Board Level Measurement of Quality

Findings of a 90-Day Process

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Executive summary

This report describes a ‘90-day style’ project on the measurement of quality at Board level, including the findings and recommendations of the project.

The aim of the project can be separated into two components:

1. to recommend, principally for NHS boards, a core set of indicators on the quality of healthcare to be used at Board level, and

2. to recommend how these indicators should be presented.

The recommendations on the presentation of data are clear. NHS boards should look at their own data over time and also examine how they compare to other providers (for benchmarking as opposed to ranking). The importance of understanding variation rather than relying on aggregate data is highlighted. There are recommendations for tools to achieve this.

There was strong support for the concept of defining a small, core suite of indicators to be used at Board level across Scotland, with these being augmented by additional measures to be agreed locally. However, within the 90-day timescale for this project, there was neither evidence nor consensus on which to base recommendations for the specific indicators that should comprise this core set. There are clear recommendations for the areas that the core set of indicators should cover and the principles that should underpin these. Implementing the recommendations would support NHS boards in significantly reshaping the indicators on the quality of healthcare that are considered at Board level – and in doing so also reshape the discussion about quality at Board level.

It is common for 90-day style projects to identify the need for further work and therefore this report should be seen as a progress report rather than the conclusion. The next steps include seeking to work with an individual NHS board to test this in practice.
1. Project team

Healthcare Improvement Scotland led the project, working with Public Health & Intelligence (PHI) and with input from two NHS boards. The project team included:

- Project lead - Simon Mackenzie, Clinical Lead for Business Intelligence
- Deputy - Tim Norwood, Information Analyst
- Lead Data & Measurement Advisor – Kris Wright
- Project support – Kim Walker, Holly Williamson
- Wider project team - Donald Morrison, Steven Wilson, Colin Bell, Alan Ketchen (all from Healthcare Improvement Scotland), Alan Finlayson, Penny Bridger (both from PHI), Andrew Russell (NHS Tayside) and Iain Wallace (NHS Lanarkshire).

2. Intent and aim

The aim of the project was to recommend a core set of indicators on the quality of healthcare to be used at Board level, and to recommend how the indicators should be presented.

Healthcare organisations need a range of data throughout the system, from ‘ward/practice to Board’, and the focus of this project was on the data that are considered at Board level (by Executive and Non-Executive Directors). Recommending core indicators on quality should support individual NHS boards develop their own quality dashboards/reports. The project team recognised that these indicators would be of interest to others, including Healthcare Improvement Scotland to inform scrutiny activity.

The scope of the project included primary care, secondary care and mental health services. The project was not constrained by what indicators and data are currently available. The scope excluded social care, and also how to interpret and use the data.

3. Background

The need for NHS boards to understand and use data is a key recommendation of the Institute for Healthcare Improvement (IHI), the Berwick report, the Francis inquiry and the Scottish Patient Safety Programme (SPSP). The difficulties in doing so are highlighted by the Keogh reviews, the Berwick report and the review of quality of care for acute adult patients in one Scottish NHS board. The need for a suite of measures has been highlighted by The Health Foundation and by a Short-Life Working Group led by Healthcare Improvement Scotland, which recently published its recommendations on the Hospital Standardised Mortality Ratio (HSMR) in Scotland. That group’s first recommendation was that while summary hospital level mortality data do have an important role to play, less emphasis should be placed on the HSMR in isolation and mortality data should be considered in the context of a wider suite of measures on quality. The Health Foundation’s ‘The Measurement and Monitoring of Safety’, although concerned with one dimension of quality, is clear that ‘a single measure of safety remains a fantasy’.
4. Methodology

The project team adopted the IHI 90-Day innovation process⁹.

Figure 1: IHI 90-Day Innovation Process

Phase 1
During phase 1 (scanning):

- 29 semi-structured interviews were conducted (with NHSScotland stakeholders and recognised experts, including The Health Foundation, IHI, the Kings Fund, the Nuffield Trust)
- a limited literature search was carried out, and
- publically available NHS board quality reports were considered.

Phase 2
During phase 2 (focus), the project team tested emerging themes with Healthcare Improvement Scotland stakeholders and then shared and discussed these in a facilitated focus group with NHSScotland stakeholders. The participants in the focus group were all from Scotland and included Board members, clinicians, managers, and representatives of Royal Colleges.

Phase 3
In the final phase of the project (summarise and disseminate), the team agreed on recommendations which are presented in this report.

5. Findings

a. Literature review

The limited literature search did not identify an evidence base to define indicators for use by healthcare providers, at Board level, across the breadth of services. The papers obtained were mainly descriptions of indicators used for specific conditions, or by national agencies responsible for monitoring or improving care. These covered five different countries and a pan-Europe system for monitoring primary care. Whilst both these levels have their own merits, they do reflect a different perspective to that required by an NHS board charged directly with delivery of care across a range of settings, namely acute care, primary care, mental health. A common reference point was the Institute of Medicine's (IOM) six dimensions of quality; care that is safe, effective, person-centred, timely, efficient and equitable.
The Health Foundation has published several recent reports which are relevant. Their report *The Measurement and Monitoring of Safety* proposes a new framework for safety, based on answering five questions shown in Figure 2.

**Summary of literature review**

While individual metrics are referred to in the literature, there were no clear evidence-based recommendations for the specific metrics that should populate a core set of indicators to be used at Board level. There was, however, recognition of the need for measures to cover all the domains of quality.

**b. NHS board quality reports**

The project team reviewed the public Board papers for each NHS board to identify the ‘quality reports’ that are used throughout Scotland. A considerable number of indicators are reported, and some Board members have described this as overwhelming. Despite the differences in quality report, there are some commonalities – such as data are mainly presented at aggregate level, and the reports emphasise acute care with very limited information on primary care or mental health. In terms of the six domains of quality, it is access that dominates, with less information on safety apart from healthcare associated infection (HAI), and relatively little on effectiveness, equity, efficiency or person-centredness.

**c. Interviews**

Most interviewees talked more about the theory and the context of using data at Board level, and less about specific indicators.

The most commonly described context in which to frame indicators is the IOM’s six domains of quality. The importance of, and difficulties in, measuring person-centredness and equity were
highlighted. There was also broad agreement that there could be a small, core set of defined measures that all NHS boards consider (reflecting common issues that are of importance to all NHS boards) – and that these are augmented with additional metrics that will change from NHS board to NHS board and over time, to reflect priorities in a particular region at a particular point in time. It was suggested that NHS boards should set their own measures based on first principles such as “What is the purpose of the Board? What are your greatest quality concerns?” This would highlight the important areas of care and direct areas where measurement efforts should be concentrated. Interviewees all highlighted the risks of over simplification on one hand and of excessive information on the other, with one describing the challenge as to simplify complexity. Two interviewees described the challenge as being to answer these questions:

- Do you know how good you are?
- Do you know what your variability is (not just your average)?
- Do you know where you stand relative to the best?
- How quickly are you getting better?

Themes and indicators

Interviewees were asked to identify themes and suggest indicators. The themes are summarised in Figure 3 and the indicators in Figure 4. Clearly these could be influenced by the choice or interviewees and their area of expertise or interest. The themes are not neat categories, some reflecting general approaches and others specific areas of practice. It was suggested that patient experience should be measured more frequently and would be an early indicator of how the system is performing. There was support for the use of patient stories along with a more general summary to “keep the data alive”.
Figure 3: Word cloud showing relative weighted frequency of measurement themes identified during interviews.

Patient Experience

Figure 4: Word cloud showing relative weighted frequency of indicators identified during interviews.
Many of the 54 indicators (Figure 4) recommended during the interviews are actually areas containing multiple measures rather than specific metrics (for example measures for the Scottish Patient Safety Programme, British Association of Day Surgery, Quality and Outcomes Framework).

It is clear that there are differences between the themes individuals identified as important and the specific indicators they put forward. The most obvious example is that whilst patient experience is a very important theme, interviewees found it difficult to identify appropriate measures. This suggests that there is a gap between measures available and those desired.

Examination of the word cloud suggests that the approach taken, while helpful, has significant limitations that need to be borne in mind when considering the outputs of the interviews. Although interviewees talked of the importance of the six domains of quality, that balance is not reflected in these responses. The very low emphasis given to HAI, cleanliness, flow and hospital mortality (to give a few examples) is in contrast to common clinical and public opinion. There may be several reasons for this:

- the extent to which the choice of interviewees was representative
- the interviewees may have assumed that some things were so obvious as to be ‘a given’, and
- the absence of a prompt ‘list of indicators’ may have led to oversights.

However, the most important finding was that interviewees were not specific about the measures that they would include or exclude.

**Summary of interviews**

The interviews were helpful in outlining an approach and in identifying some possible themes that indicators should focus on, but they did not help identify specific indicators for a suite of measures. There was general support for a core suite of measures that all NHS boards should use, with individual NHS boards augmenting these with other metrics that reflect their own priorities at a point in time.

**d. Focus group**

At the focus group, there was broad support in principle for a core set of recommended indicators, but with important qualifications:

- the core set of indicators for all NHS boards should be augmented in individual NHS boards with metrics that reflect local priorities at a point in time
- there needs to be clarity around why we are measuring – recognising that the Scottish Government, NHS board, and the public want data for different purposes
- indicators should not be used to judge but to improve, and
- wherever possible, current definitions for indicators should be used.

It was also recognised that there is a need for support around the following areas (which were out of this project’s scope, but are important to note here):
• training around data and interpretation, including Board members understanding basic principles of variation (for example common cause and special cause variation), and

• creating a mature response to data.

The five safety questions from The Health Foundation framework (Figure 2) were considered helpful and potentially useful for the other five dimensions of quality.

There was less discussion about how data ought to be presented with the following points being highlighted:

• data presented ought to be a summary but granularity below this summary should be available if necessary

• data should allow comparisons over time, and

• timely data are more useful and there are reasons to use un-validated data over validated (older) data sets to ensure a timely and appropriate response.

Summary of focus group

As with the literature review and the individual interviews, there was broad support at the focus group for the principle of a national set of core measures, but specific measures could not be agreed on the day.

6. Summary and conclusions

The aim of the project was to recommend a core set of indicators on the quality of healthcare to be used at Board level, and to recommend how the indicators should be presented.

In relation to a core set of indicators, the project recommends themes and principles, but further work is required to define specific indicators. The recommendations on how indicators should be presented are more specific.

a. Standard suite

It is recommended that a small, core suite of indicators is defined to be used at Board level across Scotland, and this is determined by important issues that are common to all NHS boards. Individual NHS boards would then augment this core suite of indicators with metrics that reflect local priorities at a particular point in time. While the intention had been to define the core suite of indicators, this has not been possible in the timescale (90 days) of this project – it was clear from the literature review, interviews and the focus group that there is no suite of measures that could be recommended at this stage and that are based firmly in evidence or in consensus. It is anticipated that this should, however, be achievable with some further work.

All NHS boards should continue to monitor performance against some existing suites of metrics (for example HEAT targets, the Hospital Scorecard, the Quality and Outcomes Framework). It is noted that there is a de facto standard set of some measures already in existence across NHS boards, but that this is dominated by measures of access and is orientated towards acute care. This has probably arisen, at least in part, because measures are mostly available in these areas and they have high prominence. Information on person-centred care and patient
experience can be challenging to obtain. Measures of complaint response times and infrequent national surveys are not sufficient and work to develop timely and appropriate measures needs to be a priority.

As the data presented shape the discussion at Board level, there is a clear need to redress the balance in two ways:

- rebalance the measures used across the six domains of quality, and
- rebalance the measures used across the whole spectrum of healthcare (mental health, primary care, secondary care), and indeed social care.

The development of measures to be used at Board level should also take the following principles into consideration.

- Boards should focus on timely data rather than set piece reports which may be months in arrears.
- Boards cannot be fully informed by relying on aggregated data, and they need information about variation within and between services.
- Boards need to consider how their data compare to peers and how their data are changing over time.
- Whilst risk adjusted data are required for some comparisons (for example benchmarking), unadjusted data are often more valuable, for example for assessing local trends.
- Boards should focus on improvement for the future rather than simply assurance of past care. The Health Foundation framework may be a useful approach for structuring this, and accordingly measures could be framed around the following questions:
  - Has patient care been high quality in the past?
  - Are our clinical systems and processes reliable?
  - Is patient care high quality today?
  - Will patient care be high quality in the future?
  - How will we know that we are getting better?

b. Design of the data set

The data set that Boards consider will shape the discussion that they have about the quality of patient care, hence the actions of the organisation. Therefore, the starting point when defining a suite of measures should be the priorities of the Board. The dataset should then be developed to match these. To a large extent, these priorities are set by the NHSScotland Quality Strategy, and the shared priorities across Scotland provide the underlying rationale for developing a core suite of indicators to be used throughout the country. In addition to this, individual NHS boards will also have their own challenges/priorities, which ought to be reflected in the measures that supplement the core suite. There are large amounts of data available within NHS boards, which do need to be monitored (from ‘ward/practice to Board’). NHS boards should establish mechanisms to do this and identify areas of challenge which need to be considered at Executive and Board level. This approach has been adopted successfully by some NHS Trusts in England and is being developed in some NHS boards in Scotland (for
example NHS Tayside and at the National Waiting Times Centre). The ‘Ten Measures of Success for NHS Boards’ outlined by The Health Foundation\textsuperscript{10} provide a useful framework that is to be recommended. These capture some of the points raised above, and can be summarised as follows:

1. supplement active surveillance of mandatory measures with measures that signal the organisation’s aims, value and purpose
2. develop a strategy and align measurement to it
3. check balance across all six domains of quality
4. use data from observation as well as numbers
5. check balance between structure, process and outcome. Selection of measures based on design, not availability
6. supplement strategic reports with real time data
7. understand variation and how to apply special cause rules
8. understand how comparisons are made, their value and limitations
9. convert percentages to numbers and names to bring the data to life, and
10. celebrate success, use data to motivate.

\textbf{c. Presentation}

It is imperative that data provided to a Board are understood, and if necessary, acted upon. For that to be the case the manner in which the data are presented becomes all important. It is vital to avoid false reassurance and also to avoid the creation of unnecessary concern. This is largely achievable.

Single data points are seldom informative and can be actively misleading. Most variation is random and context is essential. Intelligent understanding of the data can be achieved in four ways by:

1. considering data over time
2. comparing data with other organisations
3. considering a suite of measures together, rather than each metric in isolation, and
4. taking account of local intelligence as to what might be affecting data.

\textbf{7. Recommendations and next steps}

There are 11 recommendations from this 90-day project. Recommendations 1-4 relate to the principles of a core data set, 5-9 to the presentation of indicators, and 10-11 on next steps to develop the principles for a core data set.
Principles

1. A balanced suite of measures across all six domains of quality should be considered at Board level.

2. A balanced suite of measures that cover primary care, secondary care and mental health services should be considered at Board level. This will need to expand to include social care.

3. There should be a core set of measures considered at Board level across Scotland, and supplemented by measures required by a specific NHS board at a specific time. The 10 principles outlined in The Health Foundation publication ‘Ten Measures of Success for NHS Boards’ provide a useful framework for this.

4. NHS boards should focus on looking for contemporaneous data and should consider unadjusted as well as adjusted figures.

Presentation

5. **Data trends.** Data should be monitored over time and displayed graphically using recognised statistical techniques such as run charts and Statistical Process Control charts. These are widely used in the Scottish Patient Safety Programme, for example. This is preferred to trend lines or simple comparison of two data points. It is also possible to use these techniques to measure the degree of variability over time which can help Boards understand how reliable care is across the organisation. Achieving consistency across NHSScotland in this regard will be immediately beneficial, and facilitate training of Board members.

6. **Data comparison between organisations (and between departments within organisations).** This can be helpful if clearly seen as a tool for improvement. Ranking and league tables are unhelpful, and fail to recognise that numerical differences are often minor and random. We recommend the use of funnel plots to distinguish statistical outliers (special cause variation) from normal (common cause) variation. This allows the leaders to be identified from whom others may be able to learn. There is a need to guard against the risk that this can induce complacency in those who are ‘within the pack’.

7. **Considering a suite of measures together.** The choice of measures is key here. As an example, when considering infection rates, NHS boards may wish to look at other measures that may affect these including bed occupancy, staffing levels and hand washing. This may help identify and resolve problems and is a test of validity of data. Bringing such information together visually helps these connections.

8. **Local intelligence** is always key to understanding data. High reliability organisations emphasise ‘sensitivity to operations’ - knowing what is happening on the front line. Unadjusted data can be of value.

9. **Making data accessible.** Several NHS boards have developed dashboards to increase accessibility. To illustrate, the National Waiting Times Centre has developed this into an interactive form that allows Board members and staff to drill down from the highest level to lower level. This facility was also seen during the demonstration of software at Royal United Hospital, Bath. These offer a way forward in balancing simplicity and accessibility of detail.
Next steps

10. Further work specifically to develop appropriate indicators for person-centred care, primary care and mental health and test these with stakeholders.

11. Work with a single territorial NHS board to build a draft set of quality measures that fulfill the principles above and the presentation recommendations outlined above.
8. References

1. http://www.ihi.org/Pages/default.aspx


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