



Improvement science methods research theme: measurement

Background and aim

Measurement is at the heart of all large-scale quality and safety improvement programmes in both health and social care, but although much is known about effective and efficient measurements there are key gaps which the improvement methods research theme is intended to help fill. This work builds on the existing strength of SISCO collaborators in measurement and improvement¹, to develop a coherent measurement system for a high standard safe and person-centred care, reflecting The Healthcare Quality Strategy for Scotland², which recognises the importance of measuring quality in its Quality Measurement Framework. The core research project focussed on three questions:

1. What are the strengths and weaknesses of process, outcome and balancing measures currently used in quality and safety improvement in Scotland and internationally?
2. To what extent are existing process measures tightly-linked to outcome, and what work would be required to demonstrate such linkage where it is absent?
3. How should balancing measures be created and used?

Progress

We initially completed a series of rapid reviews of published literature focused on the use of measurement in quality improvement, to inform the development of a three-phased mixed methods study to address these questions. Following this, in Phase 1 of the project (Apr-Aug 2015), 15 semi-structured interviews were conducted with international stakeholders including health and social care providers and commissioners, improvement advisors, policy-makers, academics and the third sector. Emergent themes were further explored in Phase 2 (Nov-Dec 2015), when four focus groups were carried out with 24 improvement and improvement science stakeholders. Phase 1 and 2 data are relevant to all research questions³ and research question 3 has been further developed through a modified Delphi consensus study (Phase 3). We have completed data collection and analysis of the first round (72 respondents from the UK and internationally) and will complete analysis of the second round in August 2016.

Lessons learned: balancing measures

Qualitative analysis of the individual and group interview data found general enthusiasm for the idea of balancing measures, but no consensus on definition or how best to design and

¹ Dreischulte T, Donnan P, Grant A, Hapca A, McCowan C, Guthrie B. N Engl J Med 2016; 374:1053-1064

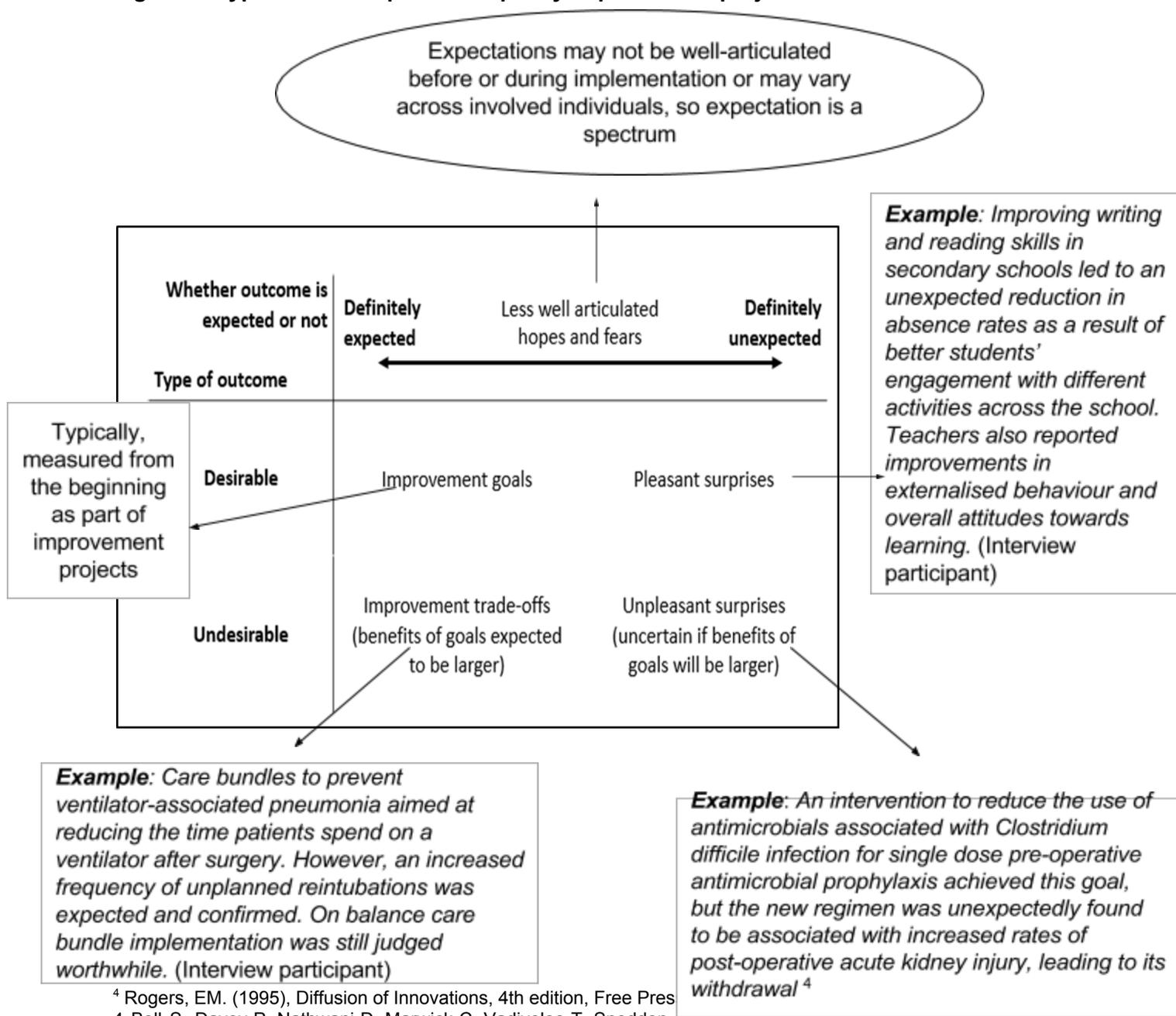
² Scottish Government (2010). Healthcare Quality Strategy for NHSScotland.

³ Preliminary findings are available at:

<http://nhsscotlandevent.com/sites/default/files/2016%20-%20NHSScotland%20Event%20-%20posters%20-%20S22%20-%20proofed%20-%20May%202016.pdf>

implement them. Drawing on the findings and the literature on diffusion of innovations⁴ we created a draft framework for conceptualising the consequences of improvement work in relation to their desirability and predictability (Figure 3), as well as informing the development of other Delphi propositions relating to *identifying* potential consequences of improvement interventions, *deciding* which of the identified consequences to actually measure, *implementing* balancing measures and *interpreting* the data.

Figure 3: Types of consequence of quality improvement projects



⁴ Rogers, EM. (1995), Diffusion of Innovations, 4th edition, Free Press

⁴ Bell S, Davey P, Nathwani D, Marwick C, Vadiveloo T, Sneddon J, Patton A, Bennie M, Fleming S, Donnan PT. Risk of AKI with Gentamicin as Surgical Prophylaxis. Journal of the American Society of Nephrology 2014; 25:2

The Delphi study first round results have shown areas of clear consensus in relation to our framework. In areas relating to implementation there is consensus that the domain matters (i.e. should be considered by improvement teams) but there is no consensus on detail, because decisions were perceived by participants to be context dependent.

Lessons learned: measuring quality and safety at different levels of a healthcare system

A major emergent theme, which was more important to participants than tightly-linked measures, was the purpose and design of measures at different levels of NHS Scotland, for example at clinical team, larger organisation and national levels. This is linked to wider debates in the literature about centralised vs locally developed and owned measurement and target setting, and about measurement for improvement vs measurements for judgement.

Next steps

The qualitative and Delphi studies have given us a good understanding of the potential benefits and costs of balancing measures, but although participants were enthusiastic about the benefits, most said that improvement they were involved in did not routinely use balancing measures. To better quantify the extent to which balancing measures are used in service and research improvement work, we are examining measures used in published reports of interventions to improve antibiotic prescribing in hospitals to explore what kinds of consequence are routinely measured to identify gaps in the use of balancing measures, and potential measures which future improvers and researchers could consider using. This will complement the Delphi findings by helping take the work from the development of a framework to a practical example of use. We have been commissioned to write an article on this work by the Journal of Antimicrobial Chemotherapy which is one of the main journals in that field. We intend to disseminate the findings within the NHS by offering seminars/workshops to discuss the framework interactively by considering the place of balancing measures in work they are engaged in. This work has the potential to be important and influential for quality improvement initiatives internationally as development of analytical methodologies and conceptual devices to improve the measurement and monitoring of quality are needed.