Measurement for Quality

Teachers of Quality Academy
Learning Session 2

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Measurement for Quality: Objectives

- Describe the key differences between measurement for improvement, accountability and research
- Determine the best way to assess data needs and sources for doing QI work
- Identify the elements of a complete data collection plan
- Explain the basics of sampling; why and how and the mechanisms for stratifying data
- Explain the difference between a run chart and a Shewhart (control) chart
Before you measure…

**How will the data be perceived?**

**What is the current state data culture?**

- How has data been used in your organization in the past?
  - ‘Look how good we are’
  - Look how poorly you do compared to your peers…
  - For accountability? Punitively?
  - With humility?
  - Double messages about data? Actions not consistent with words?

- What attitudes are you likely to encounter?
  - Leaders hoard the data? Data is shared openly?
  - Moro reflex towards data?
  - Opaque? Transparent?
Why are you measuring?

Research?  Judgment?  Improvement?

The answer to this question will guide your entire quality measurement journey!
## The Three Faces of Performance Measurement

<table>
<thead>
<tr>
<th>Aspect</th>
<th>Improvement</th>
<th>Accountability</th>
<th>Research</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Aim</strong></td>
<td>Improvement of care</td>
<td>Comparison, choice, reassurance, spur for change</td>
<td>New knowledge</td>
</tr>
<tr>
<td><strong>Methods:</strong></td>
<td>Test observable</td>
<td>No test, evaluate current performance</td>
<td>Test blinded or controlled</td>
</tr>
<tr>
<td>• Test Observability</td>
<td>Accept consistent bias</td>
<td>Measure and adjust to reduce bias</td>
<td>Design to eliminate bias</td>
</tr>
<tr>
<td>• Bias</td>
<td>“Just enough” data, small sequential samples</td>
<td>Obtain 100% of available, relevant data</td>
<td>“Just in case” data</td>
</tr>
<tr>
<td>• Sample Size</td>
<td>Hypothesis flexible, changes as learning takes place</td>
<td>No hypothesis</td>
<td>Fixed hypothesis</td>
</tr>
<tr>
<td>• Flexibility of Hypothesis</td>
<td>Sequential tests</td>
<td>No tests</td>
<td>One large test</td>
</tr>
<tr>
<td>• Testing Strategy</td>
<td>Run charts or Shewhart control charts</td>
<td>Hypothesis, statistical tests (t-test, F-test, chi square), p-values</td>
<td></td>
</tr>
<tr>
<td>• Determining if a change is</td>
<td>Data used only by those involved with improvement</td>
<td>No change focus</td>
<td>Research subjects’ identities protected</td>
</tr>
<tr>
<td>an improvement</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>• Confidentiality of the data</td>
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</tbody>
</table>
Types of Measures

- **Global Measures**—relate directly to the aim statement
  - Directly answers the question, “How will we know that a change is an improvement?”
  - Example: Continuity of care

- **Intermediate Measures**—necessary, but not sufficient, to achieve the global measure
  - Example: Panel Size

- **Process Measures**—Associated with a specific series of PDSA cycles (quick; sampling is an important strategy)
  - Answers the question, “How well are the parts of the system working?”
  - Example: % of new patients with appropriate PCP in the EMR

- **Balancing Measures**—Looking from a different perspective
  - Example: Patient satisfaction with ease of getting an appointment
UNC FMC Continuity of Care (UPC) Average for all PCPs

UNC FMC Average PCP Continuity

Graph showing the average PCP Continuity over different quarters from June 2004 to December 2014. The graph includes a goal line and a median line.
Efficiency Measures

- **Global measures**—relate directly to the aim
  - Example: Total cycle time; Detailed Cycle Time

- **Intermediate measures**—relate to global measure, but not sufficient to ensure the accomplishment of the aim
  - Examples: start time, measures of bottlenecks at different times of day, or cycle time for individual clinicians.

- **Process measures**—associated with a specific PDSA cycle
  - Example: interruptions analysis; room stocking measure; spaghettigram
## Panel Size: Intermediate Measure

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>T E A M 2</td>
<td></td>
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<td>JENNIFER SCHMITZ</td>
<td>225</td>
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<td>0.82</td>
<td>2.63</td>
<td>509</td>
<td>255</td>
<td>255</td>
<td>50%</td>
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<tr>
<td>Zachary Sandbulte - Sports Med Fellow</td>
<td>95</td>
<td>2.07</td>
<td>1.00</td>
<td>1.66</td>
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<td>304</td>
<td>281</td>
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<tr>
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<td>0.91</td>
<td>1.54</td>
<td>298</td>
<td>300</td>
<td>325</td>
<td>109%</td>
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<td>SUE SLATKOFF</td>
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<td>2.00</td>
<td>1.00</td>
<td>1.71</td>
<td>332</td>
<td>298</td>
<td>340</td>
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<tr>
<td>ADAM GOLDSTEIN</td>
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<td>3.47</td>
<td>1.00</td>
<td>2.99</td>
<td>580</td>
<td>492</td>
<td>520</td>
<td>90%</td>
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<tr>
<td>KATHY BARNHOUSE</td>
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<td>2.08</td>
<td>1.00</td>
<td>1.79</td>
<td>346</td>
<td>322</td>
<td>346</td>
<td>100%</td>
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<tr>
<td>SAM WEIR</td>
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<td>1.53</td>
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<td>300</td>
<td>318</td>
<td>107%</td>
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<tr>
<td>Katie Winter</td>
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<td>2.98</td>
<td>1.00</td>
<td>2.43</td>
<td>471</td>
<td>463</td>
<td>463</td>
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<tr>
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<td>2.98</td>
<td>1.00</td>
<td>2.44</td>
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<td>502</td>
<td>502</td>
<td>106%</td>
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<tr>
<td>DON PATHMAN</td>
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<td>1.50</td>
<td>0.91</td>
<td>1.07</td>
<td>207</td>
<td>227</td>
<td>231</td>
<td>111%</td>
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<tr>
<td>DANA NEUTZE - Team Leader</td>
<td>120</td>
<td>3.12</td>
<td>1.00</td>
<td>2.66</td>
<td>516</td>
<td>219</td>
<td>209</td>
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<td>0.73</td>
<td>1.45</td>
<td>280</td>
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<td>316</td>
<td>113%</td>
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<tr>
<td>Morgan McEachern</td>
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<td>0.73</td>
<td>1.45</td>
<td>280</td>
<td>315</td>
<td>315</td>
<td>112%</td>
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<tr>
<td>Kelly Evans</td>
<td>67</td>
<td>1.43</td>
<td>0.45</td>
<td>0.36</td>
<td>69</td>
<td>95</td>
<td>95</td>
<td>137%</td>
</tr>
<tr>
<td>Joseph Wehby</td>
<td>67</td>
<td>1.43</td>
<td>0.45</td>
<td>0.35</td>
<td>69</td>
<td>64</td>
<td>64</td>
<td>93%</td>
</tr>
<tr>
<td><strong>Team 2 Totals</strong></td>
<td><strong>1652</strong></td>
<td><strong>37</strong></td>
<td><strong>26.02</strong></td>
<td><strong>5043</strong></td>
<td><strong>3913</strong></td>
<td><strong>3993</strong></td>
<td><strong>79%</strong></td>
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</tr>
</tbody>
</table>
Why Stratify?  Compare Apples to Apples

Days to 3rd Appointment for 2nd Year Residents

- Halpert, Karen: 5.0
- Selak, Monica: 5.0
- Semenya, Mansa: 5.5
- Winter, Katie: 7.0
- Flandry, Andrew: 10.0
- Rietz, Ashley: 12.0
- Hainz, Becky: 14.0
- Wilson, Lane: 19.5

GOAL
Run Charts to Display Data

UNCB FMC Average PCP Continuity

Average PCP UPC %

Quarter

Goal
Median

Data ranges from 2004 to 2014.
Annotated Run Charts to Display Data

UNC FMC Average PCP Continuity

Implemented active panel management

New appointment system with specific continuity appointment type
Run Charts Decision Rules

Signals of an effective change:

• Shift – 6 or more consecutive points above or below the median

• Trend – 5 or more consecutively increasing or decreasing points

• Runs – Are there too many or too few for just common cause variation?

• Astronomical Point – A dramatically different value
Annotated Run Charts to Display Data

UNC FMC Average PCP Continuity

- Implemented active panel management
- New appointment system with specific continuity appointment type
Overall Patient Satisfaction

Control Charts or Shewhart Charts—Incorporating Statistics

PATIENT SATISFACTION - ACCESS - Family Practice

Indicator Mean UCL LCL


80.8 82.1 83 85.1 85.4 85.7 87.2 87.1 88.8 87 88.4 88.6