Performance management in health systems and services: Studies on its development and use at international, national/jurisdictional, and hospital levels
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Chapter 7
A qualitative evaluation of the implementation of the PATH project in eight European countries
Chapter 7

Abstract

Objectives. To evaluate the perceived impact and the enabling factors and barriers experienced by participating hospitals during the implementation of an international hospital performance measurement project focused on internal quality improvement.

Methods. Semi-structured interviews of all country coordinators and of a sample of coordinators in participating hospitals in an international hospital performance measurement project including 140 hospitals from eight European countries (Belgium, Estonia, France, Germany, Hungary, Poland, Slovakia, and Slovenia). An inductive analysis of the interview transcripts was carried out, using the grounded theory approach.

Results. 1) Even in the absence of public reporting, the project was perceived as having stimulated performance measurement and quality improvement initiatives in participating hospitals; and 2) attention should be paid to elements of leadership/ownership, context, content (intrinsic features of the project), and processes supporting the implementation of international hospital performance measurement projects focused on internal quality improvement.

Conclusions. The generalizability of the findings is limited by the small sample size used for this research. Possible implications for the WHO Regional Office for Europe and for participating hospitals would be to assess the degree of preparedness of hospitals to participate in the PATH project, depending on context, process, and structural elements; and enhance the value of performance and practice benchmarking through suggested approaches. This research gathered rich and unique material related to an international performance measurement project involving 140 hospitals in eight different countries. It derived actionable findings from research methods used.
Introduction

The literature on hospital performance measurement identifies four pathways to improvement: the change pathway (in which providers use comparative information to improve performance); the selection pathway (in which health system users use comparative information as consumers to change from poor to good performers); pay-for-performance (in which providers who achieve measured standards or targets receive financial rewards); and reputational damage (in which providers who perform poorly suffer damage to their public reputation from regular public reports) [1–7]. These four pathways are consistent with the literature on performance management in the public sector, which classifies performance improvement pathways depending on their source of control (internal or external) and on the nature of expected actions (supportive or punitive) [8,9].

Systematic reviews of the literature have found little evidence that the selection and change pathways are effective [10–12], and limited evidence of the impact of pay-for-performance models [13–15]. However, there is consistent evidence from the US (at the regional level in controlled studies) [16,17] and from the UK (on a larger scale) [18–22] that, when implemented, the reputational damage pathway effected change.

Overall, the literature on hospital performance measurement describes in what conditions public reporting of hospital performance information is sufficient to stimulate performance improvement; however it doesn’t address the question whether it is always necessary [23]. In contrast, the literature on health services research and on performance management points to the importance of linking content, context, and process to effect change [24]. A literature review comparing hospital performance measurement projects across the world identified eleven projects, six of which were accompanied by a public release of the results and five of which were not [25]. This study found that there was limited evidence so far about the comparative effectiveness of the various approaches. This raises the question of whether alternative pathways than public reporting of hospital performance can effect change and under what conditions these pathways are likely to succeed.

One alternative pathway relates to projects developed primarily for internal quality improvement purposes with no public release of data [9]. The WHO Performance Assessment Tool for quality improvement in Hospitals (PATH) is an international hospital performance measurement project developed in 2003 and described in previous papers [25,26]. It aims to support hospital managers in assessing hospital performance, questioning performance results, and translating them into actions for improvement [9]. The project includes a multi-dimensional conceptual framework for hospital performance assessment based on most known theories of organizational performance; a core set of evidence-based performance indicators derived from an
extensive literature review covering the interrelated performance dimensions of clinical effectiveness, efficiency, staff orientation, responsive governance, safety, and patient centredness; tools for performance improvement such as a performance dashboard; and an international exchange and benchmarking platform for participating hospitals through a website (http://www.pathqualityproject.eu) and national and international workshops and conferences. The project was developed through extensive reviews of the literature on performance measurement and performance indicators, and through consensus building methods that involved experts and hospital managers from several countries.

The project was piloted in 2004–2006 in six countries/regions in 37 hospitals and this pilot was evaluated and results published [27]. This evaluation focused on the overall experience of hospitals participating in the pilot and their assessment of individual indicators, and the importance of context, implementation processes, and perceived benefits and plans for future development at national/regional level. A second wave of data collection was undertaken in 2007–2008 in 140 hospitals from eight countries: Belgium, Estonia, France, Germany, Hungary, Poland, Slovakia, and Slovenia. The number of participating hospitals varied from one to forty hospitals by country. During this phase of the project, performance indicators were calculated and results fed back to participating hospitals in the form of a hospital performance dashboard and results for individual indicators. The results for the individual indicators were compared to the median, 75th percentile, maximum, and minimum results for the participating hospitals of the different countries. Results were then analysed by hospitals and quality improvement activities were initiated on the basis of the findings. Table 1 below presents the list of performance indicators collected and describes the sample for the second wave of data collection.
A qualitative evaluation of the implementation of the PATH project in eight European countries

Table 1. List of WHO-PATH performance indicators collected by participating hospitals and description of the sample for the second wave of data collection

<table>
<thead>
<tr>
<th>Indicator name</th>
<th>Number of participating countries</th>
<th>Number of participating hospitals</th>
<th>Number of observations in denominator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caesarean section rate</td>
<td>8</td>
<td>155</td>
<td>Unknown (2)</td>
</tr>
<tr>
<td>Prophylactic antibiotic overuse and underuse</td>
<td>6</td>
<td>101</td>
<td>6292</td>
</tr>
<tr>
<td>In hospital mortality rate for selected conditions (1)</td>
<td>8</td>
<td>155</td>
<td>23455</td>
</tr>
<tr>
<td>Readmission rate for selected conditions (1)</td>
<td>6</td>
<td>108</td>
<td>8407</td>
</tr>
<tr>
<td>Day surgery rate for specific procedures (1)</td>
<td>5</td>
<td>100</td>
<td>21325</td>
</tr>
<tr>
<td>Admission after day surgery for selected procedures (1)</td>
<td>5</td>
<td>100</td>
<td>13281</td>
</tr>
<tr>
<td>Unplanned readmission to intensive care unit within 48 hours of discharge</td>
<td>6</td>
<td>105</td>
<td>20685</td>
</tr>
<tr>
<td>Median length of stay for specific conditions (1)</td>
<td>7</td>
<td>154</td>
<td>20166</td>
</tr>
<tr>
<td>Needle injuries</td>
<td>8</td>
<td>154</td>
<td>59648</td>
</tr>
<tr>
<td>Staff smoking</td>
<td>6</td>
<td>105</td>
<td>35680</td>
</tr>
<tr>
<td>Exclusive breastfeeding at discharge</td>
<td>6</td>
<td>105</td>
<td>6686</td>
</tr>
<tr>
<td>Score on Care Transition Measure (CTM3) (discharge preparation)</td>
<td>5</td>
<td>55</td>
<td>15995</td>
</tr>
</tbody>
</table>


(2) Several hospitals provided a rate without including details on number of deliveries

In order to better understand the conditions under which the internal quality improvement pathway described above can succeed, it seemed appropriate to evaluate the perceived impact of the project on performance measurement and quality improvement activities of participating hospitals; and to identify the enabling factors and barriers (including contextual factors) experienced during implementation.

**Methods**

Qualitative evaluation methods were used in order to address the two research questions, because they seemed to be the most appropriate approach to gather rich analytical material about the users’ experiences with the project. The group of experts providing scientific guidance to the WHO Regional Office for Europe on the project developed an evaluation methodology and a questionnaire for telephone interviews.
of participants. Data were gathered through semi-structured interviews of all country coordinators (eight) and of a sample of coordinators of participating hospitals (two per country, sixteen in total). In order to enrich the analysis, each country coordinator was asked to propose two hospitals to be interviewed: one which they would perceive as having had a positive experience with the project; and another one which they would perceive as having had a less positive or negative experience with the project.

Between May and July 2009, one researcher (MS) carried out 20 interviews (eight country coordinators and twelve hospitals) out of the 24 planned. Interviews lasted 45 minutes on average. A research assistant transcribed the interviews based on the audio recordings, and the interviewer verified the transcriptions for accuracy. On the basis of the transcriptions, a preliminary round of analysis of 10 sample interviews was conducted with the objective to develop a framework for analysis of the data. This phase was completed by the interviewer/researcher (MS) along with two of the other authors of this article (JV and ALG), who were also involved in the execution of the project. The findings were grouped by broad themes (context, information systems, PATH model, PATH implementation, other issues) and sub-themes, and cross-tabulated with four perspectives (expectations, perceived impact, enabling factors, barriers to implementation) relevant to our research questions. All results were introduced in a matrix, in the form of an electronic spreadsheet and regrouped by countries, hospitals, and country coordinators. The aim of this approach was to facilitate during the analysis the comparison of the perspectives of interviewees at different levels. An inductive analysis of the research questions was then carried out using the grounded theory approach. Full audio recordings of interviews were available for double-checking the transcriptions when necessary. Finally, the three parties reconciled the results through consensus meetings and the authors of this paper synthesized the findings. A final draft of the paper was shared with all interview participants to ensure the accuracy of the interpretation, and their comments were incorporated in the final results.

**Results**

Overall, 20 of the interviewees out of 24 (83%) included in the sample responded to the interview: 100% of country coordinators and 75% of hospital coordinators. It should be noted that in the case of Slovenia, only one hospital could be interviewed since it was the only hospital participating in this phase of the project.

**Reported impact on information management and performance measurement in participating hospitals**

In the interviews, 16 interviewees out of 20 mentioned that PATH had stimulated performance measurement activities in hospitals, and all (seven country coordinators
and nine hospital coordinators) provided examples of on-going, new performance measurement activities. Furthermore, 15 interviewees out of 20 (seven country coordinators and eight hospitals) mentioned that PATH had stimulated improvements in information systems in participating hospitals, and all provided examples. The same interviewees mentioned that they had seen improvements in data quality and information systems for a range of performance indicators.

Most of the data required for collection were available for participating hospitals. However, for some indicators the extraction of the data from the existing sources proved burdensome. For instance, indicators covering the staff orientation dimension were mentioned as challenging to collect: “we discovered that the level of computerization of our human resources departments was very bad so some hospitals had to take pencils to calculate them manually”.

For the data already collected, issues with data quality were revealed—for example, the under-reporting of adverse events: “[the reporting of needle injuries] was done also before the PATH project but we found during the data collection that some reporting systems in smaller hospitals were not valid. So they were under-reporting.”

In general, indicators collected from administrative databases were easier to retrieve for participating hospitals. In some instances, there were discrepancies between the indicators computed at hospital and at national levels and as a consequence a dialogue on the reasons for those discrepancies was initiated. This is an illustration of the opportunities for capacity building for data management within hospitals.

Instances where data were not available required either ad hoc data collection on a time-limited basis or adaptation of the routine data collection systems. A number of hospitals made changes to their information management systems to enable the routine collection of these data: “for operating room occupancy, we organized a case-management system through which data were collected concerning the time when the patient came, the operation begun, the operation ended, and the patient went out. This was induced by the PATH project because we didn’t have any data about it. It has been continued.”

**Reported impact on quality improvement initiatives in participating hospitals**

The majority of respondents (14 respondents out of 20, including 11 hospitals out of 16) mentioned that hospitals had planned to or had already implemented quality improvement initiatives related to specific performance findings. Most hospitals provided examples. In Slovenia, a hospital coordinator mentioned that “approximately half of the indicators provoked questions that were discussed and worked on to understand what was going on”. In Poland, the country coordinator and hospital coordinators worked with the Polish Hygiene Association to reconcile different clinical practice guidelines: “we had to set up an initiative with the Polish Hygiene Association to develop guidelines on prophylactic antibiotic use. We had a meeting with them.
A professor provided the guidelines. Almost every hospital had its own individual guidelines but they were not coherent.”

Another example related to a complete process redesign on operating room use: one of the hospital coordinators interviewed in Estonia mentioned that the indicator “gave much more information about where there was the biggest waste of time” and that “they have improved the usage of the operating room because of that indicator (…) it changed the logistics and the system of organization and planning”. One country (Estonia) also mentioned that the performance findings had been instrumental in defining hospital training needs so that capacities could be developed to address performance shortcomings.

All countries (except one) cited prophylactic antibiotic use as one of the indicators for which most quality improvement activities had been initiated. Another indicator often quoted was operating theatre use. Table 2 below provides an overview of indicators quoted by interviewees as having had a substantial impact.

**Table 2. Indicators mentioned by interviewees as having had a substantial impact on quality improvement, by country**

<table>
<thead>
<tr>
<th>Performance indicator</th>
<th>Belgium</th>
<th>Estonia</th>
<th>France</th>
<th>Hungary</th>
<th>Germany</th>
<th>Poland</th>
<th>Slovakia</th>
<th>Slovenia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caesarean section rate</td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prophylactic antibiotic overuse and underuse</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>In hospital mortality rate for selected conditions</td>
<td>X</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Readmission rate for selected conditions</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Admission after day surgery for selected procedures</td>
<td>X</td>
<td></td>
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<tr>
<td>Unplanned readmission to intensive care unit within 48 hours of discharge</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Median length of stay for specific conditions</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
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<tr>
<td>Day surgery rate for specific procedures</td>
<td>X</td>
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</tbody>
</table>
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<table>
<thead>
<tr>
<th>Performance indicator</th>
<th>Belgium</th>
<th>Estonia</th>
<th>France</th>
<th>Hungary</th>
<th>Germany</th>
<th>Poland</th>
<th>Slovakia</th>
<th>Slovenia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating theatre use</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Needle stick injuries</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Staff smoking prevalence</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exclusive breastfeeding rate at discharge</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Patient satisfaction survey results</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>

Several respondents mentioned that as a result of their participation in PATH, they had initiated benchmarking activities with other comparable hospitals in order to stimulate quality improvement. Two countries mentioned that they had set up national (Estonia) or sub-national (France) networks focusing on quality improvement and performance benchmarking.

A respondent mentioned the benefit that came out of these benchmarking meetings: “it helped us create the network with other Estonian hospitals so that for most of those involved in data collection we now have monthly meetings where we discuss both PATH and other quality issues. That was really helpful, because this network did not exist before. And all participants feel that this is something very important.”

Finally, a number of hospitals also mentioned that PATH had helped them meet quality and performance requirements by funders (Belgium, France, Slovakia, Slovenia). For example, “In Belgium, the PATH project helped prepare the hospitals to the conditions of the quality and patient safety contract”.

Overall, every organization reporting a positive change in information management or performance measurement also reported having initiated quality improvements activities as a result of their participation in the project.

**Enabling factors and barriers to implementation**

Despite diverse health care systems, information systems development stages, and regulatory contexts across the eight countries, a number of common enabling factors emerged from the analysis of the interviews and related to elements of leadership, context, process and structure, and content.

The existence of appropriate structures and processes at national level to support the implementation of the project (for example, national steering committees in Belgium, Estonia, and Slovakia; or benchmarking networks in Estonia or France) was mentioned by several respondents.
Content related enabling factors related to the intrinsic features of the project: thirteen respondents out of twenty mentioned it, including all country coordinators. More specifically, respondents cited the multi-dimensional model of performance (cited by Belgium, Estonia, France, Germany, Slovakia, and Slovenia); the possibility for hospitals to participate in an international project; and the fact that the project included standardized, evidence-based indicators supported by relevant material (Estonia, Hungary, Poland, Slovenia, Slovakia). One country coordinator mentioned for example, “we took part in the project in order to offer hospitals the possibility to measure a set of multi-dimensional indicators”.

Several contextual enabling factors were identified: prior involvement of participating hospitals in quality management activities (Estonia, Poland, Slovakia); an adequate positioning of the project in the national environment (ten respondents mentioned it); the absence of prior similar projects of national scale (Belgium, Estonia); the possibility to link the project to an accountability agenda with payers (Belgium, France, Slovakia, Slovenia), to an accreditation agenda (France, Poland), or to a broader quality improvement agenda (France, Slovakia, Slovenia); and the importance of ensuring institutional support from a range of different stakeholders.

Finally, 13 respondents out of 20 mentioned the leadership and support provided by hospital managers and hospital coordinators; and the ownership of the project by hospital staff.

Conversely, respondents mentioned several barriers to implementation. The most frequently cited was the burden of data collection for several performance indicators (ten respondents out of twenty, mostly hospitals). In Slovakia, for example, a hospital coordinator mentioned, “our information system is not optimal and a lot of the data had to be collected from medical records which was a lot of work for us”. Another barrier mentioned was the lack of performance management and measurement capacity and culture in hospitals, particularly in smaller hospitals (nine out of twenty). In addition, the absence of data or poor data quality for specific hospitals and the lack of timeliness of the feedback reports received from the WHO Regional Office for Europe were mentioned by eight respondents out of twenty. Finally, six respondents mentioned as a barrier the lack of coordination with other quality improvement projects at national level.

**Discussion**

A large majority of the respondents mentioned the following results of participation in the project: stimulation of performance measurement activities and improvements in data quality and information systems; implementation of several quality improvement initiatives of local or national scale; and enhanced capacities for analysis, performance measurement, and benchmarking. A number of common enabling factors were reported:
the leadership and ownership of hospital managers, coordinators, and hospital staff; positioning the project in a supportive environment at national and local levels; the intrinsic features of the project such as a solid evidence base, a multi-dimensional model of performance, and the possibility of international performance and practice benchmarking; and appropriate processes and structures in place at national level. Conversely, barriers to implementation mentioned related to the absence of data, poor data quality, and burden of data collection; the lack of coordination with other quality improvement projects at national level; a limited capacity for and culture of performance measurement and management; and the lack of timeliness of feedback reports provided by the WHO Regional Office for Europe.

The use of a purposive review of the literature on hospital performance measurement, on its impact, and on performance management, coupled with qualitative evaluation methods allowed gathering a wealth of information on users' experience with the project. Methodological precautions were taken to ensure that the research would be as systematic as possible. Still, the interview sample was small and made of hospitals participating voluntarily in the PATH project, which limits the generalizability of the findings. In addition, it could be argued that these hospitals were likely the most advanced in the field of performance measurement in their respective countries. Finally, the social response bias may have distorted answers since the interviews focused mainly on the perceptions of respondents. The findings should therefore be interpreted with caution.

Still, these findings support the value of the internal quality improvement pathway when the conditions for success mentioned above are met and noted barriers are reduced. This is consistent with the literature on quality improvement, performance management, and health services research pointing to the importance of linking content, context, and process to effect change [24].

The contributions of the study to theory relate mainly to re-enforcing the importance of leadership, contextual, and process elements in the implementation of hospital performance measurement projects. The importance of enabling contextual factors can be illustrated by two different country examples. In the case of Slovenia, the project was implemented through close collaboration between health system stakeholders (Ministry of Health, National Health Insurance Fund, hospitals, and other stakeholders) and influenced the development of a standardized set of quality indicators, which were implemented at a national scale in 2011. In Germany, the project was mainly implemented at a central level through extraction of data from administrative databases and with limited involvement of hospital professionals, in a context of redundancy with other performance measurement initiatives. As a consequence, respondents perceived that the impact of the project on participating hospitals had been very limited.
This study also provides insight for practice. Three main paradoxes were identified through this research. The first paradox is that even if the burden of data collection and data quality issues were seen as important barriers to implementation, the two indicators perceived as the ones with the most impact were also the ones with the highest burden of data collection and operational definition issues (prophylactic antibiotic use and operating theatre use). This suggests that the burden of data collection for specific performance indicators and the cost of investing in new data collection processes should be balanced with their potential for performance improvement. A practical implication would be for projects of this nature to replace a criterion such as burden of data collection by a cost-effectiveness criterion comparing the burden of data collection and the potential impact of the indicator on quality improvement activities. A second paradox relates to the international nature of the project, which was a strong incentive for hospitals to participate. If international comparisons were not possible due to a lack of standardization of the data, the possibility for hospitals to confront their own experiences with performance improvement in an international setting was seen as one of the most interesting features of the project by participating hospitals. This finding is consistent with other research findings on international benchmarking in hospitals showing that in the context of limited possibilities for performance benchmarking, the exchange of professional experiences and practice benchmarking can be seen as a valuable approach by health care professionals [28]. Finally, the third paradox relates to the fact that respondents mentioned several times the multi-dimensional performance framework as one of the project enablers when performance improvement initiatives mentioned related exclusively to individual indicators and not to a multi-dimensional approach to performance measurement and management. This suggests that in order to support performance management, additional instruments should be developed to help managers understand possible trade-offs between performance indicators, and between performance dimensions. This study suggests overall that if public reporting of hospital performance data associated with positive or negative consequences may be sufficient for performance improvement, it may not always be necessary. In addition, the conditions under which projects such as the PATH project should be designed, developed, and implemented should be carefully considered depending on process, contextual, and structural elements. These are important lessons to be taken into consideration for the development of similar projects in the future and for enhancing this specific project in particular.

These findings identified possible implications for the WHO Regional Office for Europe, primarily to develop methods for countries to assess their degree of preparedness to participate in the PATH project including minimum level of quality of information systems, sufficient culture of evaluation, and appropriate policy support. In addition, additional support instruments could be developed to provide guidance to
participating countries on how to assess their national context before implementation of such a project and how best to position it; to define what minimum support processes should be in place at hospital and national levels and how to structure it; and to better understand how to maximize the value of international networks. In addition, hospitals should consider if the contextual, process, and structural conditions are met to successfully implement such projects. Finally, the value of benchmarking networks at local, national, or international levels could be enhanced by developing practice benchmarking opportunities that would take into consideration the context of implementation of performance improvement activities.

Finally, this study raises promising areas for future research, such as: analysing the comparative cost-effectiveness of hospital performance measurement projects; assessing the implementation and effectiveness of managerial tools and processes supporting performance improvement; and evaluating the impact of performance improvement systems on outcomes of care over time [29].
References


