Balancing measures or a ‘balanced accounting’ of both intended and unintended consequences of improvement interventions?

Dr Madalina Toma, Research Fellow
What is the purpose, design and use of balancing measures in quality and safety improvement?

“Use a balanced set of measures for all improvement efforts: outcomes measures, process measures, and balancing measures.

1. **Outcome Measures**: How does the system impact the values of patients, their health and wellbeing? What are impacts on other stakeholders such as payers, employees, or the community?

2. **Process Measures**: Are the parts/steps in the system performing as planned? Are we on track in our efforts to improve the system?

3. **Balancing Measures** (looking at a system from different directions/dimensions): Are changes designed to improve one part of the system causing new problems in other parts of the system?"

* Adapted from IHI (text is verbatim quote but examples are omitted and text is renumbered)

**HOWEVER, little information is available on how such measures should be defined and implemented.**
Balancing measures or a balanced accounting of intended and unintended consequences of improvement interventions? Qualitative analysis of individual and focus group interviews with improvement experts
Refined framework of types of consequences of quality improvement projects

**Definitely expected from outset**
*Use to define the initial measurement plan*

**Definitely unexpected from outset**
*‘Improvement pause’ to consider whether measures needed*

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**Desirable**
*Improvement goals*

**Undesirable**
*Improvement trade-offs*

**Pleasant surprises**

**Unpleasant surprises**

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- All four consequences can be measured using either process or outcome measures
- All four consequences can arise in the same area of care targeted by improvement, or elsewhere in the health and social care system
Definitely expected from outset
Use to define the initial measurement plan

Expectation spectrum

Desirable

Improvement goals
Typically, measured from the beginning as part of improvement projects and defined by the initial measurement plan

Undesirable

Improvement Trade-offs
Implicitly believed to be smaller in magnitude than the goals and so an acceptable compromise

Reducing the time patients spend on a ventilator after surgery

An increased frequency of unplanned reintubations was expected and confirmed

Definitely unexpected from outset
‘Improvement pause’ to consider whether measures needed

Desirable Pleasant surprises
Unsure if these could be counted with a balancing measure since they were on the same side of the benefit-harm balance as goals

Undesirable Unpleasant surprises
Uncertain of the benefits of goals will be larger so active reflection on potential hazards during or after implementation is needed

Risk of AKI with Gentamicin as Surgical Prophylaxis

(A) Increase in percentage of AKI (adjusted) stages 1, 2, and 3 for each month (excluding NOF) following policy change.

Image available at: http://www.scottishbooktrust.com/bookbug/bookbug-sessions/find-your-local-bookbug-session

Samira Bell et al. JASN 2014;25:2625-2632
Interventions to improve antibiotic prescribing practices for hospital inpatients

A balanced accounting of impact in AMS interventions

What is the expected direction of change?

- **Expected**
  - Desirable AMS Goals
  - Undesirable AMS Trade-offs

- **Unexpected**
  - Desirable Pleasant surprises
  - Undesirable Unpleasant surprises

<table>
<thead>
<tr>
<th>Desirable AMS Goals</th>
<th>Undesirable AMS Trade-offs</th>
<th>Desirable Pleasant surprises</th>
<th>Undesirable Unpleasant surprises</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antimicrobial prescribing</td>
<td>Feared for increase in Mortality and LOS</td>
<td>Unexpected reduction in Mortality and LOS</td>
<td>Increased rates of AKI</td>
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<tr>
<td>Surgical antimicrobial prophylaxis</td>
<td>Delay in treatment</td>
<td>Improved patient response to aminoglycoside therapy</td>
<td>Pseudo-outbreak of nosocomial infections</td>
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<td>Microbial outcomes</td>
<td>Increase in left without being seen rate</td>
<td>Misdiagnosis of pneumonia</td>
<td>Professional mistrust</td>
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<tr>
<td>Predefined Aim-Hoped for reduction in Mortality and LOS</td>
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Conclusion and next steps

Balancing measures or a “Balanced accounting” of all consequences of improvement beyond trade-offs

Considering measures can increase engagement and minimise risks but any benefits have to be set against the cost of data collection implying a need to PRIORITISE what, how, who and when to measure...
Any questions?

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Thank you