QSE Analysis
By Beth Luman

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12 Quality System Essentials

• SLIPTA checklist
12 Quality System Essentials ➔ Quality Cycle
12 Quality System Essentials → SLIPTA Score

Bernard Nkrumah et al.
12 Quality System Essentials ➔ SLMTA Improvement

Bernard Nkrumah et al.
What are the areas that laboratories struggle with? What are the areas that they do well with? Which areas do they improve through SLMTA?

- QSE’s not systematically compiled on a global scale
- Literature Review
  - 126 labs in 12 countries
  - Meta-analysis
- Results
  - Lots of variability
    - For the 5 QSE’s that at least 1 lab scored 0% at exit, some other lab scored 100%
  - Lots of similarities
What are the areas that laboratories struggle with? What are the areas that they do well with? Which areas do they improve through SLMTA?
What are the areas that laboratories struggle with? What are the areas that they do well with? Which areas do they improve through SLMTA?
What are the **MOST CRITICAL** improvements for laboratories to make?

- What is your goal?
  - *Increase my score*
  - *To make other improvements easier*
  - *To give quick success and boost morale*
  - *To increase respectability -- patients and providers*
  - *Reduce errors*
  - *Reduce healthcare costs*
  - *Improve patient outcomes*
Option 1...

• 3 experts decide which projects should be done
Option 2...

- 100 labs that have implemented SLMTA
- Ask implementers which improvement projects they thought were the most productive
Option 3...

- 20 potential improvement projects
- Select 200 labs and randomly assign each project to 10 labs
- Analyze all of these potential goals
- Repeat for combinations of improvement projects
Option 4...

- Examine labs that improved more and those that improved less
- Which QSE’s best explain the difference

- ***GOAL: Increase my score***
Option 4...

Which QSE’s were associated with the biggest improvement in overall score?

• Sort labs by SLIPTA score improvement
• Compare most improved to least improved
  • What was the change in score for each QSE?
  • What was the *difference* in change of score for each QSE among the most improved vs. least improved?
• Does this explain all of the difference between most improved and least improved?
  • What was the change in scores *excluding* the critical QSE?
  • How might this QSE explain the differences?
Example 1: Maina et al

The bar chart compares the percentage scores for Exit and Surveillance in five labs (Lab A to Lab E). The scores are as follows:

- Lab A: Exit 30, Surveillance 75
- Lab B: Exit 80, Surveillance 85
- Lab C: Exit 32, Surveillance 57
- Lab D: Exit 52, Surveillance 60
- Lab E: Exit 37, Surveillance 77
Example 1: Maina et al

![Bar chart showing percentage scores for Labs A to E.](chart.png)

<table>
<thead>
<tr>
<th>Lab</th>
<th>Exit</th>
<th>Surveillance</th>
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<tbody>
<tr>
<td>Lab A</td>
<td>30%</td>
<td>75%</td>
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<tr>
<td>Lab B</td>
<td>80%</td>
<td>85%</td>
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<td>Lab C</td>
<td>32%</td>
<td>57%</td>
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<tr>
<td>Lab D</td>
<td>52%</td>
<td>60%</td>
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<tr>
<td>Lab E</td>
<td>37%</td>
<td>77%</td>
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### Example 1: Maina et. al.

<table>
<thead>
<tr>
<th>Category</th>
<th>A+E exit</th>
<th>surv</th>
<th>improvement</th>
<th>diff improvement between ae and cd</th>
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<tbody>
<tr>
<td>Documents &amp; Records</td>
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- **Total without internal audit and corrective action:**
  - **A+E exit surv improvement diff improvement between ae and cd**
  - **C+D exit surv improvement diff improvement between ae and cd**
Example 1: Maina et. al.

Progressing beyond SLMTA: Are internal audits and corrective action the key drivers of quality improvement?

_Afr J Lab Med_ 2014.
Example 2: Lit Review
Example 2: Lit Review

• Meta-analysis results suggest that the corrective action QSE may be the most predictive of overall improvement.

• Laboratories in the top quartile of overall improvement outperformed those in the bottom quartile by 62 percentage points for the corrective action QSE, compared to a median of 40 percentage points for the other QSEs.

• CLSI defines corrective action as an ‘action to eliminate the (root) cause of a detected nonconformity or other undesirable situation’.

• In the SLIPTA checklist, corrective action is assessed through four questions about how the laboratory deals with occurrence reports, nonconformities and discordant results.

• ISO confirms the importance of corrective action, saying that ‘the corrective and preventive actions system is the most critical element for an efficient quality system’.
Considerations

• This is a simple analysis
• Other possible analyses with multivariate models
• Observational vs. experimental
  • Confounding factors

Most importantly...
• This only examines one of the many goals – *increase my score*
• Ultimate goal – *improve patient outcomes*