Achieving a balanced accounting of quality improvement impact: A qualitative analysis of interview data, narrative review and modified Delphi study

Key message: Improvement measurement is usually focused on measuring intended goals, with minimal consideration of other unintended consequences. This presentation proposes that improvers and leaders should seek a balanced accounting of all consequences of improvement across the life of an improvement programme, including a careful consideration of potential trade-offs from the outset and deliberately pausing after implementation to identify additional outcomes, decide on the importance of introducing measures, quantitatively or qualitatively evaluate any pleasant and/or unpleasant surprises and interpret the emerging data to inform further action.

Background
The complexity of the healthcare system means that efforts to improve quality and safety often achieve only limited benefits and can have unintended consequences, which may impact positively or negatively on care processes and outcomes. However, most papers evaluating quality improvement programmes only report impact on their targeted goals with minimal reporting of unintended consequences.

Goal
Three interconnected studies aiming to explore current understanding of measurement of unintended consequences in healthcare improvement, to achieve a more balanced accounting of the overall impact of improvement interventions.

Study 1: qualitative analysis of 15 semi-structured interviews to formulate a draft conceptual framework for considering all consequences of improvement which was then refined and elaborated during two focus groups with 24 participants in total.

Study 2: drawing on a Cochrane systematic review of antimicrobial stewardship interventions (ASI) in hospitals, we conducted a narrative review and described a more structured framework with specific examples of the range of ASI consequences.

Study 3: two-round modified Delphi consultation where 72 experts completed the round one, and of these, 60 (83.3%) completed round two, to explore and develop consensus in relation to identifying, evaluating and interpreting all consequences of quality improvement.

Results

**Study 1**

**PLEASANT SURPRISES** (unexpected desirable consequences)

<table>
<thead>
<tr>
<th>GOALS, measured from the beginning as part of improvement and defined by the measurement plan</th>
<th>What is the expected direction of change?</th>
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<td></td>
<td>Definitely expected from outset</td>
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<td></td>
<td>Define goals and trade-offs; Speculate on surprises; Develop measurement plans; Consider costs;</td>
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<td>Undesirable Improvement trade-offs</td>
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<td>Unpleasant surprises</td>
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<td>Definitely unexpected from outset</td>
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<td>Improvement pause to define and measure any surprises; New measurement strategy; Consider costs;</td>
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<td>Desirable Improvement goals</td>
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<td>Pleasant surprises</td>
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**GOALS:**
- Clinical measurement strategy (including QA indicators, process or outcome measures)
- Duration and length of hospital stay
- Proportion of patients treated with gentamicin as surgical prophylaxis
- Prevented harm

**TRADE-OFFS:** smaller in magnitude than the goals and an ‘acceptable compromise’

E.g. Achieving the goals of rapid initiation of antimicrobials for patients with fever and neutropenia led to treatment delays for patients with less urgent problems and an expected increase in leaving without being seen.

**UNPLEASANT SURPRISES:** (unexpected undesirable consequences)

E.g. Risk of Acute Kidney Injury with gentamicin as surgical prophylaxis.

Results (Study 1 and 2)

A framework describing different types of consequences of quality improvement

Results (Study 3): Consensus about the process of evaluating all unintended consequences

<table>
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<th>Identifying consequences and choice of evaluation</th>
<th>Undertaking appropriate evaluation: Participants agreed that both quantitative and qualitative data was helpful to evaluate trade-offs and surprises, highlighting that qualitative data is often useful either to contextualise quantitative data or to understand impact when formal measurement is not feasible.</th>
<th>Interpreting the emerging data: Clinical teams should be involved throughout the whole process, but other stakeholders’ importance varies with the stage of improvement (patients in identification of consequences, managers in identification and choice of evaluation, and improvement advisors in interpretation of emergent data to inform future action).</th>
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| Participants rated measurement of goals as important, and there was agreement that trade-offs and unpleasant surprises should be actively considered. They also prioritised the evaluation of more seriously harmful consequences for patients, and those with high workload or financial impact within and without the care setting. | The Scottish Improvement Science Collaborating Centre (SISCC), led by the University of Dundee with NHS Tayside, aims to improve health and care by developing the evidence base for sustainable, large-scale improvement in health and social care. The SISCC brings together researchers, NHS staff, policy makers, educators, and the sector from across Scotland and internationally in a coordinated and coherent way, to add value to existing investment and deliver a ‘step change’ in improvement knowledge and practice, and maximise benefit for Scotland and beyond. You can visit us at www.siscc.dundee.ac.uk or follow us on Twitter @EBLimprovement |}

Selected References


Toma M, Deseulph T, Gray M, et al. Achieving a balanced accounting of impact through identifying, evaluating and interpreting all consequences of quality improvement: modified Delphi study. Submitted to BJM Open April 2018

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