General hospitals' strategic responses to performance indicators in health care: an exploratory study

Thesis

MBA Health 2007-2009

Erasmus Centre for Management Development in Healthcare

Institute of Health Policy and Management

Erasmus University

Rotterdam

The Netherlands

Thea Vliet Vlieland

Supervisor: Prof.dr. A.A. de Roo

April, 2009

CONTENTS

SUMMARY

Background and aim: Until now, little is known on hospitals' strategic responses to the growing number of initiatives of external stakeholders to assess the performance of their operations. The aim of the study was therefore to make an inventory of general hospitals' strategic responses to the usage of performance indicators, in particular with respect to (1) the linking of performance indicators with internal quality improvement priorities, (2) the hospital's competitive position and (3) the setting of priorities, budget and staffing levels for performance data collection, analysis and reporting.

Method: For this exploratory, qualitative study 2 board members and 4 quality managers of 6 general hospitals in The Netherlands were interviewed between January and March, 2009. Interviews were semi-structured and comprised 14 questions, related to the 3 research topics.

Results: In general, a positive impact of performance indicators on the internal quality system was perceived. The application of performance indicators in hospital operations management was in some organizations found to be hampered by various factors, including the relevance, reliability, analysis and reporting of current performance data, as well as their acceptance. Concerning the competitive position, all hospitals gathered performance data specifically for contracting with health insurers. Half of the respondents mentioned initiatives to develop performance indicators within areas that were found important in the competition, yet underrepresented in current sets of performance indicators. Active reporting to consumers was not employed, and its usefulness questioned by most of the respondents. Hospitals varied with respect to the development of a comprehensive policy and the current and future allocation of resources for performance indicator management.

Conclusion: Organizations varied with respect to the integration of performance indicators in quality systems and/or hospital operations management systems. In addition, some hospitals played a more active role than others in their presentation of performance data to health insurers and the establishment of performance indicators that could contribute to their competitive position. To optimize the usage of performance indicators, they should be part of a comprehensive hospital strategy which is focused on operations management. Within that strategy, measurement of operational performance is one of the leading principles.

CHAPTER 1. INTRODUCTION

Over the past decades, there is a growing acknowledgement of quality and safety concerns in health care and the need to close the 'quality gap' [1]. Many stakeholders, including health care providers (individual professionals and organizations such as hospitals or nursing homes), consumers, insurers/payers, health services researchers, quality improvement organizations and government entities, have become engaged in the movement towards improvement of health care quality and safety [2].

Understanding progress in quality improvement is however hampered by an insufficient ability to consistently assess the quality of health care, or to compare performances among individual health care providers or organizations. The need for a level of standardization has led to the external endorsement of sets of performance indicators and their reporting for accountability. These performance indicators may pertain to a specific medical condition or profession or an area of health care (e.g. mental health care, rehabilitation, nursing home or hospital care).

Concerning hospital care, sets of performance indicators may be used by various institutions, including national regulatory boards, health care insurers and consumers' organizations. Besides quality improvement alone, the usage of performance indicators may facilitate consumers' choices for specific providers and health care insurer's decisions on purchasing of health services.

In The Netherlands, a mandatory set of national performance indicators (Basisset Prestatie-indicatoren) [3] has been implemented in hospital care since 2003, and this

set is currently being extended with condition-specific sets of performance indicators [4]. Based on the results obtained for these sets of performance indicators, a considerable number of improvement projects have already been initiated in Dutch hospitals, either or not on the instigation of the Netherlands Health Care Inspectorate (Inspectie voor de Gezondheidszorg) [3].

Apart from the obvious advantages on the organizational level, the usage of performance indicators may give rise to a number of managerial issues. Hospitals are confronted with a rapidly growing number of externally imposed sets of data to be gathered, leading to increasing registration activities and costs, with the impact on patient outcomes being to a considerable extent unknown [5,6]. A major issue is therefore the harmonization of the sets of national hospital performance indicators with other, externally imposed initiatives to assess and monitor the quality of hospital care. Moreover, harmonization with internal quality management systems and planning and control cycles of individual hospitals is needed. It has however been noted that harmonization may be only in part feasible and desirable [7]. Strategic choices are therefore needed, to balance on the one side the efforts needed to comply with externally defined performance indicators and on the other side their potential benefits on the organizational level. These strategic choices pertain to:

a. the linking with the internal quality management system of the hospital;

b. the role of performance indicators in the hospital's competitive position; and

c. the infrastructure needed for the registration, analysis and internal and external reporting of information related to performance indicators.

This thesis focuses on Dutch hospital board members' and quality managers' views regarding these strategic options.

Chapter 2 gives a general overview of the development of quality improvement and performance indicators in health care.

Chapter 3 describes the managerial issues associated with the usage of performance indicators on the hospital's organizational level and the ensuing research questions of this thesis.

Chapter 4 gives a description of the research methods employed. As the study was conducted in The Netherlands, this chapter includes an introduction to the development and usage of performance indicators in Dutch hospital care.

In **Chapter 5** the results of the research project are presented.

Chapter 6 includes a general discussion and recommendations for hospital board members and quality managers and others interested and involved in quality management in hospitals, as well as suggestions for future research.

CHAPTER 2. QUALITY IMPROVEMENT AND PERFORMANCE INDICATORS IN HEALTH CARE

2.1. Definition of quality of health care

As it has been consistently shown that quality of health care needs improvement all over the world, the issue has been high on the national and international political agendas for decades. The Institute of Medicine (IOM) in the US has defined health care quality as "the degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge" [1,8]. An often used method to describe the attributes of quality of health care includes its structure, processes and its outcomes [9]. The structures are the innate characteristics of providers and the system, whereas the processes pertain to what health care providers do in delivering care, and the outcomes to what happens to patients, particularly with respect to their health [9,10].

2.2. Strategies to improve the quality of health care

Currently, various strategies to improve quality of health care are applied, involving four levels in health care: 1). individual health care providers; 2). health care processes; 3). health organizations; and 4). health care systems.

On the level of individual health care providers, strategies to improve quality include systems for continuing medical education, accreditation and certification, and the development and implementation of evidence-based guidelines and practice recommendations.

Health care delivery is in many cases far more complex than the execution of one or more activities by a single professional. More commonly, multiple health care providers, supporting staff and extensive technical equipment, sometimes at various locations, are involved. For this reason, health care delivery is more and more seen as a collection of operations, with quality systems being developed for health care delivery processes. These methods involve a commitment to identify opportunities for improvement and to test alternative processes in small pilot cycles of change, called plan-do-study-act (PDSA) cycles [11,12].

On the organizational level, a specific quality level for all health care delivery processes being carried out within that organization is required. Therefore, overarching quality management systems have been adopted in e.g. hospitals, mental health organization, nursing homes and primary care centers on a large scale over the past decades. These quality systems usually concern methods for total quality management (TQM)/continuous quality improvement (CQI), and are derived from business and industry, based on the pioneering work of Deming [11,13,14]. They are mainly focussed on the consistency with which providers follow processes that have been shown to improve outcomes.

Quality of health care is however no longer left exclusively to the responsibility of individual health care providers and organizations themselves. In addition to internal quality and safety management systems, external monitoring and regulation of health care performance and public reporting on the health care system level are implemented on a large scale.

This development is prompted for various reasons, including:

a. The slow pace of improvement of quality of health care [2].

b. The demand for accountability for the way in which collective resources are spent in the health care system [15], with on the other hand the need to ensure that quality is not adversely affected when health care utilization and costs are increasingly constrained [16].

c. The increasing technical and logistic complexity of health care delivery [15].

d. Health care insurers' needs on information for purchasing health services and for the provision of rewards or penalties for health care providers concerning quality, efficiency and innovation (financial or non-financial incentives). With respect to the latter, in many countries provider reimbursement has been (re)organized, in such a way that the provision of incentives is now permitted. Examples of incentive models for health services include bonuses, allowing health care providers to keep the surplus or parts of the savings from efficiency, grants to promote and share best practices and performance funds, payment for services that improve performance and public recognition [11,17].

e. The growing societal anxiety about the variation in quality of health care (including equity in access to high quality care)—an anxiety that may further heighten as the results of more measurements reveal even more problems [18-20].

f. Consumers' growing assertiveness and independence, with increasing needs to have access to standardized information to allow direct comparisons among health care providers with the aim to facilitate health care decision making [15].

g. The increasing role of the media in reporting on health care quality, in particular the publishing of existing of self-developed rankings in newspapers, magazines and on websites.

For appropriate regulation on the health care system level, a system with defined standards, with the capacity to measure, monitor and act on health care performance data, which could be subject to mandatory external reporting and remedial processes, is needed. These regulation systems may vary among countries, depending on the conceptual frameworks that a national government uses to assess health care performance [21].

2.3. Definition and scope of performance indicators

There are many definitions of the notion of performance indicator, with different authors applying different accents [15]. The common characteristic of all definitions is that a performance indicator provides information which is possibly a reflection of the quality of an object in the health care system [15,22]. A performance indicator is not a synonym for quality, but rather a proxy. As the term indicator suggests, performance indicators give a signal, and thus suggest a direction for research and actions by health care providers and policy makers. For consumers, it suggests a direction for making choices on health care providers. However, in many cases considerable analysis, interpretation, and further investigation are required in order to understand properly what is happening, why, and what can be done to improve or sustain performance [18]. Therefore, it is often stressed that “an indicator is just an

indicator" and "it is meant to be a tool, screen or flag, to assist in decision-making, not a driver for decisions" [23]. In that sense, an indicator is distinguished from a criterion or variable, where there is a clear "one-to-one' causal relationship between the phenomenon being measured and the actual quality [15].

In accordance with the previously described dimensions of health care quality, performance indicators may pertain to the structure, processes or outcomes of health care.

To ensure that differences in comparisons among organizations or individual health care providers can be attributed to quality and safety matters and do not result from measurement error, case mix differences or chance, performance indictors need to be reliable (within and among assessors), valid (reflect the attribute of quality and being responsive to change), relevant, and feasible in daily clinical practice.

Health care performance indicators may pertain to the management of a specific condition (e.g. breast cancer), a specific professional (e.g. physical therapist), a specific branch of organizations (e.g. general hospitals, rehabilitation centers, mental health care), or a combination of those. According to their goals, performance indicators may be used as single and isolated measures, in a set of diverse and independent measures, in a set of integrated and interdependent measures, or as a comprehensive program.

Currently, performance indicators may reflect fixed, minimum or "threshold" standards (e.g. appropriate sterilization procedures for surgical instruments) or rather aspirational targets, aiming to maximize quality within the constraints of the available resources, and being amenable to change [17,19]. There is a risk that these

different types of standards will cause conceptual confusion and may lead to either a lack of initiatives to further improve beyond the minimally accepted service level or unrealistic expectations and disappointment when aspirational targets are not met.

2.4. Selection and development of sets of performance indicators

With respect to the selection of performance indicators, it is generally acknowledged that they should focus on areas with clearly identified major gaps in quality or safety; where these gaps can be accurately measured, and a validated, cut-off or minimally acceptable threshold can be identified; and where there is good evidence that interventions improve performance [19]. In practice, in the priority setting for the establishment of performance indicators a preference for indicators with the most robust scientific evidence rather than indicators for the most important areas of health care may exist [24].

The following key stakeholders are usually involved in the development and usage of performance indicators: providers, consumers, health funders, governments and accreditation organizations / government agencies. Every stakeholder brings a different perspective and set of politics to performance indicators. As performance indicators are often considered to be a quantitative measure of quality, experts in the science of measurement (e.g. epidemiologists) may become involved in their development.

Apart from performance indicators developed by acknowledged organizations, meeting specific standards and including the co-operation of relevant stakeholders, sets of performance indicators are also developed by individual health care insurers,

consumer organizations or the media. The latter has resulted in a number of. "informal rankings", often receiving a lot of attention.

2.5. Function and use of performance indicators

Although the overall aim of performance measurement is quality improvement, a functional classification which has been widely used in recent years is the division with respect to their purpose into *internal improvement in* or *external accountability for* performance [15,22,25,26]. According to the purpose for which they are used, the demands placed on performance indicators may vary. For internal improvement it is important that health care providers establish the performance indicators themselves, can gather and analyze the data fairly simple, over a relatively short period and via a small sample. This need not be representative, and correction for distortion is not necessary. For external accountability more precise and valid information is needed, with the indicator established by a third party. The information should be obtained by gathering data from comparable health care providers in a uniform way, over a longer period and corrected for distortion [15].

2.6. Debates regarding the development and implementation of performance indicators

Given the worldwide need for the improvement of the quality of health care, the necessity of external regulation, including the development and implementation of performance indicators, is currently doubted by few people. More providers are placing a high priority on quality and patient safety. Senior executives and clinicians

are becoming aware of long-standing improvement opportunities. Teamwork among caregivers who seek to improve performance rates has greatly improved and sharing of best practices and collaboration between health care organizations is unprecedented. Although transparency and the requisite measurement activities are burdensome for providers, most would agree that the resulting quality improvements are good for healthcare consumers [6]. The "measurement industry" therefore keeps on developing. At this point it is useful to pause and reflect on the degree to which it is acting optimally and in the interests of society and health. Current general debates on performance indicators in health care include, among others, the following topics:

- There is limited information regarding to what extent the assessment of performance indicators correlates with, or improves, quality of care. Although measures of the process of care were found to have a closer relationship with outcomes than structural measures, the association between processes of care and patient outcomes is variable. Recent analyses reported neither consistent nor reliable relationships between clinical outcomes or mortality and quality of hospital care [18,19,27-29].
- In connection with the abovementioned issue, performance indicators that are valid and reliable can still be misinterpreted or misused. Even after adjustment for differences in case mix, other confounders may explain variances between organizations. Examples of such confounders are differences relating to different data sources (administrative or coded data versus clinical data) and data quality. Misinterpretation or misuse can result in erroneous and unfair conclusions regarding organizational or individual health care provider performance [19].

- Public reporting may cause providers to avoid specific patients, in an attempt to improve their quality rating, and encourage them to achieve "target rates" for health care interventions, even when it may be inappropriate for some patient groups [30].
- It remains to be established whether current performance indicators can discriminate between health care providers with excellent or average operational performance [19]. A lack of discriminative ability may be to the disadvantage of providers with operational excellence for specific procedures.
- Too much focus on performance indicators may be a threat to a holistic approach to quality improvement in all its domains, as it may distract from efforts to improve quality in high-priority areas as set by health care providers themselves [18,19].
- Currently, there is considerable support for the notion that incentives (rewards or penalties) imposed by e.g. health insurers, can have a major impact on motivation and skills that individuals develop [17]. However, information regarding the degree to which the linkage of performance to incentives improves the speed of health care reform is limited.
- It is doubtful whether the current way of public reporting of performance indicators helps patients, referring physicians and health insurers in making informed choices [15,17,31]. To use performance indicators as means of making patients, referring physicians or health care insurers select a specific health care provider, their results may need to be translated/transformed for specific target populations [15,31].

CHAPTER 3. HOSPITAL ORGANIZATION AND PERFORMANCE INDICATORS

3.1. The potential impact of performance indicators on hospitals' strategic choices

Strategies for measuring healthcare performance are in constant flux. For providers to survive in this era of expanded performance measurement, hospital board members must deal with a lot of strategic, technical and resource issues. To strategically plan for the effect of performance measurement and publicly reported data on their organizations, hospital board members and quality managers must understand the measurement evolution and its driving forces. In this respect, the previously mentioned distinction between the application of performance indicators for *internal* improvement or *external* accountability is important [15,22,25]. The distinction between internal and external usage of performance indicators in hospital care was recently highlighted in a presentation by Schellekens [26] (See Table 1). The complexity of performance measurement requires hospital board members to be personally involved in the harmonization of performance indicators with the internal aspirations regarding performance improvement and in identifying appropriate external performance measures, and the allocation of the necessary resources to gather, analyze and publish the data.

Table 1. Characteristics of external and internal establishment and usage of performance indicators.

Translated from: Schellekens W. Hospital transparency: a choice [26].

	External	Internal
Actual situation	+ + +	±
Initiative	Government: Imposed	Hospital: Voluntary
Focus	Choice, contract, verification	Strategic goals
Motivation	Extrinsic	Intrinsic
Stimulus	Reputation	Patient
Center	Others' goals	Own goals
Steering system	External	Internal
Balance Confidence / Control	Control	Confidence
Resistance	High	Low
Means	Accountability, control	Learning, improvement
Prerequisites	Comparison with others	Comparison with oneself
Overall designation	Management	Leadership

This paragraph will further focus on the relationship of performance indicators with *internal* initiatives for quality improvement, *external* relationships with health care

insurers, consumers and referring physicians, and on *comprehensive performance indicator management* (setting priorities, information technology systems and staffing).

3.1.1. Relationship of performance indicators with internal initiatives for quality improvement

Internal systems for the management of quality and safety have been implemented in hospitals in Western countries since the 1980s [32]. It is conceivable that compliance with sets of externally imposed performance indicators may further enhance a hospital's "performance culture", characterized by the establishment of quantitative benchmarks that require commitment and effort to reach [33]. Thus, individual health care providers or hospital departments may be stimulated to "do better" or "attain or sustain excellence". It has indeed been found that public reports on hospital quality measures have helped to focus hospital leadership attention on quality measures, increased investments in quality improvement projects and in people and systems to improve documentation of care [34]. In addition, internal reporting on health care performance alone may also significantly hospital quality [35]. However, in countries where the hospital sector has traditionally been non-competitive, a degree of resistance towards more business-like strategies and delay in their implementation can be expected. Implementation of performance indicators requires a new balance between professional and management values, and thus a shift in the organizational culture.

Too much focus on performance indicators may however be problematic. In the literature it is suggested that the increasing pressure on externally imposed performance indicators may distract from other, internal quality improvements in important clinical areas where operational excellence is strived after [36]. Hospital board members are faced with the decision to what extent they should modify their internal quality initiatives (and probably their own strategic goals) to more closely align with the priorities established by external groups.

3.1.2. Relationship of performance indicators with hospital competitive strategies

In many Western countries, faced with the need to reduce the collective costs of health care, a period of government involvement and regulated supply has been followed by radical reforms in health care systems, including the introduction of market forces.

With respect to competition on the health care providers market, with consumers and insurers being the two most important stakeholders, according to Treacy and Wiersema general hospitals can employ three different strategies [37]:

a. Cost leadership; this strategy aims to provide a reasonable quality at a low price. The focus is on efficiency and streamlined operations, and volume is important.

b. Product leadership; this strategy aims at high quality, development and innovation. This strategy also includes “virtual” dimensions, such as brand marketing, image and reputation.

c. Customer intimacy; this strategy aims at customer attention and customer service. The focus is on tailoring products and services to individual or almost individual

customers, delivering products and services on time and above customer expectations.

This model is quite similar to the three generic strategies from Porter [38] (cost leadership, differentiation, focus). However, there is at least one major difference: according to the model by Treacy and Wiersema no strategy may be neglected: threshold levels on the two strategies that are not selected must be maintained. According to Porter [38], companies that act like this run a risk to "get stuck in the middle". In this respect it should be noted that general hospitals may provide a broad range of products and services, with a distinction between acute, elective and chronic care being a common categorization. Therefore, different markets with ensuing different competitive strategies may be distinguished within one hospital. This observation suggests that for the competition on specific products or services performance indicators on the level of the hospital as a whole may have limited value.

Despite these limitations, indeed the provision of information on clinical quality is usually seen as an effective strategy to influence health purchasers' behavior [39]. Therefore, despite the remaining controversy about the reliability and validity of performance indicators, providing more information on clinical quality with the aim to make consumers / health care insurers better purchasers is nowadays seen as major hospital competitive strategy [39].

Concerning *purchasers,* providing more information on clinical quality allows purchasers not only to consider costs but outcomes as well. Purchasers may be

willing to pay more for better facilities and services, but they need access to usable data in order to be able to make cost-quality trade-offs. For that purpose, health care purchasers are increasingly imposing sets of performance indicators developed within their own companies, either or not being associated with specific incentives. With respect to the methods of combining cost and quality to identify high value there appears to be considerable variation, leading to substantially different conclusions about which hospitals should be preferred by purchasers [40].

With respect to *consumers*, there is a lot of uncertainty how patients' decisions come about whether there are groups of patients who are willing and able to use performance information in their choice process. So far, the literature suggests that currently, this only takes place to a limited extent [15,30]. A recent Dutch study found that consumers do make use of comparative quality information on care provision, but mainly if this is presented in an accessible fashion and with clear explanations where needed [15].

Both observations indicate that the optimal analysis and presentation of performance data to specific stakeholders is an area that needs further development.

3.1.3. Strategic choices regarding performance indicator management

Despite apparent flaws in measurement data, performance indicators initiatives are not delayed in hopes that better evaluation tools will come along [41]. On the contrary, the number of sets of performance indicators is evolving.

Adherence with performance indicators is time consuming and costly. In the United States it was found that a hospital can spend up to 100.000 US Dollars annually to

collect, report and analyze data for just three core measurement sets [6,42]. Indeed, compliance with sets of performance indicators implies more than just gathering data. To ensure a timely and accurate reaction, hospitals need to frequently review the performance data and provide rapid feedback to clinical staff to initiate operational improvements, which requires adequate techniques, and staffing as well as the co-operation of managers and clinicians. Hospitals therefore have to allocate substantial resources for appropriate performance indicator management.

In addition, hospitals face increasing pressures to improve their medical record documentation and administrative data coding accuracy. The information infrastructure in hospitals is in many cases insufficient, as administrative data, stored in hospital information systems (either patient-oriented or management-oriented) may be inaccurately coded [43] and can usually not be directly transferred to databases for sets of performance indicators. Hospitals may therefore have to seek new or upgraded information technology solutions for their current hospital information systems in anticipation of even more reporting requirements in the future [36].

3.2. Recommendations on the strategic usage and management of performance indicators

For hospitals to gain control over the plethora of measurement and use them strategically with respect to internal quality management as well as their competitive positioning, a number of recommendations can be found in the international literature [6,42]. These recommendations include:

Stay up to date

Because the standardization of existing measure sets is subject to change, and payer organizations are increasingly using independent measures, hospitals must stay current with standards. This can be done by making a list of all performance indicators, their definition, officiating bodies and implications. In addition, their impact on payment, compliance, and clinical quality and safety should be registered. This list of performance indicators should be updated on a regular basis (at least quarterly) [6,42].

Prioritize and avoid additional measures sets / measurement creep

Not every set of performance indicators is equally relevant to every hospital. Furthermore, not every set or indicator has an impact on public reporting or financial performance [42]. Additional measures may weaken public reporting and clinical quality measurement, as more resources are poured into reporting and fewer are available for quality improvement action [42]. Therefore, senior leaders must save the organization's limited resources for high-priority measurement activities [6]. Spath suggests a set of questions for evaluating performance measures (See Table 2).

Hospital boards should have a stake in improving quality care

Research has demonstrated that better quality outcomes are related to involvement of the hospital board in it. An executive team focused on improved clinical quality and safety will instill that focus throughout the organization and allow for allocation of resources toward measurement and reporting programs [42].

Table 2. Questions for evaluating performance measures [6]

- Is reporting of the data currently mandatory?
- Is it likely that reporting of the data will soon become mandatory?
- Are we financially rewarded for reporting the data?
- Are we financially rewarded for good performance in this measure?
- Is it likely that reporting of the data and/or good performance in this measure will be financially rewarded in the future?
- Is our performance in this measure currently reported publicly?
- Is it likely that our performance in this measure will soon be reported publicly?
- Does this measure evaluate an aspect of care that represents a strategic objective for our organization?
- Does this measure evaluate an aspect of care that represents an important opportunity in our organization?
- Would we benefit from knowing the performance rates at other organizations for this measure?
- Is it likely that affected caregivers will be supportive of initiatives aimed at improving performance in this measure?
- What resources will it take both in time and money to collect, report, and analyze the measurement results?

Secure support from internal stakeholders

Key leaders within the organization (physicians, nurses and administrative and executive staff) must support the organization's goals with respect to quality improvement. With the support of key stakeholders quality directors can speak with authority to negotiate measures and reporting standards with insurers and other audiences [42].

Encourage system-wide solutions

Efficiencies can be realized if physicians and staff document needed information as part of routine care as much as possible. To achieve hospital-wide performance measurement solutions (with the possibility of tailoring to individual health care providers', health processes', or hospital departments' needs), the establishment of a multidisciplinary performance data management team is advocated. This committee should include with members from key clinical areas, as well as representatives from the information technology (IT) and health information management departments is advocated. This committee creates data collection plans for new performance measures, maintains an inventory of existing data sources, resolves issues around data integrity and oversees process improvement on data collection/entry, interrater reliability, and data definitions [6].

Expand IT support

Given the large costs associated with IT, organizations must begin planning now for short- and long-term solutions. It may be necessary to modify or upgrade existing

information systems, write programs to calculate performance measures based on data included in the existing information systems, or buy IT systems which ideally support both patient care and administrative functions and the realization of the organization's performance measurement goals [6].

3.3. Research questions

Until now, the literature on hospitals' strategic responses to performance indicators is scanty [34,36,43].

The aim of the study is therefore to describe general hospital board members' and quality managers' perceptions regarding the previously mentioned three issues:

- The relationship between external performance indicators and the hospital's internal quality management system.
- The role of performance indicators in the making of strategic choices with respect to its competitive position.
- Strategic choices regarding the management of hospital performance indicators (setting priorities, allocation of resources for the gathering, analysis and reporting of performance indicators data, and information technology).

CHAPTER 4. METHODS

4.1. Setting

4.1.1. Hospital care in The Netherlands

The study was performed in general hospitals in The Netherlands. In the Netherlands, there are 145 hospitals in total, 85 of which are general hospitals, 8 university hospitals, 35 specialized hospitals (e.g. centers for radiotherapy, renal dialysis or cancer) and 17 rehabilitation centers. In addition, there are independent treatment centers (Zelfstandige Behandel Centra; ZBC's) and private clinics [44]. Twenty-six of 85 general hospitals are large teaching hospitals, providing highly specialized medical care, and have joined together to form an association of tertiary medical teaching hospitals, known as STZ (Samenwerkende Topklinische opleidingsZiekenhuizen) [45].

Similar to other countries, the Dutch health care system is constantly changing, with ensuing strategic challenges for hospital board members, to stay ahead of the curve. An important change for hospitals was the (partial) transition from a budget system to a system of output financing. With the budget system there was an ongoing increase of the hospital budgets, yet shortage (waiting lists) and concerns about the quality [46]. The introduction of the new system challenged hospitals on the supply side to clearly define the contents of their 'products'. This was achieved by means of development and implementation of the Dutch DBC (Diagnosis Treatment Combination; Diagnose Behandel Combinatie)-system between 2000 and 2005. An improved DBC-system, making a better comparability with the international case

mix systems possible, will be introduced in 2010. A clear definition of 'products' enables hospitals to calculate their actual costs and to negotiate with insurers regarding the prices and quantity. Competition between hospitals will however not only be dominated by the costs; the quality of hospital care is also taken into account. To assess the quality of hospital care, performance indicators are used, either developed by Dutch health care insurers themselves, or by national regulatory and/or professional organizations.

4.1.2. Development and implementation of performance indicators for Dutch hospital care

In the Netherlands, initiatives to improve the quality of health care, including the development of sets of performance indicators, have run in parallel with other European countries and North-America since the 1980s. With respect to the improvement of the quality of hospital care, internal quality systems have been set up first, followed by the establishment of systems for external regulation. The development of sets of basic performance indicators for hospital care (Basisset Prestatie Indicatoren) in the Netherlands started in 2003. The basic set included performance indicators instituted by The Netherlands Health Care Inspectorate (Inspectie voor de Gezondheidszorg; IGZ [3]), the Dutch Hospitals Association (Nederlandse Vereniging van Ziekenhuizen; NVZ [44]), the Dutch association of Academic Medical Centers (Nederlandse Federatie van Universitair Medische Centra; NFU) and the Dutch Association of Medical Specialists (Orde van Medisch Specialisten; Orde). The basic set comprises a set of indicators for effectiveness,

safety and patient-centeredness, as well as parameters found relevant for accountability, control and benchmarking (NVZ indicators). The basic set has been improved several times over the past years and. the results are reported at the site of the IGZ: http://www.igz.nl/publicaties/instellingsrapporten.

The basic set is categorized according to Donabedian's theoretical framework concerning the structures, processes and outcomes of health care [9].

In addition to this project, from 2005, sets of condition-specific performance indicators to be implemented in hospitals have been developed. The project "Kwaliteit van Zorg in de Etalage" [47,48] concerned the development of 10 sets of performance indicators. The choice for the 10 medical conditions was based on their frequency, distribution over the various professional organizations, whether they were part of the list of performance indicators for purchase of the national organization representing care insurers in the Netherlands (Zorgverzekeraars Nederland; ZN) and the availability of an evidence based guideline. The latter motivation is in line with the abovementioned preference for indicators with the most robust scientific evidence [24]. The project "Zichtbare Zorg" [4] facilitates, among other initiatives, the implementation of these 10 sets of performance indicators in Dutch hospitals as from 2009, and the development of sets of performance indicators for 18 additional medical conditions, to be implemented from 2011. In the Netherlands, the costs associated with the gathering of data for the basic set performance indicators for hospitals were estimated to be € 50.000 for the total set and € 1064 per indicator [49]. For the additional performance indicators related to specific medical conditions that are currently being implemented, the costs were

estimated at € 1174 per indicator [49]. This estimation is exclusive of the time spent by medical specialists and the costs of computer software and hardware.

The abovementioned national sets of performance indicators are implemented in The Netherlands in a period where the number of initiatives for the measurement and reporting on hospital care quality and safety is rapidly increasing. Examples on the national level are the mandatory implementation of a safety management system in 2008 [50], ten special themes on patient safety in hospitals [51] and the introduction of the HSMR (Hospital Standardized Mortality Ratio) in 2009. In addition, individual health care insurers are increasingly using their own sets of performance indicators. The same trend is seen for Dutch consumer organizations and professional organizations, which derive sets of performance indicators from professional guidelines. Moreover, there are various other hospital rankings such as the rankings from Elsevier [52,53], the Algemeen Dagblad [54], Independer [55] and Mediquest [56].

Another aspect of the setting where performance indicators are implemented is the introduction or change of the electronic medical record in many hospitals in the Netherlands over the past years. With the purchase of electronic medical record systems, hospitals have to take into account their suitability for the registration and analysis of performance data. In addition, a growing number of specific software programs for performance indicators is available in the Netherlands, examples of which are Pi® by Plexus Medical Group [57] and the Prismant scorecard by Prismant [58].

4.2. Interviews

Six general hospital board members or quality managers were invited to participate in this qualitative study using semi-structured interviews. The selection of hospitals was based on achieving variation regarding the geographical distribution over the Netherlands and the type of hospital (both STZ and non-STZ hospitals).

The interviews included 14 questions and took about one hour each.

Every interview started with two general topics:

1. General view on strategic advantages/opportunities and disadvantages/threats regarding the implementation of performance indicators in hospital care.
2. Current and future usage of performance indicators.

Then, the following three topics, related to the three research questions of this thesis were covered:

3. The linking of performance indicators with internal quality improvement priorities.
4. The usage of performance indicators in the making of strategic choices regarding the competitive position.
5. Strategic choices regarding the setting of priorities, budget and staffing levels for data collection and review activities; investments in and use of health IT.

Questions were in part posed according to the previously mentioned set of "Questions for evaluating performance measures" and general recommendations by Spath [6] and best practices for gaining control over reporting requirements as

described by Anderson & Sinclair [42]. The full list of interview questions is presented in Appendix 1.

In addition, information regarding the characteristics of the hospital, whether performance indicators were mentioned in strategic plans and annual reports, and the actual public reporting were gathered from websites and written reports.

All responses were labeled and categorized according to the five previously mentioned themes afterwards.

CHAPTER 5. RESULTS

5.1. Responders

Two board members and four quality managers from six general hospitals in the Netherlands participated in the study. Either board members or quality managers were approached and/or interviewed, depending on personal contacts or the preference of the hospital. Four of the six hospitals were STZ hospitals. The interviews were executed between January and March 2009.

5.2. General views on the advantages and disadvantages of performance indicators in hospital care

The respondents mentioned the following advantages of the usage of performance indicators: their importance in counterbalancing the current focus on costs, their usefulness as tools for benchmarking, and their positive contribution to the safety of hospital care.

In general, more disadvantages were summed up, including the large and ever increasing number of performance indicators and the lack of alignment, their continuous change, their limited reliability (as hospitals may deliver inaccurate data), their limited value with respect to aspects related to customer value and satisfaction and for internal hospital operations management, and the confusion about the ultimate quality level that is strived after (higher quality scores for all hospitals or all hospitals achieving the average score).

Performance measurement was found to have become a goal in itself by one respondent.

One respondent mentioned the importance of hospitals' active appeal to the NVZ and the IGZ to limit the number of performance indicators and have them better aligned.

5.3. Current usage of performance indicator sets

Apart from delivering data for the mandatory "Basisset Prestatie Indicatoren" , the participation in the additional set of 10 condition specific sets of performance indicators ("Zichtbare Zorg") varied. Two hospitals took part in the pilot project, one hospital started to gather data for these sets in the background, the other three employed a waiting policy.

All respondents gathered performance data for individual health insurers (especially for the main health insurer in their region), but it was stated more than once that the current delivery of data did not completely meet the health insurers' demands.

5.4. Relationship of performance indicators with internal quality management systems

A positive impact and stimulus of the usage of performance indicators on the internal quality system of the hospital was mentioned by the majority of respondents. In particular, respondents noted that there was a close connection between performance indicators and their internal registration of incidents, complications and complaints, and the internal audit system. Moreover, it was mentioned that the usage of performance indicators was well in line with the quality demands imposed by

medical professional organizations. None of the respondents found that the usage of performance indicators was a threat to the hospital's own initiatives for quality improvement. In addition, two aspects of measuring performance related to the organization's culture were noted: first, the need for a safe climate for individual health providers or departments for internal reporting on their processes and outcomes, and second, the general resistance of individual health providers against administration and registration, where they were rather trained to deliver care.

Apart from the association of performance measurement with internal quality initiatives, a positive contribution of the usage of performance indicators for internal hospital operations management was mentioned by all respondents. In particular, the link with initiatives to improve the efficiency, such as Lean trajectories, was noted. Despite this positive association, half of the respondents doubted the actual suitability of current performance indicators for internal steering, whereas the other considered them in general useful.

In all hospitals, internal reports on performance indicators in connection with data on productivity and costs (e.g. in the form of balanced score cards) were executed or planned. Internal reporting on the intranet-site was planned in some hospitals. All but one of the respondents thought that internal reporting on performance indicators should be done more often than once per year (the frequency for external reporting as requested by the IGZ).

Three of the respondents noted that current sets of performance data yield a large amount of information that is meaningless, not timely, or unreliable, whereas two

respondents mentioned resistance against performance data among health care providers, in particular medical specialists. Regular analyses and reports for internal usage were, although desirable, in general found time-consuming, and some of those who had experience with electronic "dashboards", like Pi® found there usefulness as well as their user-friendliness to some extent disappointing.

Two respondents mentioned the need to keep an active role and define their own indicators for hospital operations performance management, according to the organization's strategies and priorities.

5.5. Impact on strategic choices regarding the competitive position

With respect to hospitals' competitive position, respondents mentioned different generic strategic goals, either concerning values applicable to the hospital as a whole, such as customer satisfaction, and/or the delivery of specific health products or services (e.g. specific surgical procedures) or research and education. Research and education were considered to contribute to the quality of the hospital as a whole, so that its competitive position would be strengthened.

In one hospital, the three previously mentioned generic strategic options (paragraph 3.1.2) were applied to hospital services as divided into acute, elective and chronic care. In that hospital, product leadership was the dominant strategic option for acute care, operational excellence for elective care and customer intimacy for chronic care.

Concerning the role of performance indicators in the hospital's competitive position, there were different views. First, it was mentioned by one respondent that

performance indicators may only be useful for a part of the broad range of hospital products and services. This is because currently, performance indicators are in part reflecting quality on the level of the hospital as a whole, and not on the level of individual products or services. It was noted by one respondent that current sets of performance indicators mainly provide information related to the quality of acute and elective hospital care, and to a lesser extent to chronic care, where customer value or patient centeredness is aimed for even more than in other areas. The limited suitability of current performance indicators regarding patient satisfaction and patient centeredness was noted by two other respondents as well. One of these respondents mentioned that additional, qualitative measurements regarding patients' satisfaction were done on the initiative of the hospital. Another respondent however found that current sets of performance indicators sufficiently cover parameters on the level of customer value.

Second, two respondents, from STZ hospitals, indicated that excellence in teaching and research were main hospital positioning strategies; however performance indicators are currently not adequately covering these topics. One of these two respondents mentioned that the hospital played an active role in the development of performance indicators for teaching and research, as otherwise the distinction between this hospital and other hospitals could not be made sufficiently clear.

Third, one respondent mentioned that, because hospitals are all gathering and publishing similar variables, and are striving at the same average level, it is questionable whether performance indicators are helpful in making a distinction regarding the quality of care. In this respect, it was also mentioned that the current

way of public reporting leaves little room to show improvements over time within one hospital.

With respect to the public reporting of performance indicators, most respondents indicated that this consisted of a link on their website to the IGZ website. One respondent indicated that the hospital was increasingly making use of the possibility to give explanations with the delivery of data to the IGZ. Postponing the delivery of data was mentioned by one of the respondents in a situation where the definition of a performance indicator had recently changed and a worse score for that performance indicator was to be expected. Some respondents mentioned that other hospitals were delivering inaccurate data with the aim to obtain better scores on the performance indicators. Some hospitals were considering a more active PR policy regarding the public reporting on performance indicators.

Concerning the reporting on performance indicators to health insurers, two hospitals mentioned an active strategy. These hospitals had developed written reports specifically for health insurers, comprising, apart from performance indicators, additional information per hospital department. These reports were developed and in one case also presented to health insurers by medical specialists.

With respect to the communication on performance indicators with consumers, none of the respondents was currently employing an active strategy. It was mentioned by various respondents that the reporting on the Basisset Prestatie Indicatoren in its present form is not useful for patients. One respondent noticed that the

implementation of Zichtbare Zorg could probably yield information that would be more suitable for patients to make decisions, as this would provide information on the level of products and services. It was also stated by half of the respondents that a patient's choice for a specific hospital depends on other factors than quality alone, with the distance to the hospital and coverage by insurers being mentioned as examples.

Two respondents mentioned that their hospital actively tried to influence the hospital's position on "informal" rankings like those composed by Elsevier and AD. Two respondents mentioned active policies regarding reporting in the media concerning hospital's priorities that are not reflected in current sets of performance indicators.

5.6. Strategic choices regarding the allocation of resources for comprehensive performance indicators management.

5.6.1. Performance indicator strategies and priority setting

The importance of setting priorities with respect to compliance with performance indicators was acknowledged by all respondents. One respondent mentioned the development of a formal hospital policy on the management of performance indicators that would become part of the hospital's strategic plans. Two respondents mentioned the development of a formal internal procedure for the setting of priorities concerning performance indicators. In these cases, this was done by the setting up of

a multidisciplinary committee, which listed and weighted the demands from individual health insurers.

5.6.2. Involvement of internal stakeholders

In all hospitals, performance indicator management was co-ordinated by a central staff bureau involved with quality. The involvement of medical specialists in committees appointed by the hospital board and staff bureau to use performance indicators in the hospital varied. In five of the six hospitals medical specialists were members of a multidisciplinary committee on performance indicators or were represented in a separate medical specialist quality committee, whereas one respondent indicated that the active involvement of medical specialists on the hospital's general quality management level was not considered desirable. Two respondents mentioned that it was difficult to obtain co-operation from medical specialists. Some respondents noted the importance of the active participation of nursing staff /care managers, besides medical specialists. The respondents had so far received relatively few requests from medical specialists to support them with the usage of sets of performance indicators related to their specialty. All respondents said that those requests would be reviewed by the central performance indicators /quality committee, and be weighted against the hospital's priorities for gathering and using performance data.

5.6.3. Information and communication technology

The estimated proportion of data on performance indicators that can currently be derived from already available electronic databases (data warehouse; administrative and patient-related databases) was estimated to range from 30%-45% by three of the respondents.

Most respondents were facing the decision on whether or not to modify their own software or buy specific software to analyze and present performance data (examples mentioned: PI®, Real Time Monitoring, Prismant, IGZ software). In one hospital the decision was made in collaboration with a number of other hospitals. Considerations included the amount of data that could probably be derived from their own data warehouses or electronic registrations, the fact that current software packages are usually stand-alone versions that are only to a limited extent compatible with the hospital information systems, their inclusion of many options of which the usefulness is questionable, their slowness and other issues related to user-friendliness, and problems with the entering and coding of data.

All respondents mentioned that, with the purchase of new software systems for the hospital, the usefulness of these systems for the entering, analysis and presentation of performance data was now systematically considered.

5.6.4. Resources

Respondents varied with respect to their views on the future allocation of resources (staffing and modifications or purchase of software packages). Half of the respondents expected an increase in the necessary resources, whereas the other half thought that such an increase could be prevented by enhancing the efficiency of

current gathering, analyzing and reporting of performance data (e.g. by optimizing the current software and by using existing data).

CHAPTER 6. DISCUSSION AND RECOMMENDATIONS

In this exploratory, qualitative study among six hospital board members and quality managers from general hospitals in the Netherlands, it was found that hospitals varied with respect to strategic responses towards the growing number of initiatives of external stakeholders to assess the performance of their operations

This study has a number of limitations, including the small sample size and the non-random selection of participants. The results can therefore not be simply generalized to all general hospitals in the Netherlands or in other countries. Despite these limitations, the descriptive results may give insight into the variety, nature and extent of strategies employed by general hospitals with respect to the usage of externally imposed performance indicators. The strategic responses derived from the interviews will be discussed in greater detail in the next paragraphs.

6.1. Relationship with the hospital's internal quality system

In general, a positive impact of performance indicators on the hospital's internal quality management system was perceived. However, the interviews provided little insight into the extent to which the gathering, analysis and reporting of performance data connected specifically with the internal quality management system. This leaves the question to what extent performance indicator management is added to or integrated with the hospital's internal quality management system in part unanswered.

The results of this study indicate that organizations aimed at a more prominent role of performance indicators in hospital operations management on the level of business units, in addition to information on efficiency and costs. However, the value of currently available performance indicators for hospital operations management was also questioned. Some respondents doubted their relevance for specific care processes and their reliability. Moreover, their analysis and reporting was found time consuming, with the usefulness of currently available software for this purpose being questioned or criticized.

The limitations respondents experienced with the usage of performance data for hospital operations management could probably be related to the distinction between the usage of performance indicators for either internal or external use, as described in the literature [15, 22,25,26]. According to the literature, performance indicators for internal quality improvement should be established by health care providers themselves, must be easy and quick to gather and analyze, with the use of small samples [15,22,25]. The sets of performance indicators currently used by the IGZ, health insurers and other external parties do not or not completely fulfill these criteria and may therefore in practice be found less suitable for steering. To make performance data, in addition to data on productivity and costs, indeed useful for the optimization of hospital operations, they should be directly related to specific, defined operations. Partly due to the introduction of DBCs the insight of hospital managers and professionals into their operations is indeed growing, however that development is to a large extent cost-driven and not quality-driven. More closely

related to the quality of hospital operations is the current establishment of clinical cycles (zorgpaden), organized around medical conditions, in many hospitals in the Netherlands. This development stimulates managers and professionals to design and redesign hospital operations and to systematically monitor their outcomes by means of relevant and meaningful self-developed performance indicators or consciously selected performance indicators from available externally imposed sets.
The need for a more active role of hospitals themselves and a greater accent on *internal* improvement, implying a transition from merely management to leadership, was emphasized by some of the respondents, as well as in recent publications [26,59]. The results of this exploratory study indicate that hospitals vary with respect to the extent to which this transition has already taken place, but a general trend towards more internally rather than only externally determined selection and usage of performance indicators was seen.

A greater focus on hospital operations would require an active involvement of medical specialists and other health professionals. It should be taken into account however, that few of them have been trained in operation management and practice redesign [60], so that education and practical support in this area is needed. Apart from a lack of education, the cultural background of an organization or a group of professionals may hamper their active involvement in the definition of operations and the monitoring of their performance.

6.2. Competitive positioning

Concerning the competitive position, all hospitals gathered performance data specifically for contracting with health insurers. Half of the respondents mentioned initiatives to develop performance indicators within areas that were found important in the competition, yet underrepresented in current sets of performance indicators. Active reporting to consumers was not employed, and its usefulness questioned by most of the respondents.

The observation that some hospitals were taking an active role in the establishment of performance indicators themselves fits in well with the plea for more leadership by hospitals [26], as described in paragraph 6.1.

With respect to hospitals' varying views on current externally imposed performance indicators' ability to distinguish with respect to customer value or patient-centeredness it is conceivable that the differences can in part be explained by variation in the interpretation of these terms. In the literature it is by some authors questioned to what extent aspects such as customer experiences or satisfaction can be measured at all. As was noted by Edwards Deming "The most important figures one needs for management are unknown and unknowable....what is the value, for instance, of the multiplying effect of a happy customer and the opposite effect from an unhappy customer... [61,62]. Therefore "you can't manage perceptions in the same way you manage outcomes" [62]. In that view, it appears that many hospitals are focusing on what can't be measured. This does however not imply that this strategic option may not be working. A strategy where the patient is put in the center

is in line with Michael E. Porter's theory on effective competitive strategies in health care [63], although according to this theory patient value is not confined to patients' experiences and satisfaction alone. According to Porter, the right kind of competition in health care is value-based competition, grounded on 3 principles: (1) the goal is value for patients; (2) care delivery is organized around medical conditions and care cycles; and (3) results - risk adjusted outcomes and costs - are measured. And, following this theory, to reform the health care system according to these principles, physician leadership is considered essential [63]. In this respect, the observation from this study that in some hospitals the involvement of medical specialists in performance measurement was marginal may be considered problematic. On the other hand, it should be acknowledged that professionals other than medical specialists play important roles in health care delivery and may have the attitude, knowledge and skills to re-organize health care delivery as well, as was indicated by some of the respondents.

None of the hospitals employed an active role in the communication of performance data for comparison to consumers. The literature shows that the presentation of performance data in its current form is not very useful for consumers to make informed choices [15]. This is in part because consumers are in need of information on the product or service level rather than the provider level. According to Porter's theory on effective health care competition [63] measurement information on the level of health care processes is indeed needed, however this theory assumes that consumers are not equipped to manage their own care in the currently fragmented

system, and a far greater and faster impact of results measurements will come from enabling and encouraging physicians and medical teams to improve value.

So far, only the role of performance measurement in general hospitals' competition with respect to patient care was discussed. Education and research are however among the competitive strategies of many large teaching hospitals, as they are considered to improve the overall quality of the hospital.

Performance indicators can fulfill different roles in strengthening the hospital's competitive position with respect to education and research. First, performance indicators specifically for education and research may be established by hospitals themselves, as was mentioned in the interviews. Second, performance indicators related to hospital operations may reinforce education and research. Research has indeed been identified as a third function of performance management, besides improvement and accountability [15]. Systematic measurement of clinical outcomes and costs alongside medical conditions and care cycles may pay an important contribution to education as well as research. In this way, not only the hospital's competitive position can be strengthened, but a contribution to the body of knowledge on the organization of hospital care, including e.g. implementation strategies and logistics, can be made as well. However, the potential usage of clinical performance data for these purposes was not meant by any of the interviewees, indicating that there is room for providing hospital boards with more information on the advantages and opportunities in this area.

6.3. Performance indicator management

The results of this study indicate that hospitals are taking a number of initiatives to gain control over the growing number of externally imposed performance measurements, by establishing a central, multidisciplinary committee, making listings, identifying overlap, setting priorities and searching for IT solutions.

Overall, hospitals appear to aim for integration of activities related to performance measurement in their overall management processes. However, some of their performance indicators-related activities seem to be still relatively free-standing and in part not yielding information that is useful. It was noted that to some extent the gathering of performance data had become a goal in itself. For a better integration, current theories implying thinking from the inside to the outside, i.e. from patient values → medical conditions and care cycles → measurement of results could probably be helpful in designing more effective hospital strategies on performance measurement [26, 63]. This would mean that the focus should be on operations management rather than performance indicator management.

From the interviews it appeared that some hospitals were to a large extent working on their own to seek for solutions. Only half of the respondents noted the importance of an active role of hospitals in trying to influence external parties to reduce or harmonize the establishment of performance indicators and/or develop other, more useful, indicators. Moreover, only one respondent mentioned a collaboration with other hospitals regarding the assessment and purchase of IT programs. Such joint

efforts would fit in well with the previously advocated leadership role and the transition from reactive to proactive management [26].

6.4. Recommendations

- To optimize the usage of performance indicators, they should be part of a comprehensive hospital strategy which is focused on operations management. Within that strategy, measurement of operational performance is one of the leading principles.
- The active involvement of health care providers, in particular medical specialists, in performance measurement is needed. For this recommendation to become effective, appropriate support and education for health care providers regarding the design, redesign and management of hospital operations is required.
- A more active role of health care providers will lead to the establishment and/or the selection of measurements that are most useful not only for improving the quality of care, but of professional education and research as well, thereby strengthening the hospital's competitive position in various ways. With respect to research, the data that are gathered will contribute to the body of knowledge on the optimization of hospital care organization. More efforts are needed to highlight general hospitals' opportunities with respect to using performance data for research and education.
- Collaboration among hospitals regarding the further development and selection of performance indicators is needed. With joint and constructive efforts the chances of influencing third parties (e.g. health insurers and consumers' organizations) will rise.

- Hospitals should carefully consider the required resources, in particular the purchase of computer software, for the gathering, analysis and presentation of measurement data. As long as hospitals have not defined their own priorities for performance measurement, the usefulness of specific software can not be judged adequately.
- Research into hospital's responses to performance indicators is scanty. Given the variety of responses found in this small, qualitative study, more research into this area is justified. For that purpose, a larger study is needed. The results of such a study would give hospital boards as well as other stakeholders (in particular health insurance companies, IGZ, consumer organizations) insight into how performance data are currently being managed and used. These insights may contribute to the establishment of sets of performance indicators that are meaningful and useful for either internal and/or external usage, including their usage for educational and research purposes.

ACKNOWLEDGEMENTS

I am indebted to many people who have contributed to the realization of this thesis, in particular:

Aad de Roo, for sharing with me his knowledge on the topic of the thesis and health care in general and for his careful and valuable suggestions for improvement of earlier versions;

The interviewees for sharing with me their views and experiences;

Bart Berden, Wim van der Meeren and Angela Zijp (Elisabeth Ziekenhuis, Tilburg), for giving me the opportunity to get more insight into the activities of a hospital board by taking part in a "join the board" program;

Tom Huizinga and Rob Nelissen (Departments of Rheumatology and Orthopaedics LUMC) for facilitating my participation in the MBA program and Ferry Breedveld (Board of directors LUMC) for fruitful discussions on the topic of this thesis.

My family, André, Marthe and Joséphine, for their support and encouragement.

REFERENCES

1. IOM (Institute of Medicine): Crossing the Quality Chasm: A new health system for teh 21st century, by the Committee on Quality of Health Care in America. Washington, DC, National Academic Press, 2001.

2. Smith Moore T, Francis MD, Corrigan JM. Health care quality in the 21st century. Clin Exp Rheumatol 2007;25(suppl 47): S3-S5.

3. http://www.igz.nl/loketzorgaanbieders/indicatoren/ziekenhuizen (accessed: March 22, 2009).

4. http://www.zichtbarezorg.nl/nl/home/ziekenhuizen (accessed: March 22, 2009).

5. http://www.zichtbarezorg.nl/nl/home/ziekenhuizen/nieuwsarchief005/doeltreffende-bijeenkomst-zichtbare-zorg-ziekenhuizen.html?displaymethod=display_news (accessedMarch 22, 2009)

6. Spath PL. Taming the measurement monster. Frontiers of Health Services Management 2007;23 (4):3-14.

7. Schellekens W, Berg M, Klazinga N. Vliegen en gevlogen worden. Medisch Contact 2003; 58 (8):291-294.

8. Lohr KN, Schroeder SA. A strategy for quality assurance in Medicare. N Engl J Med 1990;322:1161-71.

9. Donabedian A. Evaluating quality of medical care. Millbank Q 1996;44:166-206.

10. Brook RH, McGlynn EA, Shekelle PG. Defining and measuring quality of care: a perspective from US researchers. *Int J Qual Health Care* 2000;12:281–95.

11. Gibofsky A, Harrington JT. Pay for performance in rheumatology: will we get the carrot or the stick? Arthritis Rheum 2008;59 (9):1203-1206.

12. Walburg JA.Uitkomstenmanagement in de gezondheidszorg. Elsevier Gezondheidszorg Maarssen 2003. ISBN 90352 26364.

13. Scherkenbach, William W (1991). Demings Road to Continual Improvement. SPC Press, Inc. ISBN 0-945320-10-8.

14. David Barnes. Operations Management. An international perspective. Uitg Thomson Learning, London, 2008; ISBN 978-1-84480-534-1(Chapter 10).

15. Groenewoud AS. It's your choice! A study of search and selection processes, and the use of performance indicators in different patient groups. Thesis, Erasmus Universiteit Rotterdam, 2008.

16. Hermann R, Leff HS, Palmer RH, Yan D, Teller T, Provost S, Jakubiak C, Chan J. Quality measures for mental health care: results from a national inventory. Medical Care Research and Review 2000;57(suppl 2): 136-154.

17. Custers T, Klazinga NS, Brown AD. Increasing performance of health care services within economic constraints: working towards improved incentive structures. Z. Artz. Fortbild. Qual.Gesundh.wes (ZaeFQ) 2007;101:381-388.

18. Sheldon TA. The healthcare quality measurement industry: time to slow the juggernaut? Qual Saf Health Care. 2005 Feb;14(1):3-4.

19. Brand CA, Ibrahim JE, Cameron PE, Scott IA. Standards for health care: a necessary but unknown quantity. MJA 2008;189:257-60.

20. Rubin GL, Leeder SR. Health care safety: what needs to be done? Med J Aus 2005;183:529-31.

21. Tawfik-Shukor AR, Klazinga NS, Arah AO. Comparing health system performance assessment and management approaches in the Netherlands and Ontario, Canada. BMC Health Services Research 2007;7: 25.

22. Casparie AF, Hommes H. Indicatoren voor integrale kwaliteitszorg in ziekenhuizen. Kluwer, Deventer / Cap Gemini Utrecht, 1997; 10-13.

23. Canadian Council on Health Services Accreditation (CCHSA). 1996 A guide to the development and use of performance indicators. Ottawa.

24. Ibrahim JE. Performance indicators from all perspectives. International Journal for Quality in health care 2001;13(6):431-32.

25. Berg M, Schellekens W. Paradigma's van kwaliteit. De verschillen tussen interne en externe kwaliteitsindicatoren. Medisch Contact 2002;57 (34):1203-06.

26. Schellekens W. Transparantie in de zorg. Wat betekent dat voor ziekenhuizen? Presentatie Informatiebijeenkomst Zichtbare Zorg Ziekenhuizen, 22 januari 2009. Downloaded from: www.igz.nl. http://www.zichtbarezorg.nl/nl/home/ziekenhuizen/zichtbare-zorg-ziekenhuizen-2009/intervisiebijeenkomst-zichtbare-zorg-ziekenhuizen

27. Pitches DW, Mohammed MA, Lilford RJ. What is the empirical evidence that hospitals with higher risk-adjusted mortality rates provide poorer quality care? BMC Health Serv Res 2007;7:91.

28. Werner RM, Bradlow ET. Relationship between Medicare's hospital compare performance measures and mortality rates. JAMA 2006;296(22)2694-702.

29. Fonarow GC, Abraham WT, Albert NM, Stough WG, Georghiade M, Greenberg BH, et al. Association between performance measures and clinical outcomes for patients hospitalized with heart failure. JAMA 2007;297(1):61-70.

30. Werner RM, Asch DA. The unintended consequences of publicly reporting quality information. JAMA 2005;293:1239-1244.

31. Lugtenberg M, Westert GP. Kwaliteit van zorg en keuze-informatie voor burgers. Een internationale verkenning van initiatieven. Tranzo, Universiteit van Tilburg. ISBN: 9789078886020; Universiteitsdrukkerij Tilburg, 2007. http://www.uvt.nl/faculteiten/fsw/departementen/tranzo/academischewerkplaatsen/khz/publicaties/rapportkwaliteitzorgeninformatie.pdf (accessed: March 23, 2009).

32. Shaw C, Kutryba B, Crisp H, Vallejo P, Suňol R. Do European hospitals have quality and safety governance systems and structures in place? Qual Saf Health Care 2009;18(Suppl I):i51-i56.

33. Kaufman NS. Achieving peak performance through strategic visioning. Trustee. July/August 2002; 24-27.

34. Laschober M, Maxfield M, Felt-Lisk S, Miranda DJ. Hospital response to public reporting of quality indicators. Health Care Financing Review 2007;28:61-76.

35. Guru V, Fremes SE, Naylor CD, Austin PC, Shrive FM, Ghali WA, Tu JV; Cardiac Care Network of Ontario. Public versus private institutional performance reporting: what is mandatory for quality improvement? Am Heart J 2006;152(3):573-8.

36. Pham HH, Coughlan J, O'Malley AS. The impact of quality-reporting programs on hospital operations. Health Affairs (Milwood) 2006;25(5):1412-22.

37. Treacy M, Wiersema F. The discipline of market leaders. Choose your customers, narrow your focus, dominate your market. Addison Wesley Publishing Company, 1996.

38. Porter ME. Competitive Advantage: Creating and Sustaining Superior Performance.Simon & Schuster Ltd, 1998.

39. Devers KJ, Brewster LR, Casalino LP. Changes in hospital competitive strategy: a new medical arms race? Health Services Research 2003;38 (1, Part II):447-69.

40. Rosenthal MB, Landrum MB, Meara E, Huskamp HA, Conti RM, Keating NL. Using performance data to identify preferred hospitals. Health Services Research 2007;42 (6, Part I):2109-19.

41. Gosfield A. The Performance measures ball: too many tunes, too many dancers?. In Health Law Handbook by A. Gosfield. Eagan, MN: West, p 227-84, 2005.

42. Anderson KM, Sinclair S. Easing the burden of quality measures reports. Downloaded from: http://www.hhnmag.com/hhnmag_app/jsp/articledisplay.jsp?dcrpath=HHNMAG/PubsNewsArticle/data/2006August/060815HHN_Online_Anderson&domain=HHNMAG (Accessed: March 23, 2009).

43. Rangachari P. The strategic management of organizational knowledge exchange related to hospital measurement and reporting. Q Manage Helath Care 2008;17(3):252-69.

44. NVZ (Nederlandse Vereniging van Ziekenhuizen; Dutch Hospitals Association): http://www.nvz-ziekenhuizen.nl/dsc?c=getobject&s=obj&!sessionid=1L5!fcxG1jmf5WBNDacGa19fs1WzcZ!js7tW8jhf9oWQdxXGwqyxTagM31UqYyWN&objectid=36864&!dsname=nvz (Accessed: March 23, 2009).

45. STZ (Samenwerkende Topklinische opleidingsziekenhuizen): http://www.stz-ziekenhuizen.nl/english.html (Accessed: March 24, 2009).

46. Soeters M, Prins M. Transition of the Dutch health care system focsed on hospital care. Diagnosis Treatment Combinations. Presentation downloaded from http://www.dbconderhoud.nl/Over-de-DBC-systematiek/Information-in-english (Accessed: March 23, 2009).

47. Zorg in de etalage. Meten is weten…..http://www.cbo.nl/product/indicator/article20070628102531(Accessed: March 23, 2009).

48. Kallewaard M, Beersen N,van Everdingen JE, van Croonenborg JJ, van Barneveld TA. Kwaliteit van Zorg in de etalage. Eindrapportage.

Downloaded from: http://www.zichtbarezorg.nl/nl/home/ziekenhuizen/ documenten004.

49. Zwakkenberg SPM, van Croonenborg JJ, Drevers S, van Barneveld TA. Verslag kosten indicatoren 2007. Downloaded from: http://www.zichtbarezorg.nl/nl/home/ziekenhuizen/ documenten004 (Accessed: March 23, 2009).

50. Veiligheids management system (VMS) http://www.igz.nl/loketzorgaanbieders/patientveiligheid/vms

51. Veiligheidsprogramma Voorkom schade, werk veilig in de Nederlandse ziekenhuizen. Downloaded from: http://www.patientveiligheid.org/tien-thema-s-patientveiligheid/tien-themas-patientveiligheid.html (Accessed: March 23, 2009).

52. Elsevier beste ziekenhuizen: http://www.elsevier.nl/web/10202035/Nieuws/Wetenschap/Elsevier-onderzoek-Het-beste-ziekenhuis.htm

53. Elsevier beste specialisten: http://www.elsevier.nl/web/10194481/Artikel/De-beste-specialisten-in-de-buurt.htm

54. AD ziekenhuis top 100: http://www.ad.nl/ziekenhuistop100/

55. Independer: http://www.independer.nl/ziekenhuizen/intro.aspx

56. Mediquest: http://www.mediquest.nl/Default.aspx?section=common&page=kdb.n.an.2006

57. Plexus Medical Group: http://www.plexus.nl/page233.html

58. Prismant scorecard: http://www.prismant.nl/Bedrijfsvoering_en_Positionering/Dossier/Prismant_Scorecard

59. Vermeulen-Plessius D. Zou reactief verantwoording afleggen niet beter vervangen kunnen worden, door sturen en pro-actief verantwoording afleggen? Afstudeerscriptie, Opleiding MBA, LOI University, 2005.

60. Harrington JT, Newman ED. Redesigning the care of rheumatic diseases at the practice and system levels Part 1: Practice level process improvement (Redesign 101). *Clin Exp Rheumatol* 2007;25(Suppl 47):S55–63.

61. W Edwards Deming. Out of the crisis. MIT Press , october 2000.

62. Lee F. If Disney ran your hospital. Some things you would do differently. Presentation Reinier de Graaf Gasthuis, March 25, 2009.

63. Porter ME, Olmsted Teisberg E. How physicians can change the future of health care. JAMA 2007;297:1103-1111.

APPENDIX 1. INTERVIEW QUESTIONS

1. Algemeen gedeelte

Ia. Voor- en nadelen van prestatie- indicatoren voor de organisatie

1. Welke strategische voordelen / kansen voor uw organisatie ziet u in het verzamelen van data voor sets van prestatie-indicatoren?
2. Welke strategische nadelen / bedreigingen ziet u?

Ib. Gebruik van sets van prestatie-indicatoren

3. Voor welke sets van prestatie-indicatoren verzamelt het ziekenhuis op dit moment of in de nabije toekomst gegevens?
4. Welke overwegingen lagen ten grondslag aan de beslissing om voor deze set(s) van prestatie-indicatoren data te (gaan) verzamelen?

2. Specifiek gedeelte

2a. Relatie tussen prestatie-indicatoren en intern kwaliteitsbeleid

5. In hoeverre sluit het verzamelen van data ten behoeve van sets van prestatie-indicatoren aan bij het interne kwaliteitsbeleid van het ziekenhuis?
6. Hoe vaak, op welke manier en aan wie worden gegevens voortkomend uit de sets van prestatie indicatoren intern teruggekoppeld?
7. In hoeverre wordt voorrang gegeven aan de topics voorkomend in sets van prestatie-indicatoren boven de interne prioriteiten van het ziekenhuis ten aanzien van kwaliteitsverbetering?

2b. Relatie tussen prestatie-indicatoren en concurrentiepositie

8. Op welke aspecten onderscheidt uw ziekenhuis zich van andere ziekenhuizen?
9. Op welke manier worden prestatie-indicatoren gebruikt om de concurrentiepositie te versterken?
10. Op welke manier maakt het ziekenhuis resultaten van prestatie-indicatoren bekend, naast de publieke rapportage verbonden aan de verplichte set(s) van prestatie-indicatoren?
(met welk doel, gericht op welke doelgroepen, bv. patiënten, verwijzers, zorgverzekeraars)

2c. Prestatie-indicatoren management

11. Welke functionarissen / afdelingen houden zich in het ziekenhuis op strategisch-, beleids- en managementniveau bezig met het beleid ten aanzien van het verzamelen van gegevens ten behoeve van prestatie indicatoren?
12 . Welk beleid voert het ziekenhuis ten aanzien van het maken van keuzes voor bepaalde sets van prestatie indicatoren?
13. Welk beleid voert het ziekenhuis ten aanzien van de financiering van materieel en middelen om aan het groeiend aantal sets van prestatie-indicatoren waarvoor data moeten worden verzameld te kunnen voldoen?
14. Welk beleid voert het ziekenhuis ten aanzien van de ICT ondersteuning ten behoeve van sets van prestatie-indicatoren?