IMPLEMENTATION AND EFFECTIVENESS OF QUALITY SYSTEMS IN DUTCH HEALTH CARE ORGANIZATIONS

The studies presented in this thesis were performed at the Netherlands Institute of Primary Health Care (NIVEL) in collaboration with the Institute for Research in Extramural Medicine (EMGO Institute) and the Department of Social Medicine of the Vrije Universiteit Amsterdam, The Netherlands. The NIVEL and the EMGO Institute participate in the Netherlands School of Primary Care Research (CaRe), which has been acknowledged in 1995 by the Royal Dutch Academy of Science (KNAW).
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CONTENTS

PUBLICATIONS

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3 Wagner C, Bakker DH de, Groenewegen PP. A measuring instrument for evaluation of quality systems. International Journal for Quality in Health Care, 1999;11(2):119-130.

4 Wagner C, Sluijs EM, Bakker DH de. Quality systems across sectors of care. Handboek Kwaliteit en Zorg, 1995;A 2b:1-28.

5 Wagner C, Groenewegen PP, Bakker DH de, Wal G van der. Environmental and organizational determinants of quality systems. (submitted)

6 Wagner C, Bakker DH de, Groenewegen PP, Wal G van der. Quality assurance in Dutch nursing practice. (submitted)

7 Wagner C, Sluijs EM, Bakker DH de. Involvement of management and professionals in the development of quality systems in health care organizations. Kwaliteit & Zorg, 1996;4(3):102-113.

8 Wagner C, Wal G van der, Groenewegen PP, Bakker DH de. The effectiveness of elements of quality systems in nursing homes: a review. (submitted)

9 Wagner C, Klein Ikkink K, Wal G van der, Spreeuwenberg P, Bakker DH de, Groenewegen PP. Quality systems and clinical outcomes in Dutch nursing homes. (submitted)

1

INTRODUCTION

1.1 Introduction

This thesis investigates the implementation and effectiveness of quality systems in Dutch health care organizations. In the late 1980s and the early 1990s methods of quality management such as quality systems, continuous quality improvement and total quality management, were receiving more and more attention from health care organizations and health care professionals in the Netherlands (Sluijs & De Bakker, 1992; Sluijs et al., 1994; Harteloh & Casparie, 1994; Klazinga, 1996; Van Herk, 1997; Walburg, 1997). The same developments could be seen in other European countries (Hammershøy et al., 1994; Brommels et al., 1996; Øvretveit, 1996; Taylor, 1996; Graz et al., 1996; Palmberg, 1997), and in the United States (Berwick, 1989; Welch et al., 1991), Canada (Lomas, 1990) and Japan (Ito et al., 1998). This interest has been stimulated by the increasing demand of governments to cut costs, increase quality and provide evidence of effectiveness and efficiency.

One strategy, which has been introduced in an attempt to achieve the two different goals of quality assurance and cost reduction, is the implementation of quality management by means of a quality system. This strategy has been successful for some profit organizations, such as Ford, Motorola and Xerox, who are convinced that their financial success can be explained by the continuous effort which has been made to improve the quality of their processes and products. Based on these experiences, the concept of quality management and the implementation of quality systems has been taken over by health care organizations. The basic assumption is that a quality system can improve the performance of an organization by facilitating more effective and efficient processes and by improving the collaboration between health care professionals. However, it was unclear whether this assumption was valid for health care organizations as well, and what kind of activities health care organizations needed to implement to achieve the same beneficial effects as in industry. Therefore, the general objective of this thesis was to gain more insight into the implementation of quality systems and their added value for health care organizations. The objective was addressed in four consecutive steps, which involved:

1. the description of the content and measurement of quality systems;
2. the description of the development and implementation of quality systems within and across health care sectors;

3. the investigation of determinants of the implementation of quality systems;
4. the investigation of the relationship between the implementation of quality systems and the quality of care.

1.2 Quality systems in health care: definitions and measurement of implementation

The definitions of what care-providers, insurance companies and patients/consumers consider to be quality systems, quality management and quality of care are often interpreted in different ways. The concepts which are relevant for this thesis will be further defined, and the various inter-relationships will be described.
A quality system is defined as the organizational structure, responsibilities, procedures, processes and resources needed to assure and improve the quality of care (ISO, 1994). A quality system can help health care organizations to meet the required quality objectives. It is a method which ensures sufficient confidence that a process or service will meet certain requirements, but the mere existence of a quality system does not guarantee that appropriate care will be provided. The ultimate aim of a quality system is to improve the quality of the care provided by complying with the needs and demands of clients, and reducing errors, undesirable outcomes, wasted time and the inevitable costs of poor quality.
Quality management is described as all activities of the overall management function that determine the quality policy, objectives, responsibilities and implementation by means of a quality system (ISO, 1994).
The concept of 'quality' covers the entire range of characteristics of a process or service. Hereby quality of care can be defined as: "The degree to which the care provided by health care organizations for individuals and specific populations increases the likelihood of desired health outcomes and is consistent with current professional knowledge" (IOM, 1990). In the Care Institutions Quality Act 'appropriate care' (verantwoorde zorg) is defined as care that is efficient, effective and client-oriented (VWS, 1996). The responsibility for the quality of care provided by the entire organization rests with the top management, while the responsibility for the quality of care provided for individual clients rests with the professionals.

The health care sector in the Netherlands has been developing its policy with regard to quality management since the end of the 1980s. Several authors have described this development in more detail (Harteloh & Casparie, 1994; Klazinga, 1996; Van Herk, 1997; Walburg, 1997). The various stakeholders in the care

sector - care providers, insurance companies and consumer/patient organizations - met at the 'Leidschendam Quality Conferences' in 1989 and 1990 to investigate how care providers and stakeholders could work together to ensure future access to appropriate care. During the conference which took place in 1990, agreements were made on a mutual quality policy for the following five years (NRV, 1990). One objective was the implementation of quality systems in health care organizations. A national committee, comprised of representatives from all parties involved, supervised the implementation of quality systems and advised the government on various aspects of health care policy (Casparie, 1993).
In 1995, a third national Quality Conference was held to evaluate the progress health care organizations had made and to reconfirm the earlier agreements.
After the first two conferences, health care organizations started to develop quality systems. However, in practice, it proved to be difficult to implement quality systems (Sluijs & De Bakker, 1992; Sluijs et al., 1994). It was unclear as to which activities should form the basis of a quality system and how the development and implementation of quality systems could be measured (Wagner et al., 1995). This resulted in the following research questions: What are the elements of a quality system, how can the implementation of quality systems be measured, and how far have Dutch health care organizations progressed in the implementation of quality systems?

1.3 Social context of the implementation of quality systems in health care

In the Netherlands, the political debate over the health care system started in the 1970s and merged into a discussion about the quality of care in the 1980s. A discussion about the quality of service had already taken place a few years earlier in industry. Since the developments which took place in industry certainly influenced opinions on how to stimulate and ensure quality in the care sector, the developments in both fields and some of the similarities found are discussed here.

The industrial sector
Since the development of job-diversification in industry, whereby various employees have their own individual tasks in the production process, it is no longer a matter of course that the quality of a product will be good. Factories and large companies have therefore established a separate department for quality control, which retrospectively inspects the quality of the final product (Juran,

1992; Verbeek, 1993). In practice, however, it appears that the workers themselves show little interest in the suggestions made by inspectors on how the final product could be improved. The causes of faults and problems in the process can not be addressed, but merely tracked down and reported. This discovery in the industrial sector led to a new philosophy which has resulted in new methods, such as Total Quality Management (TQM). Instead of concentrating on inspection and control, the emphasis is laid on continuous improvement of processes. The basis of the new philosophy is: quality involves all workers in a company, quality assurance must be a part of everyone's task because every employee is responsible for the quality of his/her own work, and breakthrough improvements can often only be achieved if the production process (the system) is changed (Juran, 1964; Crosby, 1979; Deming, 1986; Berwick, 1989). At the same time, quality becomes a competitive factor. Companies implement a quality system and apply for ISO certification in order to prove to the client that their products are of good quality.

The health care sector

After a period of growth in the health care sector, the Dutch government made an attempt to regulate the expansion of health care. The emphasis on cost control gave rise to a political reaction which questioned the appropriateness and cost-effectiveness of various clinical procedures and methods of treatment. The wide variation in the utilization of various treatment procedures, and in the outcomes achieved, has generated increasing concern about the quality of the care provided. At the same time, the development of new methods of treatment occurred simultaneously with the development of new disciplines and job-diversification. This gave rise to problems in the continuity of care, due to poor co-ordination among the professionals, the health care organizations and the various fields of health care. The demand for proof of transparent quality was increasing, and professionals and health care organizations were being asked to demonstrate more accountability.

Another reason for the pressure which is being put on professionals to make the care processes transparent and to account for their actions is due to the increasing scarcity of financial resources. The average life-expectancy of the population is increasing, and there is a corresponding increase in the demand for health care. The fact that choices must be made in the care sector seems to be unavoidable, but this is a sensitive political domain. At present a mandatory macro-budget has been allocated to the health care sector. Furthermore, responsibilities have been decentralized to stimulate 'social entrepreneurship'. These developments apply to care organizations as well as individual professionals. Finally, patients and clients are no longer willing to be passive

participants in the care process, but want to choose who treats them and where they are treated, and they also want to be involved in clinical and policy decision-making.

The influence of the different forces might explain the development of quality systems in health care organizations. The institutional theory postulates that organizations often create structures for the purpose of appearing to be legitimate to important external stakeholders, such as patients, insurance companies and the government. Therefore, it can be assumed that more external pressure will stimulate the implementation of quality systems.

Based on earlier studies on the implementation of quality management of medical (specialist) care (Klazinga, 1996; Van Herk, 1997), the implementation of quality systems, especially the development of practice guidelines and peer review activities, might be explained partly by the dynamics which are inherent to professionalization, i.e. the wish of professionals to maintain clinical autonomy, high prestige and public trust or confidence (Freidson, 1986). It is assumed, that the qualification of health care providers influences the implementation of quality systems.

The government

The Dutch health care system is based on a public and private insurance scheme that covers all the costs of medical treatment and hospitalization. Compared to national health care systems, for example the situation in the United Kingdom, the Dutch government has less power and influence to implement institutional changes in health care. Other parties, such as insurance companies and health care providers also play an important role (Groenewegen, 1998).

In the second half of the 80s, the general opinion on health care changed in the Netherlands. The emphasis on health care planning declined, and more emphasis was laid on self-regulation by health care providers and insurance companies instead of detailed government regulation, and the introduction of market elements. Despite the fact that the complex blueprints for reforming the health care system were never fully implemented, the changes have influenced the relationship between health care providers and health insurance companies (more competition), health insurance companies and consumers (more freedom of choice for consumers), and health care providers and patients (quality criteria) (Groenewegen, 1994 and 1998). To support these changes, the Dutch government abolished a number of detailed legal regulations and introduced five general regulations to assure the quality of care and to increase the rights of patients/clients (Figure 1.1).

Until 1996 there was no legislation that required health care organizations to implement a quality system, but many health care organizations anticipated

government regulations and had already started to implement a quality system (Sluijs & De Bakker, 1992; Sluijs et al., 1994).

Figure 1.1 Overview of recent Dutch government regulations concerning quality

The Care Institutions Quality Act (1996) (Kwaliteitswet zorginstellingen)	The act requires health care organizations to provide care that is effective, efficient and patient-oriented. Therefore, organizations must develop a quality system to improve and assure the quality of care.
The Individual Health Care Professions Act (1993) (Wet BIG)	The act requires professionals, such as medical specialists, nurses and allied health professionals, to provide appropriate care, and continuously monitor and improve the quality of the care they provide.
The Medical Treatment Contracts Act (1995)(WGBO)	The act lays down a number of rights and obligations for patients and care-providers, such as informed consent.
The Clients Right of Complaint Act (1995) (Wet Klachtrecht)	The act requires health care organizations to set up an accessible complaints system.
The Client Participation Act (1996)(Wet Medezeggenschap; WMCZ)	The act requires care organizations to set up a Patients Council which has the power to make recommendations in many areas, such as the budget, the food and the quality policy.

Traditionally, health care professionals have always enjoyed great autonomy, in terms of being accountable only to themselves for the quality of care provided (Freidson, 1986; Klazinga, 1996). There has also been a strong tradition of confidentiality concerning (medical) information. As a consequence, there were no mandatory requirements for government authorities, health insurance companies or consumer organizations to carry out utilization or quality reviews. With the increasing rationalization in health care the public confidence in professionals began to wane.

The Care Institutions Quality Act is based on the principle of self-regulation, and contains a limited number of general quality requirements instead of a great many detailed norms. The aim is to create optimal conditions for the achievement of quality. Individual health care organizations will have to make their own interpretation of 'good quality care' for their own clients and in their own specific circumstances, and give relevant substance to the general requirements.

From this brief overview, it is clear that industry was an important example for later developments in health care. External stakeholders and the government took

over the initiative, and the government played an important role in decentralizing responsibility for the quality of care. These developments can be interpreted by applying the institutional theory of organizational change. On the basis of this institutional theory, it is assumed that organizations and their managers often create policy structures that help the organization to perform better, and meet the expectations of external stakeholders. This assumption and the above-mentioned social developments have led to the following research question: To what extent is environmental pressure related to the implementation of quality systems?

1.4 Organizational context of the implementation of quality systems

The implementation of quality systems is a relatively new concept for health care organizations in the Netherlands, and can be considered as a complex innovation. Other methods of quality assurance, such as infection committees and near-accident committees, or the formal education of professionals are more common. An innovation is an idea or practice that is perceived as new by individuals or organizations. From the perspective of the innovation theory, the implementation of an innovation depends on the characteristics of the innovation and the readiness of managers and professionals to implement the innovation. In general, innovations that are perceived as: a) better than existing practices, b) less difficult to understand, c) consistent with existing values, past experiences and present needs, d) acceptable for trial on a limited basis, and e) expected to produce visible results, will be implemented more rapidly than other innovations (Rogers, 1983; Scott, 1990). The innovation process consists of an initiation and an implementation stage. During the initiation stage individuals gain some understanding of how the innovation functions, form a positive attitude towards the innovation, and finally decide to implement the innovation. During the implementation stage the innovation will first be used on an experimental basis and gradually put into wider use within the organization. Finally, the innovation will become incorporated into the regular activities of the organization (Rogers, 1983).

In earlier research, it has been shown that an organization's readiness to innovate was related to aspects of organizational structure, such as centralization, complexity and formalization, and individual characteristics of the managers that were found to be associated with organizational innovativeness (Greer, 1977; Daft, 1982; Rogers, 1983; Scott, 1990; Flood and Fennell, 1995; Alexander et al., 1996). These results are in accordance with assumptions derived from the contingency theory, which suggests that organizations and their managers choose

structures that help the organization to perform better. Therefore, it can be assumed that the implementation of quality systems is (partly) dependent on the organizational structure.

Since the introduction of quality management in health care, a number of studies has been carried out to investigate the elements which are necessary for the successful implementation of quality management. However, these studies have mainly taken place in a hospital setting (Wakefield and Wakefield, 1993; Jennings and Westfall, 1994; Klazinga, 1994; O'Brian et al., 1995; Shortell et al., 1995; Gustafson and Hundt, 1995; Boerstler et al., 1996; Carman et al., 1996; Weiner et al., 1997) and to a lesser degree in nursing homes (Zinn et al., 1993; Gustafson, 1996; Rantz et al., 1996; Steffen, 1997) and other fields of health care. None of these studies have investigated the influence of organizational and individual determinants on the implementation of quality systems.
Based on the results of earlier research, the research question addressed was: To what extent are organizational and individual characteristics related to the implementation of quality systems?

1.5 Explaining differences between health care organizations

In this study it is assumed that differences will be found between health care organizations in the implementation of quality systems. The explanation of these possible differences will be based on various organizational theories and perspectives, i.e. innovation, institutional, contingency and professionalization theories.
The innovation theory describes the implementation of an innovation as an ongoing process that is never really finished. During this process, different stages of the innovation can be distinguished, i.e. the initiation stage (orientation and introduction) and the implementation stage (experimentation/restructuring, embedding/clarifying, routinizing) (Rogers, 1983). On the basis of the innovation theory, it is assumed that the implementation of quality systems will follow the same stages.
The institutional theory postulates that organizations are constantly facing pressure from their environment, i.e. institutions that force regulations, procedures and structures upon them as a condition for providing legitimacy, support, and resources for survival (Scott, 1987). Organizations respond by reorganizing their structures to meet this pressure. As described in Section 1.3, the environment of health care organizations is constantly changing, i.e. demanding for systematic quality assurance and improvement and more visible processes and outcomes. It

is assumed that those organizations that perceive greater environmental pressure are more likely to implement a quality system.

The contingency theory describes various types of organizational structures. Depending on the amount of autonomy individuals have, and the complexity of the tasks they have to perform, the management chooses between a more bureaucratic or a more flexible and organic organizational structure. The structure determines the position of individuals, the mutual relationship between individuals within the organization and the division of resources (Mintzberg, 1991). It is assumed that the structure of the organization differs between health care organizations, and that the structure itself influences the implementation of quality systems.

Finally, the professionalization theory postulates that professionals will strive to maintain or increase their autonomy by working only in accordance with the standards of their profession and by being accountable only to their peers. However, a decline in the power of (medical) professionals has been described (Freidson, 1983). Therefore, it might be expected that professionals will use the implementation of quality systems to maintain their autonomy and to gain more trust and confidence from external parties. It is assumed that higher educated professionals will more often implement quality assurance and improvement activities.

1.6 The effectiveness of quality systems

Quality of care can be measured by assessing the structure of the care, the care process and client-related outcomes (Donabedian, 1980; Lohr, 1988; Lohr, 1997; McGlynn, 1997). Research into the effectiveness of quality systems can be carried out in different ways. One possibility is the evaluation of quality systems, as an organizational assessment (for example a self-assessment or accreditation), based on the assumption that well organized processes and systematic quality assurance will result in appropriate care. Another possibility is the measurement of critical points in care processes, by measuring the adherence of professionals to existing professional standards and practice guidelines. The assumption is that 'the best practice' is obvious. Finally, the quality system can concentrate on monitoring the quality of care by measuring client-related outcomes, such as clinical outcomes, client satisfaction and perceived quality of life. The value of assessing client-related outcomes in quality management depends on the influence that a care process might have on client-related outcomes (Wilson and Cleary, 1995; Treurniet, 1999).

To date, no studies which have been carried out in the Netherlands have

adequately investigated whether quality systems result in better outcomes for clients. Previous research has mainly concentrated on the effectiveness of care-innovation projects (De Bakker et al., 1994; Ketelaars et al., 1996).
The present study concentrates on evaluating effectiveness of quality systems, based on self-assessment by the management and the measurement of client-related outcomes. This has led to the following research questions: What are the effects of the implementation of quality systems as perceived by managers, and what is the relationship between the implementation of quality systems and clinical outcomes in nursing home residents?

1.7 Research questions

In this section the earlier mentioned research questions are summarized and divided into sub-questions. Reference is also made to the chapter(s) in which the questions are answered (in parentheses). The following research questions were addressed:

1. What are the elements of a quality system and how can the implementation of quality systems be measured? (Chapter 3)

2a. How far have Dutch health care organizations progressed in the implementation of quality systems? (Chapter 4)
2b. Are there differences between health care organizations and between the various health care sectors with regard to the implementation of quality systems? (Chapter 4)

3. What are the determinants of the implementation of quality systems?
3a. To what extent is environmental pressure related to the implementation of quality systems? (Chapter 5)
3b. To what extent are organizational characteristics related to the implementation of quality systems? (Chapter 5)
3c. To what extent are individual characteristics, such as the adherence of nursing professionals to existing quality assurance activities and the involvement of managers and professionals, related to the implementation of quality systems? (Chapters 6 and 7)

4. What is the effectiveness of quality systems?
4a What are the effects of the implementation of quality systems as perceived by managers? (Chapters 4 and 7)

4b What is the relationship between elements of a quality system and client-related process and outcome measures of care? (Chapter 8)

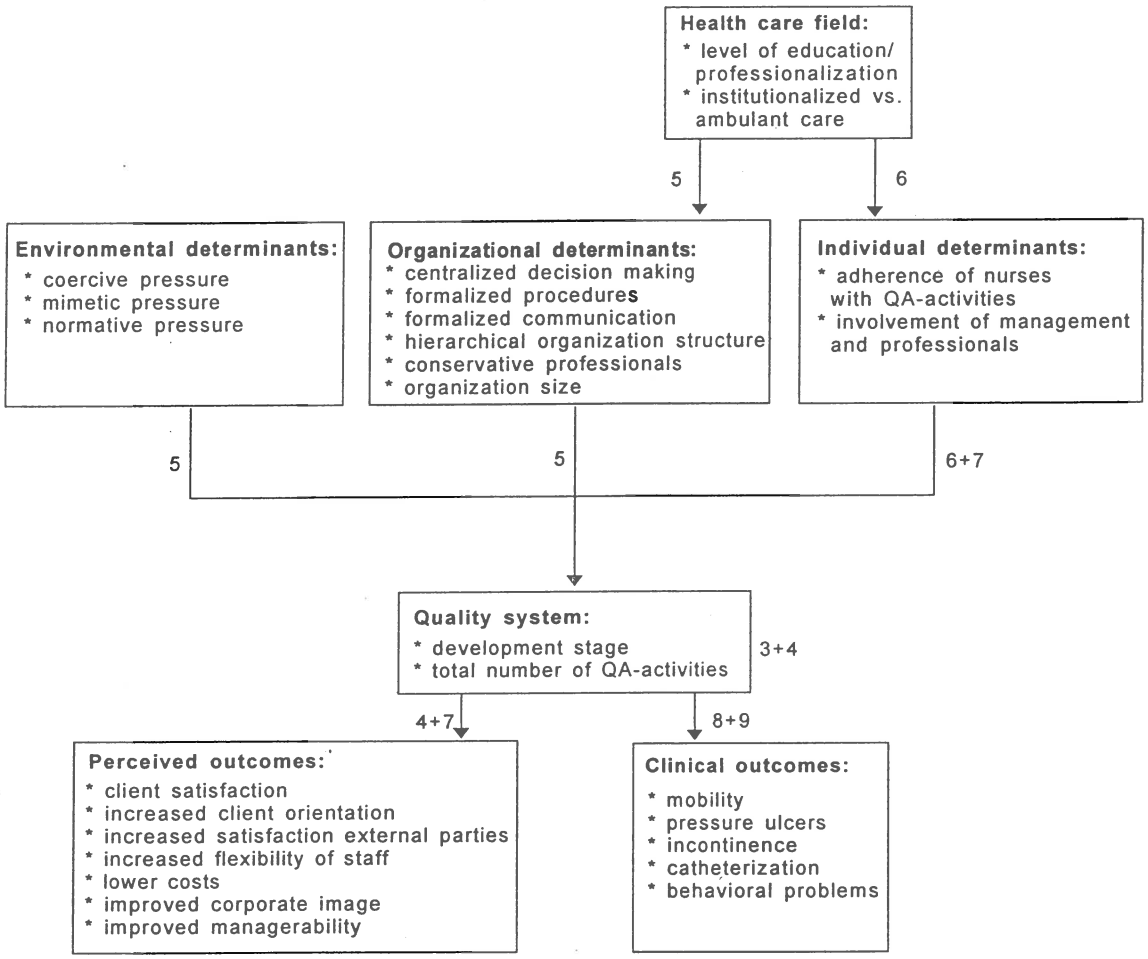
4c What is the relationship between the implementation of a quality system and the clinical outcomes in nursing home residents? (Chapter 9)

1.8 Overview of the thesis

The data used to answer the research questions were collected by the Netherlands Institute of Primary Health Care NIVEL in 1994/1995, 1996 and 1998 in three different studies. Data-collection, the measurement methods and the statistical techniques applied are described in Chapter 2 and the results are presented in Chapters 3 to 9. Chapter 3 reports on the measurement of the development and implementation of quality systems. In Chapter 4 the quality assurance activities in health care organizations are described, and differences between the various fields of health care are discussed. Chapter 5 is devoted to the relationship between environmental pressure and organizational characteristics and the implementation of quality systems. Chapter 6 describes the involvement of management and professionals in the implementation of the quality assurance activities which form the basis of a quality system. The relationship between these activities and perceived effects is also described. In Chapter 7 the adherence of nursing professionals to quality assurance activities is described, and the discrepancy between adherence to and the expectations of systematic quality assurance is discussed. Chapter 8 reports on a review of the literature concerning the effectiveness of (elements of) quality systems and the process and outcome measures of quality of care in nursing homes, and Chapter 9 describes the relationship between quality systems and the quality of care provided in nursing homes, based on an empirical study. The main conclusions, limitations of the studies, and implications for future policy and research are summarized in Chapter 10.

An overview of the content of the thesis is given in Figure 1.2.

Figure 1.2 Overview of the content of the thesis. The arrows relate to the relationships that have been analyzed and described in a specific chapter (number of the chapter is given)



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2

RESEARCH DESIGN: data and methods

The data needed to answer the research questions were collected in three studies. This chapter gives a general description of the methods applied in each separate study, and the chapters in which the results are presented (Chapters 3 to 9) give a more detailed description of the data, the variables and the analyses.

2.1 Study I

The first study concerned a national survey which took place in 1994/1995 among a representative group of organizations (N-1182) in 15 fields of health care (74% response). The objective of the study was to determine how far care organizations had progressed in the development and implementation of quality systems, which factors influenced the implementation and what the perceived effects of the implementation were.

A questionnaire was sent to the management of each organization, asking them about the quality assurance and improvement activities which had been developed by the organization, the effects which they themselves considered to have been achieved, and a number of organizational characteristics, such as the size of the organization, the extent of centralization and formalization within the organization and the attitude of the employees towards changes. They were also asked about external factors, such as their experiences of competition, changes in the care needs of the clients, a possible increase in the demand for care, requirements of the clients and insurance companies, and the extent to which the organization was prepared to anticipate the future legislation.

From the data obtained, organizational characteristics, such as centralization, formalization and size, and environmental characteristics, such as pressure from clients and governmental requirements, were used to explain the implementation of the quality system. On the other hand, the number of quality assurance activities implemented were used as a measure for the implementation of a quality system (dependent variable). In addition, the quality assurance activities were categorized as professional or management-orientated activities, in order to determine the extent to which managers and professionals were collaborating in the implementation of quality systems. To enable a comparison to be made of the development and implementation of quality systems between various sectors, the

15 fields of health care were allocated into 6 health care sectors: primary health care, care for the elderly, care for the disabled, mental health care, hospital care and health-related social services (welfare care). The data from study I were used to answer research questions 1, 2, 3 and 4a. The results are described in Chapters 3 to 6.
The study was carried out before the introduction of the various quality acts (with the exception of the Individual Health Care Professions Act). Thus, at the time of the study the implementation of a quality system was not mandatory, but was dependent on the priorities of management and professionals.

2.2 Study II

The second study was carried out in 1996 among nursing professionals from 58 organizations in 6 fields of health care: home health care organizations, mental health care organizations, nursing homes, homes for the elderly, hospitals and organizations for the disabled. The objective of the study was to investigate the implementation of quality systems in the workplace, since study I had only gathered data from the management of the organization. The organizations selected for study II had already participated in study I.
Of the nursing professionals who were invited to participate in the study, 526 nurses (74%) responded. These professionals were asked to complete a written questionnaire, containing questions concerning the culture of the organization, the policy, the anticipated effect of systematic quality assurance, the organization of the care provided, quality improvement projects, agreements on client-orientation, collaboration and consultation, and the improvement of skills. For each aspect the nursing professionals were asked how much they knew about agreements, to what extent they considered participation in quality assurance activities to be part of their task, and to what extent the agreements were actually adhered to.
These data were used to answer research question 3c. The results are described in Chapter 7.

2.3 Study III

Before study III was initiated, a literature review had been carried out to obtain more insight into the available evidence of the effectiveness of (elements of) quality systems. The data were used to answer research question 4b. The results of the review are described in Chapter 8.

The third study took place in 1998 among nursing homes. The objective of the study was to determine the relationship between the implementation of quality systems and the clinical outcomes at resident level, in order to evaluate the effectiveness of quality systems. For this study the nursing homes which participated in study I were approached again. Nursing homes were eligible for participation if they collected clinical data on all residents for the Nursing Home Information System (SIVIS) of the Dutch Centre of Health Care Information (SIG).
In this study, data were collected at both organization and resident level. At organization level, the management was again asked to indicate how far the organization had progressed in the implementation of a quality system. For this purpose, use was again made of the questionnaire developed for study I. At resident level, use was made of anonymous data on individual residents. Permission was obtained from the management of the organization to extract data from the Nursing Home Information System. These data concerned resident characteristics, such as age, sex and somatic or psychogeriatric diagnosis, and clinical outcomes, such as pressure ulcers, incontinence, mobility and behaviour. These data were used to answer research question 4c. The results are described in Chapter 9.

3

A MEASURING INSTRUMENT FOR EVALUATION OF QUALITY SYSTEMS

3.1 Introduction

Since, the question has shifted from whether quality can be measured to how best to measure quality, the interest is focused upon the selection of measurement sets which reliably and credibly inform about health care service quality (Boyce, 1996). The complexities of health care demand a balance between structure, process and outcome measures in quality monitoring. Quality systems that influence the structure and processes in provider organizations are one approach used to avoid poor quality. Advocates of quality systems suggest that they have significant potential to enable provider organizations to improve quality without increasing costs.

In this study a quality system is defined as the organizational structure, responsibilities, procedures, processes and resources to assure and improve the quality of care (ISO, 1994). By measuring the developmental stage of a quality system purchasers, consumers and regulators can more easily compare provider organizations. And, on the other hand, provider organizations can compare themselves with other organizations and can show patients and purchasers what improvements have been made in the service delivery process.

Although the Dutch government has an array of regulations designed to strengthen the position of patients, questions arise as to whether the government has the resources to monitor and properly enforce the regulations. Therefore, an efficient and routine examination of the organizations' arrangements to control and assure the quality of care is required. Different organizational audit frameworks exist that assess areas of an organization that experts believe to be essential to the organization's ability consistently to provide good quality of care (EFQM, 1992; Øvretveit, 1994; Hertz et al., 1994; INK, 1996). Examples are the European ISO 9000 standards, the Malcolm Baldrige USA National Quality Award (USANQA), the US Kings Fund Accreditation, the European Quality Award (EFQM) and the Dutch Quality Award (Table 3.1).

Moreover, innovation theory describes developmental stages that organizations follow during the implementation of innovations. The four stages most often distinguished are 1) orientation and awareness that change is necessary, 2) planning and preparation of change, 3) implementation of projects and 4) organization-wide implementation and establishment of the innovation (Mann and Neff,

1961; Rogers, 1983; Hage and Aiken, 1980; Hardjono and Hes, 1993; Crosby, 1997).

Table 3.1 Differences and similarities of focal areas in quality audit frameworks

USA National Quality Award[1]	European Quality Award[1] Dutch Quality Award[2]	UK Kings Fund Accreditation[1]
	Enablers	Areas assessed
Leadership	Leadership	Management & support services
Information & analysis	Policy & strategy	Professional management
Strategic quality planning	People management	Departmental management
Human resource utilization	Resources	Each area assessed for:
		1 philosophy & objectives
Quality assurance of products & services	Processes	2 management & staffing
		3 staff development & education
		4 policies & procedures
	Results	5 facilities & equipment
Quality results	People satisfaction	6 evaluation and quality assurance
Customer satisfaction	Customer satisfaction	
	Impact on society	
	Business results	

[1] Based on: Øvretveit J. A comparison of approaches to health service quality in the UK, USA & Sweden and of the use of organizational audit frameworks. European Journal of Public Health 1994;4:46-54.

[2] The Dutch Quality Award distinguishes five developmental stages.

The rationale for developing an instrument to measure focal areas and the development stage of quality systems was the need to obtain information on how provider organizations assure the quality of care and how many actually have developed a quality system. Until recently quality systems have been evaluated by voluntary accreditation processes. In general that information is not available for research. These evaluations are very time-consuming and for that reason not suitable for gathering comparable data of many provider organizations.

In the literature only a few studies have been found that assess on a wider scale the development of quality management against a set of criteria (Shortell et al.,

1995; Lammers et al., 1996; Jennings and Westfall, 1994; Hammershøy et al., 1994; Graz et al., 1996). All studies have taken place in a hospital setting with different questionnaires.
The literature as yet describes no sustained approach to assess the development stages of quality systems in health care across sectors of care. The purpose of this study is to assess the internal consistency, reliability and construct validity of a survey instrument measuring the development stage of quality systems in provider organizations. The instrument presented in this article has been used to measure the development stage of quality systems across health care sectors in a nationwide inquiry. Premises in the inquiry were the management perspective and a total quality management approach.

3.2 Methods

3.2.1 Study area

Data used in the analyses were survey-data enroled in a large nation-wide study within different health care sectors and health care related social service sectors in the Netherlands. Nearly all provider organizations are registered as a member of one national umbrella organization; all members were included in the study and received a postal questionnaire. Only for the organizations for the elderly we took a random sample (10% of the homes for the elderly and 50% of the nursing homes). A total of 1594 provider organizations were approached; 315 organizations of primary health care, 372 organizations for disabled people, 248 mental health care organizations, 316 organizations for the elderly, 143 hospitals and 200 organizations of health care related social services (Table 3.2). The questionnaire was sent to the management of the organization; the professionals were not involved in the study. Therefore, the data show the perspective of the management.

3.2.2 Survey instrument

The questionnaire (Appendix A) was developed by the researchers in cooperation with experts on quality improvement from different health care fields, and partly derived from the Dutch Quality Award (INK), which is a translation of the European Quality Award (EFQM) (Hardjono and Hes, 1993) (Table 3.1). The EFQM/INK-model distinguishes five organization focal areas, the 'enablers', and five development stages leading to total quality management. The enablers are the focal area leadership, policy & strategy, people management, resources and processes. For the survey instrument we have operationalized the focal area policy & strategy, people management and processes. The focal area leadership

was only operationalized in relation with people management. Leadership aspects concerning the attitude of management with regard to quality improvement were not operationalized, because of the risk of socially desirable answers. From the focal area resources we have developed only questions about information policy. In addition, we have asked for health care specific activities like patient participation.
The questionnaire employed a closed, Likert-type format with three or four ordinally scaled options per question and some nominally scaled questions. In the questionnaire the management was asked about concrete activities like the development of quality documents and the use of standards.

3.2.3 Analysis

The data were analyzed in several steps. Firstly, the validity of the instrument has been tested in a separate study (Miltenburg, 1995). Secondly, the number of variables has been reduced by exploratory factor analysis and Simultaneous Component Analysis (SCA), a multi-group confirmatory factor analysis that summarizes the variables for the different health care sectors (sub-samples). Thirdly, the reliability of the different scales, sub-scales and subgroups have been assessed by calculating Cronbach's coefficient alpha. Then, we have determined the developmental stages by dividing the activities, in cooperation with experts on quality improvement, into the four stages distinguished earlier: orientation and awareness, preparation, experimentation and integration into normal business operations (establishment). An organization has reached a developmental stage if it has developed at least one of the quality improvement activities for that stage and most of the activities of the earlier stages. Finally, we have calculated the percentage of organizations that has developed in accordance with the defined developmental stages. A more detailed description of the analysis is given in the Appendix of this chapter.

3.3 Results

3.3.1 Response

Of the 1594 organizations, 1182 (74%) actually submitted data and completed the questionnaire. An overview of the response is given in Table 3.2. The response-percentage differs across sectors from 55% of the homes for the elderly up to 91% of the organizations for sheltered living.

On the basis of data obtained from 106 non-respondents out of three health care sectors (organizations for the elderly, for the disabled and for the mentally ill) we

compared respondents with non-respondents. These sectors were selected because of the lower response. Those who participated in the study were more likely to have a quality coordinator (40% vs. 2%) and have more often formulated a quality policy (21% vs. 16%) than those who refused. The results indicate that the non-respondents might have developed fewer quality initiatives than respondents. Because the response of most of the health care sector was 75% or more we expect no influence on the assessment of the reliability and validity in this study.

Table 3.2 Overview of participating sectors, fields of health care and organizations

Sector	Fields of health care	Organizations N	response %
Primary health care	health care centres	115	76
	home care organizations	140	81
	public health care organizations	60	75
Care for the disabled	day care for the mentally handicapped	135	75
	day care for the physical handicapped	109	89
	institutions for the disabled	128	68
Mental health care	mental health care organizations	98	73
	organizations for sheltered living	45	91
	ambulatory mental health care organizations	57	84
	drugs-rehabilitation centres	48	62
Care for the elderly	nursing homes	159	75
	homes for the elderly	157	55
Hospital care	hospitals	143	76
Health care related social services	organizations for ambulatory social care	159	67
	social-pedagogical services	41	90
Total		1594	74

3.3.2 Validity study

In the separate study (Miltenburg, 1995) the interpretation of the questions about activities for process improvement by the respondents was compared with the interpretation of an independent researcher. It seemed that the interpretation of the questions was sometimes different between respondent and researcher. The items 'peer review', 'individual care plan', 'complaint registration' and 'client/family council' were interpreted quite well; between 64% and 79% of the activities were judged equally. For the items 'infection and incident committees', 'job assessment interviews', 'satisfaction survey among patients' and 'need survey among patients and referrers' the interpretation of the activities were equal in 50% of the cases. Of the other 50% half of the respondents overreported and half underreported their activities. There was less agreement in interpretation between respondents and researcher for the items 'internal audit', 'visitation', 'management information system' and 'satisfaction survey among referrers and employees'. For these last items there was more underreporting than overreporting. As a consequence there appears to be an over- as well as underreporting of activities. Organizations with more than 100 employees tend to overreport and smaller organizations tend to underreport. Overall no upgrading tendency could be discerned in the interviews.

3.3.3 Focal areas

Construct validity was assessed using exploratory factor analysis and multi-group confirmatory factor analysis. First, we have not constrained the extraction to a particular number of factors; all factors with eigenvalue greater than 1.00 were extracted. Seven meaningful factors emerged. Then, we refactored the data, constraining the extraction to seven factors. This time, five factors emerged with an eigenvalue greater than 1.00. Based on these factors we estimated the factor structure for the total group of provider organizations and for six different health care sectors (primary health care, care for the disabled, mental health care, care for the elderly, hospital care and welfare care) simultaneously with Simultaneous Component Analysis (SCA). The five factors were confirmed explaining 35.65% of the total variance assessing all provider organizations as one population and 35.79% on average for assessing simultaneously the six different health care sectors. It appeared that the total variance of the 'forced' SCA solution was only 1% less than the variance accounted for by the 'unforced' solution. The differences in variances accounted for by SCA and by the separate PCA's per health care sector was rather small: between two and three percent.

The factors are: 1) the nine quality documents indicating the dimension 'quality assurance documents'; 2) the six items measuring the involvement of patients in quality improvement activities; 3) the seven items measuring 'process control based on standards'; 4) out of the 20 questions about activities on selection,

education and professional involvement eleven items were selected indicating one dimension named 'human resources management' and finally 5) 14 items measuring quality improvement activities by managers, professionals and patients can be characterized by using the do-check-plan-act cycle. We have named that dimension 'process improvement by quality improvement (QI) procedures'. These factors correspond to the focal areas of the existing Quality Awards (Table 3.1). The factor loadings of the overall SCA analysis and the variance explained by each factor are shown in Table 3.3.

Table 3.3 Factor loadings and explained variance: results of SCA analysis of 48 items of quality assurance and improvement of all respondents (1) and for illustration the results of five sectors: home care (2), mental health care (3), care for the disabled (4), nursing home care (5) and hospital care (6)

Items	Factor-loadings					
	1	2	3	4	5	6
Factor 1: Quality assurance documents						
1. quality action plan for whole organization	.75	.68	.78	.74	.73	.72
2. quality policy document	.71	.64	.70	.58	.68	.66
3. quality action plan for some departments	.66	.52	.68	.60	.73	.65
4. quality profiles	.64	.60	.59	.66	.66	.55
5. annual quality report	.59	.57	.55	.61	.67	.54
6. quality action plan for every department	.58	.56	.40	.59	.55	.58
7. quality manual	.50	.62	.61	.57	.54	.33
8. product descriptions	.46	.36	.45	.41	.49	.45
9. mission statement	.42	.34	.36	.42	.32	.40
Factor 2: Involvement of patients						
1. involvement in developing quality criteria	.80	.70	.84	.79	.72	.64
2. involvement in quality improvement projects	.79	.73	.87	.73	.66	.72
3. involvement in quality committees	.77	.74	.76	.72	.70	.63
4. involvement in evaluating quality improvement goals	.75	.71	.72	.71	.72	.62
5. involvement in developing standards	.74	.66	.71	.68	.66	.59
6. involvement in meetings talking about results of satisfaction surveys, complaints registration	.73	.66	.73	.77	.59	.61
Factor 3: Process control based on standards						
1. standards for specific treatments/interventions	.68	.70	.47	.69	.69	.54
2. standards for utilization of medical equipment	.63	.61	.57	.60	.62	.59
3. standards for patient education	.62	.43	.61	.57	.65	.55
4. standards for cooperation with other organizations	.61	.70	.58	.61	.51	.54
5. standards for restricted medical actions	.59	.65	.55	.62	.54	.61
6. standards for specific target groups	.57	.64	.60	.58	.48	.56
7. standards for critical moments in service provision	.55	.44	.56	.56	.49	.51
8. standards for patient routing from intake to discharge	.55	.61	.55	.53	.58	.51

- continuation table 3.3 -

- continuation table 3.3 -

Items	Factor-loadings					
	1	2	3	4	5	6
Factor 4: Human resources management						
1. training/education of management	.62	.60	.62	.63	.67	.65
2. training/education of professionals	.60	.59	.59	.71	.60	.59
3. management checks whether professionals stick to commitments	.58	.59	.59	.55	.59	.55
4. continuous education takes place based on priorities in quality policy	.57	.50	.52	.61	.47	.64
5. professionals are allowed to participate in QA-activities within regular working ours	.56	.56	.52	.59	.58	.57
6. professionals are stimulated to develop themselves in their profession	.53	.47	.41	.49	.51	.59
7. management indicates what is expected from professionals with respect to quality assurance	.53	.40	.70	.52	.51	.48
8. training new professionals in quality improvement methods	.52	.55	.48	.54	.51	.61
9. systematic feedback to professionals about achieved results	.52	.48	.44	.41	.50	.46
10. monitoring department action plans	.51	.44	.53	.51	.56	.33
11. selection of new personnel with positive attitude to quality assurance	.46	.51	.57	.41	.26[1]	.33
Factor 5: Process improvement based on QI-procedures						
1. satisfaction survey among patients	.57	.52	.31	.37	.54	.73
2. utilization of individual care plans	.56	.66	.49	.58	.61	.45
3. satisfaction survey among employees	.56	.52	.65	.57	.48	.63
4. internal audit	.56	.45	.43	.36	.43	.66
5. complaint registration	.56	.57	.38	.57	.53	.66
6. need survey among referrers or others	.55	.39	.50	.43	.56	.74
7. job assessment interviews	.54	.52	.60	.67	.46	.47
8. need survey among users	.53	.50	.41	.56	.53	.53
9. management information system	.51	.48	.61	.52	.58	.32
10. satisfaction survey among referrers	.51	.47	.58	.47	.49	.70
11. peer review multidisciplinary	.48	.40	.53	.39	.36	.50
12. peer review monodisciplinary	.47	.49	.34	.34	.51	.39
13. committees e.g. incident, infection or drugs committees	.47	.50	.40	.54	.50	.57
14. visitation	.37	.32	.25	.30	.24	.27[1]
Explained variance	35.65	34.86	36.59	36.96	34.93	35.11

[1] the item-loading is higher or equal for another focal area

Since the components that corresponded to the intended focal areas were defined, the item-loadings were checked for incorrect or suspect items per health care sector. For all sectors, the component structure fitted the intended structure well. The SCA analysis yielded no incorrect or suspect items for home health care, care for the institutionalized disabled and mental health care. Only for hospitals and for nursing homes one item tended to be suspect, although no 'cut-off point' is available.

The next part describes the focal areas in more detail.

Quality assurance documents
SCA analysis revealed one factor of nine items reflecting the quality documents that an organization has developed. The amount of explicit attention to quality management has been expressed for example by the development of a mission statement, quality profiles, product descriptions, quality action plans and an annual quality report. Most of the provider organizations have developed a mission statement or a quality policy, fewer have a quality action plan for each department and fewer again have an annual quality report.

Involvement of patients
The items designed to measure involvement of patients reflect one underlying latent variable. The variable, which is a specific one for health care services, indicates that patients participate in quality assurance and improvement activities. The factor distinguishes organizations that ask patients to make a contribution to developing criteria, standards and quality projects from organizations that view quality improvement as an organizational concern. In the literature there are distinct differences between patient involvement and patient collaboration that form the precursors to patient participation, which in turn is the precursor to patient partnership. Patient participation and patient partnership are regarded as an ideal, a goal towards which all practitioners should be working (Cahill, 1996).

Process control based on standards and protocols used by professionals
The eight items measuring process control formed a single scale. The underlying latent variable indicates that organizations pay special attention to the development of standards and protocols. After describing the health care delivery process organizations want to minimize the variation in their services. In standards or protocols the ideal sequence of the health care process is described. The organization can then compare what was done with what should have been done. In recent years especially the medical profession has developed standards and protocols. In organizations where different health care professionals are involved

in the process there has been a tendency to develop standards and protocols together.
Examples are standards about specific treatments or for separate groups of patients. Furthermore, there are standards describing the whole process of the patient from the moment he/she arrives in the organization to discharge.

Human resources management
In general people management is not new for provider organizations. Only the explicit link between quality management and people management is a new phenomenon. The items measured how provider organizations paid attention to the involvement of their professionals in quality assurance and improvement.

Process improvement by quality improvement procedures
The 14 items designed to measure process improvement reflect a single latent variable. The variable indicates that organizations have developed different quality improvement activities in a systematic way for professionals, managers and patients. Examples are peer review, committees, management information systems, client council, and need and satisfaction surveys.

3.3.4 Reliability
Table 3.4 shows internal consistency reliability estimates (coefficient Cronbach's alpha) for each of the five focal areas.

Table 3.4 Internal consistency coefficients of the five focal areas of quality systems in health care sectors and organization size

		Cronbach's coefficient alpha				
Group	N	QA-documents	Patient involvement	Standards	HRM	QI-procedures
All respondents	1182	.76	.85	.74	.76	.79
Health care sectors						
primary health care	247	.76	.77	.72	.74	.72
care for the disabled	286	.77	.87	.72	.75	.80
mental health care	191	.78	.87	.73	.77	.72
care for the elderly	206	.82	.79	.80	.77	.81
hospital care	109	.69	.69	.66	.77	.82
welfare care	143	.73	.85	.72	.79	.79
Organization size[1]						
fewer than 50 employees	383	.78	.87	.72	.76	.80
51 through 300 employees	432	.78	.84	.73	.77	.72
more than 300 employees	290	.72	.86	.73	.77	.77

[1] organization size not known for 77 organizations (6%)

All focal areas achieved reliability (i.e., coefficient alpha ≥ 0.75) above the standard of .70 recommended by Nunnally (1978). Further assessment of index reliability was conducted with health care sectors and organization size sub-groups. Several differences emerged, although each of the subgroups achieved acceptable internal consistency.
The dimensions 'involvement of patients' and 'process control based on standards' were less reliable among hospitals. On the other hand the dimension 'process control based on standards' was more reliable among organizations for care for the elderly. Finally, there were no large differences within health care sectors or organization size for the dimensions 'QA-documents', 'Human Resources Management' and 'QI-procedures'.

3.3.5 Developmental stages

Within each focal area we have divided all the items into the four developmental stages: orientation and awareness, preparation, experimentation and integration into normal business operations. The division is shown in Figure 3.1.

In stage zero, which is called orientation and awareness, there are no systematic activities for quality assurance and improvement of health care processes. Some disciplines monitor their own quality through peer review and the use of standards for specific treatments. The management has started describing the mission, vision and products of the institution. In this stage, the professionals are mainly responsible for quality assurance. In the preparation stage, organizations create the conditions necessary for systematic quality assurance and improvement activities. Examples are education on quality management methods for management and professionals, the development of a quality policy and standards emphasizing health care processes. In the third stage provider organizations develop different kinds of quality improvement projects and experiments. The purpose is to cross the boundaries of separate disciplines using quality cycles. Finally, organizations reach the stage of integration and establishment. Quality improvement is no longer an experimental activity, but is integrated into normal business operations. The results of quality improvement activities in one focal area will be used for changes in other focal areas. Therefore it is necessary that organizations develop activities simultaneously on more than one focal area. We have analyzed the correlation coefficient of the different focal areas. Between all focal areas we have found weak significant positive correlations.

Figure 3.1 Indicators for the achievement of development stages for quality systems in health care by focal area

STAGES	FOCAL AREAS				
	QA-documents	**Patient involvement**	**Process control based on standards**	**Human Resources Management**	**QI-procedures**
Stage 0: Orientation	- mission - product description	- patient is not involved	standards for: - specific treatment	- encouraging professional development	- using care plans - peer review
Stage 1: Preparation stage	- quality policy - institutional quality plan - quality profiles	- discussions of results - discussion of the targets achieved	standards for: - patient education - specific target groups - unforeseen activities - medical aids	- training staff - training professionals - participation during working hours - management indicates activities	- complaints registration - committees - job assessment interviews
Stage 2: Implementation stage	- quality plan for some departments - quality plan for all departments	sometimes involvement in: - committees - QI-projects - development of criteria/protocols	standards for: - critical moments - cooperation with other organizations	- management tests - management monitors - specific criteria for selection of new staff	- satisfaction research - needs analysis
Stage 3: Establishment	- annual quality report - quality manual	systematic involvement in: - committees - QI-projects - development of criteria/protocols	standards for: - routing patient	- systematic feedback - priorities relating to quality policy - training new staff	- management information system - internal audit - visitation

Theoretically an organization has reached a particular developmental stage if it has developed at least one quality improvement activity of that stage and the quality improvement activities of the earlier stages. We assessed how many organizations have followed the stages in the postulated order (Table 3.5).

Table 3.5 shows that most of the organizations in stage three have actually developed the activities of the two earlier stages. More than 80% of the organizations in stage two have developed the activities of stage one. Overall, the linear development has been found more often in the focal areas process improvement by QI-procedures and QA-documents than in the other focal areas.

Table 3.5 Percentage of organizations per developmental stage that have developed at least one of the activities of the earlier stages

	QA-documents	Patient involvement	Standards	HRM	QI-procedures
Organizations stage 1					
% satisfied to stage 0	100	84	79	90	97
Organizations stage 2					
% satisfied to stage 0	100	69	83	84	98
% satisfied to stage 1	89	89	83	84	99
Organizations stage 3					
% satisfied to stage 0	100	34	80	84	99
% satisfied to stage 1	93	80	88	95	99
% satisfied to stage 2	65	78	79	84	80
% of organizations satisfying all earlier stages	88	71	72	73	91

3.4 Discussion

This research attempted to assess the reliability and validity of an instrument to measure the development stage of quality systems across health care sectors and health care related social services. Much attention has been paid to the validity of the instrument. The questions were formulated in cooperation with experts on quality improvement and representatives from different health care organizations (content validity). Furthermore, we have analyzed sub-samples simultaneously by a multi-group confirmatory factor analyses (SCA). The analysis has shown that the empirical data confirm for the different health care sectors the focal areas we have found in an overall factor analysis, which means that the same focal areas can be distinguished across health care sectors. Questions about the criterion validity have been addressed in the separate validation study, which shows that there have been some over- as well as underreporting. In future research the opinion of professionals should be taken into account, and additional methods for data gathering should be used to have some independent validation and prove of the functioning of quality systems. Until now there are no independent public assessments on a broader scale in the Netherlands. On the contrary, in the USA it is possible to correlate the data gathered by the described instrument with data of the reviews of the Joint Commission on Accreditation of

Health Care Organizations (JCAHO). In the U.K. the data could be correlated with data of organizational audits by King's Fund.

The results show that the measured quality improvement activities of provider organizations can be divided into five focal areas: QA-documents, involvement of patients, process control based on standards and protocols, human resources management, and process control by QI-procedures. Our findings of the focal areas confirm partly the areas of an organization differentiated in the literature that experts believe to be essential for delivering consistently high-quality care. The empirical data suggest one new area for provider organizations: the area of patient involvement and participation. These findings are in agreement with ideas about the different position of patients/consumers in health care and industry and the growing attention to enforcing the rights of consumers in health care.
The development of a quality system is complex and takes many years. Conform innovation theory, many provider organizations choose a step-by-step strategy. The results of our research confirm this approach; four developmental stages could be divided: orientation (stage 0), preparation (stage 1), implementation (stage 2) and establishment (stage 3). The results suggest few differences in reliability across sectors and organization size. The expected linear development along the four stages was followed by most of the provider organizations. The number of organizations that have developed otherwise differs across the focal areas.

We may conclude that the survey instrument can be used for assessing on a global level the extent to which organizations work on quality assurance and improvement. By assigning the activities to focal areas and developmental stages the instrument gives an overview of the various elements of a quality system. This study has shown that the instrument links up with existing international Quality Awards and that it can be used across health care sectors as well as for different kinds of organizations, e.g. large university hospitals, relatively small health care centres, homes for the elderly where the living environment is emphasized and in organizations for public health care where the patient has only brief contact with the organization. Thus we assume that the instrument can be used in other countries as well. Developing quality systems provide a common language across all parts of the health care sector.

The instrument is applicable by different groups. For provider organizations in the U.S. and Europe the incentives for paying more attention to quality result from competition for patients, an increasing demand, and the need to contain and reduce costs to win contracts from purchasers. Provider organizations can report

the information about the development of quality systems in their annual quality report and increase the transparency and accountability of the organization for health care purchasers, the inspection or patients. Second, by using the instrument state regulators can more easily gather comparable data to evaluate the development of quality systems in provider organizations. Finally, the approach of the instrument is efficient (not time consuming) and therefor useful for monitoring purposes. To improve the validity, the data gathered by the instrument can periodically be compared to data from accreditation reviews or organizational audits. The instrument is a completion rather than a substitute of existing accreditation and audit methods.

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Appendix

More detailed steps in data-analysis

We have analyzed the data in six steps.

1. To test the criterion validity of the instrument we have asked in a separate study a small sample (n=59) of responders on the telephone to describe the way they have organized some of the more complex quality improvement activities, such as internal audit, peer review, management information system, satisfaction survey, et cetera. An independent researcher, not involved in the study, has compared the situation described with the answers given in the questionnaire.
2. To reduce the number of variables, we submitted the 62 questions to exploratory factor analysis and Simultaneous Component Analysis (SCA). Factor analysis is a statistical technique used to identify a relatively small number of factors that can be used to represent relationships among sets of many interrelated variables. The exploratory factor solutions were examined using varimax (orthogonal) rotations. Only questions with loading $\geq$ 0.30 for each factor were accepted. No organizations were excluded from the factor analysis; for organizations having missing data we assumed the particular activity was not developed. After the exploratory factor analysis we used SCA, a multi-group confirmatory factor analysis, to determine whether the factor structure optimally summarizes the variables for the different health care sectors (sub-samples). While in exploratory factor analyses one would have to assess the optimal factor structure for all sub-samples separately, in SCA this structure is estimated for all sub-samples simultaneously. Thus, factor analysis accounts for the maximum amount of variance, while SCA tests component weights in such a way that the components optimally summarize the variables in all sub-samples simultaneously. The SCA program also provides the opportunity to construct the components according to one's own views and force a component solution. We have compared the 'forced' solution based on the exploratory factor structure with the 'unforced' (optimal) SCA solution.
3. We measured reliability of the different scales by calculating Cronbach's coefficient alpha, an internal consistency-based reliability coefficient with a lower limit of zero and an upper limit of unity.
4. We then assessed the reliability of the sub-scales across health care sectors and organization subgroups to determine whether the scales are even reliable in different situations.

5. Within the scales we tried to determine developmental stages. The developmental stages were constructed by dividing the activities we have asked for into the four stages distinguished earlier: orientation and awareness, preparation, experimentation and integration into normal business operations (establishment). After that, six experts on quality improvement in Dutch health care were asked to review the division we have made. The division was recognizable and tallied with their experiences. An organization has reached a developmental stage if it has developed at least one of the quality improvement activities for that stage and most of the activities of the earlier stages.
6. To assess the relation between activities and development stages we have calculated the percentage of organizations that have developed in accordance with the defined developmental stages.

4

QUALITY SYSTEMS ACROSS SECTORS OF CARE

4.1 Introduction

In 1990, at the Dutch Leidschendam conferences, agreements on long-term quality management were made between all the various parties involved: government, care-providers, client/consumer organizations and insurance companies. One of the agreements was that the providers of care would develop quality systems which would be implemented within five years. The underlying idea was that a quality system is, as has been shown in business, a good method of managing quality and, by means of external quality assessment, demonstrating accountability to third parties. After five years of paying special attention to quality management at all levels, almost all of the care institutions in the Netherlands systematically adopted quality assurance activities, and the development of quality systems in the care sector has become reality.

This chapter gives an overview of the developmental stage of quality systems in the various health care sectors and the related social services. In addition to the various agreements, the differences among the sectors will be discussed, together with the effects of quality systems on staff and client satisfaction and on the operation of the organizations.
The results have been based on a representative national survey which was carried out by the Netherlands Institute of Primary Health Care (NIVEL) at the end of 1994 and the beginning of 1995 among the managements of care institutions in all fields of health care and health care-related services (Wagner et al., 1995). The study was carried out before the quality acts were released (Chapter 1).
All of the institutions in each specific field of health care have been approached via umbrella organizations. Only in the care for the elderly was an a-select random sample of homes for the elderly and nursing homes selected, in view of their great number. The response percentages varied per health care field, and were between 68% and 90%. Table 4.1 gives an overview of the sectors, fields of health care and institutions included in the survey. 1182 Institutions participated: 247 for primary health care, 286 for care for the disabled, 191 for mental health care, 206 for care for the elderly, 109 hospitals and 143 health care-related social services. The questionnaires were completed by the management of the institutions. The high response rate indicates that the data provide a representative overview; although exclusively from the perspective of the management because the care givers were not included in the survey.

Table 4.1 Overview of the various fields of health care in the six sectors

Sector	Fields of health care	N
Primary health care	Integrated health centres	88
	Home care institutions	114
	Public health care organizations	45
Care for the disabled	Day-care for the mentally disabled	102
	Institutions for the disabled	87
	Day-care for the physically disabled	97
Mental health care	Mental health care organizations	72
	Organizations for sheltered accommodation	41
	Ambulatory mental health care organizations	48
	Drugs-rehabilitation centres	30
Care for the elderly	Nursing homes	120
	Homes for the elderly	86
Hospital care	Hospitals	109
Health care-related social services	Organizations for ambulatory social care	106
	Socio-pedagogical services	37

Section 4.2 describes the developmental stages of quality systems in general, and Section 4.3 discusses the differences between the sectors in specific focal areas. Subsequently, Section 4.4 presents a profile of each separate sector. The effects which have been achieved, from the perspective of management, are discussed in Section 4.5, and Section 4.6 gives an overview of the current status just before quality legislation was introduced.

4.2 The developmental stages of quality systems

There is evidence of a quality system if there is a demonstrable mutual relationship in quality assurance in three main areas: the organization, the processes and the results. These areas reflect the tripartite division, in terms of structure, process and outcome, which is familiar in health care (Donabedian, 1980). In the first place, mutual relationship simply means that outcome data provide the basis for adjustment and improvement of the organization and the processes of care. In an ideal situation the institutions can demonstrate that policy is based, for example, on the outcome of care, client satisfaction, staff

satisfaction, the registration of complaints or incidents, etc. Data on results - i.e. valid indicators - are indispensable in any quality system.
Secondly, there is evidence of a quality system if attention to quality is not limited to incidental projects, but covers the entire operation of the care institution. Analysis of the responses to the questionnaires used in the survey was based on five focal areas: quality assurance documents, human resource management, process management via standardization, process improvement via quality assurance procedures and, finally, the participation of clients[1]. Before this stage is reached, the institutions, go through a number of developmental stages. The problems that may arise in transition from one stage to another have been described in an article by Wiersema (1994).

4.2.1 The development of quality systems

There are several stages which can be identified in the development and implementation of quality systems. The introductory stage is orientation. In this stage no concrete activity is undertaken to manage or improve the care processes. In the first stage, conditions are created for a more systematic assurance of quality and improvement (e.g. training) and in the second stage improvement projects are introduced, generally on an experimental basis. In the third stage, the quality system emerges because quality assurance and improvement have become a regular part of the normal daily routine, involving all areas of the organization, and forming a coherent whole.
In order to determine the stage of development that has been reached by the health care institutions, 62 questions were developed, relating to the activities which could take place in health care institutions in the context of quality management, and can be considered as indicators of the presence of a quality system. The development of the questionnaire was based on the *Dutch Quality Award* [De Nederlandse Kwaliteitsprijs] (Hardjono and Hes, 1993) which is a self-assessment model derived from the EFQM model of the *European Foundation for Quality Management*. The underlying philosophy is that quality management must target all activities of an organization. The activities and services of an organization must be attuned to meet the needs and requirements of clients.

The answers to the 62 questions were sub-divided into focal areas by means of factor analyses. The developmental stages were defined by allocating the answers to the questions within each focal area to one of four stages. The focal areas and the developmental stages appeared to differ somewhat from the *Dutch*

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1 The word "clients" is a general term, which also refers to "patients" or "residents", depending on the sector.

Quality Award (in Appendix B (page 195), an overview is given of the precise categorization of the activities). On the basis of the developmental stages, the status of Dutch health care could be characterized in 1994/1995 as follows:

- 2% of the institutions were, on average, in the orientation stage (stage 0). This means that in virtually all areas they had just begun to pay explicit attention to quality assurance and improvement;
- 26% of the institutions were already creating quality conditions, i.e. in the preparatory stage (stage 1);
- 59% of the institutions were implementing quality assurance in the form of experiments or projects (stage 2);
- 13% of the institutions had reached stage 3, i.e. quality management involved all areas of the organization and was part of the daily routine.

The concrete activities involved in each stage are described below, and in more detail for each sector in Section 4.3.

Orientation stage

In the orientation stage no concrete action is taken to manage the various care processes. Some disciplines monitor their own quality by means of peer reviews and, to a limited degree, written protocols for specific treatments or activities. As far as individual contact is concerned, there is consultation with the client, but the client is not yet actively involved.

At this stage, the institution attempts to describe the products or services that it provides and the principles underlying the provision of care. Quality at this stage is primarily guaranteed by professional qualifications.

Preparatory stage

A quarter of the institutions were in the preparatory stage, and were creating conditions for systematic quality assurance and improvement. Both management and staff were being trained in quality management. In the meantime, the management had developed a quality policy and the staff knew what was expected of them within the context of this policy. Professionals had started to extend their quality assurance activities. Protocols had been developed to overlap the boundaries of disciplines or departments. The quality instrumentation that already existed, for example complaint registration forms, was being used for quality assurance. Clients were involved in quality management, discussing the results of complaint registration.

The implementation stage

The majority of institutions, almost two thirds, were experimenting with new forms of quality assurance, i.e. quality projects were being carried out in the various

departments within the institution. In those institutions which had reached this stage, the departments already had quality working plans and their implementation was also being monitored by the management. Process management was becoming more comprehensive, in the sense that written protocols were being developed for critical incidents and the entire process throughout the organization. Processes were more client orientated. The institutions were carrying out research into client satisfaction and involving clients in quality projects on an individual basis.

The establishment stage

In this stage, the establishment of quality activities as part of the normal daily routine (approximately 10% of the institutions) is characterized by a systematic approach to quality assurance and the coherence of the quality activities. The further education of professionals, for example, is effected on the basis of priorities in quality management; staff receive structured feedback on the results, and clients are involved in quality assurance on a systematic basis. Protocols cover the entire *routing*, from intake to discharge and the data on the results of the care are available in an information system. The quality activities are subject to an internal audit, which means that their effectiveness is assessed on a periodical basis and the accountability of the institution is presented in an annual quality report.

Table 4.2 The percentage of institutions per sector involved in the development of quality systems in stages 0,1,2 or 3

Developmental stages	Primary health care N=247	Care for the disabled N=286	Mental health care N=191	Care for the elderly N=206	Hospitals N=109	Social services N=143
Orientation	1	2	3	1	-	3
Preparation	34	19	23	25	21	36
Implementation	57	59	60	58	69	58
Establishment	8	20	14	16	10	3
Total	100	100	100	100	100	100

Table 4.2 shows the differences between the sectors in the development of quality systems in all of the focal areas. However, the results should be interpreted with caution because of the general nature of the characterization.

20% of institutions for the disabled, 16% of institutions for the care for the elderly and 14% of the mental health care institutions had reached the third stage, that of

establishment. This is above the national average of 13%. An explanation for the relatively high percentage of institutions for the disabled with a well-developed quality system is the fact that the systematic participation of clients in many of these facilities is already a matter of course. In many other sectors, however this focal area is less well developed. Sectors in which few institutions have reached stage 3 are the social service sector and the primary care sector. In the latter sector there are still relatively many institutions in the preparatory stage (stage 1), as can be seen in Table 4.2.
Because this general characterization does not reflect the differences in the development stage per focal area, these focal areas will be addressed separately in the following section.

4.3 Differences in development per sector and per focal area

A systematic approach to quality management involves activities in five focal areas. In this section, the differences between the six sectors will be described. The central issue here is: what are the characteristic activities of each specific sector?

4.3.1 Quality assurance documents

The degree to which an institution pays explicit attention to quality management is expressed in its quality policy. This means that the institution will have a mission, the products it supplies will be described, a quality policy has been documented and developed in regularly assessed working plans, and is subject to an annual audit included in an annual (quality) report.
Table 4.3 shows how many care institutions, sub-divided over the six sectors, have developed such documents or have already implemented them.

Table 4.3 implies the following: 91% of the institutions in primary care have, or are developing a written mission statement. This is also the case with 96% of institutions for the disabled. 92% of mental health care institutions, 93% of institutions for care for the elderly, 89% of hospitals and 92% of the social services. These high percentages indicate that the formulation of a mission statement is regarded as an important approach towards quality management.

Table 4.3 Percentage of institutions per sector that had developed or were developing documents relating to quality assurance in 1994/1995

Documents	Primary health care N=247	Care for the disabled N=286	Mental health care N=191	Care for the elderly N=206	Hospitals N=109	Social services N=143
Mission statement	91	96	92	93	89	92
Product description	85	81	83	77	48	84
Quality profiles	65	60	62	55	44	65
Written quality policy	67	63	73	59	76	68
Quality working plan for the institution	63	55	65	55	60	60
Quality working plan for some departments	54	42	50	46	73	44
Quality working plan for all departments	30	35	43	34	26	38
Quality annual report	35	32	32	30	37	23
Quality manual	42	28	37	46	33	40

Greater differences among the sectors were found with regard to other quality documents. Approximately three quarters of the institutions, with the exception of the hospitals, were compiling a specific list of the care or services provided (product descriptions). Over half of the institutions had started to develop quality criteria for care processes (quality profiles). Only in hospitals were quality profiles less often developed in 1994/1995. An explanation for this could be that professionals in hospitals more often work with protocols and practice guidelines. It is remarkable that primarily hospitals and institutions for mental health care had developed a written quality policy with quality working plans at institutional level (mental health care) and at departmental level (hospitals). The operationalization of quality objectives in measurable units and integration in a working plan at departmental or ward level was generally found in a few departments within the institution. The difference, for example, between quality profiles and protocols, or between quality working plans at institutional and departmental level, is primarily found in the degree of detail in which standards, targets and services are described.

Only a few institutions (a quarter to one third) had reached the following stage of accountability in an annual quality report and a quality manual. The quality manual contains the regulations and procedures which apply to the area of quality assurance in the institution concerned. A quality manual describes the way in which quality is monitored and promoted within the institution. Even more important, however, is the assurance that the procedures and agreements are also adhered to. The annual quality report describes the extent to which the

quality objectives have been achieved, and the extent to which the procedures have been adhered to.

In conclusion, it was found that the majority of the institutions had formulated, or were developing a quality policy. Between one half and two thirds of the institutions had integrated the quality policy in concrete working plans or were in the process of doing so. However, accountability for quality policy through annual quality reports or a quality manual was found in only a minority of institutions. It was remarkable to find that hospitals were far less often involved in the development of product descriptions and quality profiles than the other fields of health care.

4.3.2 Human resources management (HRM)

A quality policy can also been expressed in HRM: the management encourages staff to be conscious of quality in their care and gives an example by creating conditions in terms of time and money for the promotion of expertise. It also gives guidance, for example in the form of providing feedback to staff or by monitoring quality working plans. Measures which the institutions in the various sectors take to keep HRM in tune with quality policy can be found in Table 4.4.

In approximately two thirds of the institutions the management stated that it encouraged staff and professionals to specialize further in their own disciplines. This occurred most often in mental health care institutions (79%). Quality activities could be pursued within working hours in over half of the institutions. In general, staff received feedback on the results of quality activities less frequently; hospitals and primary care institutions are the least active in this respect. The viewpoint of members of the staff and care givers was beyond the scope of this survey.

In most institutions staff as well as team leaders were trained in quality management. In primary care, care for the disabled, hospitals and social services, training is mainly provided for staff, whereas in mental health care and care for the elderly, the emphasis is more on the training of team leaders.

Table 4.4 Percentage of institutions per sector which had adopted the following measures within their Human Resources Management in 1994/1995 (according to the management)

activities	Primary health care N=247	Care for the disabled N=286	Mental health care N=191	Care for the elderly N=206	Hospitals N=109	Social services N=143
Encouragement:						
- Staff* are encouraged to specialize further in their own discipline	62	75	79	69	64	71
- Staff can participate in quality activities during working hours	65	53	59	59	62	66
- Staff receive systematic feedback on the results achieved	31	35	41	38	29	37
Selection and training:						
- Training of staff and professionals	64	69	60	66	69	70
- Training of management and team leaders	57	64	63	70	60	62
- Training based on priorities in quality management	42	44	47	41	38	52
- Selection of new staff with a positive attitude towards quality management	35	46	40	56	36	43
- Training of new staff in quality management	11	21	14	16	14	19
Guidance:						
- Management** indicates what is expected of staff in the context of the institution's quality policy	55	62	61	59	62	60
- Management monitors the working plans of the departments, services or facilities	36	49	45	32	26	34
- Management monitors staff to see whether they adhere to the agreements made in the context of quality policy	32	44	40	37	30	42

* Staff includes professionals
** Management includes team leaders

Training in quality management includes teaching various methods in a systematic approach to the assurance of quality and its improvement and encouraging professionals to critically review their own work. In most cases this training takes place on an *ad hoc* basis, or it is left to the discretion of staff (between 60% and 70%). Training in the priorities of quality management occurs less frequently.

A clear difference among the sectors can be seen in the selection of new staff. In the care for the elderly, 56% of the institutions pay attention to attitude towards quality policy in the selection of new staff. This also includes the willingness of new staff to participate in peer review or specific training. This was found in one third of the primary care institutions and hospitals.
Relatively few institutions stated that new staff members were systematically trained: only 11% in primary care and 21% in care for the disabled.

Management guide their staff mainly by indicating what is expected of them in the context of quality management, and less often by monitoring working plans or checking that agreements have been adhered to. Large differences can be seen among hospitals, institutions for the disabled and mental health care institutions. In one quarter of the hospitals, the management checks whether working plans or agreements have been adhered to, compared to almost half of the institutions for care for the disabled and mental health care. The extent to which management and individual managers gave an encouraging example was not taken into consideration (it is difficult to imagine that managers themselves would give a negative answer).

In summary, it does appear that there are differences between the six sectors in this focal area on a number of issues, but there are fewer differences than were found with regard to quality documentation. One possible explanation for this difference is - in addition to the culture of the sector - the developmental stage of the quality system: when the system has just started, feedback can be given to staff; if there are no quality working plans, there is little to monitor.

4.3.3 Process management via standardization

Considerable progress was also found in the development of protocols for the provision of care, but differences were found among the sectors (Table 4.5). In general, it was found that hospitals use protocols and guidelines to a far greater extent than, for example, the social services.
The objective of protocols, guidelines or standards is to describe, monitor and manage the ideal path of a process. Over the past ten years, in the medical

profession in particular, a great deal of effort has been involved in producing guidelines, protocols or standards, such as for example the consensus guidelines for medical specialists and the standards developed by the Dutch College of General Practitioners (NHG). This development is clearly reflected in the high percentage of hospitals that make use of protocols for specific treatments or procedures.
In care institutions, several carers are generally involved in the provision of care, and an increasing amount of efforts is being made to manage the transitions of care and the integration of sub-processes. The percentage of care institutions which use protocols, guidelines or standards, in one or more departments, for (parts of) the process of care, can be seen in Table 4.5.

Table 4.5 Percentage of institutions per sector using protocols or standards in 1994/1995

Protocols/ standards	Primary health care N=247	Care for the disabled N=286	Mental health care N=191	Care for the elderly N=206	Hospitals N=109	Social services N=143
Specific treatment/activity/ guidance	72	63	63	66	89	45
Routing of the client from intake to discharge	38	43	49	41	35	44
Unforeseen procedures	41	54	18	52	61	4
Information to client	43	31	45	40	58	28
Critical aspects of the care provision process	28	34	55	39	46	20
Specific target groups or diagnostic groups	53	23	37	25	80	15
Medical aids	26	31	26	45	53	5
Collaboration with other institutions (transfer)	51	29	37	41	61	36

Table 4.5 shows that, depending on the type of protocol, considerable differences were found between the sectors, due to the nature of the protocol and the care provided in the institution. For example, the social services had very few protocols for unforeseen procedures or medical aids, but had often established the *routing* of a client in a protocol. In care for the elderly the nursing homes often had protocols for specific and unforeseen treatments/procedures. The critical aspects of the care process were more often included in the mental health care protocols. In addition to the protocol for unforeseen procedures and specific types of guidance in institutions for the disabled, fewer protocols were used than in the

other sectors. What is striking here is the relatively infrequent use of protocols for providing information to clients.
The most common protocols in hospitals are directed at specific treatment, specific diagnostic groups and unforeseen procedures, and also included collaboration with other institutions concerning the transfer of clients.

The results presented in Table 4.5 should be interpreted with a degree of caution: one quarter of the institutions reported that the entire institution used these protocols or standards; in three quarters of the institutions they were only used in one or more of the departments within the institution.

4.3.4 Quality improvement procedures

One of the core elements of a quality system is the systematic monitoring and improvement of (parts of) the process of care via the quality cycle or the feedback procedures. The essence of this is that systematic measurements are performed to determine whether the care meets the requirements, and that adjustment is made, where necessary. This is also the basis of the quality improvement procedures used in quality sub-systems.

Table 4.6 shows the percentage of institutions in which quality improvement procedures were embedded in a quality cycle. In other words, the quality cycle was embedded in the institution's quality system. "Embedded" implies that the outcome of the quality improvement procedures is fed back to the providers of care and also to the management of the institution. In this way, improvements can be based on the outcome of the process of care. The three distinctive quality improvement procedures are briefly explained below.

Table 4.6 Percentage of institutions per sector in which the quality improvement procedures were embedded in the quality system of the institution through the quality cycle in 1994/1995

QI-procedures	Primary health care N=247	Care for the disabled N=286	Mental health care N=191	Care for the elderly N=206	Hospitals N=109	Social services N=143
a. Provision of care:						
- Care plans	24	77	55	59	29	34
- Committees (infections, hospital registration of accidents, etc.)	6	23	31	57	59	6
- Single discipline peer review	17	15	20	17	34	27
- Multidisciplinary peer review	12	14	25	13	19	9
b. Organization:						
- Job assessment/interviews	42	71	58	50	53	35
- Registration of complaints/treatment	27	25	29	37	45	16
- Management information system	10	19	19	9	11	14
- Internal audits	4	13	8	11	14	9
- Accreditation	4	5	8	4	22	3
c. Clients:						
- Client council/family council	5	41	21	40	13	5
- Client satisfaction	16	14	22	16	32	11
- Staff satisfaction	8	26	16	12	11	14
- Referrers satisfaction	6	2	5	2	22	2
- Needs assessment for clients	2	7	3	5	8	1
- Needs assessment for referrers	2	5	5	2	11	3

Provision of care

Care plans are used to monitor individual care: care targets and the actual care provided are formulated in these plans and an assessment is made to determine the extent to which the targets have been achieved.

Care plans are used relatively often in the care for the disabled, mental health care and nursing homes. The other three sectors make far less use of care plans.

Another sector-specific activity is the appointment of special committees to monitor infections, hygiene, accidents, etc. The degree to which these committees can be considered as "sleeping", or the extent to which they actually make systematic efforts to improve quality on the basis of the records, can be determined from the following: over half of the hospitals and institutions involved

in care for the elderly reported that committees are involved in the quality cycle. Such committees are rarely found in the social services or in primary care.

With regard to peer review, it is striking that not only hospitals, but also the social services, more often make use of discipline or department-related review than multidisciplinary peer review. Only in the mental health care sector is more use made of peer review in which the different disciplines are involved. This percentage is influenced considerably by the Ambulatory Institutions for Mental Health Care (RIAGGs) in which multidisciplinary collaboration is customary. Single and multidisciplinary peer review are, by definition, activities for professionals. It is therefore not surprising that these activities are embedded in the quality system on a less than average basis. Generally speaking, the relationship between professional activities and the quality policy of the institution is not yet clear.

Organization

Job assessment interviews in the context of the quality cycle are repeated at regular intervals, so that agreements made during the previous interview can be evaluated and adjusted where necessary. They are components of the quality system of the institution, and the information from these interviews is used for quality or human resources management in the institution as a whole.

Over two thirds of the institutions for the disabled hold job assessment interviews with the staff as part of the quality cycle. In mental health care, care for the elderly and hospitals this occurs in approximately half of the institutions. In primary care and the social services it is much less common. The registration of complaints can operate as a "sub-system", in which the complaints are analyzed periodically and systematically and structural improvements are made, where necessary. Almost half of the hospitals and over one third of the institutions for care for the elderly analyze the complaints registered in this way. This happens less often in the other sectors, where only one quarter of the institutions make use of complaint registration as part of the quality cycle.

Quality assurance based on a management information system is not yet commonplace in the care sector. A management information system was described as follows in the questionnaire: "A system that provides data on the care which is provided for target groups and its results, so that evaluation and adjustment of the quality of care can be made on the basis of this data." Since only a few institutions operate a management information system, it would appear that little outcome data is available.

Quality assurance can also take place at a higher level, in the form of internal audits or accreditation. In an internal audit, the management investigates whether the care processes are monitored in the agreed way and the quality assurance activities or quality improvement procedures are assessed in terms of their effectiveness. On the basis of the data obtained, quality procedures are adjusted and improved. This assessment of the operation of the quality system takes place in one out of ten institutions for care for the disabled, care for the elderly and hospitals.
The same applies to accreditation, but this is not the responsibility of the management, but of external agencies - generally professional colleagues. Suggestions for improvement are also made in the case of accreditation.
Internal audits or accreditation are integrated in the quality cycle, and are not limited to a single activity, but repeated periodically, so that it is possible to check whether the improvements proposed in the previous cycle have actually been implemented. These activities take place only in a minority of institutions. Accreditation only takes place in one fifth of the hospitals.

Clients
The opinions of clients can be of importance for systematic quality improvement, among other things consultation with the client or a family or client council, for the purpose of satisfaction or need assessment. Systematic consultation with the client, family or client council occurs in 40% of the institutions for care for the disabled and care for the elderly, and more often in these sectors than in the other care sectors. Client or family councils are rare in primary care and in the social services. This is understandable, in view of the ambulant nature of this type of care. In quality theories, the satisfaction of clients as well as staff is considered to be important for quality management. In the care sector, the measurement of satisfaction is a regular procedure, as shown in Table 4.6. In the measurement of satisfaction, more attention is paid to the opinion of clients and staff than to that of referrers. It is only in hospitals that one out of five institutions measure the satisfaction of the referrers. To a certain extent this is understandable, because in some sectors there is direct access, and no need for referral.
It is also striking that in the care for the disabled a considerable amount emphasis is laid on the satisfaction of staff. In hospitals and mental health care institutions, the measurement of client satisfaction is more common.
Needs assessment or market research among clients and referrers is less common in all sectors, except for hospitals, as can be seen in Table 4.6.

4.3.5 Participation of clients

The role of clients in health care differs from that of clients in the business world. Whereas in industry, products are generally made at some distance from the client, in the health care system the client is directly involved, and is an object of the care or assistance provided. For this reason, in the quality systems used in the care sector, the participation of clients is a separate area of interest. This participation can include the discussion of complaints or the assessment of satisfaction. Clients may also be involved in the assessment of the objective of quality activities, or participate in quality committees and improvement projects. When this participation takes place on regular basis as part of the quality policy, then stage 3 has been achieved: integration in the normal daily routine.

Table 4.7 Percentage of institutions per sector in which clients were involved in quality activities in 1994/1995

Activities	Primary health care N=247	Care for the disabled N=286	Mental health care N=191	Care for the elderly N=206	Hospitals N=109	Social services N=143
Discussing the results of complaint registration, satisfaction assessment, etc.	48	76	57	81	66	38
Assessing whether the (quality) targets have been achieved	47	71	51	71	52	36
Development of standards or criteria	37	70	47	67	40	28
Development of protocols or guidelines	21	68	43	58	27	28
Participation in (quality) committees	21	64	39	60	31	21
Participation in improvement projects	23	67	39	65	32	21

In general, it appears that clients in institutions for care for the disabled and care for the elderly are more often involved in quality activities than clients in the four other sectors.

The explanation for this is probably that these institutions have long-term clients, which makes participation easier to organize.

4.3.6 Collaboration between institutions

In health care, the first priority would seem to be the development of an internal quality system, and only then to extend quality assurance beyond the walls of the institution, for example by developing joint care programmes. These so-called 'quality chains' are regarded as a stage in the development of quality management which follows the stage in which the quality system has been developed. In addition, in health care a great deal of importance is attached to continuity and attunement in the quality of care. The survey reveals that two thirds of all institutions regularly consult with other institutions or care sectors and that over half of all institutions take part in joint projects for improvement. The innumerable innovation projects and activities in the field of transmural care serve as an example. These initiatives are intended to safeguard and improve the continuity of care.

However, this collaboration is often informal, i.e. the agreements with other institutions or sectors are often not documented. Two thirds of the institutions for mental health care, care for the elderly and primary care are involved in developing new services with other institutions. 43% Of hospitals reported that they were involved in this type of activity.

4.4 Quality profile per sector

In the previous section, many activities that are currently taking place in care institutions have been discussed. Generally speaking, Section 4.2 revealed that the differences within the sectors are large, but the differences between the sectors are fairly small. Section 4.3 showed that the concrete activities undertaken in the six sectors differed from one another. A brief quality profile for each sector is given below.

4.4.1 Primary health care

Primary care institutions were found to have paid considerable attention to the development of protocols (this is especially the case with integrated health centres) and the formulation of a quality policy. Moreover, much time has been invested in the training of staff/professionals (in particular in the case of public health care organizations and integrated health centres). On the other hand, however, the management scarcely provides any feedback on the results achieved. Limited use is made of quality improvement procedures related to the quality cycle, and there is little involvement of the clients in quality assurance and improvement.

4.4.2 Care for the disabled

There are striking parallels here with the institutions for mental health care. Examining the pattern in more detail, a relatively large number of institutions for care for the disabled are at an advanced stage in involving their clients. They are less advanced in the development of protocols, for example for client information/education. Almost all institutions have recorded their views on the provision of care in writing, a great deal of use is made of care planning and job assessment interviews and many family councils have been established, which probably explains why there is little dissatisfaction among the clients.
It is also striking that there are considerable differences within the sector. On the one hand, there are many institutions (49%) which have implemented their quality assurance working plans at institutional level, whereas 19% of the institutions are only just beginning with this development. The same differences can be seen in the development and use of protocols.

4.4.3 Mental health care

Many mental health care institutions place emphasis on the development of their human resources management and the use of protocols. As is the case in institutions for care for the disabled, there are also great differences within this sector. Half of the institutions have integrated the use of protocols in their regular daily routine, while 20% scarcely use protocols at all.
In general, it can be said that many institutions for mental health care seldom involve the clients in quality activities. However, differences were found within the separate fields of mental health care. Institutions for sheltered accommodation involve residents a great deal in their quality policy, in contrast to institutions for ambulatory mental health care. As far as quality improvement procedures are concerned, care-planning, multi-disciplinary peer review and client satisfaction assessment are widely used.

4.4.4 Care for the elderly

In care for the elderly, it is primarily the nursing home that is more advanced than the other institutions in the introduction of quality systems. Homes for the elderly are far less advanced, which suggests that the developmental stage in this sector is, to a certain extent, biased. The differences become apparent in the areas of standardization, quality improvement procedures and client participation. There were many protocols for specific interventions in nursing homes, medical aids and critical aspects, such as unforeseen activities. There were also many care plans, many committees and a higher than average number of systems for recording complaints. In a relatively large number of institutions, clients were also involved in quality projects and complaints were discussed. On the other hand, few

management information systems had been implemented and little use was made of accreditation.

4.4.5 Hospitals

Hospitals differ in a number of ways from the other sectors. Hospitals are, above all, advanced in the development of quality improvement procedures and protocols. Compared with the other sectors, a relatively large number of hospitals have quality working plans at departmental level, but far less are concerned with the development of product descriptions and quality profiles. Controlling professionals by monitoring appointments and working plans is also less common here than in other sectors. One area that has clearly been neglected is the participation of clients.

4.4.6 Health care-related social services

In the health care related social services, a great deal of attention has been paid to the training of staff and team leaders. The management also monitors relatively frequently whether staff adhere to the agreements made in the context of the quality policy. Less use is made of protocols in this sector than in other sectors, except with regard to the *routing* of clients from intake to discharge. Systematic quality assurance based on quality improvement procedures and involving clients in quality policy has thus far been under-emphasized.

4.5 The effects of quality systems

The point of departure in quality management is that a quality system leads to better results. The ongoing improvement of processes must result in better services and, above all, in increased client satisfaction. As quality assurance depends on the efforts of the staff, a great deal of importance is also attached to staff satisfaction. At the same time, a quality system should not only contribute to the improvement of satisfaction, but also to the improvement of the financial results. Monitoring processes should lead to fewer mistakes and less overlap, and therefore to more efficiency and effectiveness.

4.5.1 The effects perceived by the management

The managers were asked to indicate the effects they expected from quality assurance and improvement activities, and also indicate the effects that had already been achieved in their own opinion. An overview of the perceived effects per sector is given in Table 4.8.

Table 4.8 Percentage of institutions per sector in which positive effects were perceived by management

Effects	Primary health care N=247	Care for the disabled N=286	Mental health care N=191	Care for the elderly N=206	Hospitals N=109	Social services N=143
Increase in staff satisfaction	13	25	12	20	10	14
Increase in client orientation	19	28	13	19	19	23
Increase in satisfaction of external parties	17	22	17	13	14	18
Increase in management control of the organization	13	21	18	14	8	20
Increase in the efforts/flexibility of staff	12	22	14	26	12	18
Better corporate image	15	22	18	17	17	18
Decrease in costs	4	2	4	5	6	4

In general, Table 4.8 shows that most institutions, despite the activities undertaken, have still not achieved positive effects. This can, in part, be explained by the developmental stage of the quality system. In the preparatory stage or at the start of implementation, few general effects are to be expected. Most managers expected, however, that the effects would become visible in the future. This view is supported by the results of the survey presented in Table 4.9.
Institutions for care for the disabled perceive relatively more positive effects than institutions in the other sectors. In greater detail, it appears that in one fifth of the institutions quality systems have led to a greater degree of client orientation, which means that more attention is paid to the wishes and satisfaction of the client. The institutions for care for the disabled and mental health care differ to a certain extent. In the care for the disabled there were more reports of an increase in client orientation than in the mental health care sector.
Moreover, one in five of the institutions for the disabled also reported and increase in the satisfaction of external parties, such as referrers, patient/client organizations or insurance companies.

The quality activities appear to have both positive and negative consequences for the staff of the institutions. Three quarters of the institutions expected that the satisfaction of the staff would improve. These expectations were fulfilled in 13%-25% of the institutions. In addition, 26% of the institutions for care for the elderly reported that the quality activities resulted in an increase in the efforts and flexibility of the staff. In hospitals and in primary care, this occurred in 12% of the

institutions. The fact that this demanded great efforts from the staff is, however, demonstrated by an increase in the pressure of work in 42% of the institutions (data not presented). In the majority of cases this did not lead to demotivation or dissatisfaction of the staff, which only occurred in 4% of the institutions. Only 5% reported that the quality system led to less flexibility of the staff. The increase in the number of regulations and procedures is doubtless the reason for this. It is obvious that the implementation of a quality system does impose great demands on the staff.

The most important positive effects for the institution as a whole is the improved corporate image (achieved by an average of 17%). The previous survey also showed that improvement of the corporate image was for many institutions one of the reasons why they implemented quality management, and they wanted to achieve this, above all, by improving the internal organization (Sluijs et al., 1994). This survey also confirms (Table 4.8) that quality activities must lead to an increase in controllability of the organization by the management. This has been achieved by 21% of the institutions for care for the disabled, compared with 8% of the hospitals.
Of all the possible positive effects, cost-effectiveness was mentioned least often: only 4% of the institutions reported that this had since become apparent. On the other hand, 19% of the institutions reported that costs had risen. The explanation for this can probably be found in the extra cost of developing a quality system (training, quality officer, external support, information systems etc.). In the previous survey it was found that some institutions had reserved an extra budget of approximately Dfl. 100 for each member of staff for this purpose. In quality theories, the assumption is that this investment can be earned back because better process control results, in the long term, in a better product, satisfied clients and increased efficiency. Only the future can tell the extent to which this has been achieved, when the quality systems in the health care sectors have been further developed.

It can therefore be concluded that in most institutions there are, as yet, no noticeable effects of quality systems. The management of the institutions which were further advanced in the implementation of quality systems reported that the perceived effects were positive for clients (more satisfaction among clients and external parties) and for the institution as a whole (improvement of the corporate image and increased controllability). In two other areas, there were both positive and negative effects. Increased efforts on the part of the staff was associated with a greater pressure of work, and in some situations, with greater dissatisfaction among the staff. The preparation and development of quality systems are

responsible for the initial increase in costs. Savings are expected by over half of the institutions, but have only been achieved by 4%.

4.5.2 The added value of an organizational-wide approach

The last question concerns the extent to which the effects of a quality system are achieved when there is an organization-wide approach to quality improvement, as opposed to concentrating on only one or two of the five focal areas. An organization-wide approach does not mean that all activities can be implemented simultaneously, but that attention is paid to all the facets of quality management. The extent to which this sort of effect is already visible in care institutions, and how they relate to the developmental stage of the quality system, is shown in Table 4.9.

Table 4.9 Comparison between the positive effects achieved in institutions with a well-developed quality system (group I, N=137) and the average of the remaining institutions (group II, N=914) (percentage of institutions reporting achieved effects)

Percentage of institutions with positive effects	group I (advanced)	group II (average)
Satisfaction among clients:		
Increase in client orientation	38%	18%
Increase in client satisfaction	33%	15%
Satisfaction among staff:		
Increase in satisfaction	31%	13%
Increase in effort	25%	15%
Operation of the institution:		
Better corporate image	40%	14%
Increased controllability	26%	14%
Financial results:		
Decrease in costs	4%	4%

It appears that not all institutions with a well-developed quality system had achieved positive effects in all areas. What is clear is that in a significantly greater number of institutions effects become apparent when the quality system is further developed. When comparing the advanced institutions with the average of the other institutions, it does appear that almost twice as many institutions in group I reported positive effects. The deficit side of this is that, in the opinion of the management, two thirds of the institutions had not achieved the above-mentioned effects, despite the presence of a well-developed quality system.

A quality system, in an advanced stage of development, results primarily in a better corporate image for the institution (40% versus 14%), an increase in client orientation and an increase in client and staff satisfaction. The difference between the two groups of institutions is relatively less marked when considering the increase in the efforts made by the staff and the improved controllability of the organization. It is only in the area of cost reduction that there is no difference between the groups. In general, it can be concluded that more positive effects become visible as the quality system develops, but that costs are not reduced.

4.6 Conclusions

This section describes the current status of the development in quality systems within six different sectors. The results are derived from a national survey which was carried out at the end of 1994 and the beginning of 1995 among a representative sample of institutions from 15 different health care sectors. Only the management was involved in the survey; staff were not interviewed. This implies that the results reflect the perspective of the management.

4.6.1 The development of quality systems

As has been described in Section 4.2, 4.3 and 4.4, this survey reveals that only a small percentage of institutions (1 to 4%) undertake relatively few activities; an average of 25% are in the preparatory stage, approximately 60% are in the implementation stage and over 10% are active in most areas with a systematic approach to quality assurance, and are embedding these activities in the normal daily routine. Among the sectors, there are differences in the stage of development of the quality systems. The institutions for the disabled and care for the elderly are, on average, further advanced in the implementation of quality systems than the institutions in the other sectors.

At the same time, the survey shows that the developmental stage of the institutions differ per area. The institutions are most advanced in the area of human resource management, but they are also relatively advanced in the establishment of protocols for the provision of care. The participation of clients is only customary in a few of the sectors. All sectors demonstrate both their strong and their weak sides with regard to the implementation of quality systems, and the areas in which these lie differ per sector.

It can be concluded that the sectors approach the development of quality systems from different perspectives. As a result, the differences in the developmental stage per area are greater than the differences per quality system as a whole.

4.6.2 Effects

The results show that the quality assurance and improvement activities have not yet produced visible effects in most institutions, but these effects are expected to become apparent in the future. The first conclusion which supports this concept, is that effects become more visible as the quality system develops and involves the entire organization (stage 3). The institutions which have already reached this stage understandably reported considerably more effects than institutions in which the quality system is not yet developed, or less well developed.

On average, one in five institutions reported that the quality activities had led to increased client orientation in the institution, greater efforts on the part of staff and increased satisfaction among clients and external parties. Institutions in an advanced stage of development reported this twice as often (two out of five institutions).

The results also show that quality systems result in a better corporate image for the institution and a better internal organization. In general, costs have not decreased, and only 4% of the institutions reported that the quality activities had resulted in cost reduction.

The negative effect reported by many institutions was an increase in the pressure of work. The fact that one out of three institutions reported an increase in staff satisfaction, implies that quality management activities can also provide satisfaction and encouragement.

One general conclusion could be that the effects of quality systems are not always positive. Quality management provides results at a later stage. Furthermore, it would appear that an integral organization-wide approach to quality management has added value, compared to individual quality activities. Future research should be directed towards evaluating the cost and benefits of quality systems.

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5

ENVIRONMENTAL AND ORGANIZATIONAL DETERMINANTS OF QUALITY SYSTEMS

5.1 Introduction

Although there is only scarce evidence that organizations engaged in the expensive and difficult process of developing a quality system are more effective and efficient, many health care organizations in different countries and different fields of health care have developed quality improvement activities and quality systems (Brommels et al., 1996; Casparie et al., 1997; Hammershøy et al, 1994; Klazinga, 1994; Sluijs et al., 1994; Øvretveit, 1994; Øvretveit, 1996; Palmberg, 1997; Taylor, 1996; Wagner et al., 1995). A quality system comprises the entire process of setting standards, collecting information, assessing outcomes and adjusting policies. It implies the participation of all professionals and managers within health care organizations. Therefore, a quality system can be defined as the organizational structure, responsibilities, procedures, processes and resources to assure and improve the quality of care (ISO, 1994). In earlier research, over 50 quality assurance (QA) activities were studied, all of which are combined in the development of a quality system (Wagner et al, 1999). Differences in the development of quality systems have been found between health care organizations within the same field, as well as across the various health care fields (Brommels et al., 1997; Brown, 1995; Casparie et al., 1997; Gaebel, 1995; Palmberg, 1997). In the Netherlands, for example, 13% of the health care organizations were developing quality systems in 1994/1995. The majority (59%) of the organizations were still in the process of implementing quality projects and procedures. A quarter (26%) were in a preparatory stage, creating conditions for quality management, such as installing a steering group or developing a quality policy. Finally, a minority (2%) were still in the orientation stage, which implied that no activities related to systematic quality assurance had yet been undertaken (Casparie et al., 1997). It is unclear why some health care organizations and fields of health care develop a quality system before others. To obtain more insight into the mechanisms of quality system development, this study empirically examines a set of organizational and environmental characteristics that might influence the development of quality systems in health care organizations. In addition, some characteristics of the health care field are taken into account, because of their possible independent influence on the development of quality systems. In order to identify these determinants and to explain the underlying mechanisms, concepts from institutional theory and

contingency theory have been applied. The central research question to be answered is: To what extent do environmental and organizational characteristics of health care organizations determine the implementation of quality systems?
This article will briefly describe the theoretical basis for the formulated hypotheses, the state of the art with regard to the implementation of quality systems and, finally, the relationship between environmental and organizational determinants and the implementation of quality systems.

5.2 Theory and hypotheses

The development of a quality system can be considered as a complex innovation. The development process is usually a slow, ongoing process that is never really finished. In this study, an attempt is made to explain why some organizations have developed only a few QA-activities, whereas others have already implemented a quality system. Environmental and organizational determinants are expected to explain some of these differences.

The environmental hypotheses
Institutional theory suggests that organizations often create structures for the purpose of appearing to be legitimate to important external stakeholders. In the case of health care organizations, such stakeholders would include patients, health insurance companies, the government, and various community groups. According to the institutional theory, organizations are constantly facing pressure from their environment; institutions that force regulations, procedures, and structures upon them as a condition for providing legitimacy, support, and resources for survival (Scott, 1987). Organizations may respond by reorganizing their structures to meet the requirements of the government (coercive pressure), by imitating the structures adopted by others in response to competition (mimetic pressure) or by conforming to normative standards established by external bodies, such as consumer organizations, community groups, national umbrella organizations, health insurance companies or accreditation companies in order to retain a favourable reputation (normative pressure)(Flood, 1995; Proenca, 1995). Depending on this reputation, it can be easier for health care organizations, for example, to obtain a managed care contract, more funding or better skilled professionals.
These pressures have increased during the past decade. The Dutch government has released framework legislation that requires health care organizations to develop a complaints registration system (1995), a client council (1996) and a quality system (1996). The research period (1994/1995) was just before the

obliged implementation of the new requirements. Therefore, health care organizations can perceive a different amount of pressure, depending on their belief wether or not the new legislations will actually be implemented. In addition, national umbrella organizations have made agreements on quality. The gist of these agreements was that care providers, insurers and patients/consumers will together formulate quality criteria and a quality policy.

Due to the existing budget constraints and the introduction of market elements in health care, competition between health care organizations in some fields, such as home care, is growing. Therefore, health care organizations may start to compete with each other in terms of quality. Finally, umbrella organizations of various health care organizations have developed quality standards to which their members should adhere, and consumer organizations and the consumers themselves are demanding accountable health care professionals and health care organizations.

The hypotheses address the three environmental pressures that influence the likelihood that a health care organization will implement a quality system.

1. *The more (legal) requirements that are imposed by important stakeholders, such as the government, the more likely organizations are to implement a quality system.*
2. *The more competition there is, the more pressure there is to mimic seemingly successful organizations in the fields of health care, and the more likely organizations are to implement a quality system.*
3. *The more pressure there is to comply with the expectations and values of (powerful) interest groups, the more likely organizations are to implement a quality system.*

The organizational hypotheses

Contingency theory suggests that organizations and their managers choose structures that help the organization to perform better. An organization is defined as a system of inter-related behaviour of people who are performing a task that has been differentiated into distinct disciplines. Each discipline performs part of the task, and the efforts of all are necessary to achieve effective performance of the organization (Lawrence and Lorsch, 1967). The structure of the organization determines the position of individuals, the mutual relationship between people within the organization and the division of resources. It is the task of the management to develop a structure of incentives through which people and resources are encouraged to support the goals of the organization (Keuning and Epping, 1993). In professional organizations, such as most health care organizations, the professionals have great autonomy in the care process, and the majority of these professionals are strongly committed to their peers.

Therefore, health care organizations are characterized as a loosely coupled system in which professionals work in accordance with the standards of their profession, and are only controlled by colleagues. Co-ordination within the professional group is based on the standardization of skills and the socialization which takes place during professional education and daily practice within the group, but the co-ordination and co-operation between different professions is often difficult to realize (Mintzberg, 1991). The decisions which are taken in health care organizations are therefore open to pressure from both management and professionals (Greer, 1977). Because of the autonomy of professionals, managers can influence the conditions of the health care process, but have less influence on the process itself. The implementation of a quality system can provide the management with an opportunity to (re)structure the organization, the responsibilities and the processes to gain more power and influence. Research has shown that some managers expect that quality systems will make it easier to steer the organization, increase the flexibility of professionals and improve the corporate image (Wagner et al., 1995).

Based on their perception of environmental pressure, the amount of control they wish to maintain, and the autonomy of professionals, managers can choose between a more bureaucratic and mechanistic structure or a flexible and organic organizational structure. Organizations with a mechanistic structure are characterized by standardized work procedures, centralized decision-making, formal co-ordination systems and task specialization, whereas in organizations with an organic structure there is more decentralized decision-making, they rely less on written regulations and procedures, and allow greater discretion to their employees (Daft, 1982; Proenca, 1995; Zinn, 1995). The more organic organizational characteristics have been found to be positively associated with organizational innovation (Daft, 1982; Rogers, 1983; Scott, 1990). The implementation of quality systems is thought to be easier, and therefore further developed, in organizations with an organic organizational structure. The fourth hypothesis is:

4. *The more organic the structure of the organization (e.g. informal communication and co-operation, decentralized decision-making, and innovative employees), the more likely organizations are to implement a quality system.*

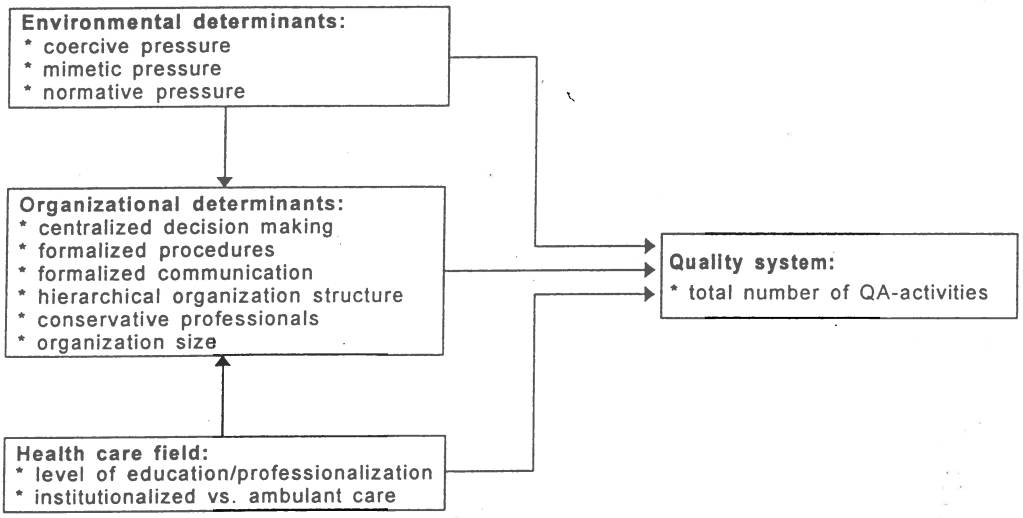
5.3 Health care field

Most health care organizations are associated with a specific field of health care, such as home health care, care for the disabled or care for the mentally ill. The

various fields of health care can be differentiated on the basis of their care or cure orientation, the level of education of the professionals involved and the site where the care is delivered (ambulatory or institutionalized). The way in which an organization is embedded in the field of care is expected to influence both the organizational structure and the implementation of quality systems.

The overall framework for the study is shown in Figure 5.1, that represents the development of a quality system as a function of environmental pressure and organizational determinants.

Figure 5.1 Quality system development as a function of external and internal determinants, and characteristics of the health care field



5.4 Method

Sample

Data used in the analyses are cross-sectional survey-data collected in 1994/1995 in a large nationwide study within various fields of health care and health care related social service sectors in the Netherlands. Included in the study were all members of the 15 national umbrella organizations, with which almost all health care organizations are registered. Due to the large number of organizations for the elderly, a random sample was selected (10% of the homes for the elderly and 50% of the nursing homes). A total of 1594 health care organizations were

approached and questionnaires were sent to the management of each organization. Professionals working within these organizations were not involved in the study. The response differed across health care fields, from 55% of the homes for the elderly to 91% of the organizations providing sheltered living (Table 5.1). The mean response was 74%.

Table 5.1 Overview of participating health care sectors, fields and organizations

sector	health care fields	organizations response %
Primary health care:	- integrated health centres	76
	- home care organizations	81
	- public health care organizations	75
Care for the disabled:	- day care for the mentally handicapped	75
	- day care for the physically handicapped	89
	- institutions for the disabled	68
Mental health care:	- mental health care organizations	73
	- organizations for sheltered living	91
	- ambulatory mental health care organizations	84
	- addiction-rehabilitation centres	62
Care for the elderly:	- nursing homes	75
	- homes for the elderly	55
Hospital care:	- hospitals	76
Health care related	- organizations for ambulatory social care	67
social services:	- social-pedagogical services	90

Respondents were compared with non-respondents on the basis of data obtained from 106 non-respondents from the three health care sectors with the lowest response. The results indicate that the non-respondents less often had a quality co-ordinator, a quality policy or a guideline for standardized patient information. These results indicate that non-respondents have developed fewer quality initiatives than respondents, but because the response from most of the sectors within health care was 75% or more, this is expected to have little influence on the validity in this study.

Survey instrument

The postal questionnaire was of a closed, Likert-type format with three or four ordinal-scaled options per question and a number of questions with a nominal scale. The questionnaire was sent to the medical director of each organization. Questions were asked about the existence and functioning of 52 concrete activities with regard to systematic quality assurance, such as a quality policy, peer review, practice guidelines, care plans and internal audits (Appendix A). In addition, questions were asked about the motivation of the management of the health care organization with regard to systematic quality improvement, the organizational characteristics and perceived environmental pressure.

In a separate study (Miltenburg, 1995), the interpretation of the questions by the respondents was compared with the interpretation made by an independent researcher. There appeared to be both over-reporting and under-reporting of activities. Organizations with more than 100 employees tend to over-report and smaller organizations tend to under-report. These results indicate that the results of individual organizations can be flattered. However, no overall tendency towards upgrading could be discerned in the interviews.

Dependent variable

In this study, the total number of QA-activities, as presented in the Appendix, serves as dependent variable for the implementation of a quality system. The score for the implementation of the quality system has been defined as the total number of QA-activities that have been implemented in the organization. The QA-activities are related to the focal areas of a quality system as presented in international quality awards (Wagner et al., 1999).

Independent variables

The independent variables included in the model correspond to the derived hypotheses. The variables were measured by means of the postal questionnaire and entered as continuous, categorical or dichotomous variables. To measure organizational characteristics, such as centralization of decision-making, formalization of regulations, hierarchy, style of communication between disciplines, size of the organization and attitude of professionals to innovations, the management was asked to rate its own organization on a five-point scale on the basis of general statements. These statements were not related to the implementation of quality systems.

The environmental pressure was measured on the basis of six variables, representing the management's perception of the pressure applied by important stakeholders. Perceived pressure can underly the motivation to implement quality

systems. Finally, the various fields of health care have been characterized according to two variables: institutionalized vs. ambulant care, and the qualification of health care personal. These variables were derived from annual reports of the health care organizations.
Descriptive statistics of all variables are shown in Table 5.2.

Table 5.2 Dependent and independent variables used to explain differences between health care organizations and health care fields with regard to the implementation of quality systems (N=935 organizations; N=15 health care field)

DEFINITION	CHARACTERISTICS
DEPENDENT VARIABLE	
Implementation of quality systems measured by total number of QA-activities (maximum=52)	mean: 18 (sd: 8.1)
INDEPENDENT VARIABLES	
Level-1 (structure of the organization)	
Locus of decision-making: decentral/central (scale 1-5)	mean: 2.9 (sd: .91)
Extent of protocols/procedures: few/nearly all actions (scale 1-5)	mean: 2.6 (sd: .97)
Organization size: number of personnel full-time	mean: 319 (sd: 553)
Organization structure: flat/hierarchical (scale 1-5)	mean: 2.5 (sd: 1.0)
Style of communication: informal/formal (scale 1-5)	mean: 2.8 (sd: .84)
Change attitude professional: innovative/conservative (scale 1-5)	mean: 2.6 (sd: .89)
Level-1 (experienced influence of environmental pressure)	
coercive pressure	
Governmental regulations: no influence/strong influence (scale 1-3)	mean: 2.2 (sd: .72)
mimetic pressure	
Developments in other organizations: no/strong influence (scale 1-3)	mean: 1.8 (sd: .64)
Increasing competition: no/strong influence (scale 1-3)	mean: 2.6 (sd: 1.2)
Initiatives umbrella organization: no/strong influence (scale 1-3)	mean: 2.0 (sd: .73)
normative pressure	
Quality criteria of insurers: no/strong influence (scale 1-3)	mean: 2.5 (sd: .60)
Complaints of clients: no/strong influence (scale 1-3)	mean: 1.6 (sd: .72)
Level 2 (characteristics health care field)	
Qualification of health care personnel: other=0/high=1	high education: 15%
Institutionalized care=1/ambulatory care=2	institutionalized care: 64%

Statistical analysis

Organizations with more than five user missing values for the 52 QA-activities were excluded from the analysis (n=247). For health care organizations with less than 5 user missings, the missing were recoded as 0 (QA-activity not implemented). The data of 935 health care organizations were included. The description of the dependent and independent variables is based on percentages, means and standard deviations. A multi-level analysis (MLA) approach was used to explain differences in the implementation of quality systems between organizations and between health care fields. The choice for MLA was based on three arguments. Firstly, MLA offers more precise estimates of the regression coefficients and their standard errors, and subsequently reduces the risk of ecological fallacies (Goldstein, 1995). Secondly, MLA allows for interactions of variables on different levels, so-called cross-level interactions, being modelled in an elegant way. Thirdly, MLA allows for meaningful division of the total variance of the implementation score into a component at organization level and health care field level (Rice and Leyland, 1996). For this study, parameters to explain differences with respect to the implementation of quality systems were estimated on the basis of a two-level model. The outcomes of the analyses are presented in Table 5.4. For all analyses, the significance level was set at 0.05. Analysis were performed with the statistical packages SPSS-X and MLn.

5.5 Results

Differences have been found between health care organizations in the implementation of QA-activities. Some organizations have implemented no QA-activities at all, whereas others have implemented 46 out of 52 QA-activities. There were also differences in the types of activities that have been implemented. Two thirds of the organizations were in the process of implementing a quality policy and a quality action plan, and the majority of health care organizations have already started to implement procedures for the management of human resources. Of the health care organizations 68% had distinct guidelines for medical treatment, patient information and specific patient groups. In approximately half of the organizations the professionals were participating in quality improvement procedures, such as care-planning, peer review and the registration of complaints. Patients actively participated in quality improvement activities in very few health care organizations.

The differences found between health care fields are presented in Table 5.3.

Table 5.3 Differences in the total number of QA-activities per health care field

Health care fields	organizations N	QA-activities mean	QA-activities range
Primary health care			
Integrated health centres	72	18	2-32
Home care organizations	82	16	1-37
Public health care organizations	36	16	7-28
Care for the disabled			
Day care for the mentally handicapped	76	19	4-39
Day care for the physically handicapped	72	22	10-40
Institutions for the disabled	68	19	0-35
Mental health care			
Mental health care organizations	64	19	3-39
Organizations for sheltered living	32	20	3-42
Ambulatory mental health care organizations	41	19	2-34
Addiction-rehabilitation centres	23	17	6-35
Care for the elderly			
Nursing homes	104	21	6-44
Homes for the elderly	64	17	2-46
Hospital care			
Hospitals	97	20	4-36
Health care related organizations for ambulatory social care			
Social services	77	14	3-37
Social-pedagogical services	27	17	0-37
Total	935	18	0-46

The results shows that organizations for the disabled, nursing homes, hospitals and organizations providing sheltered living have implemented more QA-activities than, for example, social services, home care organizations and public health care organizations.

The hypotheses were tested against a model containing both the environmental and organizational variables, and the variables at the second level, e.g. the health care field. Table 5.4 presents parameter estimates, standard errors and

significant p-values for each of the predictor variables included in the analyses of differences in the implementation of quality systems.

The simplest two-level model is referred to as the 'null model', as no predictors are specified. The fixed part refers to the overall mean of the dependent variable: the total number of QA-activities. The variance coefficients refer to the differences between health care fields and health care organizations. The results show that there were significant differences between health care organizations and between health care fields. The differences between health care organizations were much greater (96% of the variance lies at level 1).

Table 5.4 Multi-level analysis of differences in the implementation of a quality system; regression and variance coefficients

variables	model 0 estimate	(s. error)	model A estimate	(s. error)
Regression coefficients				
Intercept	15.82	(0.45)	13.72	(2.02)
Level 1				
Organizational determinants				
conservative attitude professionals			-1.81	(0.25)*
hierarchical structure			0.05	(0.26)
centralized decision-making			-0.56	(0.27)*
extensive protocols/procedures			2.44	(0.23)*
formal communication			0.57	(0.27)*
organization size			0.0022	(0.0005)*
Environmental determinants				
coercive pressure				
governmental regulations			-0.47	(0.35)
mimetic pressure				
developments in other organizations			0.38	(0.35)
increasing competition			0.11	(0.19)
initiatives umbrella organizations			-0.04	(0.33)
normative pressure				
criteria of insurers			0.12	(0.42)
complaints of clients			1.01	(0.32)*
Level 2				
Health care field determinants				
qualification personnel			0.88	(0.88)
non-institutionalized care			-1.48	(0.64)*
Variance coefficients				
Health care field	2.0	(1.1)	0.56	(0.46)
Health care organizations	52.31	(2.5)	40.64	(1.94)
Reduction of variance				
Health care field	4%		55%	
Health care organizations	96%		24%	

* $p<0.05$

In Model A, the variability in the number of QA-activities is seen as a function of organizational predictor variables, environmental pressure and health care field predictor variables.

Seven out of fourteen determinants included in the model explained differences in the implementation of a quality system. Large-scale health care organizations, organizations which have nearly all actions described in protocols and procedures, and organizations in which decisions can be made at a decentral level, have made more progress in the implementation of a quality system. Besides, organizations which have professionals that communicate informally with each other and have an innovative change attitude, have implemented more QA-activities. Of the various environmental determinants, only the complaints of clients have an independent influence on the implementation of quality systems. Furthermore, differences between health care organizations can partly be explained by characteristics of the health care field. Health care organizations that provide institutionalized care instead of ambulatory care have more often implemented a quality system.
The determinants described explain 24% of the variance between organizations (level 1) with regard to the implementation of QA-activities, and 55% of the variance between the fields of health care (level 2). The inclusion of cross-level interactions between the determinants of fields of health care and organization characteristics results in a further reduction of 2% in the variance between health care organizations and 17% between fields of health care. Health care organizations which provide institutionalized care and have innovative professionals have more often implemented a quality system.

Finally, the results are presented for each hypothesis. With regard to hypothesis 1, i.e. that more external regulations lead to the implementation of quality systems, the results show that perceived governmental pressure had no relationship with the implementation of quality systems. Hence, the results do not support Hypothesis 1.
Competition in health care was found to have no relationship with the implementation of quality systems. Likewise, the perceived activities of other health care organizations in the region had no influence on the implementation of quality systems. Hence, the results do not support Hypothesis 2.
Perceived client complaints were found to have a significant relationship with the implementation of quality systems. Health care organizations that include client complaints in their quality improvement have implemented more QA-activities. The demands of health insurance companies seem to have no influence on the implementation of quality systems in health care organizations. The results partly support the influence of normative pressure (Hypothesis 3).
Finally, the results show that an innovative attitude of professionals with regard to changes and innovations, decentralized decision-making and less formalized communication were found to have a significant relationship with the number of

QA-activities (Hypothesis 4). But, on the other hand, the results show that the existence of formalized regulations and procedures for professionals have a significant relationship with the number of QA-activities as well. Moreover, evidence was also found that the size of the organization also positively influences the implementation of QA-activities.

5.6 Discussion

The main objective of this article was to explain the differences found between health care organizations in the implementation of quality systems, taking into account the possible influence of the health care field.
In general, the differences between health care organizations appear to be greater than the differences between health care fields. Environmental influence is less important than was expected, and only the complaints of clients are of influence on the number of QA-activities, and therefore on the implementation of quality systems.
It is known from the literature that decentralized decision-making, informal communication and amenability to change on the part of the professionals are positive factors in the implementation of innovations, whereas central decision-making, a hierarchical structure of the organization and formalization of the daily activities in protocols can have a restrictive influence (Brommels et al, 1997; Wakefield & Wakefield, 1993; Walker et al, 1993). Other studies have shown that a participative, flexible and risk-taking organizational culture, as well as the involvement of senior leadership, are positively related to the implementation of quality improvement (Boerstler, 1996; Gustafson & Hundt, 1995; O'Brian et al, 1995; Shortell et al, 1995; Weiner et al, 1997). In a study among 262 hospitals in 15 European Countries the results indicated that size and status of the hospital did not seem to influence the implementation of quality assurance activities. More important seemed the support of management and funding of the activities (Klazinga, 1994).
The results of our research support the influence of the above-mentioned positive factors, but also indicate that organizations which are used to working according to protocols and procedures were more often inclined to implement a quality system. One explanation could be that some organizations implement quality systems based on the ISO system (International Organization for Standardization), which involves written formulation of processes and activities for both the primary process and the supporting services. The ISO system is very similar to the traditional working methods in these organizations, which facilitates the implementation of a quality system. But, if organizations opt for a Total

Quality Management (TQM) approach, it can be expected that especially the flexible attitude of professionals and the decentralization of (budget) responsibilities are advantageous.

Another important factor which facilitates the implementation of a quality system, about which no information has been found in the literature, is the type of care organizations provide (institutionalized vs. ambulatory). Health care organizations which provide long-term care and hospitals, have more often implemented a quality system than organizations which provide ambulatory and short-term care. One explanation is that care-oriented organizations, due to the long-term contact they have with their clients, have more opportunity to involve their clients in the quality assurance policy, which implies that they develop specific activities with clients. When the characteristics of the health care field are taken into consideration, it is notable that especially in hospitals 'opposing' characteristics are found, such as: highly skilled professionals are employed, but short-term cure-orientated care is provided; strongly centralized and hierarchic for the nursing staff, but specialists retain a great deal of autonomy in the daily activities. Nevertheless, relatively more hospitals are in the process of implementing quality systems than, for instance, homes for the elderly or organizations for primary care. This could be explained by the higher education of care givers in hospitals. The defined environmental and organizational variables could only partly explain the described differences. Therefore, other mechanisms are also of influence in the implementation of quality systems. Management and professionals will only implement quality systems if they can maintain or increase their interests and power within the organization. Quality systems provide management with an opportunity to gain responsibility and authority, whereas professionals demonstrate that quality assurance can be retained within the professional group. More research is necessary to investigate the informal structure of organizations and the motivation of management and professionals to become involved in quality assurance. Research has shown that the informal structure and intra-organizational networks affect the adoption and implementation of innovations (Flap et al., 1998). If quality systems are to be effective the QA-activities must be implemented by the majority of the employees.

The results of this study are relevant for health care organizations, and governments, health insurance companies and professional organizations who wish to stimulate quality improvement and the development of quality systems. We expect that the results can, to some extent, be generalized to other countries as well. For example, health care organizations in the United States face the same pressure to reduce costs and maintain quality as health care organizations

in the Netherlands.
Based on the results it seems that the perceived pressure of third parties have little influence on the implementation of quality systems in health care organizations. One exception can be made for clients, who can stimulate the implementation of quality improvement by their complaints. Therefore, in strengthening the position of clients, governments and health insurance companies can also be expected to have some influence.
Finally, the results emphasize the importance of choosing the right approach in the implementation of quality systems. Depending on the organizational structure (organic or mechanistic) the management of a health care organization should choose between the ISO system or a Total Quality Management approach.

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6

QUALITY ASSURANCE IN DUTCH NURSING PRACTICE

6.1 Introduction

Registered nurses play an important role in the quality assurance (QA) of health care processes, as they are involved in almost all aspects of institutional health care services, ranging from basic care, such as washing and toiletting to specific medical techniques which are used in the intensive care unit. The concept of QA emphasizes how assuring and improving the quality of care in a systematic and continuous manner can be achieved on the basis of an integral quality system. At a quality conference which took place in the Netherlands in 1990, health care providers, consumer organizations and health insurance companies agreed on the development of a concerted policy concerning the quality of care, and the implementation of quality systems in health care organizations within five years. However, this period of five years proved to be too ambitious: more time was needed. More recently, the Dutch government has released regulations stating that health care institutions and health care professionals must make the quality of the care they provide clear to peers, patients and funding agencies by means of explicit guidelines and criteria, and by continuously monitoring performance within the framework of a quality system (VWS, 1996). The evaluation of performance is difficult due to the multi-dimensional aspects of quality care. Attree (1993, 1996) has analysed the concept of 'quality' and has discussed the structure, process and outcome criteria which represent the various dimensions and aspects of quality care. This paper will focus on the criteria for structural and procedural aspects that can indicate the use of quality systems, because governmental regulations in various European countries have been issued on the assumption that efficient structures and effective processes are prerequisites for good outcomes.

To date, little research has been directed towards the development of quality systems in the various health care fields of nursing. A quality system comprises the entire process of setting standards, collecting information, assessing outcomes and adjusting policies, and applies to the work of all professionals and administrators in health care organizations. The process itself is comparable with the nursing process model (assessment and diagnosis, planning care, giving care, evaluating care) that has already been established as a key element in nursing (Mason & Attree, 1997). Harvey and Kitson (1996) described the most commonly used nursing quality systems in the United Kingdom, and concluded

that there is a need for more integrated, organization-wide approaches to the quality of care.

Various studies have reported on the implementation of individual quality assurance and quality improvement activities in nursing, most of which have taken place in the hospital setting. Examples of QA activities involve the implementation of a unit-based quality improvement system (Virani, 1996; Fisher et al., 1995; Giebing, 1994; Recker & Oie, 1994), the development of standards and practice guidelines (Morrell et al., 1997; Duff et al., 1995; Oleson et al., 1994; Schmidt et al., 1994), peer review (Cohen et al., 1996), periodic feedback on patient outcomes (Reiley et al., 1994), critical path analysis (Heacock & Brobst, 1994), monitoring infection control (Honea & Hernandez, 1993), and an educational programme on quality improvement (Granneman & Russell, 1997). These activities can be used as criteria for the structural and procedural aspects of the concept of 'Quality Care'.

Publications on the state-of-the-art implementation of QA activities and quality systems have included overviews in the fields of general practice (Grol et al., 1997; Grol & Wensing, 1995) and medical specialist care (Klazinga, 1996) but not the nursing profession. There are political, legal, social and professional reasons for the implementation of quality systems and QA activities in nursing (Giebing, 1994). Therefore, the current state-of-the-art of QA in the field of nursing has been investigated in the Netherlands. The objectives were to answer the following research questions:

1. *Which quality assurance activities are applied by nurses?*
2. *What is the attitude of nurses towards quality assurance?*
3. *What are the perceived obstacles and requirements with regard to these activities?*

This paper will describe: 1) the application by nurses of methods of data-collection and quality evaluation, 2) the application of practice guidelines and methods of improving routines at individual and organizational level, 3) review the attitude of nurses towards QA and the perceived obstacles and requirements with regard to QA activities. Finally: 4) suggestions are made as to how quality assurance can be promoted in daily nursing practice.

6.2 Methods

Sample

In 1996, a stratified random sample of 105 health care institutions was selected from the fields of health care in which nursing professionals in the Netherlands are mainly employed (hospitals, nursing homes, homes for the elderly, home health care organizations, psychiatric hospitals and institutions for the disabled). A total of 58 health care institutions (55%) agreed to participate in the study: they were equally spread over the various fields of health care (range 7-11 institutions per health care field).

A sample of 20 nursing professionals (nurses, assistant nurses and home helps) per health care institution was invited by the nursing manager to participate in the study. The nursing manager was instructed to select from various departments of the institution nursing professionals of different ages and with different backgrounds and levels of education. The response of the nursing professionals was 74% (range 65% to 82%). To achieve the above-mentioned research objectives, only nurses were included in the study (N=526); 157 nurses were working in hospitals (range 8-20), 38 in nursing homes (range 1-7), 15 in homes for the elderly (range 1-7), 54 in home health care organizations (range 1-15), 164 in psychiatric hospitals (range 10-22), and 98 nurses in institutions for the disabled (range 10-23). Of the 58 institutions, 2 home health care organizations and 4 homes for the elderly were excluded from the analyses in this study, because only assistant nurses and home helps from these institutions participated. The overall remaining sample is representative of nurses working in the various fields of health care.

Questionnaire

In this study, QA is represented as a complex system of planned and systematic activities, including the implementation of guidelines and procedures, the collection of information, the evaluation of the actual care provided, the continuous education of professionals, and the assessment and improvement of the quality of the care. These activities were operationalized in a questionnaire, which consisted mainly of pre-structured questions. The design of the questionnaire was based on earlier research findings, and covers the various focal areas of quality systems in health care institutions (Casparie et al., 1997; Frederiks, 1996; Wagner et al., 1995; Inspectorate, 1995; Wierik, 1994). Questions were formulated with the help of researchers and (field) experts from a Supervisory Committee. The questions concerned specific health care activities in order to increase the content validity of the questionnaire. The questionnaires

were handed out by the nursing manager, and anonymously completed by the nurses (time needed: approximately 30 minutes).
The scores for the majority of the questions were based on a Likert-type scale, a format in which respondents are asked to indicate their adherence to a certain quality assurance activity on a scale ranging from *1= do not adhere to 4= always adhere and 5=not present in the nursing unit*, and their agreement or disagreement with a statement according to a scale ranging from *1=strongly disagree to 5=strongly agree*. A draft questionnaire was tested on ten nurses, assistant nurses and home helps. The final questionnaire consisted of the following ten sections: principles of the institution, policy, care-providing process, client orientation, co-operation between disciplines, continuous education, quality improvement teams, attitudes and expectations, perceived obstacles and demographics.

Analysis
The units of analysis were the individual nurse, the health care institution and the health care field. Data-analyses included frequencies, means and standard deviations, and sub-group analysis. Analysis at individual level was based on the original responses of each nurse, without controlling for their affiliation with health care institution. At organizational level, the responses of the nurses were assessed by aggregating the nurses to the health care institution in which they worked. As the institutions were only included in the analysis at organizational level if 10 or more nurses from one institution participated in the study, no nursing homes or homes for the elderly were included. The analysis at organizational level finally included 29 health care institutions. Analysis at this level is necessary, because nurses in the Netherlands (and in most other countries) are mainly employed by health care institutions. This implies that they cannot freely develop and implement their own quality system, as is the case with self-employed professionals, but are obliged to adhere to the policy of the institution. Therefore, differences in adherence to quality assurance activities can be expected between health care institutions. Finally, cross-tabulation and the chi-square test were used to compare the various fields of health care. All nurses and health care institutions were included in these analyses.

6.3 Results

Demographic data
The average age of the respondents was 35 (sd 8.1), and the majority were female (74%). Approximately 20% of the respondents worked less than 32 hours

a week, 24% worked 32 hours, and 56% worked more than 32 hours (full-time). Fifty percent of the respondents had been working longer than five years in their present capacity.

Application of quality assurance activities

Table 6.1 shows that the methods most frequently applied to assess the quality of care were the registration of (near) accidents (86%) and patient complaints (57%). Most nurses collected patient data (81%) (for example data on treatment goals and the type and amount of care needed) and used individual care plans (79%). However, only 50% of the nurses evaluated the care plan regularly. Differences between nurses were found at both individual and organizational level.

Table 6.1 Methods used for data-collection and assessment of the quality of care: percentages at individual level (N=526) and range at organizational level (N=29)

Method	widely applied	occasionally applied	not nurse's responsibility	not present in nursing unit
Self-recording of (near) accidents	86 (58-100)	10	-	4
Recording specific patient data	81 (58-100)	10	5	4
Individual care-planning	79 (44-94)	11	4	6
Patient complaint systems	57 (20-80)	13	14	16
Regular evaluation of care plan	49 (17-90)	33	10	8
Patient surveys*	11 (0-56)	-	-	89

* response category was: never applied/periodically applied

Nurses who worked more than 32 hours a week (full-time) recorded patient data and evaluated the care plans more often than nurses who worked part-time. Younger nurses (<35 years) more often recorded patient data, but less often evaluated the care plans regularly. More female nurses than male nurses made use of patient surveys to assess the quality of care. Differences in application at organizational level were found for all QA activities. For example, in some health care institutions only 50% of the nurses reported (near) accidents, compared with all nurses in other health care institutions.

Finally, fewer nurses in homes for the elderly recorded patient data and evaluated the care plans. In home health care organizations, fewer nurses systematically registered (near) accidents, whereas in nursing homes and in institutions for the disabled fewer nurses registered patient complaints.

In most health care institutions, practice guidelines were applied for important elements of the care process. For example, guidelines for the administration of medication (used by 90% of the nurses), for hygiene in the nursing unit (70%) and for specific treatments (69%)(Table 6.2). Over 50% of the nurses used guidelines for the utilisation of medical equipment (69%), for specific target groups (58%) and for medical interventions (51%).
In general, female nurses used the guidelines significantly more often to ensure hygiene in the nursing unit, for the utilisation of medical equipment and for medical interventions. Younger nurses more often used the guidelines for medical interventions.

At organizational level there were even greater differences between health care institutions. For example, 69% of the nurses used practice guidelines for specific treatments. However, in some institutions only 7% of the nurses used these guidelines, whereas in other institutions nearly all (94%) of the nurses used them. In general, nurses in hospitals adhered to the existing guidelines more often than nurses in the other fields of health care.

Table 6.2 Use of various practice guidelines in nursing: percentages at individual level (N=526) and range at organizational level (N=29)

Practice guidelines for:	widely applied	occasionally applied	not nurse's responsibility	not present in nursing unit
Administration of medication	90 (55-100)	4	3	3
Assurance of hygiene in nursing units	70 (31-100)	13	5	12
Specific treatments/interventions	69 (7-94)	12	5	14
Utilisation of medical equipment	62 (6-100)	9	5	24
Specific target groups	58 (8-95)	14	4	24
Medical interventions by nurses	51 (10-92)	16	10	23

A range of different methods were applied to adapt and improve nursing routines (Table 6.3). Self-study of written educational material (93%) and attending subject-specific courses (75%) were most frequent among nurses. Only a minority of nurses used less traditional methods, such as peer review and practice-based quality circles. Nurses under 24 years of age and female nurses received more individual instruction than older nurses or male nurses. Differences in the application of methods to improve nursing routines were also found at organizational level.
It appeared that nurses in home health care organizations paid more attention to client satisfaction surveys than nurses in the other fields of health care.

Table 6.3 Methods used to improve nursing routines: percentages at individual level (N=526) and range at organizational level (N=29)

Self-study of written educational material	93 (64-100)
Attending subject-specific courses	42 (27-95)
Practice-based 'quality circles'	31 (0-67)
Training to improve knowledge and skills	28* (33-94)
Individual instruction	28 (7-70)
Peer review	20 (5-72)

* The mean at individual level lies outside the range at organizational level because nurses in health care institutions which employ only a few nurses, and have therefore been excluded from analyses at organizational level, have not followed training to improve their knowledge and skills

Attitude to quality assurance

Table 6.4 shows that the majority of nurses expected that QA activities would improve patient care (90%), help to change old routines (90%), and increase co-operation within the team (83%) as well as between disciplines (82%). Most nurses thought that systematic QA would supplement their regular training (81%), and that it was not purely an academic activity. These responses are indicators of strong agreement with the application of QA activities. However, when examining the responses that reflect a negative attitude to QA, it was found that many nurses were not sure of the benefits of QA, and some believed that QA can only be achieved if more staff are employed, that it can be misused and that it is mainly a result of governmental regulations.

Table 6.4 Attitudes and expectations of nurses with regard to quality assurance; percentages (N=526)

Survey statement	agree	partly agree/ partly disagree	disagree
Quality assurance:			
- helps to change old routines	90	9	1
- improves the care provided for patients	90	8	2
- improves co-operation between team members	83	15	2
- increases co-operation between disciplines	82	15	3
- supplements the regular training	81	16	3
Quality assurance:			
- is important to prevent mistakes/errors	70	22	8
- provides others with more insight into the quality of care	64	25	11
- is important for cost effectiveness	45	38	17
- increases the responsibilities and tasks of a nurse	44	34	22
Quality assurance:			
- is only possible if more staff are employed	26	40	34
- is mainly a result of government regulations	13	53	34
- can be misused by clients, government and insurance agencies	11	41	48
- restricts the creativity of professionals	5	26	69
- is purely an academic activity	3	18	79

Perceived obstacles and requirements with regard to quality assurance activities

The obstacles and problems reported were related to the knowledge, attitudes and experiences of the nurses themselves, as well as to certain aspects of the setting in which they worked. The most frequently mentioned problems were related to workload, and therefore lack of time (63%), unclear procedures (32%) and unfamiliarity with QA methods (19%). In addition to these problems, nurses mentioned a number of requirements for the implementation of QA activities, such as support from colleagues (24%) and the nursing manager (22%), that immediate action is taken when quality problems are identified (41%), and that more opportunities are provided for individual development and training (17%).

6.4 Discussion

In the present study the health care institutions were randomly selected. The nurses were selected from various nursing units and wards by the nursing manager and an attempt was made to include as many different nursing professionals as possible (opportunity sampling). In addition, extra attention was paid to the validity of the questionnaire: questions were formulated with the help of researchers and (field) experts from a Supervisory Committee. The questions concerned specific health care activities, in order to increase the content validity of the questionnaire. The questionnaires were completed anonymously by the nurses and returned immediately to the researchers. The answers given by the nurses were not checked by independent observers in the health care institutions. There are no other data available in the Netherlands to cross-validate the results.

The results of this study show that QA activities are still far from being part of the normal daily routine of nursing. Differences in adherence to QA activities were found between nurses, and also between health care institutions and the various fields of health care. Some nurses use quality assessment methods, guidelines, continuous education and peer review to assure the quality of care, whereas others have difficulty in adhering to existing methods, or believe that QA is not their responsibility. In general, however, it appears that nurses have very positive expectations of quality assurance activities. They have accepted the concept, and have indicated their willingness to participate. The differences between health care institutions could partly be explained by the fact that nurses, in general, are less free to use self-developed guidelines because of their dependent and subordinate position, in comparison with medical specialists. It also became apparent that not all health care institutions have developed specific quality assurance activities.

In the Netherlands, nurses are confronted with a variety of problems and obstacles when considering the implementation of systematic quality assurance in their daily routine. There is probably no single solution to this situation. Apart from the need for extra time, it seems that the motivation of the nursing manager has great influence on wether or not nurses adhere to a quality assurance system. From the results of previous research (Grol & Wensing, 1995) it is clear that providing information about various quality assurance methods, and giving instructions on how to use them, are important factors in the implementation of these methods. Training programmes to provide nurses with the necessary knowledge and skills could be developed by training centres for further education. The position of nurses in health care institutions could be strengthened by the

development of an official professional standard that is accepted by nurses and will, therefore, replace or support existing methods (Wagner et al., 1997).

Another obstacle in the implementation and integration of QA activities in the nursing routine lies in the lack of collaboration between care providers within the nursing team, as well as between disciplines, because of a lack of mutual understanding and respect, and the ambition of maintaining or increasing professional power (Blane, 1997). Nevertheless, nurses expect that quality assurance can improve co-operation between disciplines. The importance of teamwork and good collaboration has already been confirmed in earlier studies on quality assurance methods, and reference has been made to the difficulty of breaking with the status quo (Berwick, 1995; Berwick, 1996; Grol, 1994; Grol & Wensing, 1995; Newton et al., 1992).

However, the major inconsistency which has been revealed in this study is the limited application of QA activities in spite of the positive attitude towards QA in general. Therefore, one question which should be addressed in future research is: how can the various parties involved in nursing care effectively stimulate the implementation of QA? Professional organizations can become actively involved by encouraging the development of an official professional standard for good nursing practice, which includes clear information concerning quality assurance and nursing care, and by initiating a debate on the critical elements of nursing care. To stimulate teamwork and collaboration between disciplines multidisciplinary guidelines could be developed. In some health care organizations, the managers have introduced "process re-engineering" to totally redefine the organization of activities (Coan, 1994).
Nursing managers can promote quality assurance by recognizing its importance for the nursing profession, by supporting QA activities and projects, and by taking immediate action if nurses identify quality problems. These findings confirm the results of a study on total quality management according to nursing executives (Al-Assaf et al., 1994) and a study on key factors in the implementation process (Harvey & Kitson, 1996). The provision of incentives and resources for nurses who are actively involved in the development and implementation of systematic QA could also be helpful (Uttermohlen, 1996). Finally, nurses themselves can learn more about QA and experiment with methods that are applicable in their own field of work. They can convince their colleagues of the importance of QA and create the necessary potentials for implementation.

6.5 Conclusion

This study provides a representative overview of the quality assurance activities applied in nursing care in the Netherlands, the differences in adherence between the various health care institutions and fields of health care, the attitudes and expectations of nurses, and the perceived obstacles and requirements with regard to these activities. No conclusions could be drawn as to which strategy would be the most effective in improving the adherence of nurses to existing quality assurance activities. Therefore, further research is needed to investigate the contribution of specific individual, occupational and organizational determinants that influence the adherence of nurses to quality assurance activities. For example, individual characteristics such as educational background or attitude towards quality assurance, occupational characteristics such as workload, commitment of superiors or support within the team, and organizational characteristics such as the content of regulations, the increasing competition or the decision-making structure, can all influence adherence to quality assurance activities.

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7

INVOLVEMENT OF MANAGEMENT AND PROFESSIONALS IN THE DEVELOPMENT OF QUALITY SYSTEMS IN HEALTH CARE ORGANIZATIONS

7.1 Introduction

In health care organizations, the professionals - physicians, allied health professionals, nurses and carers - are responsible for the quality of the care they provide. The management creates the conditions for professionals to work in accordance with the values and standards of the professional conduct. The professionals, especially physicians, have always had full authority over the execution and supervision of their own tasks. They determine the content of training, post-graduate education and refresher courses, and are also responsible for the acceptance and registration of professional groups. They are governed by their own professional codes of conduct, adherence to which is sanctioned by disciplinary jurisdiction (Ovretveit, 1994). There are no hierarchic relationships within the professional group (Casparie, 1994; Raat & Goudriaan, 1985).

Since the end of the eighties, this professional exclusiveness has been penetrated; the concept of quality has been extended from mere medical effectiveness to efficiency and patient-friendliness. Care-providers, insurance companies, patients/consumers and the Dutch government agreed in Leidschendam that in the future they would be mutually responsible for the quality of care, and that the care-providers would bear the primary responsibility (MC, 1990). Quality is no longer restricted to professionals, but is also a task of the management of health care organizations. This combined responsibility is expressed, for example, in an effective anti-infection policy, in the provision of medication or the management of complaints (Höppener, 1992).

The Care Institutions Quality Act, which was introduced in April 1996, states that the management of an organization is explicitly responsible for the quality of the care provided by the organization. However, the professionals are still responsible for the treatment, nursing and care of the patients. This raises the question of where the responsibilities of the management and the professionals meet, or how they are interwoven (NRV, 1995). The question is how these responsibilities can be moulded into one single integral quality system.

In anticipation of the new legislation, many organizations already started to develop quality systems during the past five years (Sluijs et al., 1994). A representative study of all care sectors in the Netherlands showed that in 1995, the majority of organizations (59%) had no coherent quality system at all, but a number of individual quality assurance projects had been initiated. Organizations often appear to pay unbalanced attention to one or two aspects of quality improvement (e.g. organizational policy, personnel policy, process management or patient participation), which implies that quality assurance and improvement was not practised equally throughout the entire organization (Wagner et al., 1995).

The present article examines this assumption via a secondary analysis of the information which was gained from the above-mentioned study. The objective is also to determine in which sectors the quality of care is well integrated between management and professionals, and in which sectors it is not, because it is possible that the culture of the sector and the characteristics of the organization influence the extent to which integration takes place.

Wagner et al. (1995) have shown that organizations with an integrated approach, which encompasses the entire organization, more often report positive effects of the quality assurance activities than organizations with a more one-sided approach. An analysis is therefore made of the positive and negative effects that are reported by organizations in which one-sided emphasis is laid on either profession-orientated activities or management-orientated activities, compared with an integrated approach.

7.2 Method

Study population and response

The member organizations of 15 umbrella organizations participated in the study: organizations for the disabled, nursing homes, hospitals, mental health care organizations, health care centres, home care organizations, homes for the elderly and health care related social services. In two sectors, nursing homes and homes for the elderly, due to the sheer size of the sector, a sample was selected (50% and 10%, respectively). In all other sectors, the directors of all the member organizations were sent a letter, asking them to fill in a written questionnaire.

From a total of 1594 organizations, 1082 questionnaires were returned, a response of 68%. In a number of cases, one single questionnaire covered more

than one organizational unit, for instance a home care organization as well as the affiliated social services. Thus, the 1082 questionnaires received pertained to 1182 organizations (74%). The questionnaires were completed either by the directors or the management of the organizations.

Management-orientated versus profession-orientated activities
In the questionnaire, 62 concrete activities involved in quality assurance and improvement were listed. A selection was made of those activities which were assumed to be carried out solely by management or by professionals. Activities which could not unambiguously be attributed to one of the two groups were excluded from the analysis. All answers were coded into one of two categories: 0 = no, not present/not systematic, or 1 = yes, present/systematic. This resulted in two scales: management activities (9 items) and professional activities (9 items). Cronbach's alpha was calculated for the scales: the internal consistency of the scales was found to be adequate to good (management scale a = .72; profession scale a = .68). In order to determine how much attention (expressed in the number of activities developed) was paid to the issue, a sum score was calculated.

For the analysis, the respondents were subsequently sub-divided into four groups. Group I included all the organizations in which especially management activities in the field of quality assurance and improvement had been developed (six or more management activities and between zero and five profession-orientated activities). Group 2 included the organizations in which especially the professionals were active in the development of quality assurance activities (six or more profession-orientated activities and between zero and five management activities). Group 3 consisted of the organizations which had developed both management activities and profession-orientated activities (six or more activities of each type). Finally, group 4 consisted of the organizations which, in general, had not yet developed many (zero to five) activities in the field of quality assurance and improvement. Differences between groups were determined by means of Chi-square tests or t-tests.

The following characteristics of the organization were measured on a scale ranging from 0 to 5: structure (hierarchic/horizontal), culture (attitude of staff flexible/inflexible); communication (informal/formal) and the extent of centralization (decision-making central/decentral). The size of the organization was measured according to the number of full-time equivalent permanent positions.

The seven possible positive effects listed in the questionnaire could be indicated as follows: 'this effect is/is not anticipated' or 'this effect has already been achieved'. Only effects which had already been achieved were included in the analysis. With regard to the four specifically mentioned negative effects, the

respondents were only asked to indicate which negative effects were the result of deliberate attention being paid to quality assurance and improvement, but it was also possible to indicate 'there have been no negative effects'.

Finally, a number of items were selected to reflect the participation of patients in quality improvement. For the measurement of patient participation, a scale was developed, based on 10 items (little-much participation, Cronbach's a = .80).

7.3 Results

Management-orientated, profession-orientated, or both

Table 7.1 presents an overview of the quality assurance activities carried out by management and professionals, respectively. In the case of management, the activities included the written formulation of a quality assurance policy, the elaboration of this policy into working plans at both organizational and departmental level, and the verification of these activities in an Annual Quality Assurance Report. In addition, the management of an organization can give direction to the quality assurance activities by explicitly informing the staff as to what is expected of them in terms of quality. The agreements made can subsequently be evaluated, for instance on the basis of working plans or feedback on the results. A steering committee at management level can develop a framework for the quality assurance policy, referred to as a 'top-down' approach.

In organizations with a 'bottom-up' approach, many quality assurance and improvement activities are initiated by professionals. The quality assurance is mainly based on control over primary care processes. Frequently used methods are peer review, methodical adherence to care plans and the development of protocols and standards.

Table 7.1 Overview of the quality assurance activities

Management activities (9)	Professional activities (9)
Quality assurance policy	Protocols for:
Quality plan at organizational level	Specific treatment
Quality plan at departmental level	Specific target group
Annual Quality Report	Reserved procedures
Management gives direction to what is expected	Critical moments in the process
	Routing of the patient
Management reviews agreements	Medical aids
Management gives feedback	Peer review (mono-disciplinary)
Management monitors working plans	Peer review (multi-disciplinary)
Steering committee	Care planning

Table 7.2 shows the extent to which organizations have developed management-orientated activities, respectively profession-orientated activities. One in five organizations had scarcely developed any activities at all. Half of the organizations had developed between two and five activities, and in almost one third of the organizations the management had been extremely active. A similar situation is found with regard to profession-orientated activities. Here, too, over half of the organizations are in the process of developing activities, whereas one in ten organizations have only just started.

Table 7.2 Percentage organizations ranged to the number of management-orientated activities and professional orientated activities (N=1182)

organizations with	sum-score	management related activities (9 items)	profession-related activities (9 items)
hardly activities	0-1	24 (21%)	158 (13%)
a few activities	2-5	604 (51%)	633 (54%)
much activities	6-9	333 (28%)	391 (33%)
Total		1182 (100%)	1182 (100%)

One third of the organizations is in an advanced stage with regard to the development of profession-orientated activities. In the participating organizations, the management had developed an average of 3.8 activities (SD = 2.4), and the professionals had developed 4.3 activities (SD = 2.3).

Table 7.3 shows the total management and professional activities in the four groups, including the number of organizations in which management and professionals have developed individual quality assurance activities, and the number of organizations in which there is mutual collaboration with regard to quality improvement. In 14% of the organizations there is emphasis on management activities, and very few profession-orientated activities have emerged. The accent has been laid on the development of a quality assurance policy and working plans, and the establishment of a steering committee. In 19% of the organizations the situation is reversed: many professional quality assurance activities, but little initiative from the management with regard to the quality of care. In 14% of the organizations the quality assurance developments run parallel, and there is mutual collaboration with regard to quality improvement. It can be concluded that a one-sided development in quality assurance activities is more prevalent than a mutual or integrated approach. However, organizations which have scarcely developed any activities at all cannot be categorized as having either a one-sided or an integrated approach.

Table 7.3 Overview of the number of organizations' per group (N=1182)

four groups of organizations	N	%
management-orientated	170	14
profession-orientated	228	19
management and profession-orientated	163	14
few activities were developed	621	53
Total	1182	100

Differences between sectors and organizations

From Table 7.3 it can be seen that health care organizations can be sub-divided into four groups. It is interesting to find out the extent to which sector and organization characteristics differ between these groups. Table 7.4 presents the differences found between the sectors. It is remarkable that in a considerable number (between 35% and 78%) of the organizations in group 4 the management and professionals are not really involved in the development of policy plans, working plans, care plans and protocols. In one quarter of the organizations involved in care for the disabled, organizations for sheltered living and social services, quality assurance activities have been developed mainly by the management. In one third of the public health care organizations, hospitals and nursing homes, the accent is laid on profession-orientated activities. Considerably more emphasis on an integrated approach is found in health care centres,

ambulatory institutions for mental health care, accommodation and activity centres for the disabled, and nursing homes.

Table 7.4 Overview of the percentage organizations per group (N=1182)

Sector	N	management-orientated %	profession-orientated %	management & profession %	few acti-acvities %	total %
Primary health care						
Health care centres	88	9	15	24	52	100
Home care organizations	114	18	19	7	56	100
Public health care organizations	45	4	29	2	64	100
Hospitals	109	4	36	19	41	100
Care for the elderly						
Homes for the elderly	86	13	7	14	66	100
Nursing Homes	120	9	33	22	37	100
Care for the disabled						
Day care for the mentally disabled	102	22	16	6	56	100
Institutions for the disabled	87	8	20	11	61	100
Day care for the physically disabled	97	13	26	22	39	100
Mental health care						
Institutions for sheltered living	41	29	-	12	59	100
Drugs rehabilitation centre	30	20	20	13	47	100
Mental health care organizations	72	13	19	19	49	100
Ambulatory mental health care organizations	48	19	23	23	35	100
Social services						
Organizations for ambulatory social care	106	25	7	3	65	100
Socio-pedagogical services	37	22	-	-	78	100

Table 7.5 shows the extent to which a relationship exists between organization characteristics and the group which initiates the quality assurance and improvement activities within the organization. Most evident is the association between the size of the organization and emphasis on management-orientated activities. Large organizations more often adopt a 'top-down' approach, in which the mana-

gement develops a considerable number of activities which are monitored by control or feedback. The structure of the organization does not seem to influence the emphasis which an organization lays on the implementation of a quality system. A great deal of attention is paid to quality assurance and improvement in organizations with a hierarchic structure, as well as in those with a horizontal structure. On the other hand, decentralized decision-making and a flexible attitude of the staff to changes is linked with an integrated approach, in which management and professionals are mutually active. Communication between departments or functionaries appears to be more formalized in organizations which are in an advanced stage of developing quality assurance activities than in other organizations.

Table 7.5 Analysis of variance of the four groups per organization characteristic: average per group

Organization characteristics** (scales of 0 to 5)	**management-orientated** N=152	**profession-orientated** N=207	**management & profession** N=152	few activities N=568
size: full-time equivalent*	**475**	385	380	204
organization structure (hierarchical-flat)	3.2	3.2	3.3	3.3
decision process* (central-decentral)	2.9	3.0	**3.2**	2.9
attitude* (flexible-conservative)	2.5	2.5	**2.3**	2.7
communication between sectors* (informal-formalised)	2.9	2.9	2.9	**2.7**

* significant difference between the marked group and the other groups ($p<.01$)

** of the 103 institutions are one or more organizational characteristics not known

Patient participation and effects precipitated by the management

In the health care sector, participation of the patient in the assurance and improvement of the quality of care is considered to be extremely important. It is the patient who can best determine whether their specific needs are fulfilled. They can therefore give organizations 'advice' on possible areas for improvement. From the results of this study it is apparent that organizations with an integrated approach have developed an average of seven activities in which patients are involved. These include the development of quality criteria and protocols in collaboration with patients, the establishment of a complaints committee and a

patient council, and participation in improvement projects. Organizations which are either management-orientated or profession-orientated have developed an average of six activities, and organizations with few activities have developed an average of four.

In the introduction, the assumption was formulated that a relationship exists between the quality assurance activities which an organization develops and the positive effects which result from these activities. The extent to which this assumption is confirmed can be seen in Table 7.6.

Table 7.6 Differences per groups in precipitated positive effects: percentage organizations per group and effect

Effects	**management-orientated** N=170	**profession-orientated** N=228	**management & professional** N=163	few activities N=621
increase satisfaction staff	17	22	23	11
increase client-orientation	28	25	27	14
increase satisfaction of external parties	15**	19**	37**	10
increase controllability of the organization	25*	14* **	25**	10
increase commitment of the staff	21	20	25	12
better corporate image	27*	15* **	32**	11
cost reduction	2	4	4	3

* significant differences between group management and professional orientated ($p<.01$)

** significant differences between group management or professional orientated, and integrated approach ($p<.01$)

Organizations with a management-orientated approach to the quality of care indicated as the three most important effects: a more client-orientated approach, a better corporate image and improved controllability of the organization (mentioned by 28%, 27% and 25% of the organizations, respectively). The three most important effects in a profession-orientated approach were: also a more client-orientated approach, increased satisfaction of the staff and an increase in commitment of the staff (mentioned by 25%, 22% and 20% of the organizations, respectively). With regard to two effects, there is a significant difference between the management-orientated and the profession-orientated approach, namely improved controllability of the organization and a better corporate image was found in a management-orientated approach. As yet, no single approach

appeared to result in any substantial cost reduction: a decrease in costs was mentioned by 2-4% of the organizations.

When the quality assurance activities of management and professionals run parallel, more effects are generally reported. In this group, 37% reported an increase in the satisfaction of external parties. This is almost double that reported in a one-sided approach, either by management or professionals. The group of organizations which had developed hardly any quality assurance activities at all reported relatively few effects, as can be seen from the last column of Table 7.6.

Table 7.7 presents the negative effects which have been reported. Here, too, significant differences are found between the groups. Compared with group 4, in a quarter of the organizations which are in an advanced stage of developing quality assurance activities, costs had risen. A lack of flexibility or demotivation was found in the staff of a few organizations, as a result of the deliberate effort which had been made to emphasize quality assurance and improvement, but this is found significantly more frequently in organizations which have developed many management-orientated activities. On the other hand, in over half of the organizations the workload had increased. This increase in workload occurred significantly more frequently in management-orientated organizations than in those in which the professionals, in particular, were concerned with quality improvement.

Table 7.7 Differences between the four groups in precipitated negative effects: percentage organizations per groups and effect

Effects	management-orientated N=170	profession-orientated N=228	management & professional N=163	few activities N=621
cost increase	25	20	27	15
lack of flexibility among staff	8*	3*	6	5
increase workload*	62*	40*,**	56**	33
demotivation staff*	8*,**	2*	3**	4

* significant differences between groups management and professional orientated ($p<.01$)
** significant differences between groups management and professional orientated and integrated approach ($p<.05$)

7.4 Conclusions

In view of the limitations of the research data - which reflect only the perception of the management who completed the questionnaires - the following postulation can be made. In the introduction, the assumption was formulated that in the majority of institutions there is one-sided emphasis on the development of management-orientated or profession-orientated quality assurance activities. It can be concluded that this hypothesis can be confirmed, but with some reservations. In 33% of the organizations there is one-sided emphasis on either management or profession-orientated activities with regard to quality assurance and improvement, compared with 14% of the organizations in which management and professionals are mutually active.
However, these reservations are important, since no clear conclusions can be drawn for over half of the organizations; they are still in the initial phase of developing quality assurance activities.

Comparison of the developments in terms of sectors and organization characteristics has shown that in sectors in which many highly skilled professionals are employed (e.g. hospitals, public health care organizations and nursing homes) there is relatively more often a 'bottom-up' approach with many profession-orientated activities. In sectors and organizations which are characterized by their small size and heterogeneity of provisions and locations (e.g. special accommodation for the physically disabled) an integrated approach is more often found. Large organizations and sectors in which professionals traditionally have a less important position (e.g. home care, social services, organizations for sheltered living and organizations for the mentally disabled) mainly pertain to the group with many management activities.

The hypothesis that organizations with a comprehensive approach report positive effects relatively more often, is confirmed by the results, even though the differences are less pronounced than was anticipated. In particular, an increase in the satisfaction of external parties is reported twice as often by organizations with an integrated approach. It should also be noted here that, according to the directors of many organizations, positive effects have not yet become apparent. It is remarkable that in the group of organizations which do report effects, profession-orientated activities more often lead to an increase in the satisfaction of the staff. According to the management, the 'top-down' approach, with many management-orientated activities, has resulted in a better corporate image and increased controllability of the organization. As in the profession-orientated group, this approach has led to an increase in the commitment of professionals but, in con-

trast with the other group, it has also resulted in an increased workload and demotivation and a lack of flexibility among the professionals. Finally, there was a greater increase in costs in organizations with many quality assurance activities than in those with few activities.

The conclusion that, according to the management, an integrated approach produces the most positive effects, is in line with the findings of Shortell, who reported positive effects in organizations with a co-operative and change-orientated culture (Shortell et al., 1995).

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8

THE EFFECTIVENESS OF ELEMENTS OF QUALITY SYSTEMS IN NURSING HOMES: a review

8.1 Introduction

In long-term care for older people there is a widely felt need for improvement in the quality of care provided [1, 2, 3, 4, 5]. The health care given to the elderly enables them to stay longer in their own homes. Therefore, the complexity of care problems is increasing in nursing homes and the needs and demands of the older population are changing because of a greater level of disability. However, it is not clear which methods should be used by nursing homes to improve the quality of care. Must all processes be standardized according to practice guidelines, should peer review and clinical audit be introduced in every department, or should a quality system be developed? Quality of care is the degree to which nursing homes increase the likelihood of desired health outcomes and are consistent with current professional knowledge [6]. Most methods to improve the quality of care have been shown to be effective in some situations, yet no single method is demonstrably superior in all or most situations [7].

This article examines evidence in the literature on whether quality systems or quality system elements have an impact on care delivery and the satisfaction and health outcomes of long-term care residents. A quality system is defined as the entire range of activities, procedures and processes of an organization that are directed towards the systematic assurance and improvement of quality in health care [8, 9]. A quality system is composed of different types of quality assurance activities (quality system elements), that can be applied to certain focal areas [10,11]. Elements of a quality system are, for example, peer review, practice guidelines, continuing education and a quality policy. Based on empirical research, the relevant areas for health care institutions are: process control based on standards, process improvement by implementing quality improvement procedures, human resources management, involvement of residents, and quality assurance documents [12, 13]. In a quality system these focal areas are interrelated, which implies that measured results in one area will be used to make changes in other areas (feedback loop) with the ultimate goal of achieving further improvement. Until now, there is scarce empirical evidence that nursing homes that introduce quality systems will reach better residents outcomes. To evaluate residents outcomes quality indicators [14, 15] or tracers [16] have been used to compare the quality of nursing homes. The question to be answered is which

elements of quality systems have measurably improved care delivery and residents' related outcomes.

8.2 Methods

Literature pertaining to the effectiveness of quality systems and quality system elements in long-term residential care was identified by several methods. The first searches in the Medline and CINAHL journal base (Cumulative Index to Nursing & Allied Health Literature), and the NIVEL (Netherlands Institute of Primary Health Care) literature database for the years 1985 through the end of 1997, were based on a combination of the key words 'quality systems', 'quality assurance', 'quality improvement' or 'quality control', and the key words 'long-term care' or 'nursing home'. A long-term care facility or a nursing home is an institution providing nursing care 24 h a day, assistance with activities of daily living and mobility, psychosocial and personal care, paramedical care, as well as room and board [17]. In this paper we will use the term 'nursing home'. The key words cover all types of quality assurance (QA) activities, but exclude research on the effectiveness of treatment interventions that are not related to systematic QA-activities and, therefore, are not within the scope of this article. Secondly, additional references were obtained from the bibliographies of identified articles and colleagues (snowball method). The scope of the study was limited to publications in the English, Dutch and German language. To answer the research question, only empirical studies of QA-activities in nursing homes for older people that had been published in a peer reviewed journal were included. Studies which included no description of the impact of the QA-activity on process or outcome measures (residents satisfaction and health outcomes of residents) were excluded. The selected literature was analyzed by the authors on methodological characteristics (research design, sample size, QA-activity and measurement instruments), and process and outcome measures resulting from the implementation of QA-activities. The selected articles were grouped by the authors according to the five focal areas of a quality system [13].

Table 8.1 The five focal areas of a quality system in health care organizations

Process control based on standards	The focal area covers all types of protocols, guidelines and standards used by professionals in health care organizations to standardize the optimal treatment and minimize variation.
Process improvement by implementing quality improvement procedures	The focal area covers various activities which all have in common that they are based on a PDCA-cycle (plan, do, check and act). Examples are: care-planning, peer review, clinical audit, management information system, resident' council or satisfaction survey.
Human resources management	The focal area covers activities such as continuing education for managers and professionals, systematic feedback of achieved results to stimulate professionals, training of new professionals in quality improvement methods and monitoring department action plans.
Involvement of residents	It is becoming more and more important to involve residents in QA-activities; e.g. in organizing meetings talking about results of satisfaction surveys or complaint registration, in developing quality criteria from the resident perspective and in evaluating quality improvement goals.
QA-documents	The focal area mainly covers managerial activities such as a quality action plan for the entire organization, a quality profile, a quality manual and a quality report. The purpose of these documents is to co-ordinate the earlier mentioned activities with regard to short and long-term goals of the organization.

Source [13]

8.3 Results

Selected articles

A collection of 226 publications was the result of the first search. After analyzing the publications, only 6 articles were identified that met the inclusion and exclusion criteria. The other reviewed articles were not selected for various reasons: firstly, they only described the QA-activity, but not the effects (N=101); secondly, the setting seemed to be a hospital or home agency (N=15) and thirdly, the author(s) only expressed an opinion on quality assurance or long-term care

(N=99). Five references could not be traced. An additional 15 articles were identified from the bibliographies of identified articles and colleagues, four of which were published shortly after the search period.
Of the 21 selected studies, only 2 were based in the United Kingdom and 1 in Canada. The other studies were based in the United States of America. Process and outcome measures were used to evaluate effectiveness and in 3 studies both measures had been used. Of the 13 studies which examined the effects on the process of care, as measured by the development of policies for care, all reported some improvements. All of the 11 studies which assessed resident outcome also reported some improvements.

Table 8.2 Evidence of effectiveness of quality management and quality system elements in nursing homes

source	setting and sample	design	Quality Assurance activity	data-collection and measuring instrument	dependent variable	type of variable	key results
Quality management							
Dimant, 1991 (USA)	nursing home; 189 beds	longitud.	quality system: - practice guidelines - design processes - indicator monitoring - participation residents - team approach - employee involvement	- questionnaires - registration forms	- medication errors - pressure ulcers - physical restraints - incidence accidents - satisfaction resident	outcome	- less than 0.1% medication errors and pressure ulcers - physical restraints reduced by 50% - improved mobility independence - decreased incidence of accidents - low prescriptions of psychoactive medication - improved resident satisfaction
1 Process control by standards							
Levine et al., 1994 (USA)	nursing facility; 816 beds	post-test only	- pressure ulcer prevention protocol - indicator-specific audit instrument for monitoring	- documentation of all aspects of ulcer care - data collection - feedback weekly and monthly	- prevalence of nosomial ulcer	outcome	- low nosomial ulcer prevalence rate of 3.1% compared to 23% in USA nursing homes
Suntken et al., 1996 (USA)	2 extended care facilities (N=160 residents); 2 acute care facilities (N=97); 2 home health agencies (N=91)	pre-test/ post-test	AHCPR[1] pressure ulcer prevention and treatment guideline	trained registered nurses and team members assessed clients	prevalence of pressure ulcer	outcome	- pretest: 13 residents (21%) had 16 pressure ulcers - posttest: 1 resident (2%) had 5 pressure ulcers
Moseley, 1996 (USA)	two cohorts with 3149 and 5078 residents in nursing homes	pre-test/ post-test	federal regulations: the OBRA[2] catheterization standard	- data based on automated assessment database - audit assessment data	difference in percentages of pre-OBRA residents catheterized and % of post-OBRA residents	process	- 1.3% of post-OBRA residents were catheterized long-term against 8 to 15% pre-OBRA - 1% of long-term catheterization was in-appropriately catheterized at assessment
Semla et al., 1994 (USA)	485-bed nursing home	post-test only	federal regulations: the use of psychotropic drugs	- 12 month chart review of 107 residents	- prescription of neuroleptic drugs - dose of neuroleptic drugs	process	- in 75% of residents studied an attempt was made to lower or stop the dose of neuroleptic treatment: neuroleptics were discontinued in 45% with dementia and in 25% with psychiatric diagnosis

[1] AHCPR: Agency for Health Care Policy and Research

[2] OBRA: Omnibus Budget Reconciliation Act

Shorr et al., 1994 (USA)	9432 residents in nursing homes	longitud.	federal regulations: the use of psychotropic drugs	- assessment data of residents during 30 months	- neuroleptic drug use in days/100 days of residence	process	- neuroleptic drug use decreased from 23.9 to 17.5 days/100 days of residence (27%) - one quarter of facilities had no change or increased usage, another quarter had decreases of 46% or more variations were affected by staffing patterns
2 Process Improvement by QI-procedures							
Fitzgerald et al., 1996 (USA)	9 nursing facilities	post-test only	- measurement system of QI - feedback benchmarking information	quality indicators based on Minimum Data Set resident assessments	15 patient-related measures, e.g. prevalence of falls, weight loss, tube feeding	process/ outcome	- 6 scores below state average - 3 scores above average - 6 scores did not change
Phillips et al., 1997 (USA)	254 nursing homes; 2000 nursing home residents	pre-test/ post-test	- Resident Assessment Instrument (RAI) and care planning	assessment of all residents at baseline and 6 months later by research nurses using the Minimum Data Set	- functional status - cognitive status - psychosocial well-being	outcome	implementation of the RAI reduced the rate of decline in 7 of the 9 outcomes
Hawes et al., 1997 (USA)	254 nursing homes; > 2000 residents	pre-test/ post-test	Resident Assessment Instrument (RAI) (standardized system to assist in assessment and care planning)	- assessment of residents - interviews with direct staff - interviews with and observation of residents - review of medical records	- accuracy of information - comprehensiveness of care plans - use of physical restraints - psychotropic drug use	process	- increased accuracy of information in medical records - significant decline in physical restraints (37.4% to 28.1%) and indwelling urinary catheters (9.8% to 7%) - use of antipsychotic drugs was unaffected
Fries et al., 1997 (USA)	254 nursing homes; 2088 nursing home residents	pre-test/ post-test	Implementation of the Resident Assessment Instrument	assessment of residents at baseline and 6 months later using the MDS	presence/absence of: - falls; pain - decubitus - vision problems - stasis ulcer - dental problems - malnutrition - dehydration	outcome	- lower prevalence of dehydration and stasis ulcer - fewer residents declined in nutrition state and vision - increase in prevalence of daily pain
Mor et al., 1997 (USA)	268 nursing facilities; 4196 residents	pre-test/ post-test	Implementation of the Resident Assessment Instrument	- research nurse reviewed records, interviewed staff and observed residents - resident assessment data	transitions during interval of 6 months: hospital admission, nursing home transfer, discharge to home	process	decline in hospitalization: 15.9% in 1990 and 10.9% in 1993
Chambers et al., 1996 (USA)	16 nursing homes; 138 residents	pre-test/ post-test	- nurse audit facilitator - audit projects	- satisfaction questionnaire - geriatric depressions score	- satisfaction resident - depression score	outcome	- satisfaction levels improved in 6 out of 11 aspects - mean geriatric depression score fell from 4.73 to 4.25

Challiner, 1997 (UK)	nursing home; 28 residents	pre-test/ post-test	CARE[1] scheme: clinical audit package examining 9 aspects of geriatric nursing care	audit form filled in for each resident and audit meetings to evaluate the audit forms	policy with regard to - urinary/faecal continence - drug use - falls/accidents - pressure sores - environment and equipment - aids and adaptations - medical role - preserving autonomy	process	- increased documentation of residents' goals - policy for incontinence, increased monitoring - policy for and less evidence of clinical problems - more thorough assessment of individual falls - pressure sores monitored daily instead of weekly - no change in equipment - staff trained in use of hoist - improved recording in care plans
Dickinson et al., 1997 (UK)	15 long-term care facilities; 337 and 258 residents	pre-test/ post-test	CARE scheme: auditing the care of residents, discussing results, setting objectives	audit form filled in for all residents and again 8 months later	policy with regard to: - urinary/faecal continence - drug use - falls/accidents - pressure sores - environment and equipment - medical role - preserving autonomy	process	- 42% of facilities developed policies for care (32% already had policies) - the standard of policies became better, less missing components (reduced from 38% to 19%) - no change in policies of optimising drug use - 72% had reached the care standard for residents (increase of 4% in drug use and environment) - no change in policies for urinary continence
Mohide et al., 1988 (Canada)	60 nursing homes; 1525 residents	controlled trial	- service of a QA consultant - working through a QA-cycle for two indicator conditions	- record review - assessment forms	change score of: - urinary incontinence - constipation - potential skin breakdown - hazardous mobility	outcome	- improvement in the conditions of hazardous mobility and constipation was greater in exp. group - there were no differences for the hidden conditions: potential skin breakdown and urinary incontinence
Gustafson, 1992 (USA)	60 nursing homes	controlled trial	2 different facility and resident assessment processes	quality of care assessment by a research team using interviews and observations	- overall quality of care - detection of problems - recidivism of problems - unnotified problems - cost of methods without external review	process/ outcome	- the assessment method better helps to detect and correct problems and at the same time to reduce the costs of the survey process - many process improvements will not occur
3 Human resources management							
Richmond et al., 1996 (USA)	long-term care psychiatric facility; 773 incidents of disruptive behaviour	pre-test/ post-test	training on prevention and management of disturbed behaviour (critical moment) and monthly feedback of results	self-developed criteria to determine whether patients were appropriately assessed and managed	- use of seclusion - use of restraints	process	- one-to-one verbal intervention followed by medication mainly used alternative - seclusion hours decreased by 31% - restraint hours decreased by 47%

[1] CARE scheme: Continuous Assessment Review and Evaluation scheme

Avorn et al., 1992 (USA)	12 nursing homes	controlled trial	educational programme to reduce potentially excessive use of psychoactive drugs	- evaluation drug use - follow-up evaluation	index of psychoactive drug use	process	decline 27% exp. group vs. 8% controls
Ray et al., 1993 (USA)	4 nursing homes	controlled trial	educational programme for physicians, nurses, staff	evaluation drug use	total number of days of drug use	process	drug use decreased by 72% exp. group vs. 13% controls
Schnelle et al., 1993 (USA)	7 nursing homes; 340 residents	pre-test/ post-test	staff training toileting programme	- random-hour check of residents for incontinence - toileting chart	prevalence incontinence in residents	outcome	significant reduction in incontinence from 43% to 21%
4 Involvement of residents							
Cherry, 1993 (USA)	210 nursing homes	post-test only	nursing home ombudsman who can visit residents and resolve disputes on their behalf	two sources of secondary data: 1)collected during inspection, e.g. staffing patterns, resident status; 2) annual survey of ombudsman programmes	- bedsores - catheterizations - two infection measures - sum of compliance with eight standards	process/ outcome	- significant support for the hypothesis that the existence of ombudsman programmes can have an impact on patient related outcomes - no relationship was found between presence of ombudsman and compliance with standards
5 QA-documents							
no studies were found							

Design of the selected studies and sample size

The research design and the data differ across the studies. Controlled studies have described the effectiveness of specific educational programmes [18, 19], the effectiveness of two different facility and resident assessment processes on the overall quality of care and the detection of problems [20], and the impact of working with quality assurance cycles [21]. In 10 studies the researchers used a pre-test/post-test design with no control groups [5, 22, 23, 24, 25, 26, 27, 28, 29, 30]. There were 2 longitudinal studies [31, 36] and 4 studies with a post-test design only [33, 34, 35, 37].

The number of participating nursing homes involved in the selected studies ranges from 1 to 268, with 13 studies covering a range from 1 to 16 nursing homes, 2 studies involving 60 nursing homes, and 6 studies with more than 200 participating nursing homes.

Selected studies and the various focal areas

Most of the studies (n=10) are related to the focal area 'improvement by QI-procedures'; no studies were found which were related to the focal area 'QA-documents'. One study describes the impact of a quality system [31].

In the focal area 'process control by standards', 5 studies were found that evaluated the effectiveness of the implementation of a new guideline, e.g. for the prevention of pressure ulcers, the adequate use and reduction of indwelling catheters, and the reduction of psychotropic drug use. These studies reported a decline in the prevalence of adverse events [23, 24, 34, 35, 36].

The selected studies related to the focal area 'process improvement by QI-procedures' describe three different activities: 1) feedback of information on patient-related quality indicators, 2) a resident assessment instrument (RAI) to analyze the needs of residents and support the care-planning process, and 3) clinical audits.

Characteristically, all three activities made use of a quality cycle, whereby care givers assess, evaluate and improve when necessary. Information on the present situation was gathered and subsequently compared with the desired situation. If there was any discrepancy between the desired and the actual situation, changes were implemented.

The results of the studies show that for a number of adverse outcomes there was a decrease in occurrence, but for other outcome measures the prevalence was equal to, or above the (national) average. The authors admit that it is not entirely clear to what extent the results can be attributed to the intervention, since there was no control group and various other changes were also made at the time.

Finally, three studies in this focal area made use of internal audits to improve the satisfaction and health status of residents. The effectiveness, for example, of the CARE scheme (the Continuous Assessment Review and Evaluation scheme) has been investigated in pilot studies [5, 32]. The audit process was applied to the procedures in nine mainly clinical fields, examples of which are decubitus, urine incontinence, drug consumption and the autonomy of the resident. As a consequence of the audits, existing agreements and guidelines in institutions were improved or new ones were developed. The improvement of processes was assessed on the basis of the number of institutions which had an explicit policy concerning the nine fields in question, e.g. standard policies were made more comprehensive (missing components reduced from 38% to 19%).

The professionals in an institution determine the quality of the care that they provide, as well as the quality of their mutual collaboration. The improvement of expertise, in the form of tuition, supervision of work or peer review, can have an influence on the quality of the care the residents receive. Of the 21 studies, 4 describe and evaluate the implementation of training programmes for nurses and doctors. The object of the training was to reduce the number of protective measures [26], the prescription of psychoactive drugs [18, 19] and the prevalence of incontinence in residents [22]. The results of the four studies show that, with the help of specific training, significant improvements can be achieved in comparison with the control group.
In many countries it has already been agreed that residents can play an important role in the execution and improvement of care. We found one study that investigated whether the appointment of an ombudsman for residents in nursing homes would lead to better outcomes and more compliance with standards [33]. The researchers concluded that the presence of an ombudsman might improve the outcomes of care, but there were no indications of better compliance with standards. There was no control group included in this study.

8.4 Discussion

For a number of years systematic improvement of the quality of care for older people has been high on the agenda in the US and Europe. Various improvement projects have been implemented in practice, and over 200 publications have been found with keywords associated with quality assurance and long-term care or nursing homes. However, only 21 empirical studies have been found which describe the implementation of elements of a quality system, and its effects on the quality of care provided for residents. This considerable difference in the

number of publications and the number of effect studies suggests that the effects of the majority of initiatives are not reported, or their effects are not evaluated. The fact that no studies were found with predominantly negative results might imply that there is some publication bias. This means that valuable information and experience is not made available for other nursing homes and it could be a good idea to find out and survey such unpublished activity.

The studies we found concerned quality system elements such as the implementation of guidelines, providing feedback, assessment of the needs of residents by means of care-planning, internal audits and tuition, and an ombudsman for residents. One study reported on the effects of a quality system. The opinion of the residents is apparently seldom used to evaluate the effectiveness of quality assurance activities. In view of the high prevalence of demented people in nursing homes this approach is difficult to implement. However, in general there are several studies of 'consumer satisfaction' some of them involving residents' relatives.

In most cases, the design of the studies is such that it is not possible to attribute the results entirely to the newly implemented QA-activity (for example the studies on the effects of the Resident Assessment Instrument). The results are often presented without detailed quantification. Moreover, the intervention is often not described in sufficient detail to allow an institution manager or carer to repeat the intervention in order to achieve the same effects. Also, there is often no indication of which factors or elements were essential in achieving the (positive) effects. There appears to be a gap between scientific research and application in daily practice.

From the 4 studies in which a control group was included, it can be concluded that specific training, specific resident assessment procedures and the use of QA-cycles with the assistance of a QA-consultant can be effective methods to improve the quality of care with regard to specific aspects of the care process and certain health outcomes for residents. The results of the studies with no control group can only serve as an indication which should be subject to further research.

The conclusion which can be drawn from the literature is that at present there is no clear answer to the question of which method one should use in nursing homes to improve the care provided for residents. There are certain indications that activities which are directly associated with the ability of the professional, such as training and guidelines, can influence the outcomes at patient level. It could be that the basic education of carers in nursing homes lacks the training of specific knowledge and abilities necessary for the growing group elderly people in nursing homes with more disabilities and more co-morbidity. Additional training

and the use of guidelines can reduce uncertainty by carers. In addition, there are indications that the Resident Assessment Instrument (RAI) has some positive effects on the health outcomes of residents. The RAI provides carers with a systematic approach that have incorporated treatment suggestions and guidelines. With regard to activities which involve the structure of the care process, such as auditing or feedback of quality indicators, the effects can best be assessed at the level of care processes. The link between QA-activities at process level and the effect on the health outcomes of residents has not yet been proved conclusively.

In order to obtain more certainty about the effectiveness of QA-activities, future studies should include a pre-test/post-test design and a control group. As it is difficult, in practice, to design a randomized, controlled study, future research into effectiveness could also take a multivariate or multilevel approach: to initially determine which patient-related outcomes (corrected for case-mix of residents) vary among institutions and, subsequently, to investigate in more detail what the differences between the institutions are with regard to structure and process characteristics. This would make it possible to identify influential organizational and environmental factors, or patterns of factors, and to determine which quality system elements are most effective, and in which situations or circumstances. In addition, it is necessary to significantly improve the means for quality measurement.

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9

QUALITY SYSTEMS AND CLINICAL OUTCOMES IN DUTCH NURSING HOMES

9.1 Introduction

This article explores the impact of quality systems and QA-activities in nursing homes on clinical outcomes. During the past five to ten years, nursing homes in various countries have made a start with the systematic implementation and evaluation of care planning (Phillips et al, 1997; Hawes et al., 1997; Fries et al., 1997; Mor et al., 1997), practice guidelines (Levine et al., 1994; Suntken et al., 1996; Mosely, 1996; Semla et al., 1994; Shorr et al., 1994), client councils and quality systems (Wagner et al., 1995; Casparie et al., 1997) to improve the quality of the care provided for nursing home residents. In several countries the government has also imposed legal requirements to improve the quality of nursing home care. The American Congress, for example, introduced the Omnibus Budget Reconciliation Act (OBRA) in 1987. This contains specific guidelines regulating the use of psychotropic drugs and physical restraints in long-term care facilities, and mandates the use of the Resident Assessment Instrument (RAI) for care planning. Moreover, nursing homes are obliged by this act to create a quality improvement team. In Canada and Iceland, for instance, the government has also mandated the use of the RAI to improve the process of care planning and to monitor the quality of care. In the Netherlands, the Dutch parliament introduced the Care Institutions Quality Act in 1996. The aim of this Quality Act is to ensure that the care provided is of a high standard.

Nursing homes and other health care organizations must therefore develop a quality system and implement QA-activities. A quality system comprises the entire process of formulating requirements, collecting information, assessing outcomes and adjusting policies at all levels of an organization. In the Netherlands, the first nursing homes started in 1990 with the development and implementation of more systematic QA-activities, such as systematic care planning, practice guidelines and a quality policy for the entire nursing home. The basic assumption underlying the implementation of quality systems is that effective and efficient care processes will lead to appropriate care and positive outcomes. However, in nursing homes it is not always possible to improve or maintain the health status of elderly residents. Therefore, the quality of life of nursing home residents could be an important outcome measure, but, until now there have been no relevant health-related quality of life measures that could indicate appropriate care (Treurniet et al., 1997). In earlier research undesirable clinical outcomes, such as

mortality, pressure sores, incontinence or indwelling catheters, have been used to assess the quality of nursing home care (Zinn et al., 1993; Rantz et al., 1996). These clinical outcomes are undesirable because of their negative influence on the health status of residents. In other research the relationship between quality of care and organizational determinants have been investigated (Davis, 1991; Flood, 1994; Steffen, 1997). Research results have shown that differences in clinical outcomes could partly be explained by organizational determinants, such as economic status, size and bed-occupancy, and environmental determinants, such as per capita income, bed supply and competition (Davis, 1991; Zinn et al., 1993).

Quality systems and QA-activities are designed to improve clinical outcomes for residents by improving the process of health care provision. Studies which have examined the impact of the implementation of specific QA-activities on the process and outcomes of care have found some evidence that specific further training of professionals, practice guidelines and individual care planning have a positive impact on resident-related outcomes (Fitzgerald et al., 1996; Phillips et al., 1997; Fries et al., 1997). To date, however there is scarce evidence that quality systems improve clinical outcomes in nursing home residents to any great extent.
In this article is studied the relationship between quality systems and the prevalence of undesirable clinical outcomes. The central research question was: Do nursing homes with a quality system have less undesirable clinical outcomes than nursing homes without a quality system?

9.2 Method

Sample
Sixty-eight nursing homes, representing 20% of all nursing homes in The Netherlands, participated in the study. The sampling process consisted of two steps. In 1994/1995 we took a random sample of 50% (N=159) of all Dutch nursing homes to investigate the development of quality systems in nursing homes; the response was 75% (N=120). For the study in 1998 we started with the respondents of the 1994/1995-sample which would allow us to measure changes in the development of quality systems and quality assurance activities over time. An additional selection criterium was the availability of standardized patient data from the SIG Nursing Home Information System (SIVIS). Out of the 120 nursing homes 101 met the additional criterium; they received a postal questionnaire on quality systems and were asked to give permission to use anonymous patient data from

SIVIS. Finally, full data were obtained from 65 nursing homes (response 64%). There were no differences found in the average amount of QA-activities that had been implemented in 1994/1995 between respondents and non-respondents.

Quality systems

To measure the implementation of quality systems and the amount of QA-activities a postal questionnaire was sent to the medical director of the nursing home, asking for the implementation of 52 QA-activities. These activities are indicators of a quality system. All activities together represent a quality system. The QA-activities were measured in 1994/1995 and april 1998. For this study we have used two measures: the total amount of QA-activities of an organization in 1994/1995 and the increase of QA-activities between 1994/1995 and 1998. The pearson correlation coefficient between these two measures is 0.58 (p=0.00).

Nursing home characteristics

To control for nursing home characteristics that could influence residents' outcomes, we have included organization size (total bed capacity) and occupancy rate. Large size is associated with higher-than-expected pressure ulcer (Zinn et al., 1993).

Resident characteristics and case mix

Data were obtained on all permanent (long-term) residents living in the nursing homes between september 1997 and february 1998 from the SIG Nursing Homes Information System (SIVIS). The Nursing Homes Information System is a national registry that registers resident characteristics and some clinical outcomes. The sample included 12368 residents. Resident characteristics included age, sex, somatic or psychogeriatric diagnosis, and functional status. The functional status was obtained by creating a severity-index by summing an ADL-score and active communication, bed transferring, bladder and bowel continence, walking and wheelchair dependency. A score of 0 indicated no functional disabilities and a score of 12 indicated great functional disabilities. The 12 items of the severity-index form a strong hierarchical scale (Van Drunen & Van Montfort, 1981). The ADL-score was obtained by summing the amount of help (0=can do alone or can do with help; 1=must be done for) required in five areas (eating, bathing upper or lower part of the body, dressing and toileting). A score of 0 indicated independent performance in these areas, and a score of 5 indicated total dependence.

Undesirable outcomes

In this study five undesirable clinical outcome measures, e.g. the prevalence of bladder incontinence, pressure ulcers, urethral catheterization, restricted mobility

and behavioural problems were used. In addition, the outcome variable 'combination of undesirable outcomes' was constructed by summing up the five separate clinical outcomes. Thereby, we counted the prevalence of bladder incontinence or the prevalence of indwelling catheterization. From a care perspective it is easier to treat incontinence by catheterization than by a toileting plan, but, from a quality and client-centred perspective catheterization is less desirable. Therefore, catheterization was weighted for two points, the other outcomes for 1 point.

Data analyses

We have used descriptive statistics and multi-level-analysis to describe the data. The relationship between quality systems and clinical outcomes have been examined by multi-level analyses with two levels: nursing home level and resident level (Goldstein, 1995). Separate logistic multi-level analyses were run on the individual (dichotomous) outcome variables to examine the predictive effects of nursing homes that have developed a quality system, while controlling for differences in case mix. Linear regression multi-level analyses were run on the variable 'combination of undesirable outcomes', based on the linear association between the number of quality assurance activities and the number of undesirable outcomes. For all tests the significance level was set to 0.05. Analyses were performed using spss-X and MLn.

9.3 Results

9.3.1 Resident characteristics and clinical outcomes

Approximately 74% of all 12368 residents were women. The average age of residents was 81 years. Of all residents 56% had a psychogeriatric diagnosis such as dementia. The overall level of dependency was 7.5 on a twelve-point-scale. There were only small differences in the demographic characteristics and the severity index of residents in nursing homes that have participated in this study and other Dutch nursing homes (SIG, 1998)(Table 9.1).

Table 9.1 Resident characteristics of participating nursing homes and overall Dutch nursing homes

Resident characteristics	residents participating nursing homes n=12368	residents Dutch nursing homes N=45645
Diagnosis, % psychogeriatric	56	54
Sex, % female	74	73
Age female, mean years	82	82
Age male residents, mean years	77	77
Severity index (scale 0-12), mean	7.5	8

Most of the residents in the study homes received nursing care, 20% received paramedic treatment and 7% received specific attention because of their dementia. Furthermore, 45% of the residents was incontinent, 27% was restricted in their mobility, 13% showed disturbing behavioural problems, and 10% had pressure ulcers or indwelling catheters.
Of the 12368 residents 38% had none of the selected undesirable outcomes, 30% had one undesirable outcome, 22% had two, and 10% of the residents suffered from three or four undesirable outcomes (Table 9.2).

9.3.2 Implementation of quality systems and QA-activities

In 1994/1995 the average amount of QA-activities in nursing homes was 21 out of 52 (sd=8). Three years later, the participating nursing homes had implemented 27 QA-activities (sd=8). None of the nursing homes had yet implemented all QA-activities that are conditional for a quality system. The number of QA-activities has increased over the past 3 years with an average of 6 activities.
The most common QA-activity in nursing homes was the systematic use of care planning (91%). Nearly two third of the nursing homes had implemented quality documents, such as a quality policy, quality action plans, an annual quality report and a quality handbook (62%). A client council was active in 63% of the nursing homes. Less often, nursing homes had implemented continuous education for professionals and systematic feedback of results as means for quality improvement (37%). Finally, 37% of the nursing homes had implemented several practice guidelines, such as guidelines for specific diagnostic groups, guidelines for medical interventions by nurses and the utilisation of medical equipment.

Table 9.2 Description of the dependent and independent variables used in 1998 to describe the implementation of quality systems and QA-activities (N=65 nursing homes), and undesirable resident outcomes (N=12368)

Description	Characteristics
Quality system	
amount of QA-activities in 1994/1995; (max. 52)	mean=21; SD=8
increase of QA-activities between 1994/1995 en 1998;	mean= 6; SD=8
QA-activities	
systematic use of care planning; dummy	91%
systematic involvement of client council; dummy	63%
quality policy; dummy	62%
further education and feedback; dummy	37%
use of practice guidelines; dummy	37%
Organization characteristics	
number of beds	mean=193; SD=77
percentage full beds (occupation rate)	99%; SD=2.4
Undesirable outcomes: prevalence of:	
* bladder incontinence, n=5551	45%
* restricted mobility, n=3302	27%
* behavioural problems, n=1579	13%
* indwelling catheter, n=1233	10%
* pressure ulcers, n=1229	10%
* sum of five undesirable outcomes; scale 0-5	
0 undesirable outcomes, n=4716	38%
1 undesirable outcome, n=3756	30%
2 undesirable outcomes, n=2747	22%
3 undesirable outcomes, n=969	8%
4 undesirable outcomes, n=171	2%
5 undesirable outcomes, n=9	0%

9.3.3 Differences in undesirable outcomes between nursing homes

Table 9.3 displays the percentile scores for five undesirable outcomes. The score of a nursing home is the percentage of residents that had, for example, bladder incontinence. The first row shows that 13% of the residents in the best nursing homes (0th percentile) had bladder incontinence. A nursing home with a score of 27% would rank in the top 10 percent, and a nursing home with 62% would rank

at the 90 percentile and belongs to the 10 percent nursing homes with a poor score. A nursing home may have scores at different percentiles for different outcomes. Table 9.3 illustrates that, in some nursing homes 2% of the residents had pressure ulcers, whereas in nursing homes scoring at the 90th percentile 17% of the residents reported pressure ulcers. Similarly, for catheterization, in homes scoring at the 10th percentile 3% of residents had an indwelling catheter, whereas in homes at the 90th percentile, 20% had. Nursing homes scoring at the 100th percentile, those scoring most poorly on this outcome, reported indwelling catheters for 38% of their residents.

Table 9.3 Percentile scores for selected undesirable outcomes of 65 nursing homes

Clinical outcomes	0th Percentile (minimum or best score)	10th Percentile (good score)	50th Percentile (average score)	90th Percentile (poor score)	100th Percentile (maximum or worst score)
Bladder incontinence	13%	27%	46%	62%	65%
Restricted mobility	5%	17%	28%	39%	51%
Behaviour problems	2%	5%	12%	21%	29%
Pressure ulcers	2%	5%	10%	17%	22%
Indwelling catheter	1%	3%	9%	20%	38%

Overall, for each of these outcomes, there are nursing homes doing very well and others doing very poorly. In the next section we will try to explain the difference at resident level between nursing homes by accounting for variation in resident populations. In addition, we will examine the relationship between quality systems c.q. QA-activities and undesirable outcomes.

9.3.4 Multi-level-analyses

In table 9.4 regression coefficients are presented for each of the outcome variables included in the analyses. By including resident characteristics we can establish whether there are differences in the resident population with respect to relevant characteristics, which possibly influence the nursing home scores on undesirable outcomes. Also included in the table are characteristics of nursing homes, such as the total bed capacity and the amount of QA-activities in 1994/1995 and the increase of QA-activities over the period 1994/1995 and 1998, representing the implementation of quality systems. The occupancy rate has not been included in the analyses because of the little difference in occupancy between nursing homes (mean=99%, sd=2,4). By including variables at the

organization-level we can establish whether some of the differences found between residents and nursing homes can be explained by the implementation of quality systems or the size of the nursing home.

Table 9.4 The impact of resident characteristics and quality systems on various undesirable outcomes: regression and variance coefficients of logistic multi-level analyses

Characteristics	Bladder incontinence	Restricted mobility	Behaviour problems	Pressure ulcers	Indwelling catheter
Resident characteristics					
Age	0.01*(.00)	-0.01*(.00)	-0.01*(.00)	0.01*(.00)	-0.01*(.00)
Female	0.06 (.07)	0.52*(.09)	-0.01 (.06)	-0.08 (.07)	-0.26*(.07)
Psychogeriatric diagnoses	1.00*(.07)	-1.67*(.09)	0.70*(.07)	-0.82*(.07)	-1.81*(.08)
Severity-index	1.01*(.02)	1.02*(.03)	0.18*(.01)	0.26*(.01)	0.25*(.01)
Organization characteristics					
Number of beds	-0.00 (.00)	-0.01 (.01)	-0.00 (.00)	-0.01*(.001)	-0.00 (.00)
Implementation quality system					
Amount of QA-activities 94/95	-0.00 (.01)	-0.01 (.01)	-0.02 (.01)	-0.001 (.008)	-0.003 (.01)
Increase of QA-activities 94/95-98	-0.00 (.01)	-0.01 (.01)	0.01 (.01)	0.000 (.008)	-0.001 (.01)
Variance coefficients					
Nursing home level	0.10*(.03)	0.04*(.02)	0.23*(.05)	0.27*(.06)	0.30*(.07)
Resident level	0.96 (.01)	1.88 (.02)	0.97 (.01)	1.37 (.02)	0.93 (.01)

* $p<0.05$

Most of the variances (95%, not in Table 9.4) in all analysis have been found between residents. However, there were also significant differences between nursing homes (5%, not in Table 9.4). The resident characteristics included in the models used to explain differences in undesirable outcomes have an independent effect that exceeds the .05 significance level. An exception can be made for gender; no relationships were found between gender and incontinence, behavioural problems and pressure ulcers. Of the nursing home characteristics the number of beds has a relationship with the prevalence of pressure ulcers. Residents in larger nursing homes have less often pressure ulcers. The implementation of quality systems in 1994/1995 and the increase of QA-activities

over the last three years had no independent effect on the outcomes.
The variance coefficients illustrates that after including the independent variables, there remain significant differences between residents and nursing homes. These differences can not be explained by the used resident and organization characteristics.

Table 9.5 The effect of resident characteristics and quality systems on the amount of undesirable outcomes: regression and variance coefficients, and explained variance of linear multi-level analyses

Risk factor	0 Model	A Model	B Model	C Model	D Model
Intercept	1.06 (.08)	-0.49 (.06)	-0.38 (.07)	-0.31 (.08)	-0.32 (.08)
Resident characteristics					
Age		-0.003*(.000)	-0.003*(.001)	-0.003*(.001)	-0.003*(.001)
Female		0.03* (.01)	0.03* (.01)	0.03* (.01)	0.03* (.01)
Psychogeriatric care		-0.13* (.02)	-0.13* (.02)	-0.13* (.02)	-0.13* (.02)
Severity-index		0.24* (.00)	0.24* (.00)	0.24* (.00)	0.24* (.00)
Organization characteristics					
Number of beds			-0.0005*(.0002)	-0.0004*(.0002)	-0.0004*(.0002)
Implementation quality system					
Amount of QA-activities 94/95				-0.005* (.002)	
Increase QA-activities 94/95-98				-0.002 (.002)	
QA-activities					
Systematic use of care planning					-0.06 (.05)
Quality policy					-0.02 (.03)
Further education and feedback					-0.02 (.03)
Use of practice guidelines					0.05 (.04)
Involvement of client council					-0.06* (.03)
Variance coefficients					
Nursing home	0.05*(.01)	0.012*(.00)	0.0108*(.00)	0.0102*(.00)	0.009* (.00)
Resident	1.01 (.01)	0.54 (.01)	0.54 (.01)	0.54 (.01)	0.54 (.01)
Reduction of variance					
Nursing home level		72%	9.5%	5%	12.5%
Resident level		48%	0.3%	0.1%	0.3%

*p<.05

Table 9.5 presents the effect of resident characteristics, organization characteristics, the implementation of quality systems and separate QA-activities on the amount of undesirable outcomes. Furthermore, table 9.5 presents the estimated variances for the 'null' (no predictor variable) model and the applied (with stepwise inclusion of all predictor variables) models. If the variances of the null-model are entered in the formula for calculating the intraclass-correlation, the percentage of variance at level 2 (nursing home) is 4,7% of the total variance ((0.05/0.05+1.01)x100) (Snijders and Bosker, 1994). So, 95,3% can be labelled as variance on level 1 (resident).

On the resident level, the applied A-model for resident characteristics, explained 48% of the 95% variance due to between resident differences. The 5% variance between nursing homes could, to a great extent (72%), be explained by differences between resident characteristics. In model B, C and D the independent variables of the nursing home level are included. In model B the size (number of beds) of the nursing homes is included. Size has an effect on the amount of undesirable outcomes. The reduction in variance compared to the A model is 0.3% at resident level and 9.5% at nursing home level. In model C the implementation of quality systems have an independent effect on the amount of undesirable outcomes. The variance at resident level was, additionally, reduced by 0.1%, whereby the variance at nursing home level was reduced by 5%. The implementation of separate QA-activities (Model D), such as systematic use of care planning, a quality policy, further education of professionals and the use of practice guidelines, had no effect on the amount of undesirable outcomes. However, a relation was found between the involvement of client councils and the amount of undesirable outcomes.
Thus, after including the independent variables there remain significant differences in the amount of undesirable outcomes between residents. The remaining differences between nursing homes are significant, but relative small.

9.4 Discussion

The objective of this study was to determine the extent to which the differences found in outcomes can be explained by the existence of a quality system in the nursing homes. Quality systems were chosen as determinant because the objective of these systems is to systematically attune the policy of the organization and the care process to the needs of the residents. This implies that effective and efficient care processes should result in optimal care for residents, and thus the best clinical outcomes as possible.

From the results of the study it is apparent that, of the 52 quality assurance activities studied, nursing homes had implemented an average of 21 in 1994/1995 and 27 in 1998. The number of activities per nursing home in 1998 varied from 11 to 48, indicating that only a few of the nursing homes had implemented an integral quality system. This implies that the results of the study must be interpreted with caution, because a quality system which has not been fully implemented could have less effect on the results. Moreover, there are certain shortcomings in using the number of activities as a measure for the implementation of a quality system, because the existence, for instance, of a quality policy, a quality manual or practice guidelines is less important in the achievement of positive results than the implementation of the activities at all levels in the nursing home. In the present study, these limitations have been accounted for by asking about quality activities which apply to various aspects of a quality system (i.e. policy and strategy, personnel management, process management and client involvement). These aspects have been derived from the Baldrige Quality Award and the European Quality Award (Wagner et al., 1999).

The results of this study clearly demonstrate that there are differences between nursing homes in the prevalence of undesirable outcomes. The differences can be seen in the five outcome measures studied. In the nursing homes with the lowest scores, undesirable outcomes occur approximately 10 times less often than in the nursing homes with the highest scores. In an American study among 352 nursing homes even greater differences in the five undesirable outcomes have been found (Rantz et al., 1996). Nevertheless, based on these data, no foregone conclusion can be drawn that nursing homes with high scores provide sub-optimal care. Differences between residents, with regard to the intensity of care needed, could explain the differences in outcomes. These outcomes clearly demonstrate that it is important to carry out further research on the possible reasons for these differences.

The central research question addressed in this article was whether nursing homes with a quality system have better clinical outcomes than nursing homes without a quality system. The results of the multi-level analysis have demonstrated that the differences in outcomes are mainly caused by differences between residents and, to some extent, also by differences between nursing homes. At resident level, characteristics such as gender, psychogeriatric diagnoses and the dependence of the resident explain 50% of the differences between residents and approximately 70% of the differences between nursing homes. On the other hand, this implies that approximately 50% of the differences in undesirable outcomes can not be explained by the selected case-mix variables,

and that there are therefore other underlying causes.
The size of the nursing home can explain a small part of the remaining variation in some undesirable outcomes. Residents in larger nursing homes have less undesirable outcomes.
Finally, it seems that the implementation of a quality system in 1994/1995 and the involvement of a client council had significant influence on the number of undesirable outcomes in 1998. There was a small reduction in the variance at resident and nursing home level. On the other hand, the increase in the number of activities themselves and individual quality assurance activities (i.e. care planning, quality policy, further education, practice guidelines), appeared to have no independent influence on the outcomes. This could indicate that quality systems are not effective or that the results of quality systems only become apparent in the long term, and that it takes some time before a quality system influences the care process, the behaviour of the carers and the clinical outcomes. This could also imply that individual quality assurance activities have no influence on undesirable outcomes, whereas a 'system' is more advantageous for the quality of care provided for the residents. It is not the existence of quality activities which leads to improvements, but the systematic application of these activities. A third possible explanation is that nursing homes which already have effective care processes implement a quality system to become even better. In this case, not the implementation of a quality system determines whether nursing homes have less undesirable outcomes, but the already existing level of care provided. A longitudinal research design could give more insight, but is more expensive and time consuming.

From the results of this study it can be concluded that approximately 50% of the differences in outcomes between residents can not be explained by differences in the resident population, the size of the nursing home, or the existence of a quality system or individual quality assurance activities. Future research to investigate other possible explanations, possibly involving a more specific and comprehensive study of nursing home policies and the existing care processes, is of vital importance in order to identify the basic elements which are of influence in preventing undesirable resident outcomes and improving the quality of care.

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10

DISCUSSION

In this thesis, the implementation and effectiveness of elements of quality systems in Dutch health care organizations have been examined, primarily from the perspective of the management and, to a lesser extent, from the perspective of nursing professionals. The thesis concludes with a description of the effectiveness of quality systems on the clinical outcomes of nursing home residents. This study is one of the first to investigate the relationship between an organization-wide quality system and the clinical outcomes of residents.

The objective was achieved in four consecutive steps:
1. description of the content and measurement of quality systems;
2. description of the development and implementation of quality systems within and across health care sectors;
3. investigation of environmental, organizational and individual determinants of the implementation of quality systems;
4. investigation of the relationship between the implementation of quality systems and the quality of care.

In this chapter, the results will be reviewed in the light of the objectives, and the limitations and qualities of the study will be discussed. The chapter concludes with some implications for future policies and further research.

10.1 The content and measurement of quality systems

This section describes the various quality assurance activities and focal areas that constitute a quality system. The measurement instrument used to asses the implementation of a quality system will also be discussed.

Focal areas and quality assurance activities
The quality system, as measured in the present study, encompassed five focal areas which could be applied to health care organizations in various fields of health care. The focal areas are:
* the existence of QA-documents, such as quality profiles, product descriptions, quality action plans and an annual quality report;
* the involvement of clients in the development and evaluation of quality management;

* the control of processes, based on standard-setting and protocols;
* human resources management to enhance the skills and expertise of managers and professionals;
* the control of processes by means of continuous evaluation and improvement procedures.

Compared to the ISO 9000 standards and the Dutch Quality Award, the results suggest one new focal area which should be addressed by health care organizations: the focal area of client involvement and participation (Chapter 3). This finding is in agreement with existing concepts concerning the difference in the position of health care clients compared to consumers in industry, and the increasing attention which is being paid to enforcing the rights of clients in health care. Furthermore, the focal area 'client involvement' might be given a central role in the revised European Quality Award that will be presented later on this year. The other focal areas are in accordance with existing organizational audit frameworks, such as the European ISO 9000 standards and the European/Dutch Quality Award (EFQM/INK), which highlight areas of an organization that experts believe to be essential for the ability of the organization to consistently provide good quality care (EFQM, 1992; Øvretveit, 1994; Hertz et al., 1994; INK, 1996).
The fact that quality management concentrates on the same focal areas of an organization shows that quality management is a continuation of the development of efforts to improve the performance of an organization. Most health care organizations in the Netherlands apparently opt for the development of a quality system derived from the ISO 9000 standards or the Dutch Quality Award, and adapted to their own specific health care sector (Chapter 5).
The quality assurance activities pertaining to the various focal areas are not the sole components of a quality system. A quality system is a functionally related group of interacting, inter-related, and interdependent quality assurance activities, forming a complex entity with a common aim (Chapter 3). The implementation of a quality system, as will be explained later on, is the combined responsibility of managers and professionals. The core of the quality system is the quality cycle, i.e. setting standards, collecting information, assessing outcomes and adjusting policies to improve the quality of care on a systematic and continuous basis.

Measurement instrument
The content and implementation of quality systems have been measured by means of a written questionnaire sent to the management of health care organizations. They are responsible for the implementation of a organization-wide quality system, and it was therefore expected that they would have an overview of the quality assurance activities. The questionnaire was developed in

collaboration with experts on quality management from various fields of health care. To prevent socially desirable answers, the management was asked about concrete quality assurance activities, in a closed format, with various options per question. In addition, the management received an individual feedback report in which the results of its own organization were compared to the mean results of the other organizations in the same field of health care.
The rationale for developing an instrument to measure the quality assurance activities in the focal areas was the need to obtain information at national level on how health care organizations assure the quality of the care they provide and how many organizations have actually developed a quality system (Chapters 3+4). To date, at the individual level, quality systems have been evaluated by means of voluntary accreditation processes. In general, the information obtained has not been made public, and is therefore not available for comparisons between organizations or between fields of health care. Furthermore, external audits and accreditations are very time-consuming and thus not suitable for gathering comparable data from multiple health care organizations. The measurement instrument, which was specifically developed for this study can be used to make a global assessment of the development and implementation of quality systems in individual health care organizations and various fields of health care. It is primarily a research instrument that could complement, rather than substitute existing accreditation and audit methods (Chapter 3).

10.2 The implementation of quality systems

This section describes the four stages of the development and implementation of quality systems that became apparent from the study, the progress health care organizations have made, and the differences between health care sectors. The advantages of an organization-wide approach will also be discussed.

Developmental stages
The development and implementation of a quality system is complex and takes many years. As would be expected on the basis of the innovation theory, many health care organizations choose a step-by-step strategy. The results of the present study confirm this approach; four developmental stages could be distinguished for health care organizations: orientation (stage 0), preparation (stage 1), implementation (stage 2) and establishment (stage 3). The study has shown that for each specific focal area the expected linear development across the four stages was followed by most of the health care organizations, but they had not yet implemented quality assurance activities for all focal areas. The differences in attention paid to the five focal areas imply that the quality systems are in a different stage of development in each focal area. On the basis of the

developmental stages for the entire quality system, the status of Dutch health care in 1994/1995 can be characterized as follows:

- 2% of the health care organizations were, on average, in the orientation stage (stage 0); this means that for virtually all focal areas they had just begun to pay explicit attention to quality management.
- 26% of the health care organizations were creating conditions for quality management; they were in the preparatory stage (stage 1).
- 59% of the organizations were implementing quality assurance activities in the form of experiments or projects (stage 2).
- 13% of the health care organizations had reached stage 3, the implementation of a quality system involving all areas of the organization and integration in the daily course of activities.

Orientation stage

Organizations in the orientation stage had not yet taken concrete actions to manage the processes (in the provision of care). Some professional groups had implemented quality assurance activities, such as peer review and, to a limited degree, had formulated protocols for specific treatment or activities. With regard to individual contact, the patients or clients had been consulted, but no systematic satisfaction surveys had been carried out. In this stage, quality is primarily guaranteed by professional qualifications.

Preparatory stage

A quarter of the health care organizations were in the preparatory stage and were creating conditions for systematic quality assurance. Both management and staff were trained in quality management. The management had developed a quality policy and the staff knew what was expected of them within the context of the policy. Professionals had started to extend their quality assurance activities. Protocols had been implemented to overlap the boundaries of disciplines or departments. The activities that already existed, for example complaint registration forms, were used systematically for quality assurance and improvement. Patients were involved in discussions concerning the results of complaint registration.

Implementation stage

The majority of the health care organizations, almost two thirds, were experimenting with new quality assurance activities. This means that quality projects were being carried out in the various departments within the organizations. In those organizations which had reached this stage, the departments had already implemented quality working plans, and their

implementation was (also) monitored by the management. Process control was becoming more all-embracing, in the sense that written protocols were implemented for the transfer or after-care of patients (critical moments). The patients were taken seriously, as 'clients'. The health care organizations were carrying out research into patient satisfaction and involving patients in quality projects on an individual basis.

Establishment stage

The establishment of a quality system as part of the normal course of daily activities was characterized by a systematic approach and by coherence in the quality assurance activities. Continuous further education of professionals, for example, was effected on the basis of priorities in quality policy; staff were receiving structured feedback on the results and patients were involved in quality assurance activities on a systematic basis. Protocols covered the entire routing, from patient intake to the conclusion of care, and data on the results of the care were available in a management-information system. The quality assurance activities were subject to an internal audit, i.e. they were assessed on their effectiveness. The health care organizations were accountable for their activities in an annual quality report (Chapter 4).

There were differences between the various health care sectors. Of the organizations, 20% for care for the disabled, 16% for care for the elderly and 14% for mental health care had reached the third stage (establishment). This was above the national average of 13%. An explanation for the relatively high percentage of the organizations for care for the disabled with a well-developed quality system is the fact that systematic participation of the clients in many of these facilities is already a matter of course. In many other sectors this focal area is less well developed. Health care sectors in which few organizations had reached stage 3 were the welfare sector and primary health care. In this last sector there were a relatively large number of health care organizations that were still in the preparatory stage (stage 1). However, the differences within health care sectors were greater than between health care sectors (Chapter 4).

Organization-wide versus one-sided implementation

In addition to the differences in developmental stage, differences between health care sectors were also found in the implementation approach. In general, a one-sided development of quality assurance activities was more prevalent than an integrated organization-wide approach. In one quarter of the organizations for the disabled, the organizations for sheltered living and the health-related social services, it was mainly the management who had developed quality assurance

activities. In one third of the organizations for public health care, hospitals and nursing homes, the emphasis was laid on profession-orientated activities. Considerably more emphasis on an organization-wide approach was found in primary health care centres, organizations for ambulatory mental health care, facilities for the physically disabled, and nursing homes (Chapter 7).

10.3 Determinants of the implementation of quality systems

The implementation of quality systems varies greatly between health care organizations. The question is: why? It can be assumed that the implementation of quality systems depends on environmental, organizational and individual determinants. Environmental determinants are, for example, pressure from clients and insurance companies, and governmental requirements. Organizational determinants are characteristics of the organization such as centralization, formalization and size. Individual determinants are the adherence of professionals to existing quality assurance activities and the involvement of managers and professionals in the development of quality systems. Furthermore, specific characteristics of the health care sector can play a role. These determinants have been analysed in this study.

Environmental pressure

To comply with the requirements of important external stakeholders, health care organizations have to prove that the care they provide meets the expectations, needs and demands of their clients, and that the care is provided in accordance with the existing professional standards. For this reason it was assumed that health care organizations that are under environmental pressure are more likely to implement a quality system. However, based on the results of the present study, it seems that the perceived pressure from third parties has little influence on the implementation of quality systems in health care organizations. One exception can be made for external pressure from clients (Chapter 5). It appeared that clients can stimulate the implementation of quality systems by their complaints. Therefore, in strengthening the position of clients, governments and health insurance companies can also exert indirect influence.

Organizational characteristics

The results of the research confirm the influence of organizational characteristics on the implementation of quality systems. Decentralized decision-making, informal communication and amenability to change on the part of the professionals are positive factors in the implementation of quality systems. However, organizations

which were already used to working according to protocols and procedures were also more often inclined to implement a quality system (Chapter 5). One explanation could be that some organizations implement quality systems based on the ISO system (International Organization for Standardization), which involves the written formulation of processes and activities for both the primary process and the supporting services. The ISO system is similar to the traditional working methods in these organizations, which facilitates the implementation of a quality system. On the other hand, if organizations opt for a Total Quality Management (TQM) approach, it can be assumed that a flexible attitude of professionals and decentralization of (budget) responsibilities are advantageous. The results of the study suggest that it is important for an organization to choose the right approach to the implementation of a quality system.

In general, the defined environmental and organizational determinants can only partly explain the differences found. Therefore, other mechanisms, such as the adherence of professionals to quality assurance activities and the involvement of managers and professionals in the development of quality systems, are also of influence on the implementation of quality systems.

Adherence of nursing professionals to quality assurance activities

A quality system could be designed perfectly on paper, but the functioning of the quality system depends on the adherence of professionals to the existing quality assurance activities. The results of study II have shown that quality assurance activities are still far from being part of the normal daily activities of nurses (Chapter 6). Differences were found between nurses, with regard to the way in which they adhere to quality assurance activities. Some nurses use quality assessment methods, guidelines, continuous education and peer review to assure the quality of care, whereas others have difficulty in adhering to existing methods, or believe that quality management is not their responsibility. In general, however, it appears that nurses have very positive expectations of quality assurance activities, such as improvement in the collaboration between professional groups, more appropriate care for patients, and the importance of preventing mistakes.

Differences have also been found between health care organizations and between the various health care sectors. In some organizations, for example, nearly all nurses (95%) adhere to the existing practice guidelines for specific target groups, whereas in other organizations less than 10% of the nurses adhere to the practice guidelines. The nurses involved in the study were of the opinion that extra time and more collaboration within the nursing team and between disciplines could facilitate adherence to quality assurance activities, but the results showed that the motivation of the nursing manager has even greater

influence on whether or not nurses adhere to quality assurance activities (Chapter 6).

Involvement of managers and professionals

The implementation of a quality system in health care organizations is the combined responsibility of managers and professionals. The professionals - physicians, allied health professionals and nurses - are responsible for the quality of the care they provide, and the management creates the conditions that are necessary for the provision of appropriate care. These responsibilities are embedded in the Care Institutions Quality Act and the Individual Health Care Professions Act.

Due to the difference in the tasks of managers and professionals, it can be assumed that there are quality assurance activities that are carried out solely by managers or by professionals. In the case of management, the activities include the written formulation of a quality policy, the elaboration of this policy into working plans at both organizational and departmental level, and the verification of these activities in an annual quality report. In addition, the management can give direction to the quality assurance activities and evaluate the agreements, for instance on the basis of working plans or feedback on the results. The activities of professionals have concentrated on the primary processes of care. Frequently used methods are peer review, practice guidelines, individual care plans and clinical audits (Chapter 7).

The results of the present study show that in 14% of the organizations there was emphasis on management activities, and very few profession-orientated activities had emerged ('top-down' approach). In 19% of the organizations the situation was reversed: many professional quality assurance activities, but little initiative from the management with regard to the quality of care ('bottom-up' approach). In 14% of the organizations the quality assurance developments ran parallel, and there was mutual collaboration with regard to the implementation of quality assurance activities which are the elements of a quality system (Chapter 7).

The results of the study also indicate a relationship between organizational characteristics and the group (managers or professionals) which initiates quality assurance activities within the organization. Most evident is the association between the size of the organization and the emphasis on management-orientated activities. Large organizations more often adopt a 'top-down' approach, in which the management develops a considerable number of activities which are monitored by control or feedback. The hierarchical structure of the organization does not influence the emphasis which an organization lays on the implementation of a quality system. However, decentralized decision-making and

a flexible attitude of the staff to changes is linked with an organization-wide approach, in which management and professionals are mutually active. Health care organizations which have formalized the communication between departments have implemented more quality assurance activities than other organizations (Chapter 7).

Characteristics of the health care sector
An important factor which facilitates the implementation of a quality system is the type of health care the organizations provide (institutionalized vs. ambulatory). Health care organizations which provide institutionalized or long-term care, had more often implemented a quality system than organizations which provide ambulatory or short-term care (Chapter 5). One explanation is that care-oriented organizations, due to the long-term contact they have with their clients, have more opportunity to involve their clients in the quality policy, which implies that they develop specific activities involving clients. An exception can be made for hospitals, which are not long-term care-oriented, but have implemented more quality assurance activities than, for instance, homes for the elderly (Chapter 5). These 'contradictory' results could be explained by the fact that carers in hospitals are more highly educated. In an earlier study, a relationship was found between level of education and the adherence of nursing professionals to quality assurance activities (Wagner et al., 1997).

10.4 The effectiveness of quality systems

The point of departure in the quality theory is that a quality system leads to better results. Ongoing improvement of processes must lead to better services, better outcomes and more satisfied clients. In this section the perceived effects of quality systems, and the relationship between quality systems and resident-related outcomes, will be discussed.

Effects perceived by the management
The results of the study have also shown that managers of health care organizations which had followed an organization-wide approach perceived more positive results, due to the quality system, than managers of health care organizations which had followed a one-sided approach (Chapter 7). It should also be noted here that, according to the directors of many organizations, few positive effects had not yet become apparent. It is remarkable that in the group of organizations which did report positive effects, profession-orientated activities more often led to an increase in the satisfaction of the staff. According to the

directors, the 'top-down' approach, with many management-orientated activities, had resulted in a better corporate image and increased controllability of the organization. However, a solely 'top-down' approach had, in some organizations, resulted in an increased workload, demotivation and a lack of flexibility among the professionals. Finally, there was a greater increase in costs in the organizations with many quality assurance activities than in those with few activities (Chapter 7).

The limited effects might be explained by the fact that most of the quality systems were in the developmental stage. Only a small group of health care organizations (13%) had implemented a quality system. Furthermore, extra costs could be expected, due to the implementation of new quality assurance activities. Subsequently, however, when quality management becomes part of the normal course of activities, it might be assumed that these costs will decrease, due to more efficient processes.

Effects on processes and outcomes

The objective of the research was to determine which elements of a quality system have improved care processes and resident-related outcomes. A review of the literature on long-term care revealed that the effectiveness of various quality assurance activities has already been studied. The studies identified concerned such quality assurance activities as the implementation of guidelines, providing feedback, assessment of the needs of residents by means of care-planning, internal audits and tuition, and the institution of an ombudsman for residents.

In most cases, the design of the studies was such that it is not possible to attribute the results entirely to a newly implemented QA-activity. The results are often presented without detailed quantification and the intervention is often not described in detail. Also, there is often no indication of which factors or elements were essential in achieving the (positive) effects (Chapter 8).

The conclusion which can be drawn from the literature is that at present there is no clear answer to the question of which method nursing homes should apply to improve the care provided for residents. There are certain indications that activities which are directly associated with the performance of the professional, such as training and guidelines, can influence the outcomes at resident level. Additional training and the use of guidelines may reduce uncertainty among carers. Moreover, there are indications that the Resident Assessment Instrument (RAI) improves the care-planning process and, therefore, has some positive effects on the health outcomes of residents. The RAI helps carers to analyze the health care problems of residents more carefully, and provides carers with a systematic approach that incorporates treatment suggestions and guidelines. The

effect of quality assurance activities, such as auditing or feedback of quality indicators, has been assessed at the level of care processes. However, the link between quality systems and clinical outcomes of residents has not previously been investigated.

Prevalence of undesirable clinical outcomes in nursing homes

The results of study III show that there are differences between nursing homes in the prevention of undesirable outcomes. These differences can be observed in the outcome measures studied. In the nursing homes with the lowest scores, undesirable outcomes occur approximately 10 times less often than in the nursing homes with the highest scores (Chapter 9). These outcomes demonstrate that it is important to carry out research on the possible reasons for these differences.

The results of the multi-level analysis have demonstrated that the differences in outcomes are mainly caused by differences between residents and, to some extent, also by differences at nursing home level. At resident level, characteristics such as gender, psychogeriatric diagnosis and the dependence of the resident can explain 50% of the differences between residents and approximately 70% of the differences between organizations. The measured characteristics of the organizations, such as the size of the nursing home, can explain a small part of the remaining variation in some undesirable outcomes. Finally, it appeared that in residents in nursing homes, which had implemented a quality system in 1994/1995, had significantly less undesirable clinical. The same results have been found in nursing homes with a functioning client council. On the other hand, the increase in the number of quality assurance activities between 1994/1995 and 1998 appeared to have no influence on the outcomes (Chapter 9). This could indicate that health care organizations which already provide appropriate care implement a quality system to improve the care even more, or that it takes some time before a quality system influences the care process and the behaviour of the carers.

No relationships have been found between undesirable clinical outcomes and the separate focal areas, such as quality assurance documents, human resources management, and the use of practice guidelines and individual care-planning (Chapter 9). These results imply that a 'system' is more beneficial for the quality of care, but that individual quality assurance activities have no influence on undesirable clinical outcomes. It is not merely the existence of quality activities which leads to improvements, but the systematic application of these activities.

10.5 Limitations and qualities of the study

The choice of a cross-sectional study, based on questionnaires completed by the management and nursing professionals in health care organizations, and resident data obtained from the national Nursing Home Information System, has created limitations as well as qualities.

Strong qualities of the research are the nationwide approach, the good response, and consequently the representativeness of the data. 74% of the health care organizations in various fields of health care participated in the research (study I). To guarantee a representative sample of nursing professionals, the health care organizations were selected at random. The nurses in various nursing units and wards were selected by the nursing director, in an attempt to approach as many different nursing professionals as possible (opportunity sampling). The response of the nursing professionals was 74% (study II). Finally, the data of all permanent (long-term) residents in the participating nursing homes were included in the analyses (study III).
Another strength of the study is the measurement instrument used to evaluate the development and implementation of quality systems. Much attention has been paid to the validity and the internal consistency of the questionnaire used to measure the implementation of quality systems (Chapter 3). The questions were formulated in consultation with experts on quality improvement and representatives from various health care organizations (face validity). The QA-activities cover the focal areas distinguished in existing international Quality Awards (content validity). The assumed linear development of quality systems was tested statistically (construct validity). In a separate validation study the answers given by the management with regard to the implementation of some of the quality assurance activities have been compared with the opinion of one independent researcher (criterium validity). The internal consistency was examined by factor analysis and Cronbach's alpha. Furthermore, the internal consistency per health care sector was analyzed simultaneously by means of multi-group confirmatory factor analyses (SCA). These analyses have shown that the empirical data confirm, for the various health care sectors, the focal areas found in the overall factor analysis.
The questionnaire for nursing professionals was developed in collaboration with researchers and (field) experts from a Supervisory Committee. The questions covered the entire care process, and specific health care activities were included to increase the validity of the questionnaire, which was completed anonymously by the nurses and returned directly to the researchers.

One limitation of the research is that the data are based on self-reports from the managers and nurses who completed the questionnaires; the answers were only partly verified by an independent researcher. It can be assumed that the validity of the data obtained (by means of a questionnaire) from individual health care organizations is inferior, for example, to that obtained through an accreditation procedure.

Furthermore, it is possible that some departments of an organization have progressed further with the implementation of quality assurance activities than other departments. In that respect, one may argue that it could be necessary to investigate the implementation of quality systems at different levels, such as departmental and organizational level. In this study the management was asked to fill in the questionnaire for all departments of the organization which were subject to the same quality policy. For departments within an organization network, but with a different quality policy, a separate questionnaire was used. This might not have been appropriate for large-scale hospitals. In general, additional methods of data-collection should be applied to ensure independent validation and proof of the implementation of the quality system.

Another limitation is that the mere existence, for instance, of a quality policy or practice guidelines does not imply that professionals will adhere to the quality assurance activities. It is more important, for the functioning of the quality system and to achieve positive results, that the quality assurance activities are implemented at all levels in the health care organization.

A fourth limitation is the cross-sectional research design. Firstly, In a cross-sectional study it is difficult to determine a developmental stage. Therefore, in this study the QA-activities have been assigned to the assumed stages, and for each of the health care organization it has been assessed whether, for example, in stage three the activities of the two earlier stages had been developed. Overall, the linear development has been found more often in the focal areas 'process improvement through QI-procedures' and 'QA-documents' than in the other focal areas. Secondly, it is not possible to investigate a causal relationship between quality systems and clinical outcomes in nursing homes in a cross-sectional study. The positive relationship between quality systems and the number of undesirable outcomes in nursing homes could be explained by the implementation of a quality system. However, other explanations are also possible, for example the assumption that nursing homes which already have effective care processes implement a quality system to improve the care even more. In this case, it is not the implementation of a quality system that determines whether nursing homes have less undesirable outcomes, but the existing level of care provided. This limitation has, to some extent, been taken into account by

using data on the implementation of quality systems collected in 1994/1995 and 1998.

10.6 Policy implications

Health care organizations have started to develop and implement quality systems without knowing exactly what a quality system is, how it should be implemented, or what the various stakeholders consider to be appropriate care. It is now known which quality assurance activities constitute a quality system, and it is clear that the implementation of a quality system is a process of several stages that can take years to achieve results (Chapters 3+4). It is also clear that the existence of a quality system at organizational level does not guarantee that professionals will adhere to the existing quality assurance activities, which makes the prospect of desirable effects less realistic (Chapter 6). However, health care organizations have to prove that the care they provide meets the expectations, needs and demands of their clients, and that the care process is in accordance with the existing professional standards. Based on the results of this study, some implications for the policy of health care organizations will be discussed.

The most appropriate approach for the implementation of a quality system appears to be a phased, co-ordinated strategy developed by managers and professionals. Large organizations and organizations in which professionals traditionally have a less important position should involve the professionals more often, whereas in organizations which employ highly skilled professionals the management should be more actively involved in quality assurance (Chapter 7). A solely top-down radical transformation approach has limited success, because of the difficulties encountered in involving professionals. Other studies have shown that the necessary resources for major organization-wide programmes are frequently lacking in health care organizations, and that success is vulnerable to changes in top leadership (Øvretveit, 1994). The bottom-up approach carries the risk of a jungle of quality initiatives, with each department progressing at a different speed, and mainly concentrates on a specific professional group. Over time, this may cause problems in the development of customer-supplier chains, and in cross-departmental quality improvement projects.
The choice of an ISO or a TQM approach should partly depend on the structure of the organization. The management of a health care organization with a more bureaucratic structure should opt for an ISO-oriented approach, whereas a health care organization with an organic and flexible structure would benefit more from a Total Quality Management approach (Chapter 5). Furthermore, the choice of an implementation approach might depend on personal interests. It could be argued

that managers and professionals will only implement quality systems if they can maintain or increase their interests and power within the organization. Quality systems can provide managers with an opportunity to gain responsibility and authority, whereas professionals can demonstrate that quality management can be retained within the professional group.

Another point of attention is that the data reveal that organization-wide quality systems may have an impact on clinical outcomes. However, in most health care organizations the quality system has not yet actually been implemented; professionals or managers are not always involved, or professionals do not adhere to existing quality assurance activities. Therefore, quality systems have not yet produced measurable effects in most health care organizations. Nevertheless, managers do expect positive effects in the future. The first conclusion which supports this idea is that many effects only become visible when the quality system is further developed and involves the entire organization. Health care organizations with a well-developed quality system reported twice as many positive effects as health care organizations in which the quality system was not yet, or less well developed (Chapter 4). However, the negative side of this is that some health care organizations do not feel that they have achieved positive effects, despite having a well-developed quality system, in the opinion of the management. In addition, negative effects, such as an increase in workload, have been mentioned by some organizations.

Based on the results of this research, it can be questioned whether the implementation of quality systems, in the present form, will produce the expected outcomes. The results of the study have shown that health care organizations have implemented more or less isolated quality assurance activities, concentrating on one or two of the five focal areas of a quality system. Furthermore, the study involving the nursing professionals has shown that not all nurses adhere to QA-activities, indicating that the quality systems were not integrated throughout the entire organization (Chapter 6), that most health care organizations did not use the entire Plan-Do-Check-Act quality cycle to improve the quality of care, and that improvements are not motivated by the available data (Chapter 4).

Real improvement can only be achieved as a result of ongoing efforts to provide services that meet or exceed client expectations, based on a structured systematic process to create organization-wide participation in the planning and implementation of quality improvements (Carman et al., 1996; Berwick, 1998; Harvey, 1996; Berwick, 1996). This process includes: a) an organizational structure for identifying and improving processes, b) client-oriented processes (re-design if necessary), c) the use of a minimum data-set (i.e. the Resident

Assessment Instrument) to study (the results of) care processes with statistical and analytical tools, d) empowerment of (multidisciplinary) teams. It requires that management leadership creates an organizational culture committed to continuous improvement and learning, as opposed to merely correcting deficiencies or meeting current standards.

By evaluating the developmental stage of a quality system, health care organizations can more easily compare their activities with those of other health care organizations. The measurement instrument developed in the first study can be used for global evaluation of the implementation of quality systems at the level of the health care system (Chapter 3). To answer more fundamental questions about the functioning of a quality system or the quality of care, another design and a different measurement instrument would be necessary.
In general, it is desirable to monitor care processes and client-related outcomes in addition to evaluating the implementation of quality systems. Unfortunately, there is no standardized assessment instrument available (such as, for example, the Resident Assessment Instrument) that can be applied in health care organizations to monitor care processes and outcomes at the level of the health care sector. During the next Quality Conference, in 2000, the various participating parties may reflect on the results that have been achieved so far and discuss the added value of quality systems.

10.7 Implications for further research

The complexities of health care demand a balance between structure, process and outcome measures in quality monitoring. Quality systems that influence the structure and processes of health care organizations are one of the approaches used to improve quality. This thesis has presented an overview of the current state-of-the-art with regard to the implementation of quality systems in Dutch health care organizations and the effectiveness of (elements of) quality systems in nursing homes. However, there are still many questions to be answered. Future research should focus more on monitoring the cost and benefits of quality systems and address additional research questions, such as the following:

* Which elements of a quality system are the most effective and efficient in the improvement of the quality of care provided for clients (evidence-based quality management), and which quality management approach (ISO/TQM) is the most effective for different types of health care organizations?
* What is the most effective strategy to implement and maintain an organization-wide quality system, and what determines the progress in the implementation?

* What are the determinants of the adherence of nurses and other professionals to quality assurance activities?
* What are the 'best processes' in nursing homes and other health care organizations, and what is the relationship between care processes and client-related outcomes?
* What is the relationship between the quality of care as perceived by clients, clinical outcomes, and the effects of quality systems as perceived by the management?
* What could be the role of quality systems in the development and implementation of customer-supplier chains?

These research questions can partly be answered by secondary analysis of the data already obtained, but it will also be necessary to carry out longitudinal (controlled) studies at various levels in health care organizations. This thesis has shown that the involvement of both management and professionals is necessary for the implementation of a successful quality system, which would produce more effects at process and outcome level.

Future research must have the power to cross-validate the results of the studies presented in this thesis. Therefore, it is important that more systematic process and client-related data are gathered. Data that can be used by care givers in their daily routine, for care planning and evaluation, are more reliable than data which are only gathered once or twice a year for management purposes. A standardized assessment form that provides information on client health status, and the quality of care and quality of life as perceived by the clients, could be used to continuously monitor and compare the quality of care provided by health care organizations and to evaluate the effectiveness of quality systems.

chapter 10

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SAMENVATTING

Implementatie en effectiviteit van kwaliteitssystemen in gezondheidszorginstellingen in Nederland

Dit proefschrift beoogt meer inzicht te geven in de implementatie van kwaliteitssystemen in Nederlandse zorginstellingen. Tevens wordt voor het eerst op sectorniveau voor verpleeghuizen nagegaan of kwaliteitssystemen meetbaar van invloed zijn op bewonersgebonden uitkomsten. De motivatie voor deze studie komt voort uit de grote aandacht die kwaliteitssystemen de afgelopen jaren hebben gekregen bij zorgaanbieders, zorgverzekeraars, patiënten- en consumentenorganisaties en de overheid. Nog steeds zoeken veel zorginstellingen en beroepsbeoefenaren naar manieren om een kwaliteitssysteem te implementeren dat in de praktijk daadwerkelijk functioneert, dat wil zeggen de kwaliteit van zorg bewaakt en continue verbetering stimuleert. Veel geld en energie is en wordt gestoken in de implementatie van kwaliteitssystemen zonder dat de effectiviteit van kwaliteitssystemen wetenschappelijk is aangetoond.
Op dit moment gaat het in de discussie rondom kwaliteitssystemen niet meer om de vraag of kwaliteitssystemen moeten worden ingevoerd, maar hoe deze in de praktijk geïmplementeerd kunnen worden, hoe ver instellingen daarmee zijn gevorderd en wat de effecten hiervan zijn op de kwaliteit van zorg. Het proefschrift sluit aan bij deze vragen door nader in te gaan op 1) de ontwikkeling en implementatie van kwaliteitssystemen in de Nederlandse gezondheidszorg, 2) de mechanismen die de implementatie van kwaliteitssystemen beïnvloeden, en 3) de relatie tussen kwaliteitssystemen en kwaliteit van zorg.

De algemene doelstelling van het onderzoek was vierledig:
1. beschrijven van de inhoud en de evaluatie van kwaliteitssystemen;
2. beschrijven van de implementatie van kwaliteitssystemen in de verschillende zorgsectoren;
3. onderzoek naar omgevings-, organisatie- en individuele factoren die van invloed zijn op de implementatie van kwaliteitssystemen;
4. onderzoek naar de relatie tussen de implementatie van kwaliteitssystemen en de kwaliteit van zorg.

In het eerste hoofdstuk wordt het begrip 'kwaliteitssysteem' nader omschreven. Gekozen is voor een omschrijving die de samenhang tussen kwaliteitsbewakende en bevorderende activiteiten benadrukt, en waarbij de activiteiten gericht zijn op het verbeteren van de zorg en de uitkomsten van zorg voor individuele cliënten en groepen cliënten. Een overzicht wordt gegeven van de maatschappelijke

context waarbinnen de vraag om een meer transparante zorgverlening en het bewaken en bevorderen van de kwaliteit van zorg is ontstaan. Naast de ontwikkelingen in de industrie en de gezondheidszorg, worden ontwikkelingen in de wetgeving en hun invloed op de implementatie van kwaliteitssystemen belicht. Aangezien verondersteld wordt dat niet alleen omgevingsfactoren van invloed zijn op de implementatie van kwaliteitssystemen, wordt tevens ingegaan op organisatiegebonden factoren die een rol kunnen spelen bij de implementatie. Het hoofdstuk wordt afgesloten met een beschrijving van de mogelijkheden om de effectiviteit van kwaliteitssystemen te meten, met de onderzoeksvragen en een leeswijzer.

In hoofdstuk twee wordt de onderzoeksopzet van drie afzonderlijke studies uiteengezet. Beschreven wordt de onderzoekspopulatie, de manier van data verzamelen en de respons. De studies hebben betrekking op ruim 1100 zorginstellingen uit 15 zorgsectoren, ruim 500 verpleegkundigen uit 6 zorgsectoren en de gegevens van ruim 12000 bewoners uit 65 verpleeghuizen.

Het derde hoofdstuk beschrijft de kwaliteitsbewakende en -bevorderende activiteiten die onderdeel kunnen zijn van een kwaliteitssysteem, en het meetinstrument dat gebruikt is om de implementatie van kwaliteitssystemen te meten. Kwaliteitsbewakende en -bevorderende activiteiten beogen het beleid van een instelling en het zorgverleningsproces optimaal af te stemmen op de behoefte van interne en externe klanten. Idealiter ontstaat er een constante wisselwerking tussen zorginstelling en klanten, waaronder cliënten, die tot uiting komt in het doorlopen van de kwaliteitskringloop van normeren, meten, vergelijken en verbeteren.
Verder wordt ingegaan op de manier waarop de vragen naar concrete kwaliteitsbewakende en -bevorderende activiteiten, die aan het management van zorginstellingen zijn voorgelegd, zijn teruggebracht naar vijf aandachtsgebieden voor kwaliteitsmanagement, te weten: kwaliteitsbeleid en documenten, personeelsbeleid, procesbeheersing via standaarden en richtlijnen, procesbeheersing via kwaliteitsdeelsystemen, en participatie van cliënten, en vier ontwikkelingsfasen, te weten: oriëntatie, voorbereiding, implementatie en verankering. De aandachtsgebieden en ontwikkelingsfasen worden vergeleken met bestaande (inter)nationale referentiekaders voor kwaliteitsmanagement.

Het vierde hoofdstuk behandelt de stand van zaken met betrekking tot de implementatie van kwaliteitssystemen in 1994/1995, de vooravond van de invoering van de kwaliteitswet zorginstellingen die een functionerend kwaliteitssysteem verplicht stelt voor alle zorginstellingen in Nederland. De gegevens laten zien welke verschillen er bestonden binnen en tussen zorgsectoren, waaronder

de eerstelijns gezondheidszorg, de gehandicaptenzorg, de geestelijke gezondheidszorg, de ouderenzorg, de ziekenhuiszorg en de welzijnszorg. Op het niveau van de afzonderlijke activiteiten per aandachtsgebied worden verschillen zichtbaar gemaakt, en samengevat in een profiel per zorgsector. Vervolgens wordt op grond van de door het management van zorginstellingen ervaren effecten van kwaliteitssystemen op de tevredenheid van klanten en medewerkers, de beheersbaarheid van de organisatie en de kosten van de zorgverlening een beeld verkregen van de effectiviteit van kwaliteitssystemen. Het gaat om subjectieve oordelen van managers. De ervaren effecten worden gerelateerd aan de implementatie van kwaliteitssystemen waaruit blijkt dat managers uit instellingen met een ver gevorderd en meer integraal kwaliteitssysteem meer effecten ervaren dan managers uit andere instellingen.

In hoofdstuk 5 wordt de veronderstelde invloed van omgevings- en organisatiefactoren op de implementatie van kwaliteitssystemen getoetst met behulp van multiniveau analyses. De omgevingsfactoren worden uitgewerkt in druk die instellingen kunnen ervaren op grond van regelgeving vanuit de overheid, druk veroorzaakt door toenemende concurrentie in de gezondheidszorg en druk vanuit belangenorganisaties zoals bijvoorbeeld patiënten-/consumentenorganisaties en zorgverzekeraars. De organisatiefactoren worden uitgewerkt in verschillende kenmerken van de organisatiestructuur, zoals de mate van centralisatie van besluitvorming, de mate waarin men in een instelling gewend is om volgens protocollen en richtlijnen te werken, de grootte van de instelling en de houding van hulpverleners tegenover veranderingen. Instellingen waarin reeds veel gewerkt wordt met richtlijnen en protocollen, en instellingen met een decentrale besluitvorming, informele communicatielijnen en veranderingsgerichte medewerkers blijken verder te zijn met de implementatie van kwaliteitssystemen dan andere instellingen.

De invloed van individuele, hulpverlenergebonden factoren op de implementatie van kwaliteitssystemen wordt uitgewerkt in hoofdstuk zes door na te gaan in welke mate verpleegkundigen in instellingen zich houden aan bestaande procedures, richtlijnen en activiteiten voor kwaliteitsbewaking en -bevordering. Allereerst wordt beschreven om welke activiteiten het binnen de verpleging gaat. Vervolgens wordt aangetoond dat verpleegkundigen positief staan tegenover systematische kwaliteitsbewaking en -bevordering, ondanks dat maar gemiddeld de helft van de verpleegkundigen de bestaande activiteiten en procedures altijd opvolgt. Een verklaring voor de discrepantie tussen houding en praktijk wordt gegeven door de belemmerende en bevorderende factoren voor het toepassen van kwaliteitsactiviteiten te analyseren.

Hoofdstuk zeven gaat in op het belang van de betrokkenheid van managers en hulpverleners bij het implementeren van kwaliteitssystemen. Een analyse heeft plaatsgevonden van de kwaliteitsactiviteiten die primair tot de verantwoordelijkheid van het management dan wel de hulpverlener behoren. De analyse toont onder meer aan dat in één op de tien instellingen vooral het management activiteiten heeft ontplooid voor het bewaken en verbeteren van de organisatie van de zorg, in één op de vijf instellingen vooral hulpverleners activiteiten hebben ontwikkeld, zoals richtlijnen, zorgplannen en intercollegiale toetsing, en in één op de tien instellingen door managers en hulpverleners gezamenlijk wordt gewerkt aan de implementatie van kwaliteitssystemen. De overige instellingen bleken nog te weinig activiteiten te hebben ontwikkeld om een duidelijke lijn te kunnen onderkennen. Geconcludeerd wordt dat een gezamenlijke aanpak noodzakelijk is om kwaliteitssystemen te kunnen implementeren en het functioneren ervan te kunnen waarborgen.

Hoofdstuk acht geeft een beschrijving van de literatuur over de effectiviteit van kwaliteits(deel)systemen in verpleeghuizen. Het biedt een overzicht van eerder uitgevoerd onderzoek, geordend naar de vijf aandachtsgebieden van een kwaliteitssysteem. De resultaten laten zien dat onderzoek naar de relatie tussen kwaliteits(deel)systemen en uitkomstmaten op het niveau van bewoners schaars is. Het meeste onderzoek heeft plaatsgevonden naar de relatie tussen zorgplannen respectievelijk richtlijnen en bewonersgebonden proces en uitkomstmaten. De opzet van de meeste studies maakt het niet mogelijk vergaande conclusies te trekken ten aanzien van de effectiviteit van kwaliteits(deel)systemen.

In hoofdstuk negen wordt de mate van implementatie van kwaliteitssystemen in verpleeghuizen gerelateerd aan klinische uitkomsten van bewoners, zoals het vóórkomen van decubitus, incontinentie, regressief gedrag, beperkte mobiliteit en het gebruik van catheters. Bij het analyseren van de gegevens werd rekening gehouden met een aantal achtergrond kenmerken van bewoners (case mix). Verondersteld werd dat niet alleen de gezondheidstoestand van bewoners bepalend is voor de klinische uitkomsten, maar dat kenmerken van de organisatie en de implementatie van kwaliteits(deel)systemen eveneens bepalend zijn voor de uitkomsten op het niveau van bewoners.
De analyse toont onder meer aan dat er grote verschillen bestaan tussen verpleeghuizen in het vóórkomen van de genoemde onwenselijke klinische uitkomsten. De analyse laat tevens zien dat een deel van deze verschillen terug te voeren is op verschillen in de samenstelling van de groep bewoners. Geen invloed blijken afzonderlijke kwaliteitsbewakende en -bevorderende activiteiten te

hebben, terwijl de implementatie van een integraal kwaliteitssysteem wel van invloed is op het aantal ongewenste uitkomsten per bewoner.
Hiermee is op sectorniveau een eerste aanwijzing gevonden voor de relatie tussen een integraal kwaliteitssystemen en klinische uitkomsten van bewoners. Gezien de kanttekeningen die bij het onderzoek worden geplaatst en de geringe verschillen die door de aanwezigheid van een kwaliteitssysteem verklaard kunnen worden, blijft nader onderzoek in de toekomst noodzakelijk.

In hoofdstuk 10 worden de resultaten uit de voorafgaande hoofdstukken samengevat en besproken. Op basis van de in dit proefschrift beschreven inzichten wordt aangegeven uit welke activiteiten een kwaliteitssysteem in de praktijk bestaat, hoe de implementatie op instellings-, sector- en landelijk niveau geëvalueerd kan worden, welke factoren een rol spelen bij de implementatie, en wanneer effecten in de zorgverlening verwacht kunnen worden. Rekening houdend met de resultaten van het onderzoek worden een aantal aanbevelingen gedaan voor het beleid en toekomstig onderzoek.

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APPENDIX A

QUALITY POLICY

1. Does your organization have one or more of the mentioned documents?

Documents	*no*	*in development**	*yes*
Written mission statement: the vision and priorities of the organizations			
Product descriptions: detailed description of the care for different patient populations			
Quality profiles: concrete descriptions of quality characteristics and quality standards of health care delivery			
Quality policy document: a description of the aims of quality assurance, the desired level of care delivery and the ways of the organizations for achieving these goals			
Quality action plan for whole organization: written document with measures for implementation and planning of action to realize quality goals			
Quality action plan for **some** departments			
Quality action plan for **every** department			
Annual quality report: an report on all activities that were performed to assure the quality of care and the results of the activities			
Quality handbook: a description of all procedures the organization uses for quality assurance and the persons that are responsible for the compliance of the procedures			

* **in development:** one or more persons of the organization are working on the development of the document

CONDITIONS AND HUMAN RESOURCES MANAGEMENT

2. Does your organization have make special provisions for the implementation of activities of quality assurance/-improvement? *(more than one answer is allowed)*
   - ☐ no special provisions
   - ☐ training/education of staff/management
   - ☐ training/education if professionals
   - ☐ professionals are allowed to participate in QA-activities within regular working ours
   - ☐ appoint a quality coordinator
   - ☐ set up a steering committee
   - ☐ set up a quality working groups
   - ☐ budget for quality management
   - ☐ support by consultants

3. Is there a relationship between human resources management and the quality policy in your organization? *(more than one answer is allowed)*
   - ☐ does not apply
   - ☐ selection of new personnel with positive attitude to quality assurance
   - ☐ training new professionals in quality improvement methods
   - ☐ continuous education takes place based on priorities in quality policy
   - ☐ professionals are stimulated to develop themselves in their profession
   - ☐ participation in quality improvement projects is obliged

4. How does the management stimulate the involvement of professionals in quality assurance/improvement? *(more than one answer is allowed)*
   - ☐ does not apply
   - ☐ stimulation is not necessary, professionals pay enough attention to quality assurance/improvement
   - ☐ the management indicates what is expected from professionals with respect to quality assurance
   - ☐ management checks whether professionals stick to commitments
   - ☐ systematic feedback to professionals about achieved results
   - ☐ management gives incentives
   - ☐ monitoring department action plans
   - ☐ sanctions, namely . . . . . .

STANDARDS

5. What kind of standards does professionals use in your organization? *(more than one answer is allowed)*
   - ☐ standards for specific treatments/interventions
   - ☐ standards for patient education
   - ☐ standards for restricted medical actions
   - ☐ standards for utilization of medical equipment
   - ☐ standards for critical moments in service provision
   - ☐ standards for specific target groups and diagnoses
   - ☐ standards for patient routing from intake to discharge
   - ☐ standards for cooperation with other organizations

PATIENT INVOLVEMENT

6. In what way are patients (or patient organizations) involved in quality assurance or improvement activities in your organization?

Activities	*no/ does not apply*	*depends on the subject*	*always*
developing quality criteria			
developing protocols/standards			
meetings talking about results of satisfaction surveys, complaints			
quality committees			
quality improvement projects			
evaluating quality improvement goals			

QUALITY ASSURANCE AND IMPROVEMENT ACTIVITIES

7. Does your organization apply the following activities on a regular, systematic basis? (e.g. Deming cycle (plan, do, check, act)

Activities	*no**	*yes**	*cycl.**	*syst.**
Peer review monodisciplinary				
Peer review multidisciplinary				
Utilization of individual care plans				
Committees e.g. incident, infection or drugs committees				
Job assessment interviews				
Internal audit				
Visitation/Accreditation				
Management information system				
Satisfaction surveys among patients				
Satisfaction survey among referrers				
Satisfaction survey among employees				
Need survey among patients				
Need survey among referrers or other stakeholders				
Complaint registration				
Patient council				
Other activities, namely:				

*: no = no/does not apply
yes = the activity is not applied on a regular basis
cyclic = the activity is applied based on a quality improvement cycle
systematic = the activity is applied based on a quality improvement cycle **and** the activity is integrated into normal business routines

APPENDIX B

Indicators for the achievement of development stages for quality systems in health care by focal area

STAGES	FOCAL AREAS				
	QA-documents	**Patient involvement**	**Process control based on standards**	**Human Resources Management**	**QI-procedures**
Stage 0: Orientation	- mission - product description	- patient is not involved	standards for: - specific treatment	- encouraging professional development	- using care plans - peer review
Stage 1: Preparation stage	- quality policy - institutional quality plan - quality profiles	- discussions of results - discussion of the targets achieved	standards for: - patient education - specific target groups - unforeseen activities - medical aids	- training staff - training professionals - participation during working hours - management indicates activities	- complaints registration - committees - job assessment interviews
Stage 2: Implementation stage	- quality plan for some departments - quality plan for all departments	sometimes involvement in: - committees - QI-projects - development of criteria/protocols	standards for: - critical moments - cooperation with other organizations	- management tests - management monitors - specific criteria for selection of new staff	- satisfaction research - needs analysis
Stage 3: Establishment	- annual quality report - quality manual	systematic involvement in: - committees - QI-projects - development of criteria/protocols	standards for: - routing patient	- systematic feedback - priorities relating to quality policy - training new staff	- management information system - internal audit - visitation

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