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How will you know that a change is an improvement?

Prepared and Presented

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American Hospital Association

INSTITUTE FOR HEALTHCARE IMPROVEMENT

HRET HEALTH RESEARCH & EDUCATIONAL TRUST In Partnership with AHA

Objectives

- To be clear about why you are measuring.
- **To review the milestones along the Quality Measurement Journey (QMJ).**
- To assess where you and your organization are in the QMJ.

Exercise: Measurement Self-Assessment

This self-assessment is designed to help quality facilitators gain a better understanding of where they personally stand with respect to the milestones in the Quality Measurement journey (QMJ). What would your reaction be if you had to explain why using a run or control chart is preferable to computing only the mean, the standard deviation or computing a p-value? Can you construct a run chart or help a team decide which control is most appropriate for their data?

You may not be asked to do all of the things listed below today or even next week. But, if you are facilitating a QI team or advising a manager on how to evaluate a process improvement effort, sooner or later these questions will be posed. How will you deal with them?

The place to start is to be honest with yourself and see how much you know about the QMJ. Once you have had this period of self-reflection, you will be ready to develop a learning plan for self-improvement and advancement.

Use the following Response Scale. Select the <u>one response</u> which best captures your opinion.

1 I could teach this topic to others!
2 I could do this by myself right now but would not want to teach it!
3 I could do this but I would have to study first!
4 I could do this with a little help from my friends!
5 I'm not sure I could do this!
6 I'd have to call in an outside expert!

Source: R. Lloyd, *Quality Health Care: A Guide to Developing and Using Indicators*. Jones & Bartlett Publishers, 2004: 301-304.

Exercise: Measurement Self-Assessment

Source: R. Lloyd, Quality Health Care: A Guide to Developing and Using Indicators. Jones & Bartlett Publishers, 2004: 301-304.

Measurement Topic or Skill	Response Scale					
	1	2	3	4	5	6
Moving a team from concepts to set of specific quantifiable measures						
Building clear and unambiguous operational definitions						
Developing data collection plans (including frequency and duration of data collection)						
Helping a team figure out stratification strategies						
Explain and design probability and nonprobability sampling options						
Explain why plotting data over time is preferable to using aggregated data and summary statistics						
Describe the differences between common and special causes of variation						
Construct and interpret run charts (including the run chart rules)						
Decide which control chart is most appropriate for a particular measure						
Construct and interpret control charts(including the control chart rules)						
Link measurement efforts to PDSA cycles						
Build measurement plans into implementation and spread activities						

A Model for Learning and Change

When you combine the 3 questions with the…

PDSA cycle, you get…

Our focus today

…the Model for Improvement.

The Improvement Guide, API, 2009

Why are <u>you</u> measuring?

Research?

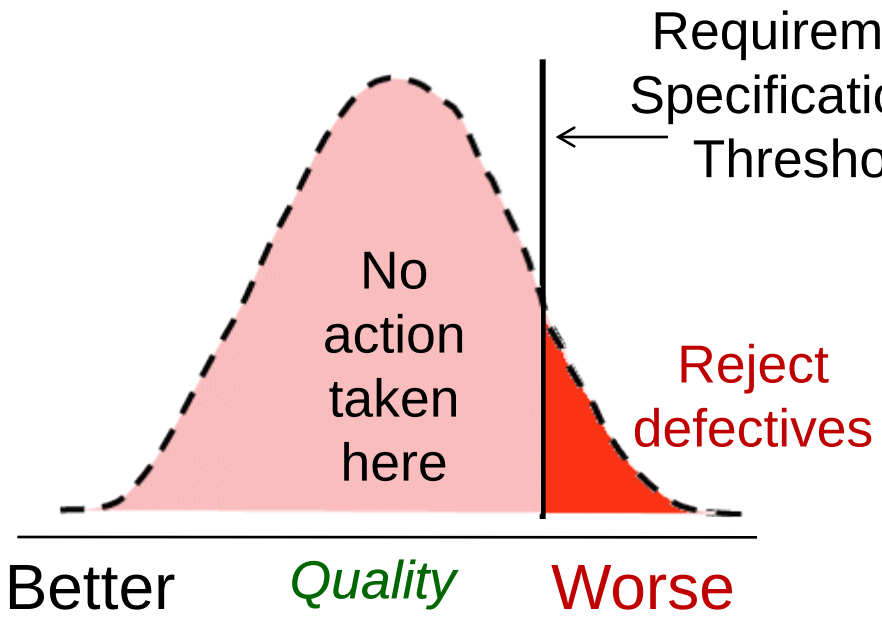
Judgment?

Improvement?

The answer to this question will guide your entire quality measurement journey!

Healthcare Measurement: Old Way, New Way

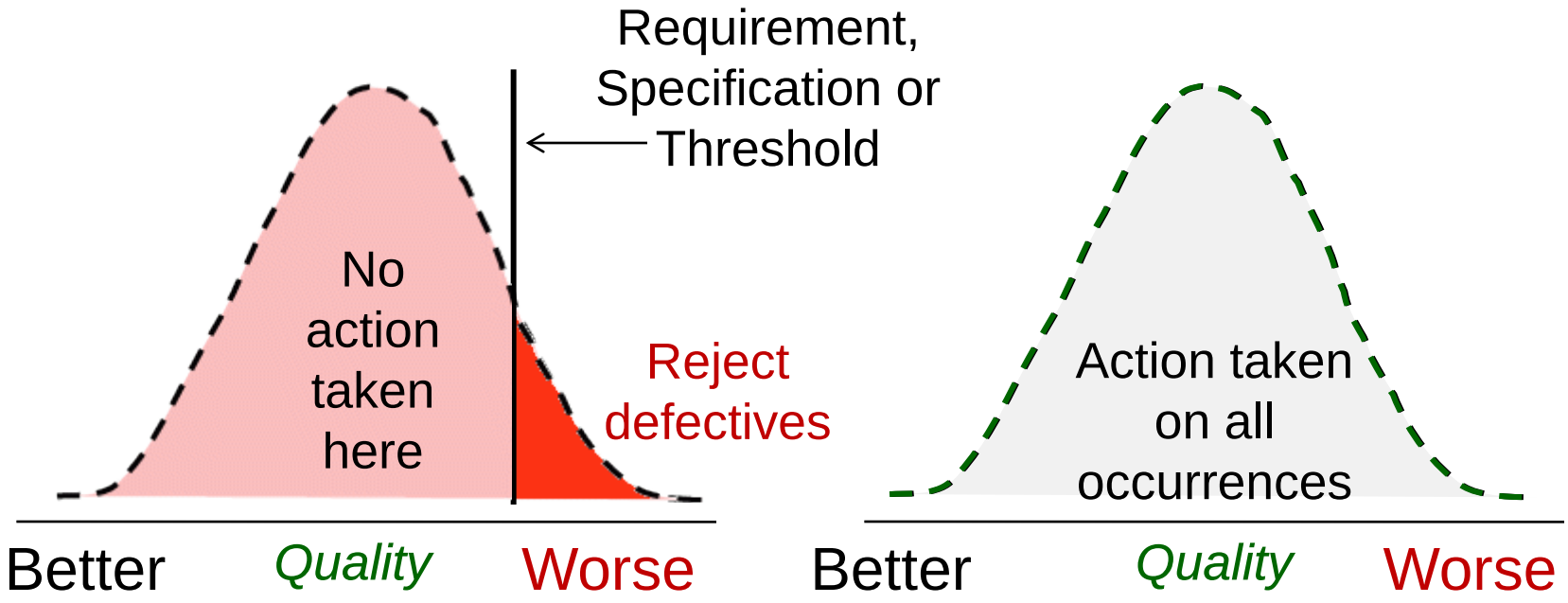
Source: Robert Lloyd, Ph.D.



Old Way
(Quality Assurance)

Healthcare Measurement: Old Way, New Way

Source: Robert Lloyd, Ph.D.



Old Way
(Quality Assurance)

New Way
(Quality Improvement)

Healthcare Measurement: Old Way, New Way

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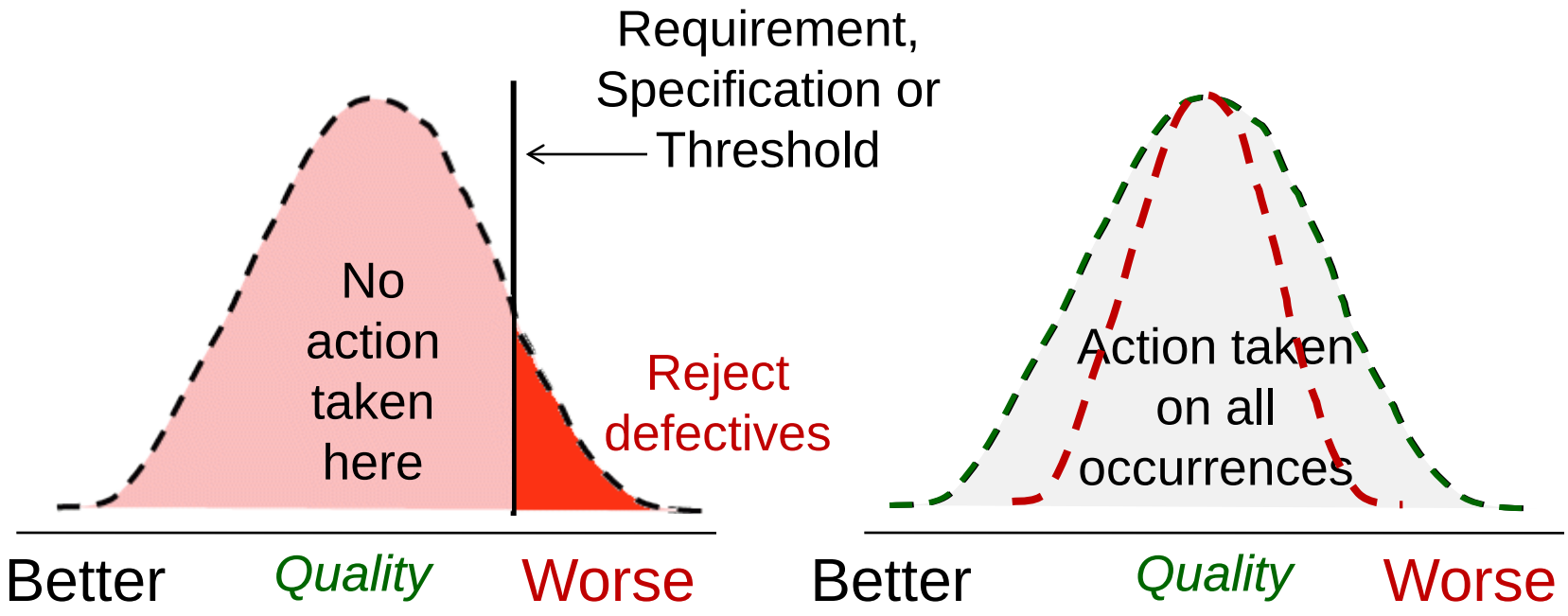

Old Way
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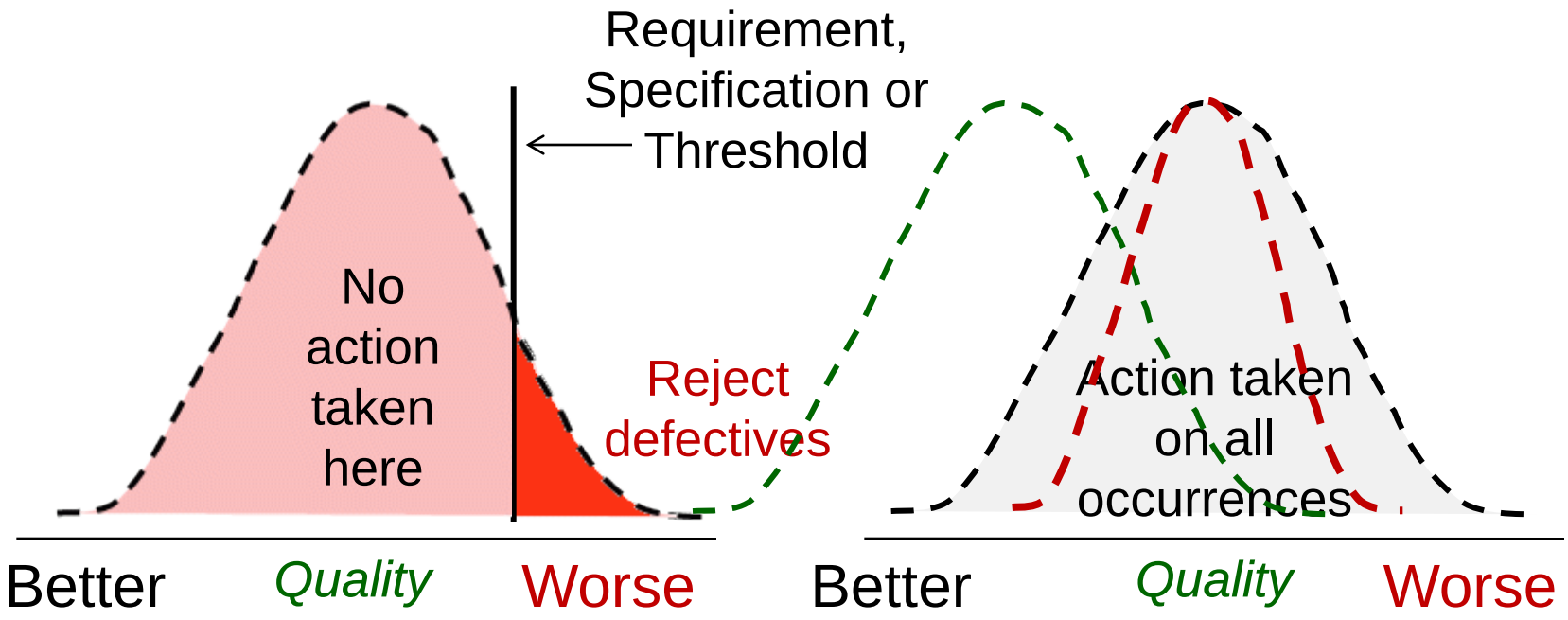


Old Way
(Quality Assurance)

New Way
(Quality Improvement)

"The Three Faces of Performance Measurement: Improvement, Accountability and Research"

by

Lief Solberg, Gordon Mosser and Sharon McDonald

Journal on Quality Improvement vol. 23, no. 3, (March 1997), 135-147.

"We are increasingly realizing not only how critical measurement is to the quality improvement we seek but also how <u>counterproductive</u> it can be to mix measurement for accountability or research with measurement for improvement."

The Three Faces of Performance Measurement

Aspect	Improvement	Accountability	Research
Aim	Improvement of care (efficiency & effectiveness)	Comparison, choice, reassurance, motivation for change	New knowledge (efficacy)
Methods: • Test Observability	Test observable	No test, evaluate current performance	Test blinded or controlled
• Bias	Accept consistent bias	Measure and adjust to reduce bias	Design to eliminate bias
• Sample Size	"Just enough" data, small sequential samples	Obtain 100% of available, relevant data	"Just in case" data
• Flexibility of Hypothesis	Flexible hypotheses, changes as learning takes place	No hypothesis	Fixed hypothesis (null hypothesis)
• Testing Strategy	Sequential tests	No tests	One large test
• Determining if a change is an improvement	Run charts or Shewhart control charts (statistical process control)	No change focus (maybe compute a percent change or rank order the results)	Hypothesis, statistical tests (t-test, F-test, chi square), p-values
• Confidentiality of the data	Data used only by those involved with improvement	Data available for public consumption and review	Research subjects' identities protected

"Health Care Economics and Quality"

by Robert Brook, et. al. *Journal of the American Medical Association vol. 276, no. 6, (1996): 476-480.*

Three approaches to research:

Research for Efficacy

(experimental and quasi-experimental designs/clinical trials, p-values)

Research for Efficiency

Research for Effectiveness

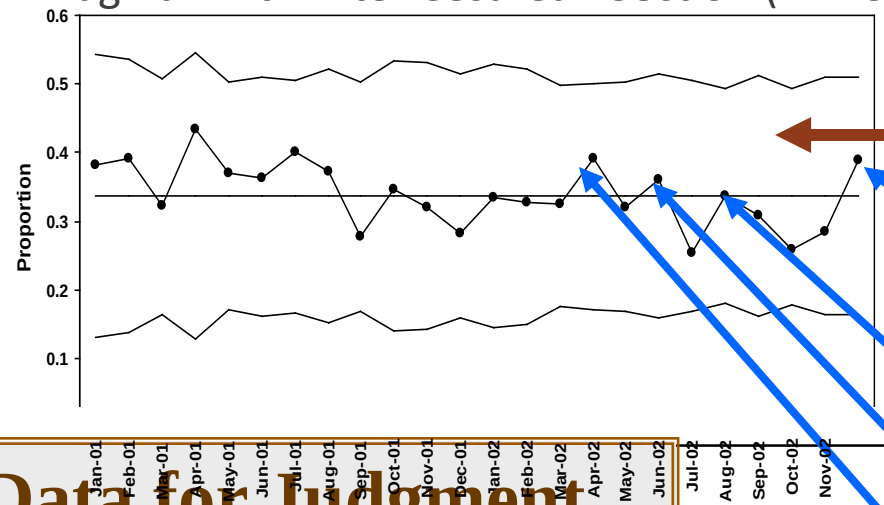
Quality Improvement Research

Control Chart - p-chart

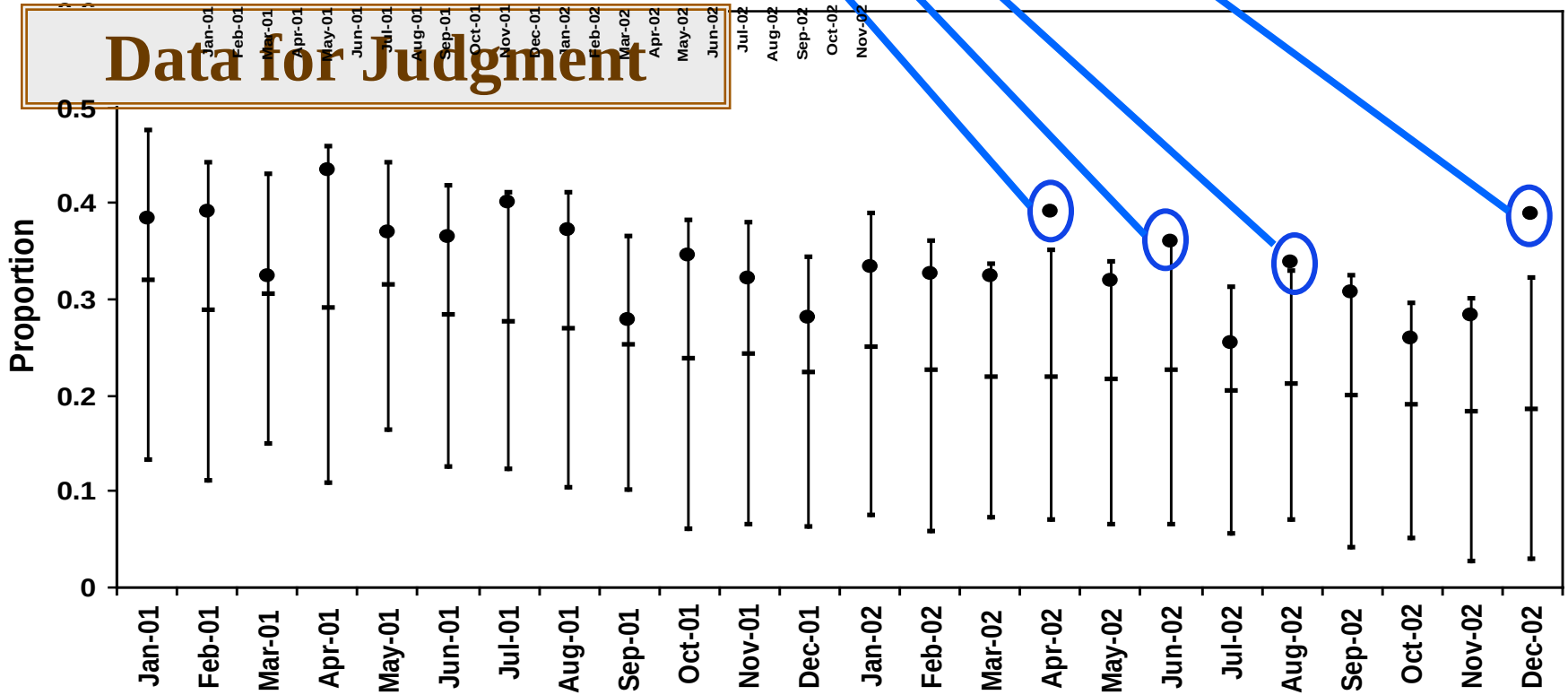
11552 - Vaginal Birth After Cesarean Section (VBAC) Rate

Data for Improvement

These data points are all common cause variation



Data for Judgment



Example of Data for Judgment

CMS/HQA Core Measures

(Perfect Care Bundles – all aspects of a bundle must be met in order to receive credit)

Does this tabular display of data help us understand the variation in these measures?

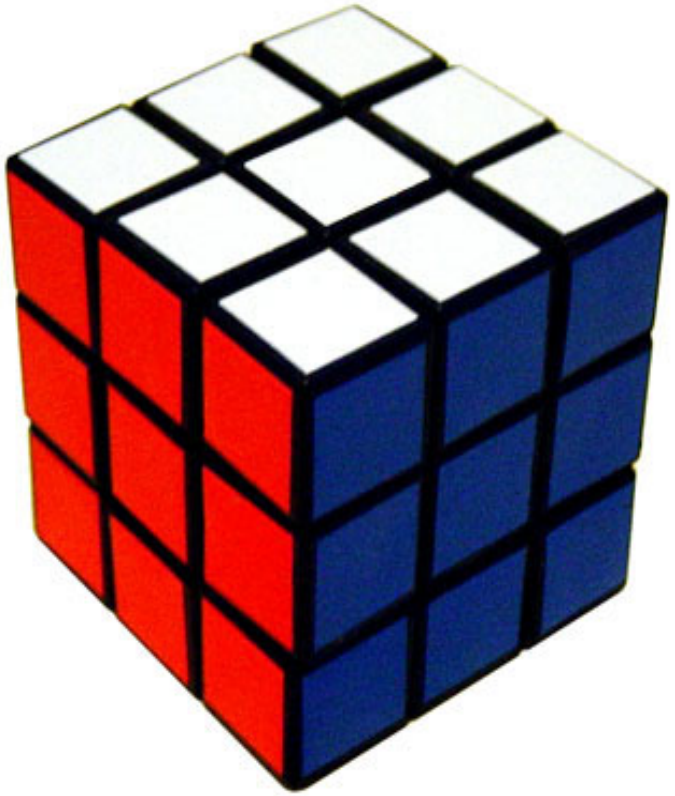
	State Average	Q3 04	4Q 04	Q1 05	Q2 05	YTD 05
AMI	79	77	79	81	80	79
CHF	61	56	58	63	62	60
PN	46	16	16	20	31	20
SIP	52	41	43	54	49	47

Legend	
	Better than or Equal to State Average
	Worse than State Average

So, how do you view the Three Faces of Performance Measurement?

As…

Or, As a…



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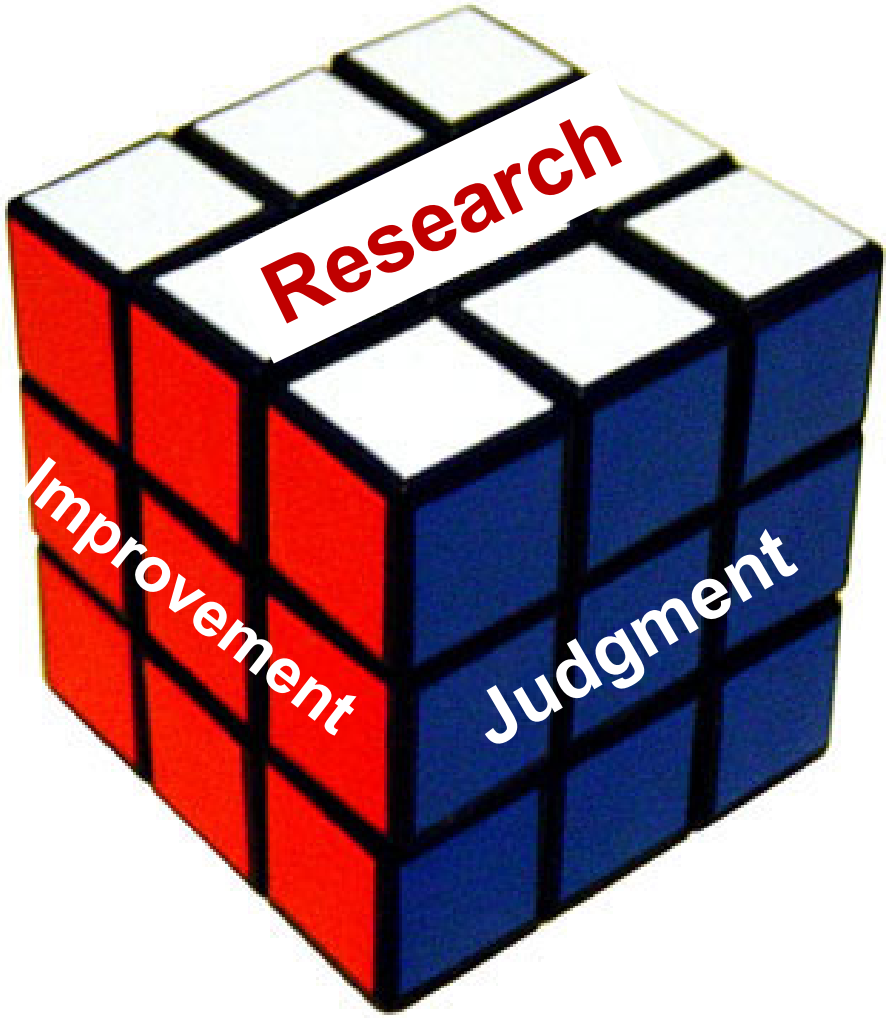
Integrating the Three Faces of Performance Measurement



The three faces of performance measurement should not be seen as mutually exclusive silos. This is not an either/or situation.

All three areas must be understood as a system. Individuals need to build skills in all three areas.

Organizations need translators who and be able to speak the language of each approach.

The problem is that individuals identify with one of the approaches and dismiss the value of the other two.

The Quality Measurement Journey

Source: R. Lloyd. Quality Health Care: A Guide to Developing and Using Indicators. Jones and Bartlett Publishers, 2004.

AIM (How good? By when?)

Concept

Measure

Operational Definitions

Data Collection Plan

Data Collection

Analysis

ACTION

The Quality Measurement Journey

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AHA/HRET Hospital Engagement Network Encyclopedia of Measures

The basic set of measures for the HEN have already been identified and the operational definitions provided.

- **108 measures have been identified**
- **They all have operational definitions**
- **Potential data sources are referenced**

Category	Number of Measures
ADEs	14
CAUTI	9
CLABSI	13
FALLS	6
OB	16
PU	8
READMISSION	18
SSI	8
VAP	6
VTE	10

An Operational Definition...

… is a description, in quantifiable terms, of what to measure and the steps to follow to measure it consistently.

- **It gives communicable meaning to a concept**
- **Is clear and unambiguous**
- **Specifies measurement methods and equipment**
- **Identifies criteria**

Source: R. Lloyd. *Quality Health Care: A Guide to Developing and Using Indicators.* Jones and Bartlett Publishers, 2004.

Reference Number	Category	Indicator Name	Definition	Numerator	Denominator	Equation	Sources	Process	Outcome	Recommended	Alternative
1	ADE	CPOE Used for ED Medication Orders (CMS MU)	Number of ED patients with medication(s) ordered through CPOE	The number of ED patients who have at least one medication order entered using computerized provider order entry (CPOE).	Number of unique ED patients with at least one medication in their medication list in the ED.	N/A	CMS Meaningful Use Electronic Specifications	X		X	
2	ADE	CPOE Used for Inpatient and ED Medication Orders (CMS MU)	Number of ED and inpatients with medication(s) ordered through CPOE	The number of ED and inpatients who have at least one medication order entered using computerized provider order entry (CPOE).	Number of unique patients with at least one medication in their medication list admitted to the eligible hospital's or CAH's inpatient or emergency department.	N/A	CMS Meaningful Use Electronic Specifications	X		X	
3	ADE	CPOE Used for Inpatient Medication Orders (CMS MU)	Number of inpatients with medication(s) ordered through CPOE	The number of inpatients who have at least one medication order entered using computerized provider order entry (CPOE).	Number of unique inpatients with at least one medication in their medication list admitted as a hospital inpatient.	N/A	CMS Meaningful Use Electronic Specifications	X		X	
4	ADE	ED Medication Reconciliation (CMS MU)	Number of ED patients with Medication Reconciliation completed at discharge	ED medication reconciliation completed at discharge from the ED	All ED visits	N/A	CMS Meaningful Use Electronic Specifications	X		X	
5	ADE	Inpatient Admission Medication Reconciliation (CMS MU)	Number of inpatients with Medication Reconciliation completed at admission	Inpatient admission medication reconciliation completed	All inpatient admissions	N/A	CMS Meaningful Use Electronic Specifications	X		X	
6	ADE	Inpatient Discharge Medication Reconciliation (CMS MU)	Number of inpatients with Medication Reconciliation completed at discharge	Inpatient discharge medication reconciliation completed	All inpatient discharges	N/A	CMS Meaningful Use Electronic Specifications	X		X	
7	ADE	Maintenance of Active Medication Allergy List (CMS MU)	Number of patients with a medication allergy or indication of NKA recorded in EHR	Number of patients who have at least one entry or indication there are no known allergies (NKA) recorded as structured data in their medication allergy list in EHR.	Number of all unique patients admitted to hospital	N/A	CMS Meaningful Use Electronic Specifications	X		X	
8	ADE	Maintenance of Active Medication List (CMS MU)	Number of patients with a medication, or indication of no current medications, recorded in EHR	Number of patients who have a medication, or an indication that no medications are currently prescribed, recorded as structured data in EHR.	Number of all unique patients admitted to hospital	N/A	CMS Meaningful Use Electronic Specifications	X		X	

The Quality Measurement Journey

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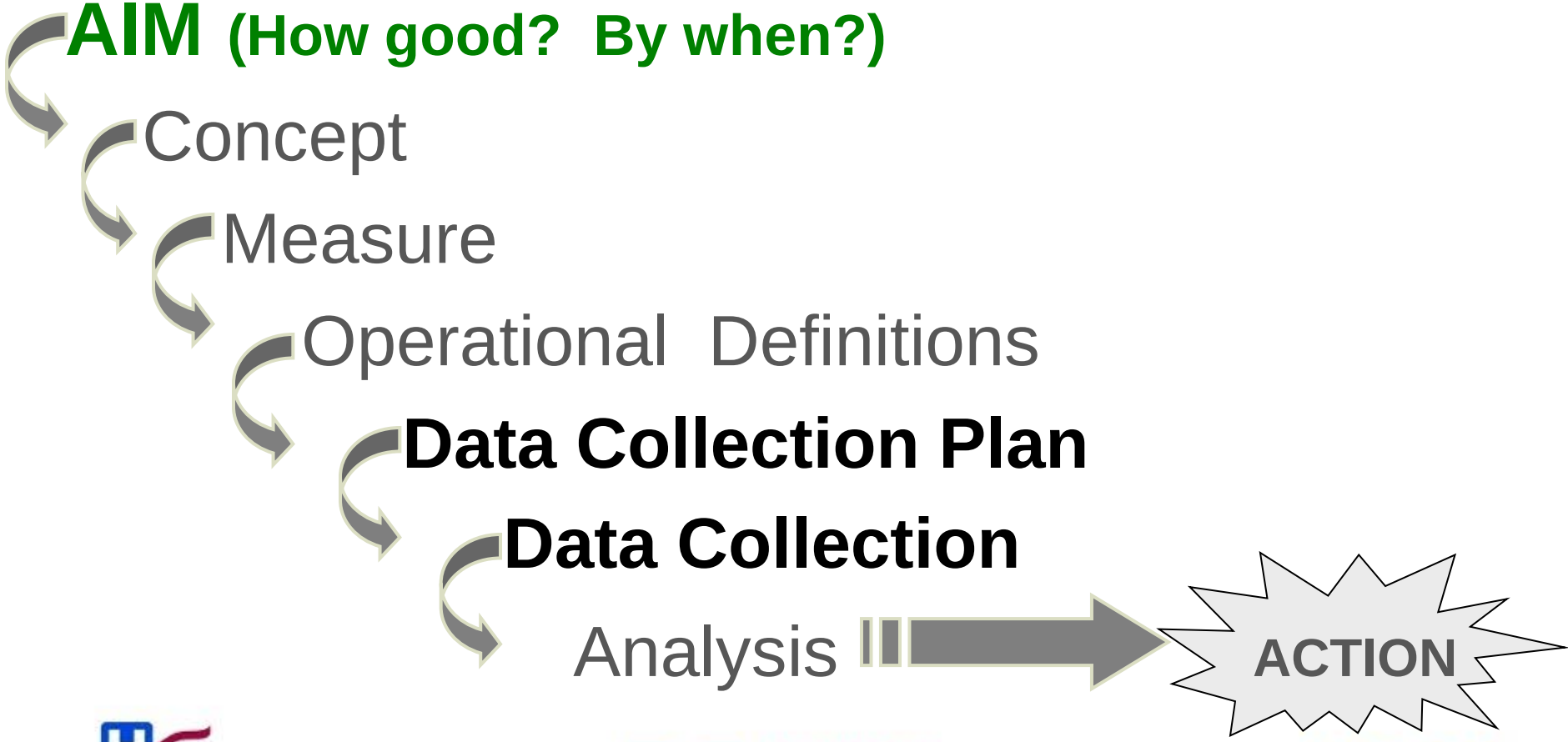

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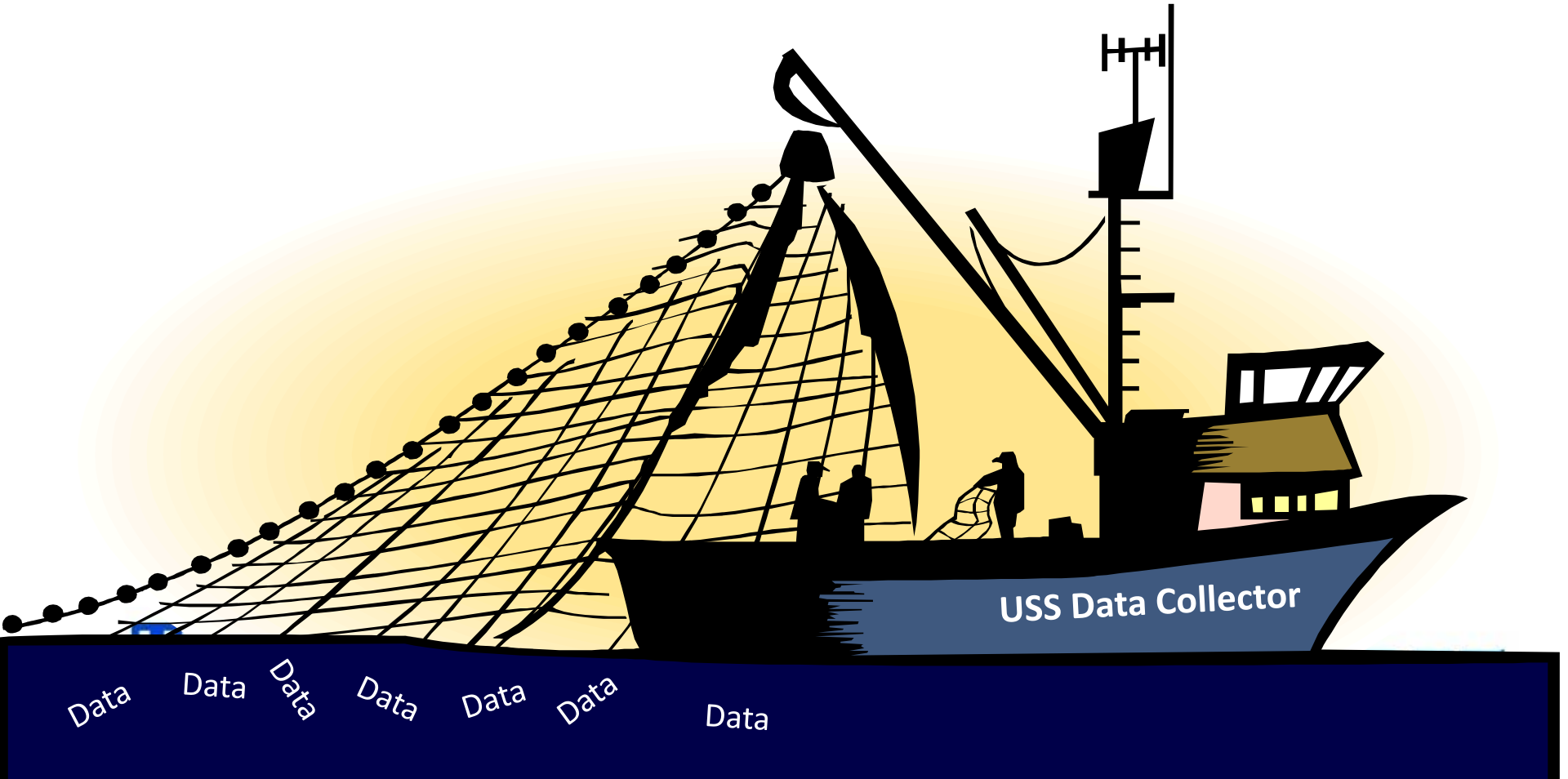
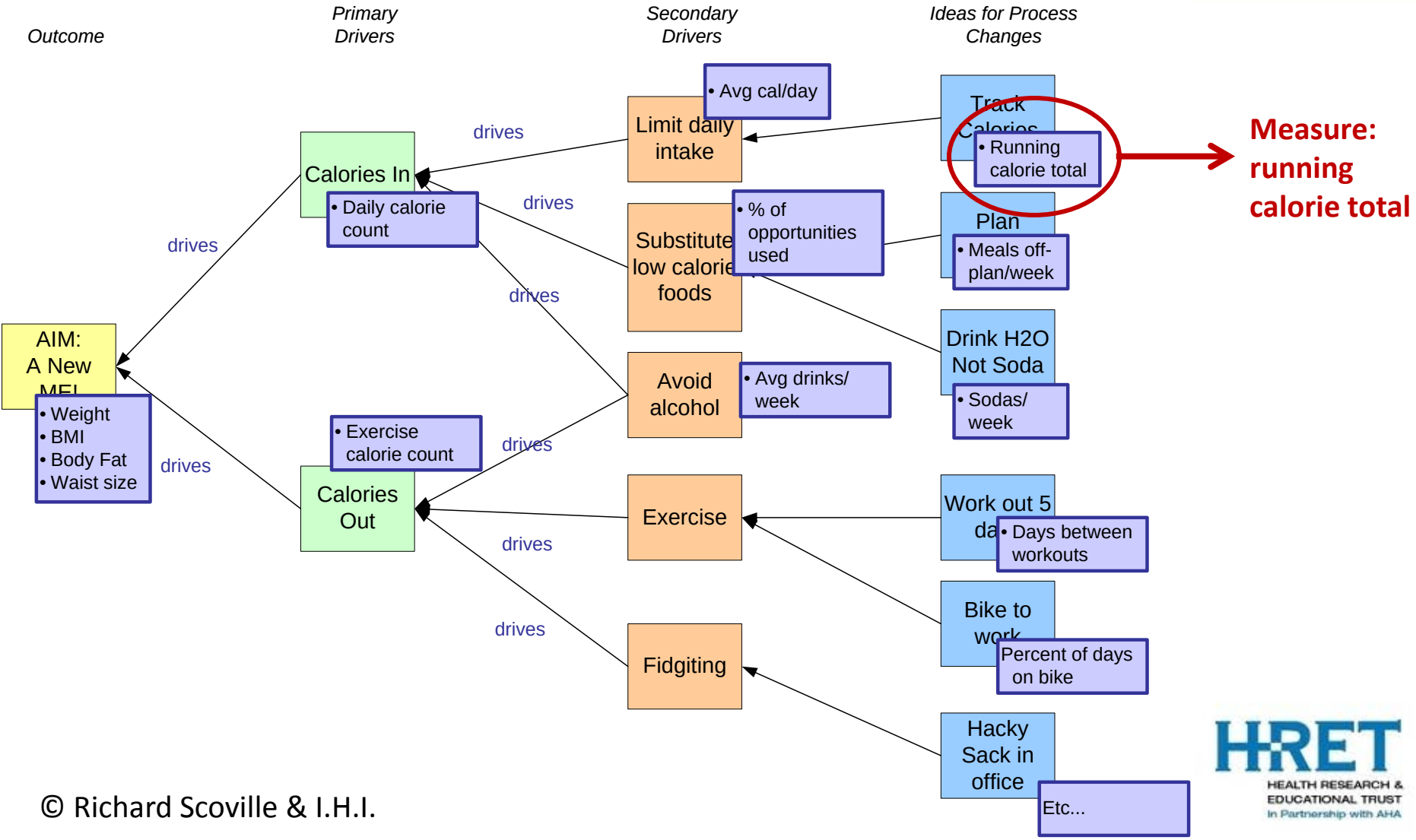
Now that you have selected and defined your measures, it is time to head out, cast your net and actually gather some data!



Stratification

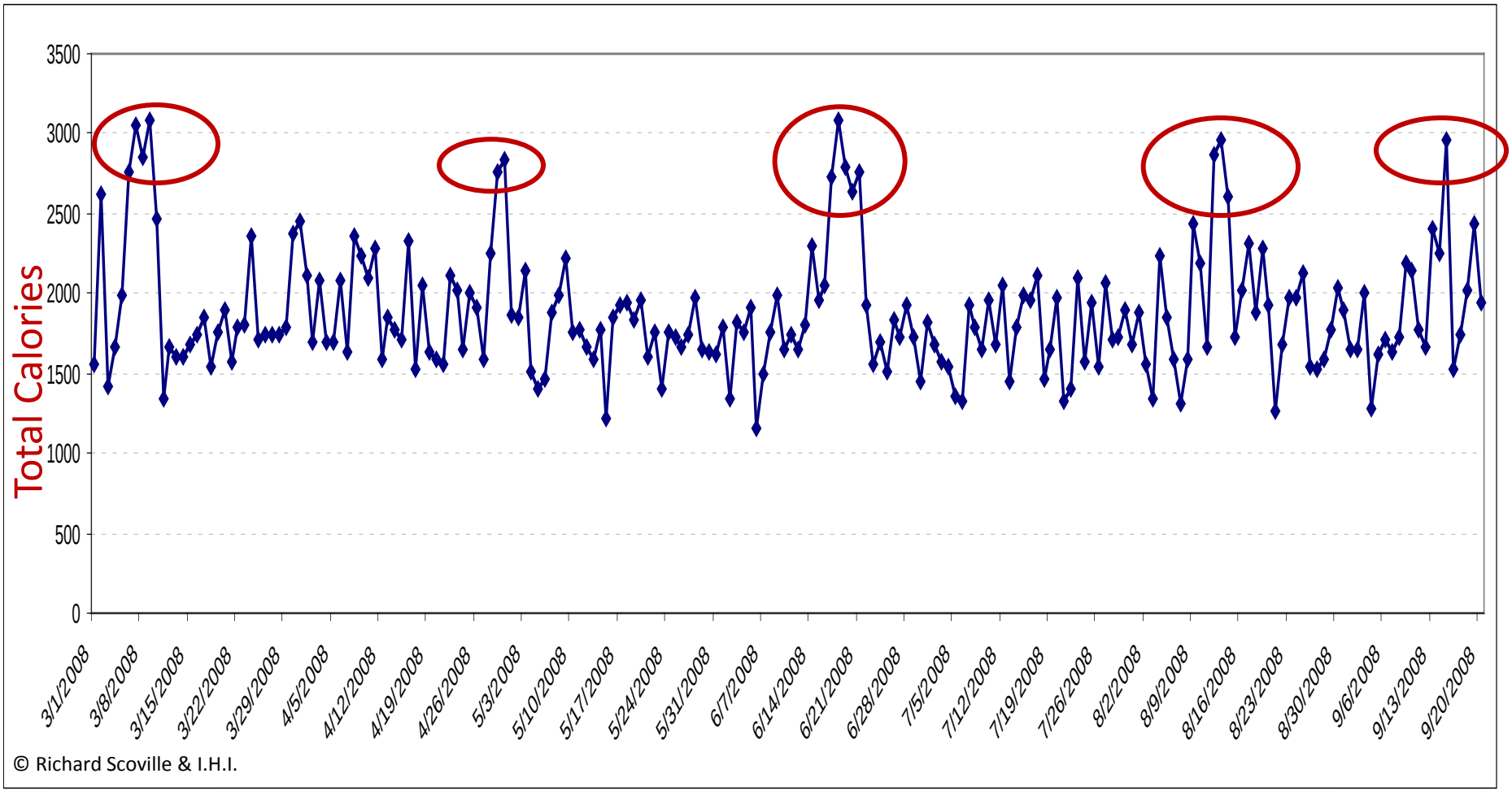
- Separation & classification of data according to predetermined categories
- Designed to discover patterns in the data
- For example, are there differences by shift, time of day, day of week, severity of patients, age, gender or type of procedure?
- Consider stratification BEFORE you collect the data

What does a stratification problem look like?

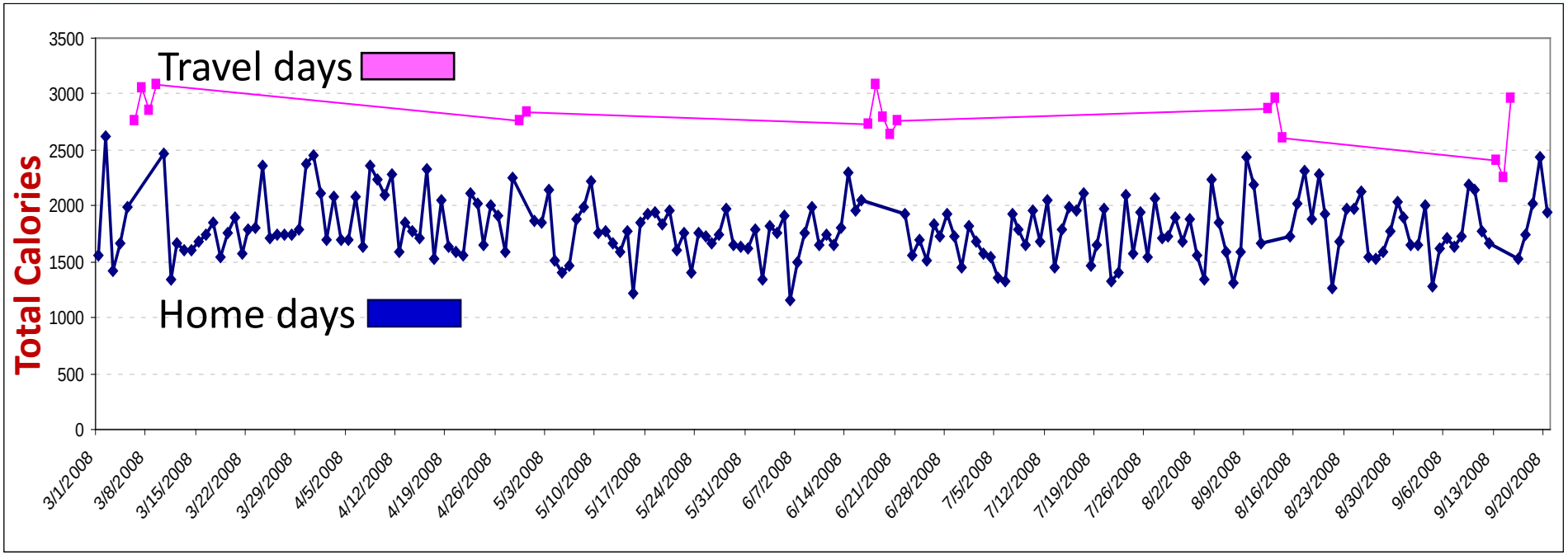


What does a stratification problem look like?

There are two distinct processes at work here!



The data should be divided into two stratification levels



What factors might influence your process?

Track them in your data to provide insights about variation and how to change the process!

Common Stratification Levels

- Day of week
- Shift
- Severity of patients
- Gender
- Location
- Unit

What stratification levels are appropriate for your data?

Common Stratification Levels

- Day of week
- Shift
- Severity of patients
- Gender
- Location
- Unit

What stratification levels are appropriate for your data?