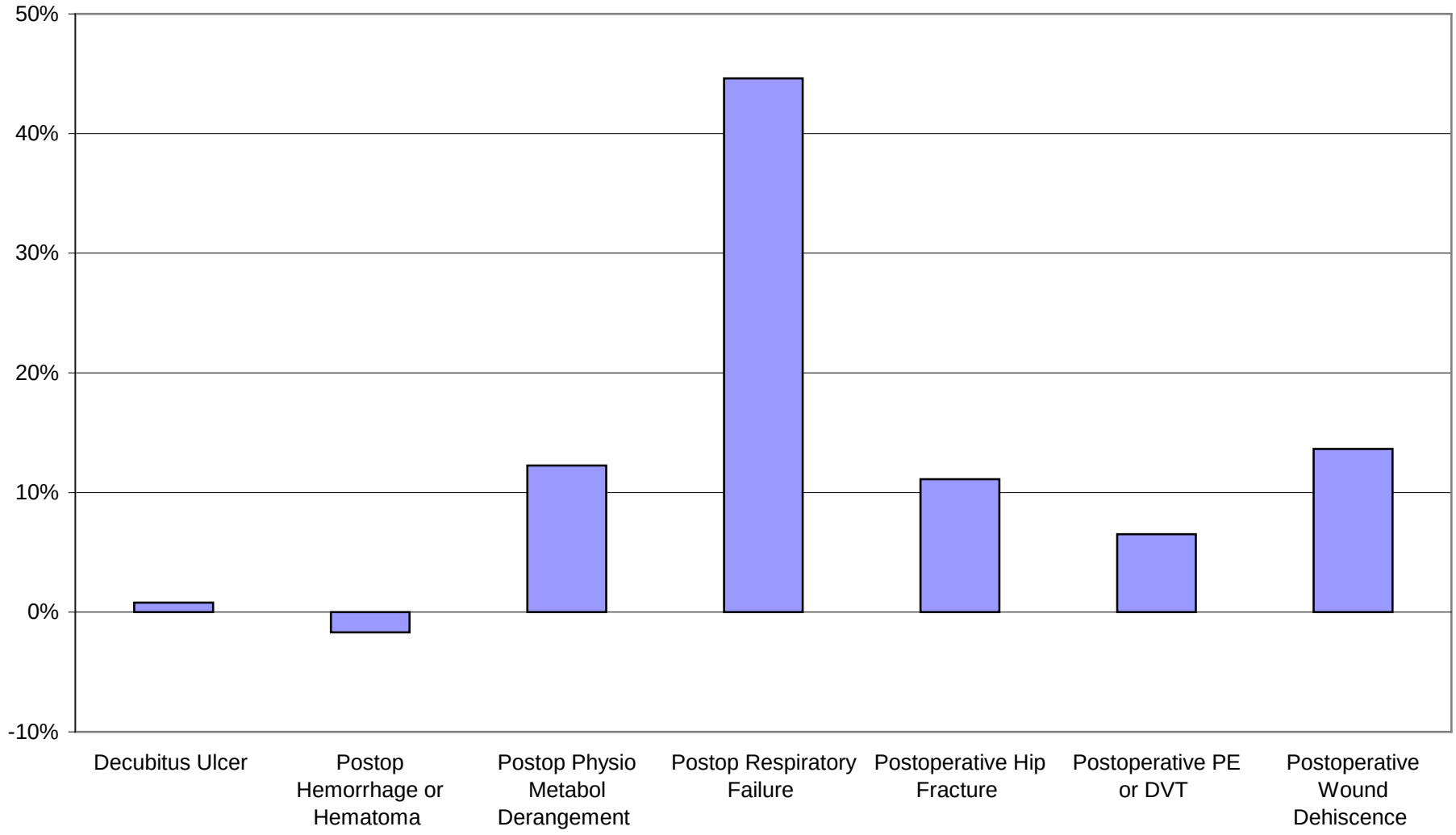
- The numerator of the AHRQ Quality Indicators is the number of discharges with the "outcome of interest" (e.g., mortality, adverse event)
- The AHRQ QI are based on commonly available administrative data, which are used primarily for billing, but also for other purposes
- There is a basic tension between using the data for reimbursement and for defining quality indicators
  - Submitting bills quickly versus coding from a complete record
  - Maximizing the coding of complications and comorbidities versus only coding diagnoses "out of the norm"
- Adherence to best practices in coding and compliance with coding guidelines will ensure fair reimbursement and accurate measurement of quality indicators

Defining the Numerator

- Some of the variation in AHRQ QI rates might be due to variation in:
  - Data availability (e.g., number of diagnosis codes, admission type, condition present on admission, E-codes)
  - *Documentation (ICD-9-CM and DRG coding)*
  - Performance (e.g., processes of care, staffing)
- Documentation impacts both the implementation and development of the QI
- Two questions we address here:
  - What are the sources of variation in coding practices that might impact documentation and, therefore, the QI rates?
  - How does the design of codes impact indicator development?

Dates of Procedure

Impact of not having procedure dates



Number of Codes

Impact of limiting data to 10 dx and 6 proc codes

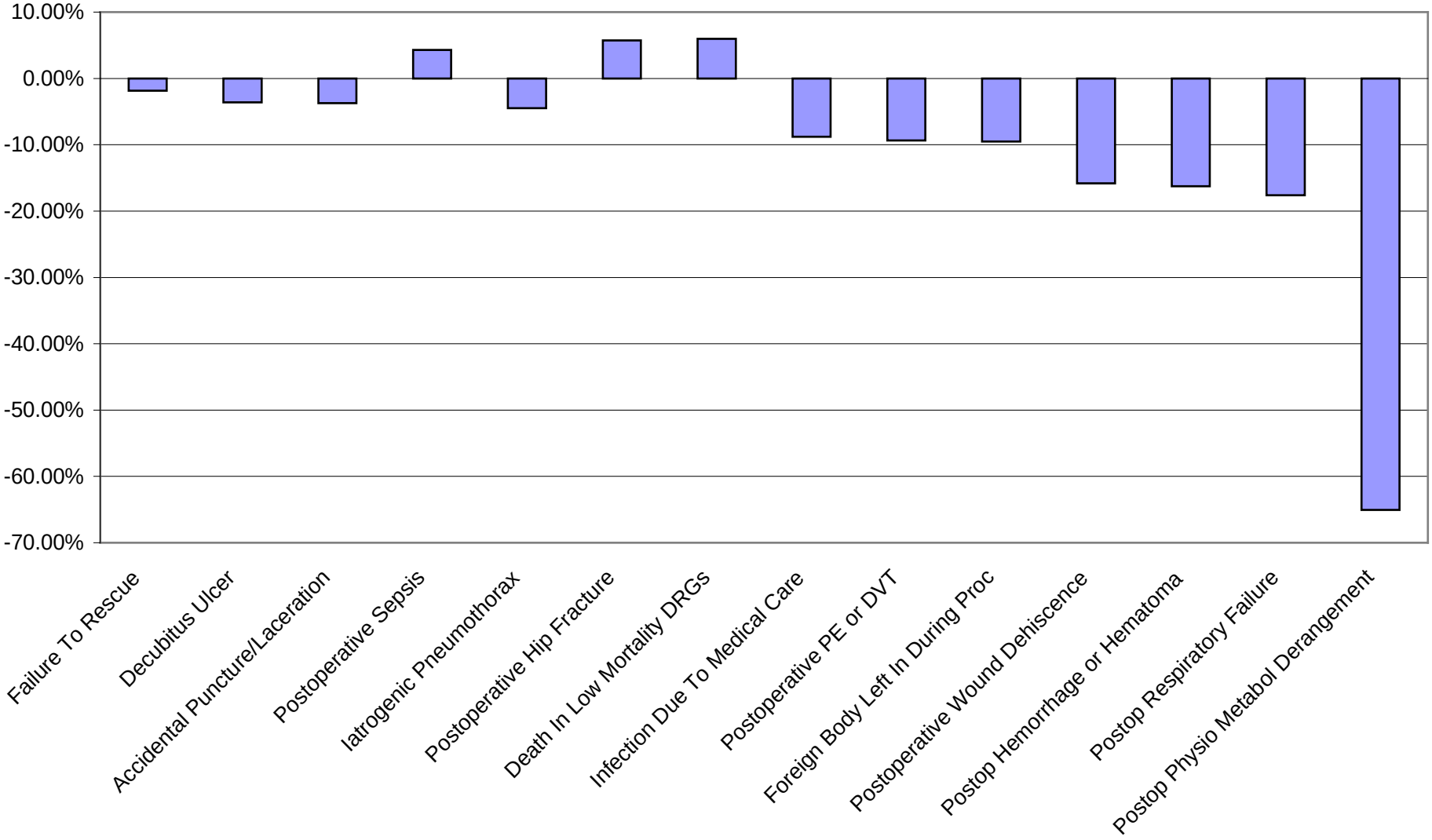


Table 3: Indicators and Use of External Cause-of-Injury Codes

Indicator Number (used in software)	Indicator Name	Use of External Cause-of-Injury Codes
15 & 25	Accidental puncture or laceration	Required. Used in both the numerator and denominator definitions.
17	Birth trauma	Not used.
1	Complications of anesthesia	Required. Used in the numerator definition.
2	Death in low mortality DRGs	Not used.
3	Decubitus ulcer	Not used.
4	Failure to rescue	Not used.
5 & 21	Foreign body left during procedure	Required. Used in the numerator definition although the other ICD-9 CM codes may capture the same information.
6 & 22	Iatrogenic pneumothorax	Not used.
20 & 29	Obstetric trauma – cesarean section	Not used.
18 & 27	Obstetric trauma – vaginal with instrument	Not used.
19 & 28	Obstetric trauma – vaginal without instrument	Not used.
9	Postoperative hemorrhage or hematoma	Not used.
8	Postoperative hip fracture	Used as exclusion criteria in denominator population.
10	Postoperative physiologic and metabolic derangements	Not used.
12	Postoperative pulmonary embolism or deep vein thrombosis	Not used.
11	Postoperative respiratory failure	Not used.
13	Postoperative sepsis	Not used.
14 & 24	Postoperative wound dehiscence	Not used.
7 & 23	Selected infections due to medical care	Not used.
16 & 26	Transfusion reaction	Required. Used in the numerator definition although the other ICD-9 CM codes may capture the same information.

Accidental Puncture or Laceration, Secondary Diagnosis Field (PSI 15 and 25)

Numerator:

Discharges with ICD-9-CM code denoting accidental cut, puncture, perforation or laceration during a procedure in any secondary diagnosis field.

ICD-9-CM Accidental Puncture or Laceration diagnosis codes:

Accidental cut, puncture, perforation, or hemorrhage during medical care:

E8700 SURGICAL OPERATION
E8701 INFUSION OR TRANSFUSION
E8702 KIDNEY DIALYSIS OR OTHER PERFUSION
E8703 INJECTION OR VACCINATION
E8704 ENDOSCOPIC EXAMINATION
E8705 ASPIRATION OF FLUID OR TISSUE, PUNCTURE, AND CATHETERIZATION
E8706 HEART CATHETERIZATION
E8707 ADMINISTRATION OF ENEMA
E8708 OTHER SPECIFIED MEDICAL CARE
E8709 UNSPECIFIED MEDICAL CARE

9982 ACCIDENTAL PUNCTURE OR LACERATION DURING A PROCEDURE

Complications of Anesthesia (PSI 1)

Numerator:

Discharges with ICD-9-CM diagnosis codes for anesthesia complications in any secondary diagnosis field.

ICD-9-CM Anesthesia Complications diagnosis codes:

Adverse effects in therapeutic use, other central nervous system depressants and anesthetics:

E8763 ENDOTRACHEAL TUBE WRONGLY PLACE DURING ANESTHETIC PROCEDURE

E9381 HALOTHANE
E9382 OTHER GASEOUS ANESTHETICS
E9383 INTRAVENOUS ANESTHETICS
E9384 OTHER AND UNSPECIFIED GENERAL ANESTHETICS
E9385 SURFACE AND INFILTRATION ANESTHETICS
E9386 PERIPHERAL NERVE AND PLEXUS BLOCKING ANESTHETICS
E9387 SPINAL ANESTHETICS
E9389 OTHER AND UNSPECIFIED LOCAL ANESTHETICS

Poisoning by other central nervous system depressants and anesthetics:

9681 HALOTHANE
9682 OTHER GASEOUS ANESTHETICS
9683 INTRAVENOUS ANESTHETICS
9684 OTHER AND UNSPECIFIED GENERAL ANESTHETICS
9687 SPINAL ANESTHETICS
E8551 ACCIDENTAL POISONING, OTHER NERVOUS SYSTEM DEPRESSANTS

ICD-9-CM Coding

- Adherence to coding guidance
  - Highest level of specificity
    - Overuse of NEC* and NOS** designation
  - Coding the general and specific
    - Use of 997.xx codes without use of additional code to identify specific complication
  - Coding of secondary diagnoses
    - Only codes that impact treatment or complications
  - Coding of E-codes
  - Coding of procedures
    - Only significant procedures to be reported

*Not otherwise specified

**Not elsewhere classified

Coding: Specificity

- Highest level of specificity
  - Overuse of NEC and NOS designation
- Examples:

- Using 586 (renal failure NOS) instead of 584.x (acute renal failure) excludes case from denominator of PSI 3 (death among surgical inpatients) and numerator of PSI 10 (postop physiologic/metabolic derangement)
- Using 531.90 (gastric ulcer, unspec acute/chronic w/out hem or perf) instead of 531.70 (gastric ulcer, chronic w/out hem or perf) eliminates comorbidity credit in risk-adjustment of PSIs

Coding: Multiple coding

- Coding the general and specific
  - Use of 997.xx codes without additional code to identify specific complication
- Examples:
  - Use 451 or 453 code with 997.2 to describe postop DVT
  - Use 415.1x code with 997.3 to describe postop PE, or 518.81 with 997.3 to describe postop respiratory failure
  - Use 584 code with 997.5 to describe postop renal failure (physiologic/metabolic derangements)

Coding: Avoid over-coding

- Coding of secondary diagnoses
  - Assign codes only for conditions that impact evaluation or treatment
- For reporting purposes, the definition for "other diagnoses" is interpreted as additional conditions that affect patient care in terms of requiring:
  - clinical evaluation; or
  - therapeutic treatment; or
  - diagnostic procedures; or
  - extended length of hospital stay; or
  - increased nursing care and/or monitoring.
- UHDDS*…defines Other Diagnoses as “all conditions that coexist at the time of admission, that develop subsequently, or that affect the treatment received and/or the length of stay. Diagnoses that relate to an earlier episode which have no bearing on the current hospital stay are to be excluded.”

* Uniform Hospital Discharge Data Set

Coding: Avoid over-coding

- Coding of secondary diagnoses
  - "Abnormal findings (laboratory, x-ray, pathologic, and other diagnostic results) are not coded and reported unless the physician indicates their clinical significance."
  - "If the findings are outside the normal range and the physician has ordered other tests to evaluate the condition or prescribed treatment, it is appropriate to ask the physician whether the abnormal finding should be added."
  - "All conditions that occur following surgery . . . are not complications . . . there must be more than a routinely expected condition or occurrence . . . there must be a cause-and-effect relationship between the care provided and the condition . . .."

Refs: CDC ICD-9-CM Coding Guidelines; Faye Brown's ICD-9-CM Coding Handbook 2004

Coding: Procedures

- Coding of E-codes
- Coding of procedures

"The UHDDS requires all significant procedures to be reported . . .. A significant procedure is defined as one that meets any of the following conditions:

is surgical in nature

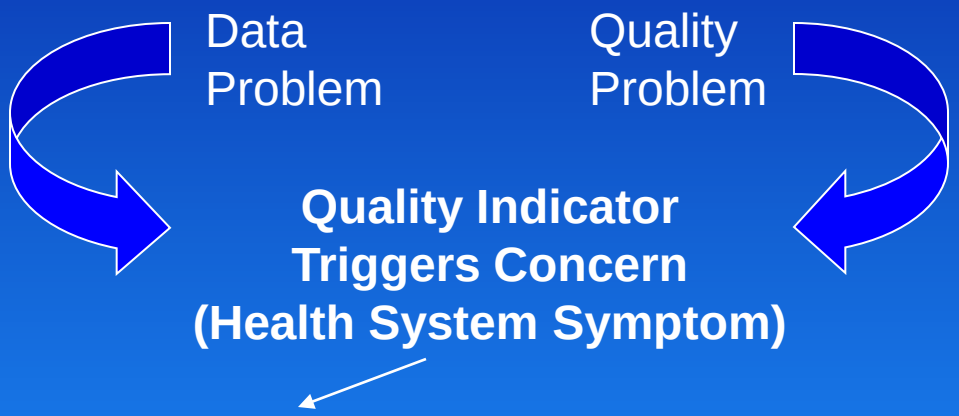
carries an anesthetic risk

carries a procedural risk

requires specialized training."

Ref: Coding Clinic for ICD-9-CM 1990;7(4):5-6

Improvement through use



Differential diagnosis	Treatment
Data issue?	Correct data
Health care quality deficiency?	Implement quality improvements
Indicator limitation?	Revise indicator definitions

Present on Admission (POA)

- Implemented in the UB-04 effective October 1, 2007 as a flag for each principal and secondary diagnosis code and E-codes
- POA is defined as present at the time the order for inpatient admission occurs
- If at the time of code assignment the documentation is unclear as to whether a condition was POA or not, it is appropriate to query the provider for clarification

Table 3. Percentage of Patient Safety Indicator (PSI) Events Remaining After Removing Secondary Diagnoses That Were POA, 2003*

Patient Safety Indicator	California		New York	
	Number of Events	Percent Remaining	Number of Events	Percent Remaining
PSI 1: Complications of Anesthesia	934	100.0	284	100.0
PSI 3: Decubitus Ulcer	17,789	11.1	16,425	14.0
PSI 5: Foreign Body Left During Procedure	258	64.3	169	75.7
PSI 6: Iatrogenic Pneumothorax	1,256	72.6	782	65.2
PSI 7: Infection Due To Medical Care	4,286	64.9	2,406	64.6
PSI 8: Postoperative Hip Fracture	106	20.8	69	26.1
PSI 9: Postoperative Hemorrhage or Hematoma	1,800	79.1	859	71.4
PSI 10: Postoperative Physiologic and Metabolic Derangement	686	76.5	228	63.6
PSI 11: Postoperative Respiratory Failure	2,374	93.5	1,312	93.2
PSI 12: Postoperative PE or DVT	6,715	45.9	5,318	42.5
PSI 13: Postoperative Sepsis	865	73.4	453	70.0
PSI 15: Accidental Puncture/Laceration	9,107	87.3	3,743	87.0
PSI 16: Transfusion Reaction	12	58.3	<10	77.8

* POA, present on admission; PE, pulmonary embolism; DVT, deep vein thrombosis.

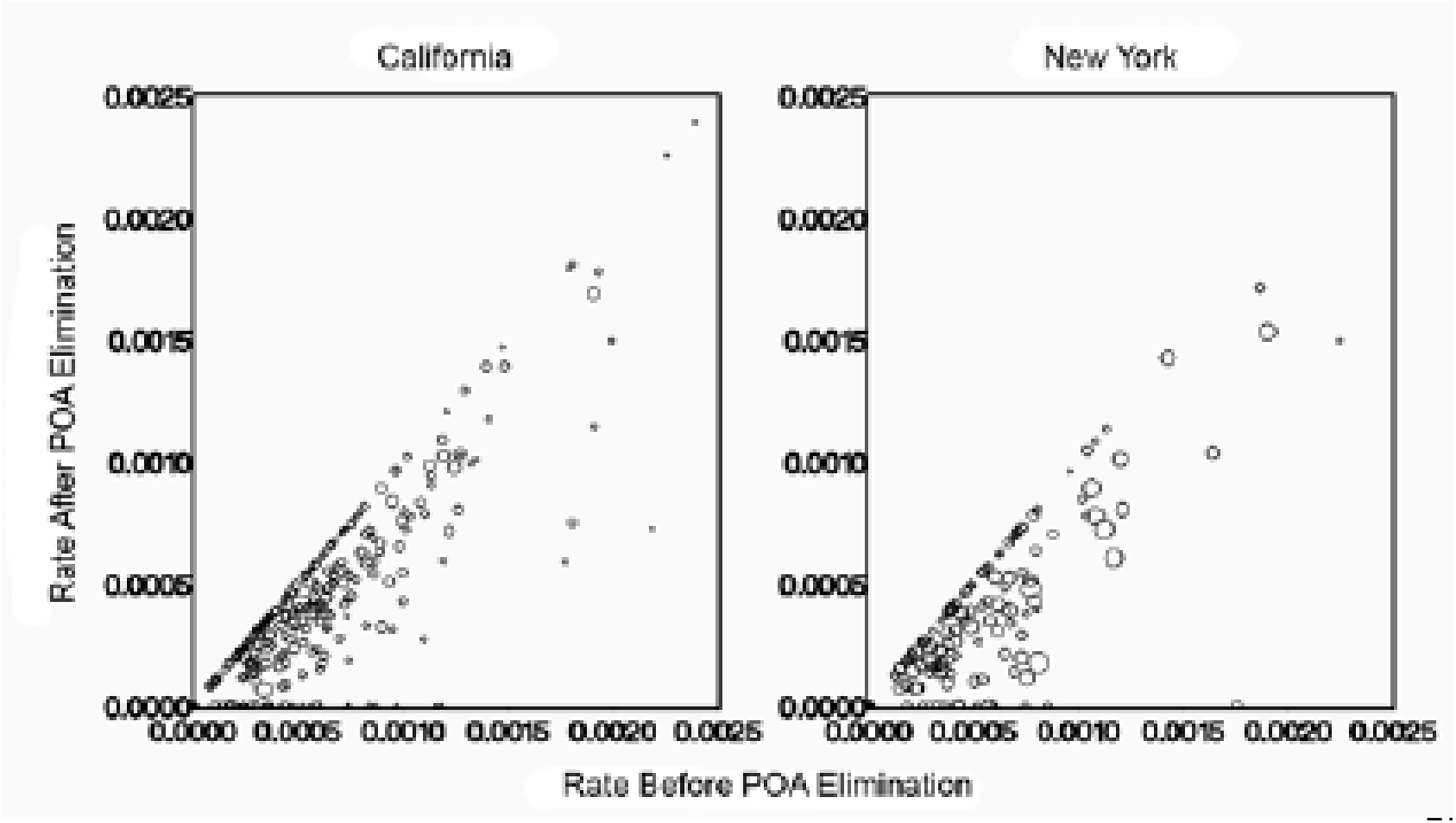
Not-POA rates by comparison from AHRQ PSI Validation Pilot Project:
PSI 6 = 92%; PSI 7 = 83%; PSI 12 = 84%; PSI 13 = 83%; PSI 15 = 95%

Table 4. Pearson Correlations (Weighted) Between Hospital-Level Patient Safety Indicator (PSI) Rates Before and After Dropping POA Diagnoses, 2003*

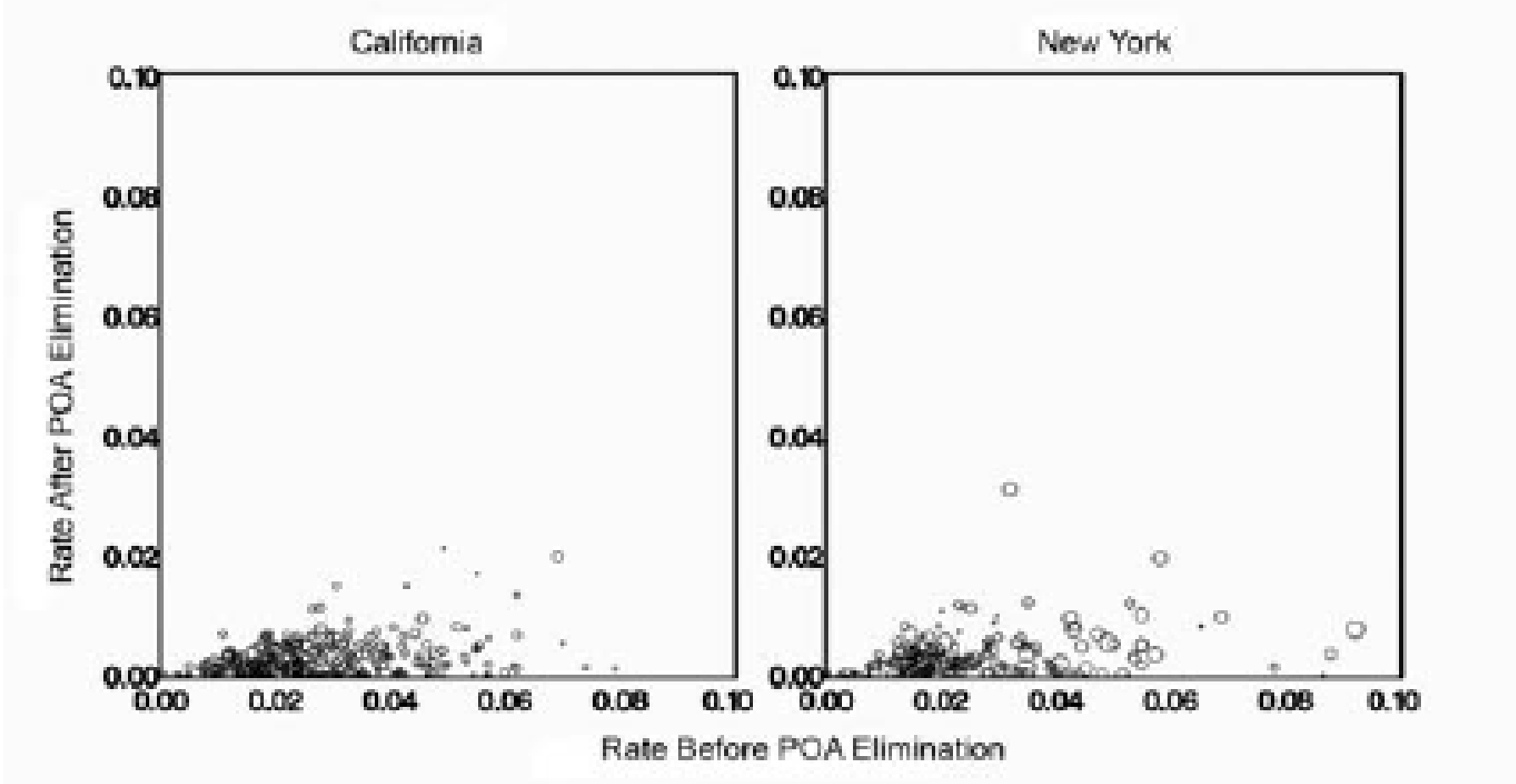
Patient Safety Indicator	California		New York	
	Observed	Risk Adjusted	Observed	Risk Adjusted
PSI 1: Complications of Anesthesia	1.00	1.00	1.00	1.00
PSI 3: Decubitus Ulcer	.29	.40	.47	.41
PSI 5: Foreign Body Left During Procedure	.89	NA	.94	NA
PSI 6: Iatrogenic Pneumothorax	.90	.86	.83	.78
PSI 7: Infection Due To Medical Care	.91	.90	.88	.85
PSI 8: Postoperative Hip Fracture	.47	.47	.34	.42
PSI 9: Postoperative Hemorrhage or Hematoma	.87	.85	.86	.86
PSI 10: Postoperative Physiologic and Metabolic Derangement	.94	.92	.78	.58
PSI 11: Postoperative Respiratory Failure	.99	.98	.99	.98
PSI 12: Postoperative PE or DVT	.80	.78	.41	.42
PSI 13: Postoperative Sepsis	.72	.71	.82	.80
PSI 15: Accidental Puncture/Laceration	.97	.95	.96	.95
PSI 16: Transfusion Reaction	.72	na	.92	NA

* POA, present on admission; NA, not available; PE, pulmonary embolism; DVT, deep vein thrombosis.

Plots of Hospital Rates Before and After POA Elimination for Postoperative Hemorrhage or Hematoma, 2003



Plots of Hospital Rates Before and After POA Elimination for Decubitus Ulcer, 2003



What % are “really” not POA?

Present on admission coding vs. chart review

Patient Safety Indicator	Percentage not POA (%): nurses vs. coders					
	AHRQ	NACHRI	UofM	CA	NY	Mayo
PSI 1: Complications of Anesthesia			100	100	100	94
PSI 3: Decubitus Ulcer		60	42	11	14	18
PSI 5: Foreign Body Left During Proc		80	80	64	76	54
PSI 6: Iatrogenic Pneumothorax	93	89	100	73	65	78
PSI 7: Infection Due To Medical Care	80	57	36	65	65	60
PSI 8: Postop Hip Fracture			0	21	26	22
PSI 9: Postop Hemorrhage or Hematoma		97	100	79	71	87
PSI 10: Postop Physiologic or Metabolic			91	77	64	46
PSI 11: Postop Respiratory Failure	96-98	83	100	94	93	74
PSI 12: Postop DVT or PE	70-90		67	46	43	40
PSI 13: Postoperative Sepsis	83	60	60	73	70	76
PSI 14: Postop Wound Dehiscence		90				100
PSI 15: Accidental Puncture/Laceration	98	93	84	87	87	85
PSI 16: Transfusion Reaction		71	N/A	58	78	50

ICD-10

- CMS proposed rule would replace the ICD-9-CM code sets with expanded ICD-10 code sets effective October 1, 2011
- An international consortium has adapted the AHRQ Patient Safety Indicators for use with ICD-10
- Full implementation of ICD-10 would require validation and potential expansion/refinement
  - e.g., ICD-10 specifies certain conditions in more detail by adding anatomical sites and type of injury

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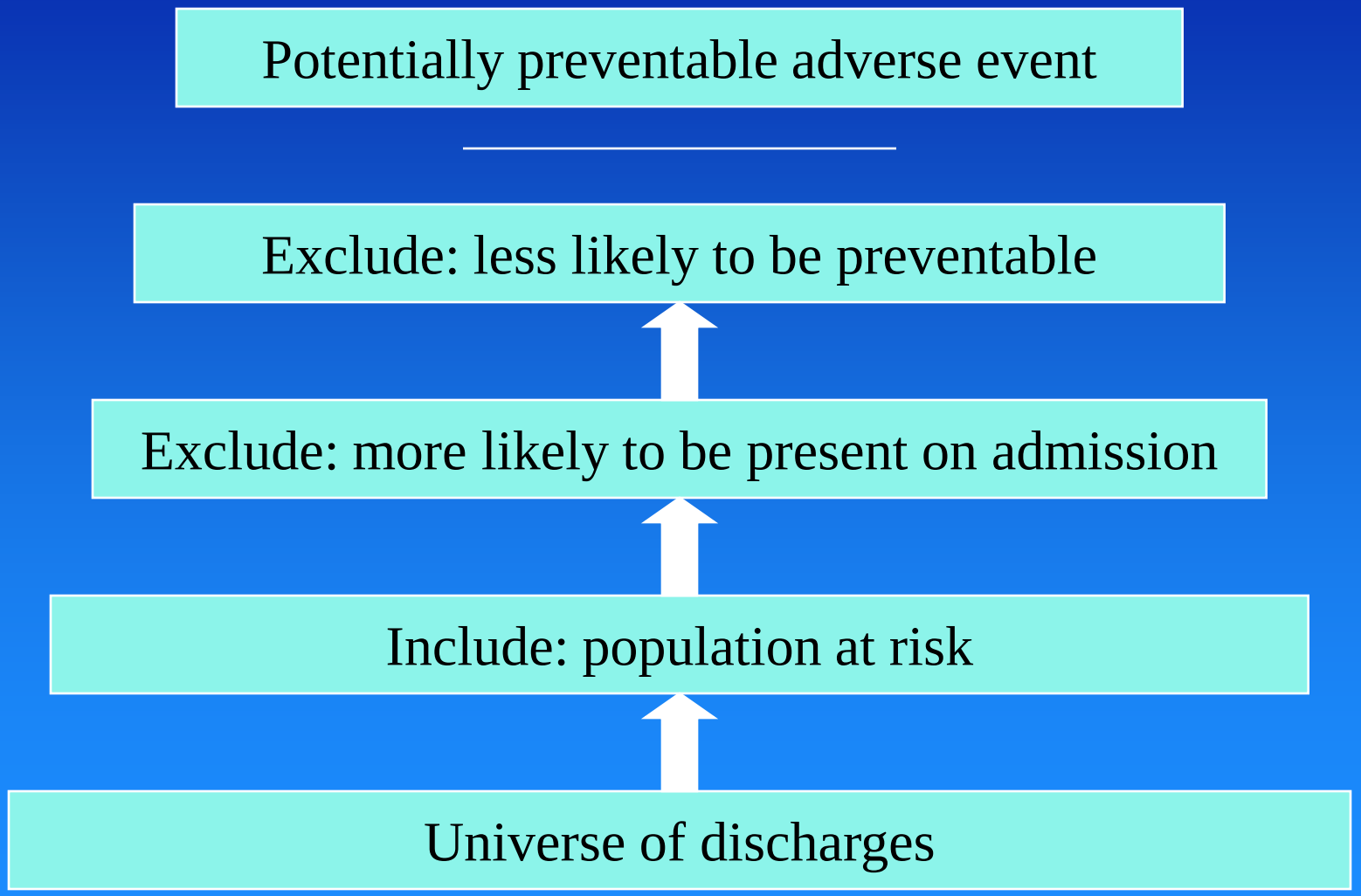
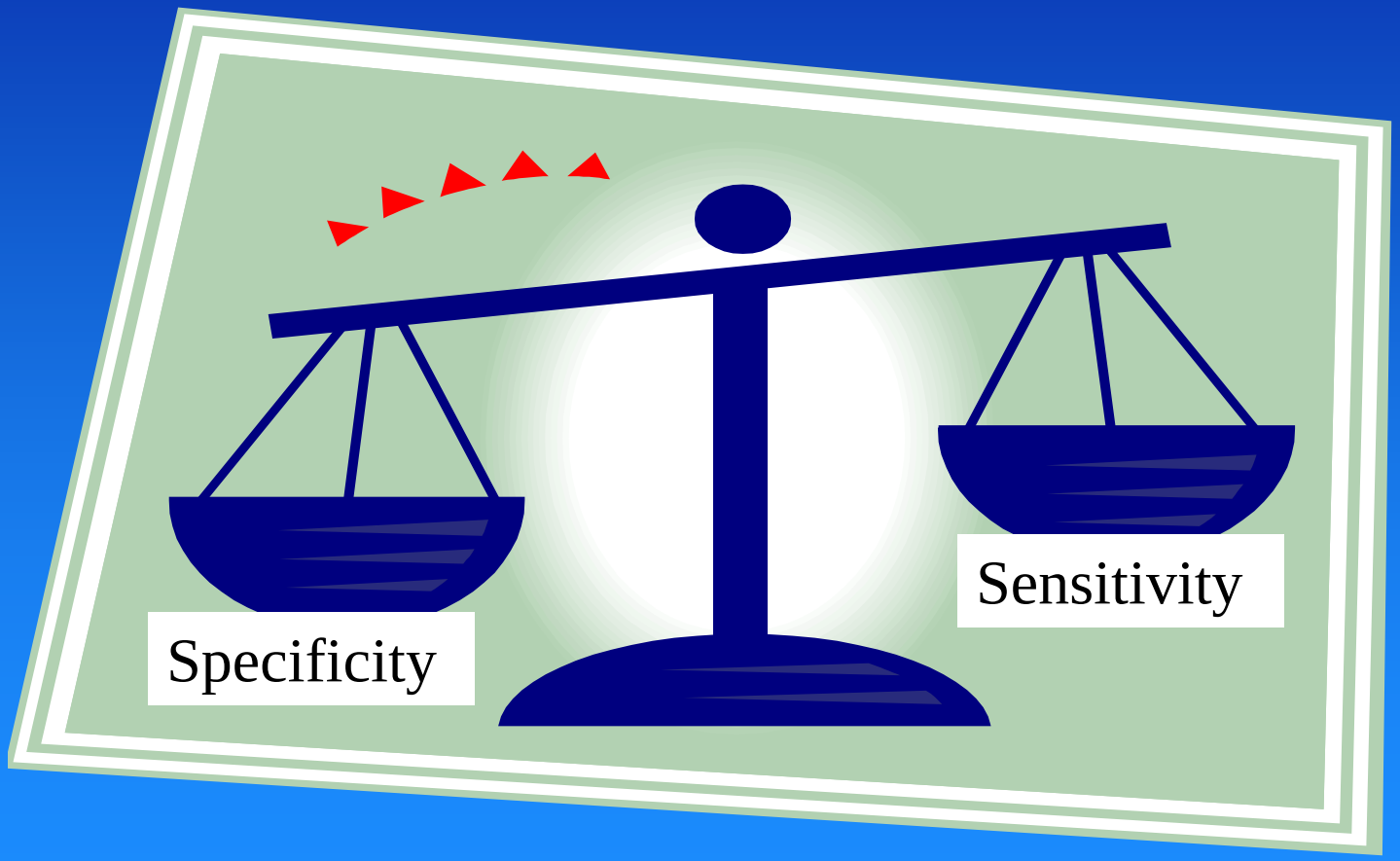
Defining the Denominator

- The denominator of the AHRQ Quality Indicators is the number of discharges in the "population at risk" (e.g., specific conditions or procedures for mortality; medical and/or surgical discharges for adverse events)
- The specifications include "exclusions" to increase the likelihood that
  - The denominator has a more than minimal risk for the outcome of interest (e.g., MDC 14 for most PSI)
  - The denominator is "homogeneous" in terms of the type of event or the cause (e.g., age 65 or greater for hip fracture mortality)
  - The numerator is not present on admission (e.g., principal diagnosis of adverse event)
  - The numerator is preventable (e.g., chest trauma for iatrogenic pneumothorax)

Defining the Denominator



Defining the Denominator



Questions

If you would like to pose a question to any of the speakers, please post it in the Q&A box on the right-hand side of your screen and press send

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Calculating AHRQ QI Rates

- AHRQ QI software generates:
  - Observed rates
  - Expected rates and risk-adjusted rates
  - Reliability-adjusted rates
- Reference population
  - Approximately 90 million discharges from 36 States from the AHRQ State Inpatient Databases
  - Rolling 3-year population to balance continuity with data currency
  - Large sample allows estimating models for infrequent outcomes and covariates

Calculating AHRQ QI Rates

- AHRQ QI observed rates
  - Defined as numerator/denominator
  - The numerator is always a subset of the denominator
  - The time period is generally one year, but could be longer (e.g., three years) or shorter (e.g., three months)
- Stratification
  - Rates may be stratified by patient characteristics or, depending on the user's data, provider characteristics

Calculating AHRQ QI Rates

- Stratification example
  - Pediatric postoperative hemorrhage or hematoma (PDI #8)
  - Patient stratification
    - Low risk: 1.5 per 1,000
    - High risk*: 18.5 per 1,000
  - Provider stratification
    - Children's hospital: 2.1 per 1,000
    - Non-children's hospital: 1.3 per 1,000

*specified coagulopathies and extracorporeal membrane oxygenation (ECMO)

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Adjusting for Case-mix: Rate Definitions

- The *expected rate* is the rate the provider would have if it performed the same as the reference population given the provider's actual case-mix
- The *risk-adjusted rate* is the rate the provider would have if it had the same case-mix as the reference population given the provider's actual performance
- The *population rate* is the observed rate for the reference population

Rate Definitions cont.

- Risk-adjusted rate =

  (observed rate / expected rate) * population rate
  - Population rate > expected rate, case-mix is less severe
  - Population rate < expected rate, case-mix is more severe
- Indirect versus direct standardization
  - Indirect standardization assumes that the same O/E ratio for a hospital applies for all patient subgroups
  - The relationship between observed and expected may be proportional (O/E) or linear (O-E)
  - Direct standardization requires that the hospital have patients in every subgroup

Example #1

Hospital A	Patients	Rate	Hospital B	Patients	Rate
High risk	5	0.270	High risk	20	0.120
Low risk	95	0.060	Low risk	80	0.040
Expected	100	0.056	Expected	100	0.071
Observed		0.071	Observed		0.056
O/E		1.26	O/E		0.79
RA		0.160	RA		0.100

Example #2

Hospital A	Patients	Rate	Hospital B	Patients	Rate
High Risk	5	0.270	High Risk	20	0.270
Low Risk	95	0.040	Low Risk	80	0.040
Expected	100	0.051	Expected	100	0.248
Observed		0.051	Observed		0.248
O-E		1.00	O-E		1.00
RA		0.300	RA		0.300

Risk Adjustment

- Inpatient Quality Indicators
  - Gender, age (5-year groups), age*gender interaction and APR-DRG with risk-of-mortality subclass
- Patient Safety Indicators
  - Gender, age, modified DRG and AHRQ comorbidity
- Pediatric Quality Indicators
  - Gender, birth weight, age in days, age in years, modified DRG and AHRQ CCS

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Hierarchical Modeling

- Hierarchical modeling accounts for:
  - clustering of patients within hospitals
  - small number of patients per hospital
- Hierarchical modeling is useful when:
  - Sample of hospitals from a population
  - Test the effect of hospital characteristics
- Hierarchical modeling workgroup report (2007)
  - In theory, large sample sizes of patients and hospitals should lessen the importance of clustering

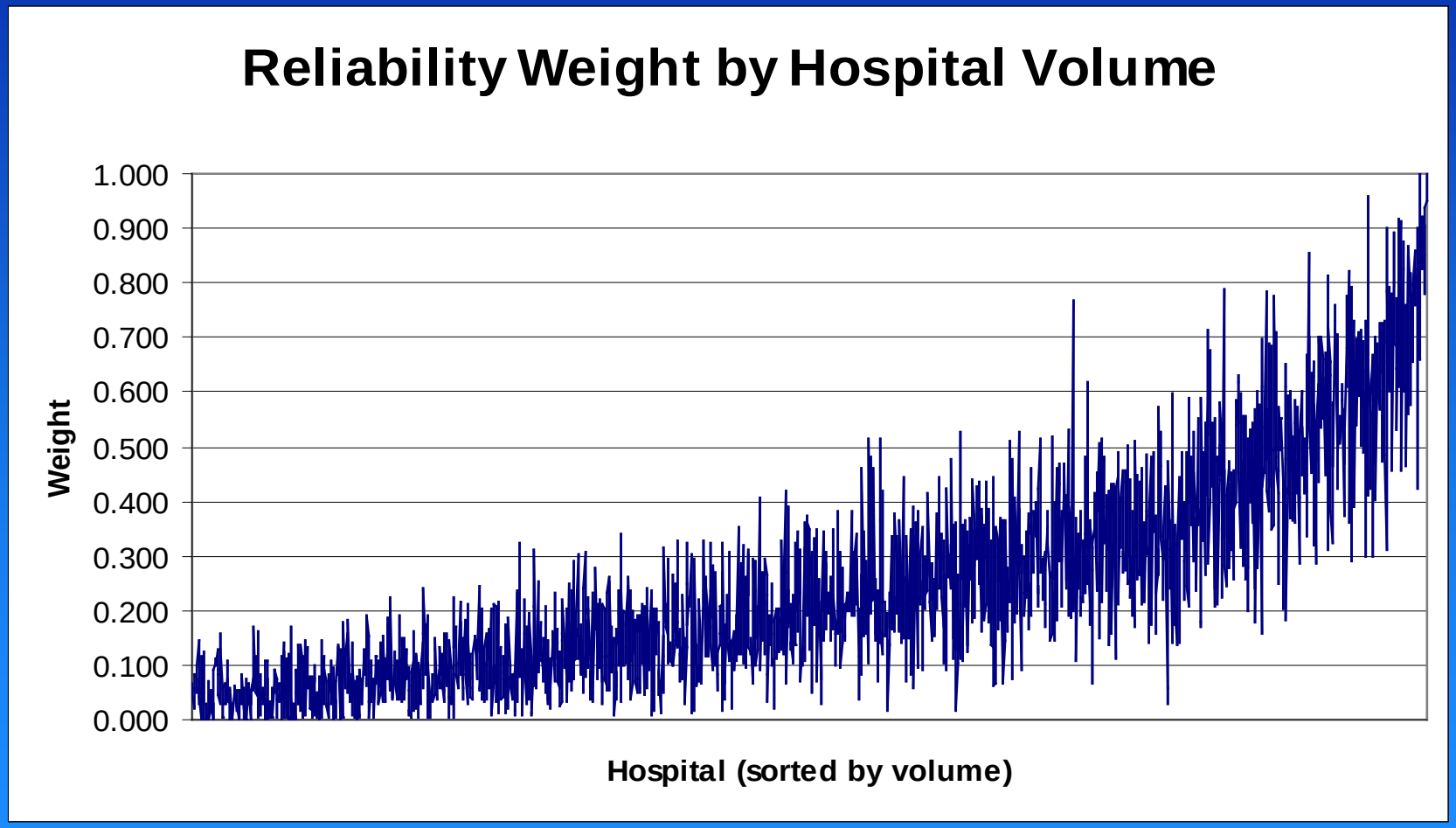
Hierarchical Modeling

- Hierarchical modeling "shrinks" the hospitals risk-adjusted rate closer to the overall hospital average
- Why does it do this?
  - To improve "reliability" - the likelihood that the rate will "repeat" the hospital's performance in subsequent time periods
- How does it do this?
  - Reliability-adjusted = (1-W) * population rate + W * risk-adjusted rate
  - W represents the "reliability" of the provider rate
  - W > 0.80 suggests the difference between the population rate and the risk-adjusted rate is likely to persist

Hierarchical Modeling

- An example for in-hospital mortality for acute stroke (IQI #17)
  - W = 0.6088
  - O/E ratio = 1.755
  - Reference population ratio = 1.000
  - Reliability-adjusted ratio =
    (1- 0.6088)*1.000 +
    (0.6088*1.755)
    = 1.462

Hierarchical Modeling



Questions and discussion

If you would like to pose a question to any of the speakers, please:

- Post it in the Q&A box on the right-hand side of your screen and press send

OR

- Click the “raise your hand” button to be un-muted and verbally ask a question

Next Webinar

Classifying Hospitals

January TBD, 2009, at 12:00 pm ET

Doug Staiger, Dartmouth College
Jeffrey Geppert, Battelle Memorial Institute

You are welcome to invite one data analyst from your organization

3rd Extranet Training

Week of January 5, 2009

We will send information soon

For More Information

- QI Learning Institute Web Forum: https://ahrqqili.webexone.com/
- QI Learning Institute E-Mail: QualityIndicatorsLearning@ahrq.hhs.gov
- QI Web Site: http://www.qualityindicators.ahrq.gov/
- QI Support E-Mail: support@qualityindicators.ahrq.gov