

# Evaluating the Implementation and Effects of a Multilevel Quality Collaborative in Hospital Care

M.L.A. DÜCKERS MA\*; C. WAGNER PHD; P.P. GROENEWEGEN PHD

NIVEL – Netherlands Institute for Health Services Research  
Otterstraat 118-124, 3513 CR Utrecht visiting address  
PO Box 1568, 3500 BN Utrecht postal address  
e-mail: m.duckers@nivel.nl\*  
tel: +31 30 2729 603\*  
fax: +31 30 2729 729

## ABSTRACT

**Phase of the research when this was written:** In the middle of the process. Before the data collection of the final part of the study, but after reviewing the literature and first data collection and analyses.

**Main research question:** How does the participation by hospitals in a multilevel quality collaborative (MQC) result in enhanced quality of care and the development of an organizational infrastructure for improvement, stimulating the adoption and sustainable spread of best practices?

**General design and sample:** Monitoring of process and effects of implementation and spread of breakthrough projects by multidisciplinary hospital teams joining six quality improvement collaboratives (QICs). Data are gathered among actors within hospitals (e.g. executives, programme coordinators, managers, doctors and project leaders of improvement teams) as well as external change agents responsible for supporting hospital actors. Data from a national survey are used to compare the state and effects of the improvement infrastructure in the intervention group (the MQC group) and a control group (non-MQC).

**Main findings (expected):** The study will clarify how leadership and support by the parties involved relate to the implementation, spread and sustainability of innovations within hospitals. Furthermore, it will illustrate how the intended improvement infrastructure connects national health care targets to care delivery by individual professionals.

**Methodological challenges:** 1) Analyses require a certain amount of statistical power. The limited number of hospitals and project teams combined with self report bias (too positive) and non response reduces the sample size and availability and reliability of necessary data. 2) Developing an instrument to monitor the degree to which relevant conditions are met during the implementation of breakthrough projects in a QIC. 3) Conceptualization of the

emerging organizational improvement infrastructure is needed to formulate an evaluation strategy in which intervention and control group are compared. 4) Controlling for hospital characteristics while comparing, all the more because the 24 MQC hospitals are not randomly selected. 5) Aggregating data at unit (micro) level to institutional (meso) level.

**Practical challenges:** Many actors and conditions play a role in implementing the MQC. The setting of the evaluation study is highly politicized. Evaluation inevitably means influencing the implementation, a process based on communicating success stories, as it also generates less positive insights.

**Main lessons for other researchers:** Besides general advice, a number of tips and recommendations is listed for conducting an independent evaluation study in a political environment.

*Conformity can be costly in a world of uncertainty which requires innovative institutional creation because no one can know the right path to survival. – Douglass C. North*

#### **A PROGRAMME TO IMPROVE HOSPITAL CARE AND STIMULATE ORGANIZATIONAL DEVELOPMENT**

This chapter was written as the research reached the stage where it was halfway completed. Our study involves an evaluation of a sector wide quality improvement and dissemination programme for hospitals in the Netherlands. The *Better Faster* programme is designed to stimulate quality improvement, the spread of breakthrough projects and systematic performance management within participating hospitals (view box 1 for additional information on the context where it is implemented).

We will start our contribution by paying attention to the structure and other features of the improvement programme. Next, the chapter addresses the research objective and questions. Also it covers the study design, data collection, analyses and some of the challenges we were (and are) confronted with, both methodological and practical. Finally, based on our experiences so far, we will summarize some main lessons for other researchers.

### **BOX 1: Characteristics of the Dutch hospital sector**

**Categories of hospitals** Dutch hospitals can be divided into categories. *General hospitals* concentrate on treatment, nursing and the education of doctors and nurses.

*Top clinical hospitals* also provide medical training and highly specialized care (e.g. heart and neurosurgery, IVF) that requires expensive and specialized instruments. *University hospitals* deliver patient care, conduct scientific research and education for medical faculties and develop new medical technologies and techniques.

**Number of hospitals** In 2006 there were 141 hospital locations, organized in 93 hospital organizations (mostly general, about 20 top clinical and eight university hospitals) (Roeding 2006).

**Trends** The number of hospitals has decreased in the last few years. In response to merging insurance companies and (regulated) competition with other hospitals and service providers, it is expected that hospitals are going to improve their bargaining strengths (scale extension) and quality of care delivery.

**Number of medical specialists** 14.283 (Capacity Plan 2005).

**Partnerships** Most medical specialists work in a hospital setting. The majority is self-employed, working with other specialists of the same speciality in a partnership.

**Medical specialist and hospital; an integrated enterprise** Medical specialists and 'their' hospitals operate as one entity. This follows from the Integration Act. The law has integrated the claims of insured parties for specialist care and hospitals services.

### **STUDY SUBJECT: A MULTILEVEL QUALITY COLLABORATIVE**

Better Faster was introduced in November 2003. The programme is a logical next step in the implementation of quality management systems in Dutch health care institutions. Since 1996 health care organizations are bound by law to provide effective, efficient and patient oriented care (Care Institutions Quality Act 1996). Despite the obligation to develop a quality system to improve and assure the quality of care, not enough progress was made with the construction of quality management systems (Sluijs *et al.* 2000) and the spread of knowledge of best practices (box 2 gives an overview of the recommendations).

### **BOX 2: Recommendations for the development of quality management systems**

In 2000 the Netherlands Health Care Inspectorate stated that more transparency was necessary to improve the external accountability concerning quality of care, and the internal management of health care processes. Four recommendations were made:

those (parts of the) sectors that are behind on schedule should develop quality systems by using the experience and knowledge of others;  
coordination between different quality systems is important;  
additional influence must be allocated to patients and insurance companies;  
more attention for illuminating the risks the quality system tries to tackle and the outcomes of care delivery is desirable.

Subsequently, the Ministry of Health launched an improvement programme, resting on three pillars:

- Creating awareness by having authoritative experts from other fields of service delivery communicate appealing points of reference on relevant themes (e.g. safety, logistics and accountability).
- Construction of a national set of performance indicators for safer and better hospital care.
- A national action programme to stimulate transparency, efficiency and quality of care by implementing breakthrough projects in a selected group of hospitals.

### **Mission and time path of the third pillar programme**

Although Better Faster is a mix of the three pillars, we are focusing primarily on the third one. The Ministry requested a number of parties, afterwards assembled in a consortium, to design and implement the third pillar. Their efforts resulted in a programme with the following mission: *Realizing a substantial and appealing performance improvement in 20% of Dutch hospitals on the areas of patient logistics and patient safety. Simultaneously, a 'flywheel' is established within participating hospitals, aimed at internal spread of results and newly developed competencies* (Schellekens *et al.* 2003).

Each participating hospital implements two series of breakthrough projects in order to start the 'flywheel'. This flywheel is a metaphor for the infrastructure enabling further improvement and dissemination. Illustration 1 shows the time path of the programme. 24 hospitals are divided in three groups of equal size. Each group joins the programme for a period of two years.

### **[ILLUSTRATION 1]**

#### **General features of breakthrough collaboratives**

The blueprint of the third pillar resembles what is known in the literature as a quality improvement collaborative (QIC) (Leatherman 2002; Mittman 2004). 'A collaborative brings together groups of practitioners from different healthcare organizations to work in a structured way to improve one aspect of the quality of their service. It involves them in a series of meetings to learn about best practices in the area chosen, about quality methods and change ideas, and to share their experiences of making changes in their own local setting.' (Øvretveit *et al.* 2002). To improve performance, medical professionals use 'breakthrough' methods. The implementation is based on repeated application of the Nolan model. Professionals run improvement cycles (plan-do-study-act) and answer three questions: 1) 'what are we trying to accomplish?', 2) 'how will we know that a change is an improvement?' and 3) 'what change can we make that will result in an improvement?' (Berwick 2003; Langley *et al.* 1996).

The implementation is supported by external change agents. These individuals – change experts and experienced consultants – connect the innovations to the receptive context of the adopting hospital units. They organize a series of meetings where hospital teams receive instructions. The teams are responsible for implementing/reinventing the innovation so that it fits their needs. They are supposed to systematically measure their outcomes, test several interventions, work under time pressure and compete with other teams (Berwick 1998; Øvretveit *et al.* 2002; Van Splunteren *et al.* 2003).

#### **The third pillar approach**

Seven of the third pillar programme targets are covered by breakthrough projects. Table 1 includes the programme targets and duration of the six breakthrough projects. In each programme hospital two series of projects are implemented by multidisciplinary project teams.

### **[TABLE 1.]**

In the first year the teams run plan-do-study-act-cycles (PDSA) to reduce infections, pressure ulcers, access time for clinical consultation et cetera. Series II is about coordinated spread of the pilots of the first year (working methods, competencies and results) over new units. Both series of improvement projects are required for activating the flywheel. More concrete: while participating in the programme and implementing projects the hospitals are expected to develop an infrastructure with indicators, accountability and feedback loops that will help them to start similar trajectories in the future, easier and without programme support. Hospitals have to provide structures, procedures and facilities that raise and maintain systems enabling the organization to control the quality of processes and outcomes.

The collaborative approach, nevertheless, stretches beyond the breakthrough topics. Besides a fourth safety target – implementing a system of blame free reporting – the collaborating hospitals commit themselves to substantially upgrade the position of patients in care delivery processes (patient participation) and the professional quality of medical specialists. These targets affect the safety culture and learning climate in the hospitals, the professionalism of the people working there, and the needs and experiences of patients.

### **Why is it a multilevel programme?**

According to Ferlie & Shortell (2001) a single level approach for implementing improvement projects has its shortcomings. Instead, one should pay attention to the entire organization as a multilayered system. The consortium seems aware of this notion and constructed the third pillar as a combined bottom up-top down approach by adding a 'leadership network'. We have seen how the time path of each group of hospitals begins with breakthrough QICs. Moreover, strategic managers of every hospital in each group take part in a recurring executive network, part of the sub programme Leadership & Organizational Development (L&O). L&O encompasses a collaborative platform where hospital directors can share knowledge and experiences related to change processes in their institutions. The sub programme has three targets, focussing on the flywheel:

- creating an infrastructure for improvement;
- performance management as a normal part of strategy and administration;
- leadership in innovation and improvement.

Taking this into account, we consider it appropriate to call the third pillar programme a multilevel quality collaborative (MQC). L&O serves as an umbrella thanks to:

- the explicit goal of building an infrastructure for improvement by the integrated implementation and spread of interventions, competencies and results;
- the presence of techniques and interventions to be implemented at every organizational level (Consortium 2004).

In illustration 2 the MQC support organization (the Consortium's external change agency) is positioned between the hospitals. The support organization (the grey shape) is connected to actors in the hospitals at strategic (S), tactical (T) and operational level (O). For each group of hospitals the consortium has two years to exchange knowledge and information needed for running both series. Thus, the MQC serves as a temporary network of horizontal and vertical communication lines. A temporary network with the purpose of stimulating organizational development and the broad implementation of evidence based medicine and effective quality improvement methods.

### **[ILLUSTRATION 2]**

The MQC-implementation, takes place in a complex environment comprised by exogenous conditions. It includes:

- two other Better Faster pillars (promising best practices and awareness by transparency);
- gradual introduction of an institutional coordination model of regulated competition (the quasi market; Bartlett & Le Grand 1993);
- a change in the financial system bringing standardized output pricing;
- new roles for insurance companies and patients or their representatives in demanding high quality and low prices.

Why the improvement infrastructure is a quality control mechanism

The policy makers and the consortium assume that Better Faster and the element of competition generate an effective mechanism for channelling the behaviour of actors in the Dutch hospital sector at a macro, meso and micro level.

At *macro* level, the competition between hospitals is fed by the discrepancy between feasible transparent norms and the performance of a specific organization or organizational unit. This ‘quality chasm’ is to be crossed by applying working methods, procedures, techniques and conditions that seem promising in achieving the norms (i.e. the breakthrough projects). The national strategy can be summarized as: by creating competition between hospitals (quasi-markets) and formulating feasible norms (quality parameters and standardized prices), the hospitals are triggered, even pressured, to be fully aware of the status quo at meso or micro level (the chasm) and will do their best in optimizing processes and outcomes (creating or adopting new methods, interventions et cetera). The implicit assumption of policy makers is that the presence of the right institutional conditions at macro level will guide the behaviour and choices of directors and top management of hospitals (*meso level*) and professionals working in the hospital units (*micro level*). The three L&O targets – infrastructure for improvement, performance management and leadership – aim at congruence between vision (S), supportive measures (T) and implementation (O) by systematic feedback between the levels (illustration 3).

### [ILLUSTRATION 3]

Consequently, by developing such a performance management based improvement infrastructure, in fact a quality control mechanism is initiated, resembling Wagner’s description of a quality management system at its highest stage (box 3). The system that helps the programme hospitals to implement new innovations in a similar way, also facilitates the translation of national norms to practical changes in processes and outcomes on the floor. Where the MQC is a temporary structure, the organizational improvement infrastructure annex control mechanism is meant as a lasting configuration. It serves as a permanent macro-micro bridge.

### **BOX 3: The highest developmental stage of quality management**

Wagner et al. (2006) divide quality management activities into four stages of development. Stage 0 is the lowest stage. Organizations of this category are characterized by: presence of a mission statement and annual quality report, encouragement of professional development through HRM, practical guidelines for medical treatment, quality improvement by peer review and care plans. Patient involvement is low. In stage 1 and 2 there is an increase in quality management activities. Stage 3 is characterized by: availability of a quality action plan and quality manual, training based on quality policy and systematic feedback, practical guidelines for the routing of patients and critical incidents, internal audit, satisfaction research and participation of patients in committees and improvement projects.

### **STUDY OBJECTIVE AND RESEARCH QUESTIONS**

As soon as the quotation at the beginning of the chapter is interpreted in the light of the adoption and spread of innovations, it contains an ambiguous, even paradoxical warning. To become successful the MQC-programme requires a substantial amount of medical professionals or teams to adopt promising working methods to achieve logistical and safety targets. The contradiction is that the programme strives at generating innovation and learning processes by encouraging conformity to a standard approach.

Indeed, the policy makers and programme architects expect this standard – based on improvement cycles (breakthrough methods) and performance management in an integrated organizational quality model – to be ‘the right path’. Nonetheless, until today the evidence on the effects of breakthrough series or QICs is rather limited (Landon *et al.* 2004; Mittman 2004; Øvretveit & Gustafson 2002; Øvretveit 2003). And, to complicate matters, the evidence on the effectiveness of the envisioned improvement infrastructure also has its lacunas. There is, for example, limited evidence on the performance effects of applying

integrated models (like Malcolm Baldrige Quality Award and European Foundation for Quality Management) (Minkman *et al.* 2007).

Our goal is to explore what lessons can be learned from the hospital experiment in the Netherlands. The research strategy outlined in this chapter aims at describing and explaining the implementation and effects in a sector that, as we have seen, is characterized by important institutional changes. The main research question is:

*How does the participation by hospitals in a multilevel quality collaborative result in enhanced quality of care and the development of an organizational infrastructure for improvement, stimulating the adoption and sustainable spread of best practices?*

With the purpose of examining the MQC-implementation, its effects on the quality of care, and the merits of the improvement infrastructure as a means to an end for hospital governance, we translated the main research question into five sub questions:

- How does the design of the MQC, as presented in the vision documents and action plans of the consortium, correspond to the determinants of success known from literature?
- To what extent is the success of the implementation influenced by the availability of the required conditions during the implementation process of the breakthrough QICs?
- What is the operational state of the improvement infrastructure and the spread of the QIC-projects in MQC-hospitals by the end of the second year and how can this state be explained?
- How did the improvement infrastructure develop within Dutch hospitals between the beginning and end of the programme, and does the development differ between MQC- and non-MQC hospitals?
- What can we say about the effectiveness of improvement infrastructure and projects at micro and meso level and what is the relation between perceived and actual quality effects at both levels?

#### **GENERAL DESIGN AND SAMPLE**

According to Greenhalgh *et al.* 2005 applied science into the process of dissemination, implementation and routinisation should be:

- *theory driven*: it should aim to explore an explicit hypothesized link between determinants of a particular problem, the specific mechanism of the programme and the expected changes in the original situation;
- *process- rather than 'package'-oriented*: best practice is a process, not an intervention package. Research questions should be framed with a view to illuminating this process e.g. 'what features or conditions account for the success of project X in this context and the failure of a comparable project in a different context?';
- *participatory*: in process evaluations not the researcher but the practitioner frames the problem, makes the manipulations and interprets the data, while the researcher observes;
- *collaborative and coordinated*: it should aim to prioritise and study key research questions in a variety of settings, rather than small isolated teams 'doing their own thing'. In this way, the impact of place, setting and context can be systematically studied;

- *addressed using common definitions, measures and tools*: it should adopt standardized approaches to measuring key variables to enable valid comparisons across studies;
- *multidisciplinary and multi-method*: it should recognise the inherent limitations of experimental approaches for researching open systems, and embrace a broad range of research methods with the emphasis on interpretive approaches;
- *meticulously detailed*: it should document extensively the unique aspects of different programmes and their respective contexts and settings to allow for meaningful comparisons across programmes (to interpret idiosyncratic findings and test rival hypothesis about mechanisms);
- *ecological*: it should recognise the critical reciprocal interaction between the programme that is the explicit focus of research and the wider setting in which the programme takes place. The latter provides a dynamic, shifting baseline against which programme related activities occur.

When designing the study, we tried to keep these recommended characteristics in mind. Hence, evaluating the programme means: testing theory by applying a variety of methods – qualitative and quantitative – to illuminate the implementation process and success, and (exogenous) influences of distinctive features of the Dutch hospital setting. Furthermore, testing needs to be done in such a way that the study gives enough space to field actors to alter the implementation course without jeopardizing the possibilities to replicate the study by other researchers.

Eventually we came up with a design in which a) the implementation processes and effects of the six breakthrough QICs are monitored; and b) attention is given to the development and functioning of the improvement infrastructure.

Part a is carried out following a non experimental design. Unfortunately there is no possibility to compare implementation processes between an intervention group and a comparison group. The problem is that our subject – implementation and conditions – does not exist outside the intervention group. An extra complication is that the availability of effect measures at micro level also are a result of the intervention. Outcome data on the achievement of programme targets (table 1) can only be obtained as evaluation input, when the teams have monitored their project progress using performance indicators (intervention) for quite a while.

The sample size of part a is restricted by the total number of hospitals and teams receiving support from the external change agency during the first series (approximately ten teams per hospital in each series).

For part b, the organizational infrastructure development path, we can use a quasi-experimental design. Our strategy is to compare system characteristics of the intervention group to the situation in contrasting groups comprised of non-MQC hospitals. In the Netherlands there are about 100 hospitals. 24 of them participate in the programme, the others can be utilized for comparing purposes.

## **DATA COLLECTION AND ANALYSIS METHODS CHOSEN**

### **To answer the sub questions**

The *first* sub question addresses the relation between the causal assumptions of the MQC-policy theory and determinants known from the literature. We consider an answer to this question desirable as it a priori helps to identify the strengths and weaknesses of the programme and provides a touchstone for the rest of the study. Further data collection is shaped by the results of this ex ante evaluation.

To answer the *second* sub question a measuring instrument is needed. We must measure the extent to which conditions are met during the implementation of the breakthrough collaboratives. Since we had no knowledge of an instrument suitable for measuring the conditions for successful implementation of breakthrough QICs (sub question two), we included a procedure in our research strategy to develop and test a new instrument, to be filled out by the project leaders of the multidisciplinary teams. This COPI-QIC (COnditions for Project based Implementation by multidisciplinary teams in a Quality Improvement Collaborative) includes questions about leadership of the strategic management, support provided by external change agents and hospital organization, the project's value, its complexity, team organization and other items. When filled out by the project leaders of two groups of eight hospitals (N = 148) at the end of the first series, data are analysed by running factor and reliability analyses. Additionally, a combination of interviews with hospital executives and programme coordinators of each hospital, questionnaires filled out by consultants of the consortium and the database of the consortium – with project indicator outcomes – is used to analyse QIC-implementation in programme hospitals. By using the COPI-QIC questionnaire in 16 hospitals, we expect to collect enough data for applying structural equation modelling or multilevel analyses on teams of 16 hospitals. This should enable us to learn more on the relation between conditions at team and hospital level with respect to outcome data (performance indicators) and perceived effects on a number of quality dimensions (e.g. satisfaction of staff and patients, costs, productivity, staff motivation, clarity on the division of tasks).

Sub question number *three* covers the organizational infrastructure for improvement. In a previous section we pointed out that the hospitals will have to come up with structures, procedures and facilities that raise and maintain a system enabling the organization to control quality of processes and outcomes. Besides describing the system and its outcomes ('what happened'), we are looking for explanations ('how did it happen'). The descriptive component focuses at the strategies and choices of the actors within, the presence of clear norms, instruments, support and procedures, along with the actual use of output data for feedback, problem solving and learning purposes. These issues are examined by a combination of quantitative and qualitative techniques. Data are collected from the programme coordinators of each hospital, managers and medical specialists (interviews and questionnaires). Based on collected data the state of the improvement infrastructures and the contribution of leadership is modelled (using its functions for performance management; Leggatt & Dwyer 2003). In our search for explanations we emphasize the role of leadership (and leadership climate; view Chen & Bliese 2002). Leadership is presented as a condition *sine qua non* by the consortium for the success of the MQC-programme (Consortium 2004).

Sub question *four* urges us to place our descriptive 'question three material' in a more historical perspective. In theory we can track the historical development of the improvement infrastructure in Dutch hospitals from 1995 until now. Longitudinal survey data on the quality management in hospitals is available from measurements in 1995, 2000, 2005 and (planned for) 2008 (Sluijs *et al.* 2007, also see Wagner *et al.* 1999). By exploring and connecting different datasets we can learn more on the quality management of Dutch hospitals since 1995. Depending on the number of matches we have an opportunity to test individual hospitals or cross sectional groups (MQC or not) whether:

- the intended progress in their quality management system did occur;
- changes took place because of their participation in the MQC or something else;
- (elements of) the improvement infrastructure is (are) positively related to quality aspects.

This brings us to our *final* sub question. Again, we are looking for a pattern in the relation between conditions at team level and the system at hospital level on the one hand, outcome data (performance indicators) and a number of perceived quality effects. A variety of data

sources is at our disposal. At hospital (meso) level we plan to analyze relations between the self reported quality aspects and the state of the improvement infrastructure. Additionally, to investigate relations between the state of the improvement infrastructure and outcome data from the national set of performance indicators (second pillar).

A similar exercise awaits us at unit (micro) level when exploring relations between conditions for successful implementation and quality effects. We can use self reported quality aspects identical to the ones measured at hospital level to start with. Secondly, the Consortium's database contains project outcomes of each MQC-hospital. As far as we can tell, combining the database and the COPI-QIC measurements may resolve in new insights concerning the congruence between perceived and actual quality effects of MQC-participation.

### **An additional question**

One of the things we did so far is conceptualize the MQC as an intervention to establish an organizational improvement infrastructure/quality control mechanism at hospital level. This control mechanism serves as a macro-micro bridge: an institutional mechanism to canalize the behaviour of individual actors and bring it in harmony with the expectations of health care authorities, interest groups and representative organizations. We also stated that its intended positive effects have to do with quality goals and organizational development. Up until now we did not discuss possible negative unintended effects. At least one relevant and theory driven aspect of our study object remained unaddressed.<sup>1</sup> Berwick (2003) agrees that current strategies for developing the healthcare workforce are based on outmoded theories of control and standardisation of work. The MQC and the control mechanism fit within this pattern. Weggeman (1992) stresses, nonetheless, that professionals cannot be managed by rules, procedures and information systems. Professionals resist the standardization of their skills (their division into simply executed steps) because that makes them programmable by the 'techno structure' of the organization; it destroys the basis of their *autonomy* and drives the structure to the machine bureaucratic form (Mintzberg 1979). The methods for answering sub question four should give us ammunition to test the hypothesis that the L&O-path leads to a decrease in the discretionary space of nurses and doctors. We should, for example, be able to study changes in the presence of management control instruments. An increase of management control automatically means a decrease of staff autonomy.

### **METHODOLOGICAL CHALLENGES**

In this section we will discuss some of the challenges we are confronted with in this study. A major methodological challenge has been (and remains) our *statistical power*. Assessing relations between structure, processes and outcomes requires analyses that depend on the availability of sufficient data. This is the case with most of our analyses, irrespective of whether these involve confirmatory or explanatory factor analyses, logistic regression, multilevel or structural equation modelling. We can only run them if we have enough statistical power. In practice we have seen that our limited sample size is reduced by non responding project leaders, managers and medical specialists. Furthermore, the first year

---

<sup>1</sup> Two other aspects are unmistakably relevant, but cannot be answered based on the study material. The first one is a potential *conflict between allocation models*. The pillars of Better Faster are brought as a stimulus for hospital actors to share knowledge of best practice. One may wonder how knowledge sharing works in a setting with increased competition (quasi-markets) on quality parameters. Cooperation depends on trust, competition threatens this trust. Without intermediation there is a chance that only one (or none) of the motives of the models will be realized (Svensson *et al.* 2005). Secondly, there is a risk of a *performance paradox*. In reality the organizations that are effective in measuring performance indicators are not automatically the most effective organizations (Van Thiel & Leeuw 2003). Performance auditing is likely to result in strategic behaviour (window dressing, fraud) and decreased reliability and validity of judgement. Other effects are bureaucratization, tunnel vision, sub optimization of processes and outcomes, as well as isomorphism.

database of the first eight hospitals was filled with monitoring data from only half the project teams (Dückers *et al.* 2006). Literature shows that this is not an uncommon phenomenon in QIC data collection (Cretin *et al.* 2004). However, combined with non response to questionnaires, this complicates the matching of project results from the database to process variables from the teams gathered via the COPI-QIC. Moreover, tracking individual hospitals in the longitudinal hospital survey data is jeopardized also by the sum of non responses over the years and hospital mergers. The group gets smaller at every next measuring moment. Still, our goal is to learn more on the relations between the dependent variables (perceived and actual successes or quality aspects at meso and micro level) and the independent variables (QIC-implementation conditions and improvement infrastructure components) of the dissemination programme. Our challenge is that – besides regular problems concerning self reported data, (overestimation and overrepresentation of success) – the study sample gets filtered more and more as the process continues and cases fall out. All we can do is making the measuring instruments as user-friendly as possible. The next phase is to explore the collected data thoroughly, look for promising patterns and experiment in extracting the most reliable and valuable lessons.

A second methodological challenge is *measuring the conditions for successful implementation* by improvement teams in QICs. For this purpose the COPI-QIC was developed and tested, fortunately, with success. The testing procedure did cost an extra year because after the first series of the first group we only had 54 proper cases. By adding data from the second group, a year later, the sample size grew to 101 cases.

The third challenge had to do with *conceptualizing the improvement infrastructure*. Despite the variety of development ambitions and targets, the programme makers never defined the final organizational features in detail. We pointed out how L&O focuses at creating an infrastructure for improvement, founded on performance management and supportive leadership. It is mentioned more than once that, ultimately, the organization should be capable of adopting, spreading and sustaining breakthrough methods and results. Therefore, the challenge is to come up with some sort of explanatory model. Our current model is based on determinants found in the ex ante evaluation (first sub question) and a qualitative study among the programme coordinators of the first group (N = 8) at the end of the second year. By assessing the approach followed by the hospitals in the two years in which they participated an answer could be given to the question how hospitals deal with issues of internal spread and sustainability (Dückers & Wagner 2007).

Our fourth challenge has to do with the quasi-experimental hospital study. Comparisons ask for *reference groups*. An extra difficulty we have to take into account, is that the programme hospitals are not randomly selected by the consortium. They went through an intake procedure in which the consortium investigated the candidates' readiness. Luckily, survey data allows us to control for the size (number of employees, beds or adherence) and type of organizations (general, top clinical or university hospitals; box 1). Furthermore, we are capable of controlling for the different (integrated) quality models and certificates. This has advantages and disadvantages. We need to explore the occurrence of these other models and certificates in our data. Next, after studying their dimensions and the areas they affect, it should be possible to distribute hospitals over different comparison groups.

Finally, a fifth methodological challenge plays a role in our study, as well as on a longer term. There is a *distance between mechanisms and outcomes*. Better Faster aims at internal spread of methods and results of effective pilots. So if everything goes according to plan, eventually, the programme hospitals will sort the intended results on quality and safety throughout the organization. Nonetheless, the matter is that according to research hospitals participating in quality improvement programmes are 'not more likely to show improvement on quality indicators than hospitals that do not participate' (Snyder & Anderson 2005). In general, when translating process and outcome data of micro events to an aggregated institutional level, the contribution of individual projects gets lost in translation. To us, this

means that we must be cautious in interpreting meso phenomena as consequences of micro improvement actions. Moreover, there is a time lag between 1) the start of the programme, 2) the future point where hospital wide spread is realized and 3) the moment when macro datasets on hospital performance (the second pillar) are available. It will take years before the indicators scores of MQC- and non-MQC-hospitals can be examined at national level.

### **PRACTICAL CHALLENGES**

In a practical sense the MQC-evaluation demands from us as researchers that we keep track of the overall programme progress e.g. all the relevant changes in the approach and organization of the consortium and other actors. Nonetheless, the real challenge has not primarily to do with time consuming activities such as reading status reports, joining meetings and coordinating research activities. The real challenge lies in the communication of our findings. In a programme where success and failure depends on the acts and neglects of the implementing actors, 'naming' can easily result in 'blaming'. Learning requires psychological safety and constructive feedback, while blaming brings the opposite. This is one side of the coin. The other side is more fundamental. The setting of the evaluation study is highly politicized. By our independent position we are bound to serve a public interest and, thus, to open communication of our study results. Any media attention attracted by positive or negative findings influences the implementation and spread within the hospitals. To maximize the chances of success, the consortium is given the task to spread promising success stories (Dückers *et al.* 2005). Our dilemma is that we may potentially interfere in the implementation process, that we influence the planned dissemination and that our professional (participatory!) relation with the involved parties gets affected by it. Many actors and conditions play a role in the MQC-implementation. High expectations are raised, many interests are at stake.

### **LESSONS FOR OTHER RESEARCHERS**

The research strategy presented in this chapter is a product of several choices. Some of the choices made are inherent to typical characteristics of the Dutch hospital sector. In the strategy outlined, a focus is placed on the implementation and quality effects of the programme. The lessons from this study are of potential value to politicians and policy makers. Looking back, we can also summarize some lessons for colleagues who conduct similar studies in present or future. The first lesson is a general one: take the recommendations of Greenhalgh *et al.* into account when determining the final study design. The others are helpful when operating in a political arena:

- illuminate the assumptions behind the policy and programme theory and use the literature to check (postulated) mechanisms for flaws;
- study all relevant actors, their interests, tasks and responsibilities;
- make clear agreements with contractors and stakeholders on your independence and the shape and topics of your publications;
- analyses often lead to general conclusions, try to be as specific as possible: 'what works under which conditions';
- when reporting results: be honest, transparent and at the same time constructive (your aim is to promote learning, not blaming);
- and last but not least: make sure that your work can withstand the unavoidable scrutiny; when your findings are unwelcome, your methods will be the first victim.

### **ACKNOWLEDGEMENTS**

This study was funded by ZonMw, the Netherlands Organization for Health Research and Development.

#### REFERENCES I FOUND MOST HELPFUL AND INSPIRING

- Greenhalgh T, Robert G, Bate P, Macfarlane F, Kyriakidou O (2005). Diffusion of Innovations in Health Service Organizations: A Systematic Literature Review. London, Blackwell Publishing.
- Leggatt S, Dwyer J (2003). Factors Supporting High Performance in Health Care Organizations. Melbourne, National Institute of Clinical Studies.
- Øvretveit J, Bate P, Cleary P, Cretin S, Gustafson D, McInnes K, McLeod H, Molfenter T, Plsek P, Robert G, Shortell S, Wilson T (2002). Quality Collaboratives: Lessons From Research. *Quality and Safety in Health Care* 11(4), 345-51.
- Wagner C, Gulácsi L, Takacs E, Outinen M (2006). The Implementation of Quality Management Systems in Hospitals: A Comparison between Three Countries. *BMC Health Services Research*, 6, 50.

#### APPENDIX LISTING OF RESOURCES WHICH WOULD HELP OTHER Q&SI RESEARCHERS

- Bartlett W, LeGrand J (1993). *Quasi Markets and Social Policy*. London: Macmillan.
- Berwick DM (1998). Developing and Testing Changes in Delivery of Care. *Annals of Internal Medicine*, 128, 651-56.
- Berwick DM (2003). Improvement, Trust, and the Healthcare Workforce. *Quality and Safety in Health Care* 12(6): 448-52.
- Bloemen YHP (2006). Do Health Insurers Stimulate the Spread of Innovations Between Hospitals? A Study of the Attitude and Role of Insurance Companies in the New Dutch Health Care System (in Dutch). University of Tilburg (master thesis).
- Chen G, Bliese PD (2002). The Role of Different Levels of Leadership in Predicting Self and Collective Efficacy: Evidence for Discontinuity. *Journal of Applied Psychology*, 87, 549-56.
- Consortium Sneller Beter pijler 3 (2004). National Strategy Better Faster Pillar 3 (in Dutch). Utrecht/Rotterdam.
- Cretin S, Shortell SM, Keeler EB (2004). An Evaluation of Collaborative Interventions to Improve Chronic Illness Care: Framework and Study Design. *Evaluation Review* 28 [1], 28-51.
- Dückers MLA, Wagner C, Groenewegen PP (2005). Determinants of a Knowledge Based Sector Wide Improvement Programme in Dutch Hospital Care. *Acta Hospitalia*, 45 [3], 37-54.
- Dückers M, De Bruijn M, Wagner C (2006) Evaluation Better Faster Pillar 3: Implementation of Improvement Projects in the First Hospital Group (in Dutch). NIVEL: Utrecht.
- Dückers M, Wagner C (2007). Evaluation Better Faster Pillar 3: the Internal Flywheel; the Situation in the First Hospital Group after Two Years of Programme Participation (in Dutch). NIVEL: Utrecht.
- Ferlie EB, Shortell SM (2001). Improving the Quality of Health Care in the United Kingdom and the United States: A Framework for Change. *The Milbank Quarterly* 79[2], 281-315.
- Harteloh P, Casparie A (1994). Quality of Care; From a Health Care Approach to an Industrial Approach (in Dutch). Maarssen, Elsevier/De Tijdstroom.
- Landon BE, Wilson IB, McInnes K, Landrum BL, Hirschhorn L, Marsden PV, Gustafson D, Cleary PD (2004). Effects of a Quality Improvement Collaborative on the Outcome of Care of Patients with HIV Infection: The EQHIV Study. *Ann Intern Med*. 140:887-96.
- Langley GL, Nolan KM, Nolan TW, Norman CL, Provost LP (1996). *The Improvement Guide: A Practical Approach to Enhancing Organizational Performance*. Jossey-Bass Publishers. San Francisco.
- Leatherman S (2002). Optimizing Quality Collaboratives, *Quality and Safety in Health Care* 11: 307.
- Minister Hoogervorst. Better Faster. Letter send to the House of Representatives of the Dutch parliament (in Dutch), November 2003, reference no. CZ/B-2427994.
- Minkman A, Ahaus K, Huijsman R (2007). Performance Improvement Based on Integrated Quality Management Models: What Evidence Do We Have? A Systematic Literature Review. *International Journal for Quality in Health Care* 19, 90-104.
- Mintzberg H (1979). *The Structuring of Organizations: A Synthesis of the Research*. New York: Prentice-Hall.

- Mittman BS (2004). Creating the Evidence Base for Quality Improvement Collaboratives. *Annals of Internal Medicine* 140(11), 897-901.
- Netherlands Health Care Inspectorate (2000). Leidschendam 2000, Conference on Quality of Care: vision of The Netherlands Health Care Inspectorate (in Dutch). The Hague.
- Øvretveit J, Gustafson D (2002). Evaluation of Quality Improvement Programmes. *Quality and Safety in Health Care* 11, 270-5.
- Øvretveit J (2003). What Are the Best Strategies for Ensuring Quality of Hospitals. *Health Evidence Network*. Copenhagen, World Health Organization Europe.
- Rogers EM (1995). *Diffusion of Innovations*. New York: Free Press.
- Schellekens W, Rouppe van der Voort M, Van Splunteren P (2003). A Stone In the Pond: Stimulating Hospitals to Implement Proven Improvements (in Dutch). *Medisch Contact*, 58, 35, 1302-4.
- Sluijs EM, Wagner C (2000). Quality Systems in Health Care Institutions: the Situation in 2000 (in Dutch). NIVEL: Utrecht.
- Sluijs EM, Keijser A, Wagner C (2007). Quality Systems in Health Care Institutions: the Situation in 2005 (in Dutch). NIVEL: Utrecht.
- Snyder C, Anderson G (2005). Do Quality Improvement Organizations Improve the Quality of Hospital Care for Medicare Beneficiaries? *The Journal of the American Medical Association*, 293:2900-7.
- Splunteren P van, Van Everdingen J, Janssen S, Minkman M, Rouppe van der Voort M, Schouten L, Verhoeven M (2003). Effective Breakthrough: Improving Patient Care With the Breakthrough Method (in Dutch). Van Gorcum: Assen.
- Svensson J, Trommel W, Lantink T (2005). Avoiding a Messy Mix: Hybrid Organization of Labour Reintegration. Paper written to be presented at the International Research Symposium on Public Management IX. University of Twente: Enschede.
- Van Thiel S, Leeuw FL (2003). The Performance Paradox in the Public Sector (in Dutch). *Beleidswetenschap*, 17, 2, 123-43.
- Van der Grinten TED (2006). *Caring for Policy: On Dependencies and Changing Relations in Health Care Governance* (in Dutch). iBMG, Erasmus University: Rotterdam.
- Wagner C (1999). Implementation and Effectiveness of Quality Systems in Health care Organizations. NIVEL: Utrecht.
- Wagner C, De Bakker DH, Groenewegen PP (1999). A Measuring Instrument for Evaluation of Quality Systems. *International Journal for Quality in Health Care* 11, 119-30.
- Weggeman M (1992) *Managing Professionals* (in Dutch). Kluwer Bedrijfswetenschappen: Deventer.

## ILLUSTRATIONS AND TABLES

Illustration 1. The time path of the third pillar programme

	2004	2005	2006	2007	2008
Group 1:		Series I	Series II		
Group 2:			Series I	Series II	
Group 3:				Series I	Series II

Table 1. Breakthrough projects per quality area and their programme targets

Quality area	Breakthrough project	Programme targets	Project duration
Patient logistics	working without waiting lists (WWW)	1. Access time for clinical consultation is less than a week	one year
	operating theatre (OT)	2. Increasing the productivity of operating theatres by 30%	two years
	process redesign (PRD)	3. Decreasing the total duration of diagnostics and treatment by 40-90%	two years
		4. Reducing length of stay by 30%	two years
Patient safety	medication safety (MS)	1. Decreasing the number of medication errors by 50%	one year
	pressure ulcers (PW)	2. The percentage of pressure ulcers is lower than 5%	one year
	postoperative wound infections (POWI)	3. Decreasing postoperative wound infections by 50%	two years

Illustration 2. The MQC as an integrated approach for upgrading hospital care

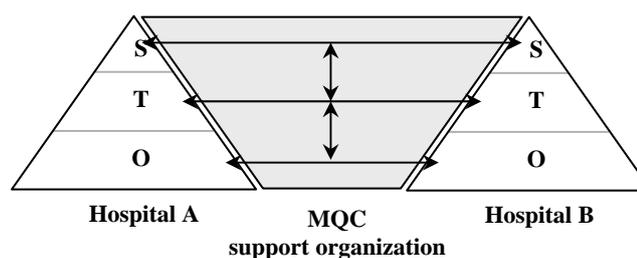


Illustration 3. Vertical congruence

