Successful implementing condition specific indicators in Dutch hospitals

An explorative research to define the critical factors for the successful implementation of the registration and use of condition specific performance indicators

Master thesis

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Abstract

Over the past few years, quality of health care has been a frequently discussed theme. In order to improve the quality of care it is important to establish what the current quality status is. To monitor and/or to measure quality, performance indicators can be used. Recently the associations of hospitals, medical specialists, nurses, patients and insurers and the Dutch Health Care Inspectorate signed an agreement of cooperation on the development of 80 sets of condition specific indicators over the next five years. The goal is to develop indicators which can be used for consumer choice information, contracting by insurers, and quality improvement by medical professionals and hospitals. In the past two years ten sets of indicators have been developed by the Dutch Institute for Healthcare Improvement (CBO) and the Order of Medical Specialists (OMS). Until now little attention is given to the implementation process of these indicators. The critical factors for establishing the registration and the use of performance indicators within Dutch hospitals are not clear.

The main goal of this research is to write an advise on the implementation and diffusion of registering and using condition specific performance indicators. The main question that will be used to support this goal is:

'What are the critical factors for a successful implementation of the registration and the use of condition specific performance indicators within Dutch hospitals?'

The required data to answer this question is collected in different ways. First a literature search was done to give an outline of the research. By means of interviews on different user-levels the survey questions were verified on completeness. The second objective was to get a general idea of the interviewees' opinion on the subject of indicator implementation. The survey was sent to 550 persons, and had a response rate of 15%. To complete this research we have chosen to translate the results of the interviews and the survey to one specific case, to see what the consequences are for the practical implementation of condition specific indicators. The implementation of the sciatica indicator set was chosen as the case. This study is divided into five subjects: *Incentives, critical dynamics, barriers, interventions, and practical use of the indicators*.

The possibility to improve internal processes is perceived to be a stimulating incentive for the implementation of the indicators. The medical professionals will be stimulated through their intrinsic motivation and the managers by law and regulation and publishing performances. This last incentive is far less effective according to the medical professionals. The critical dynamics, compatibility and infrastructure are related to ICT and are considered to be most important. Also trialability and communication are dynamics that have to be held into account. The main barrier according to the survey respondents is the administrative load. The interviewees pointed out that the trust in indicators is an important barrier as well. Practical support was perceived to be the most effective intervention for the implementation. The practical use of the indicators was measured by assessing the quality of the indicators and the added value of the indicators. Both scored moderately positive. The medical professionals and the managers do think that the use of indicators will lead to a better reputation of the hospital. During the case study it became clear that without support of the medical professionals the implementation will not take off. The involvement of patients registering their own measurements was perceived as a good method to suppress the administrative load for the medical professionals.

Based on the conclusions, a number of recommendations can be given with regard to the implementation of condition specific indicators:

- During the development of the indicators attention has to be paid to the feasibility of the registration and the quality of the indicators.
- Involve ICT experts within the implementation of the indicators in the hospital. More know-how in ICT-systems will probably tackle an important bottleneck for the

implementation. The realization of practical support can be accomplished by involving the right persons.

- Practice pilots on the usability of the indicators have to be conducted. This will lead to more confidence to the potential users of the indicators.
- The communication between the involved actors is crucial. An integrated approach will positively influence people's opinion towards the implementation of the indicators.
- The implementation of the sciatica indicators can be supported by conducting a pilot study. The feasibility and validity of the measurements have to be tested; else there will be a lack of support from the scientific societies.

Additional a number of recommendations were made towards further scientific research on this subject. For example, because of the explorative character of this research each of the five different subjects could be examined more extensively in further research.

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1 Introduction

1.1 Measuring quality of health care

Over the past few years, quality of health care has been a frequently discussed theme. Not only in scientific research but the media also reports on this subject regularly. In the United States quality of care was especially stimulated by reports of the Institute of Medicine (IOM) like, 'To err is Human' (2000) and 'Crossing the quality chasm' (2001). These reports indicate that a change in the health care system of United Stated is crucial, and improving the quality of health care has priority on the political agenda. In order to improve the quality of care it is important to establish what the current quality status is. Or as Florence Nightingale pointed out many years ago:

'The ultimate goal is to manage quality. But you cannot manage it until you have a way to measure it, and you cannot measure it until you are able to monitor it.' (Eagle and Davies, 1993)

To monitor/measure quality, performance indicators can be used. In 2001, Klazinga et al already discussed the emerging 'indicator hype' and since then the number of indicators initiatives in health care have only proliferated. Examples are: indicators for the quality of care in general practitioner practices, indicators intended for the supervision of the quality of hospitals, condition specific indicators intended for choice by patients/consumers and purchasing by insurers, indicators for care purchasing, indicators for the quality of care within nursing homes, and indicators for the quality of mental health care (Wollersheim, Faber, Grol, Dondorp, and Struijs, 2006).

Performance indicators

Monitoring quality of health care is a complicated process. The ultimate purpose of all health care activities is to achieve the ideal outcome (health situation) for the patient. However, when monitoring the quality of health care, efficiency, cost-effectiveness, a patient-centered approach, etc. also need attention. Performance indicators are statistics or other units of information which reflect, directly or indirectly, the performance of the health care system in maintaining or increasing the well-being of its target population (Boyce, McNeil, Graves, and Dunt, 1997).

We can divide performance indicators into different goals and levels. There are internal and external oriented indicators, and structure, process, and outcome indicators which says something about the level of the measurement (Pijnenborg, Braspenning, Berg, and Kallewaard, 2004). Apart from that, indicators are measured at different levels, for example on hospital level or on patient level, but also on professional level. The definitions of these different types of indicators will be discussed later in this thesis (see chapter 2). Two of the main problems of performance indicators are the registration and the interpretation of data. The registration of outcome indicators can be complex, for example, when outcome indicators have to be measured in multiple timeframes. Or for instance the condition is multiplication then questions could arise: who is accountable for the results, and who registers which indicator? Registration of outcome data (on a population basis) is not yet routine practice in health care. The interpretation of outcome data can be complicated by underlying differences in casemix; age, gender, or co-morbidity can have influence on the outcome data. Standardization of the indicators is important, but the results still have to be a reflection of the reality. The balance between casemix correction, standardization, and different timeframes between moment of intervention and full visibility of the results is an important factor.

Characteristics of external indicators

Insight and improvement

Performance indicators can be used to give professionals and management insight into or, related to the results of the health care processes. Defining problems and tackling these, the processes can be managed in different ways, and the improvements of these processes can be evaluated (Schellekens and Berg, 2002). Publicized indicators are also important for informed consumer choice, while patients are getting more independent. Watching television and surfing on the internet gives them more information on treatments and diseases. Patients want to have more information on quality of care, and they would like to have a choice in health care (Nederlandse Patiënten Consumenten Federatie, 2005). More and more patients are comparing health institutions; this is why it is important that the comparison is based on correct data (Hoorn, Houdenhoven, Wullink, Hans, and Kazemier, 2006). Although there is little prove that patient movements are actually influenced by this information.

Transparency is needed for regulated competition

In the article 'Redefining competition in health care' Micheal Porter (2004) writes, among other things: "the health care system has to concentrate on the health of the patient and the outcomes of the provided care. It is important that the competition in health care between insurers and hospitals focuses on the right things, such as extra value for the patient. We have to prevent that competition concentrates too often on costs, while quality of care is a far more important factor."

In the Netherlands the health insurance system has changed (see also Changes in the Dutch health care system). From January 1st 2006 a system of regulated competition was introduced in Dutch health care. As of then insurers and hospitals negotiate not just about the quantity, quality but also about price of a limited group of treatments. With these changes performance information is expected to become more important. The system is presumed to be a success if patients can use information to choose between hospitals, and if insurers really start to negotiate about the quality of care. Performance indicators can play a significant roll in these negotiations. In the coming years it has to be evaluated whether the quality of care and patient preferences are indeed important when contracting health care.

Monitoring quality of care

End 2003 the Dutch Inspectorate of Health Care (IGZ) developed and introduced a set of performance indicators for the purpose of general oversight on hospitals in the Netherlands. The introduction of this set was supported by the Order of Medical Specialists (OMS), the Dutch Association of Hospitals (NVZ) and the Dutch Association of University Hospitals (NFU). The reason for the cooperation was that all three organizations and their members realized that in this day and age it was no more than logical to be transparent about performances achieved and to be held accountable. In 2005 the first results of 2003 were published (Inspectie voor de Gezondheidszorg, 2005).

Points of criticism

A difference is made between internal indicators and external indicators. Internal indicators are hospital limited and directed towards process improvement. External indicators however are designed to give outsiders information concerning the quality of care. This means that validity is very important. For the comparison between hospitals has to be fair, especially for the latter type of indicators. Not all indicators can be used for this purpose, especially when there is no guarantee that they are comparable. Indicators that are currently used are mostly selected thanks to their measurability and not to their relevancy of evaluating the care process. Another point of criticism is the amount of money and time the registration of these indicators is costing. The fact that this registration is not integrated in the primary process, and thus stands alone, is not helpful (Schellekens and Berg, 2002).

Changes in the Dutch health care system

International changes in health care policies have caused a higher demand on efficiency, and a need for improvement in the quality and safety in health care. After years of fixed budget financing, the introduction of the diagnosis-related groups (DRG's) as of January 1st 2005 was a step to more market-oriented hospital care in the Netherlands. DRG's can be divided into two subcategories: There is an A-segment and a B-segment. In the A-segment the DRG's have fixed prices, in the B-segment (10% of the total DRG's in 2007) the prices are negotiable (Hoogervorst, 2004). Hospitals and health insurers make agreements on price, size and quality of care. For this reason it is important to have data on the performance of hospitals. By registering performance indicators, the hospitals and insurer(s) can negotiate with each other (Landa, 2004).

Since 2005 there has been a close cooperation between the organization representing the providers of health insurance in the Netherlands (ZN), the OMS, and Federation of Patients and Consumer Organizations in the Netherlands (NPCF) in the development of performance indicators for health care contracting. With a grant from the Netherlands Organization for Health Research and Development (ZONMw), ten sets of indicators for patient choice and health care contracting were developed by groups of medical specialists, insurers and patients (see annex 1). These sets were adopted by the insurers for health care contracting.

The associations of medical specialists, hospitals, patients, insurers, Ministry of Health Care, and Health Care Inspectorate have presented a plan to develop 70 additional sets of indicators to be used for patient choice and health care contracting. An agreement on the development of indicators is signed by all parties late June 2007. The goal is to develop these sets in five years time (five indicators per set) and they aim for 50-60% outcome indicators. (Stuurgroep Ziekenhuistransparantie, 2007)

1.2 Reason for this research

Gap between development and implementation

The main focus until today was to develop evidence based indicators that are accepted by the professionals. Questions about the goal of the indicators, the feasibility, actions that are needed for the registration and the question whether the costs will measure up to the benefits of collecting and processing data, are of great relevance (Schellekens, Berg and Klazinga, 2003). Up till now little attention was given to the implementation process of these indicators. The critical factors for establishing the registration and the use of performance indicators within Dutch hospitals are not clear. The indicators developed by the inspectorate are mainly enforced through social pressure and compliance is rather high. The indicators of the insurers are voluntary up till now. Because the hospitals are not obliged to register these indicators, implementation and diffusion is more difficult. When the goal is measuring quality, the registration and use of performance indicators can be used, and a good implementation plan is crucial.

Implementation problems

During the development of the ZONMw performance indicators, special workgroups were formed. The workgroups made agreements about the methods they use to measure quality, and also about the ways of registering the data. There are a number of problems that can occur when data registration is implemented in hospitals. Grol and Wensing (2001) state, implementation of new guidelines can lead to resistance from the professional branch. The lack of support can cause a serious problem; an argument of resistance is the registration of indicators increases the workload. Or for example there are no financial means to support the

implementation. Another example, it is often hard to get all the involved actors in line with each other when implementing multidiscipline indicators.

Diffusion of evidence-based knowledge is limited in health care. After the implementation of new knowledge within an innovative organization, it is not evident that this knowledge will be adopted by other organizations. There is often a slow diffusion of the new knowledge or sometimes diffusion gaps appear. Therefore it is important to become aware of the existence of different adoption categories. These individual categories have to be examined and approached in their own ways when implementing knowledge. (Schuring and Harten, 2004)

Problem owners

Determining problem ownership is an important element of the problem solution. When none of the involved actors feel committed to the problem it is not likely to be solved (Wieringa and Heerkens, 2003). The definition of a "problem owner": *A person or a group of persons that have the responsibility to resolve the problem*. In this paragraph we try to analyze who are the problem owners of the implementation of the condition specific indicators. In other words, who is responsible for the success of the implementation?

The arrangement of problem ownership of the IGZ indicators is an example of how this issue could be handled. The responsibility of the development and the evaluations of these indicators lay with the Inspectorate, the OMS and the societies of hospitals in the Netherlands. The responsibilities, tasks and obligations of the parties are part of an agreement of cooperation which was signed in December 2005. The IGZ indicators are part of the instruments to supervise hospitals by the Health Care Inspectorate. By law the Health Care Inspectorate has the right to ask the hospitals for information. Moreover, the IGZ indicators are part of the annual report hospitals are obliged to write. Therefore, the registration of the IGZ indicators is more or less compulsory for all hospitals. The implementation and registration of the indicators is therefore the problem of the board of directors.

For the use and registration of the condition specific indicators there is no formal basis. The first ten condition specific indicator sets were developed in a project financed by ZONMw. The OMS and Dutch Institute for Healthcare Improvement (CBO) were responsible for developing these ten sets. ZN has adopted the ten sets. The ten sets are part of the guide insurers publish annually in relation to the negotiations they have with the hospitals. If used during the negotiations there is a commercial incentive for hospitals and medical specialists to implement the indicators. As a result some hospitals are indeed implementing the indicators. However, this is not common practice. Not all insurers use the indicators from the guide during the negotiations and not all hospitals are willing to negotiate about the indicators.

Recently the associations of hospitals, medical specialists, nurses, patients and insurers and the Dutch Health Care Inspectorate signed an agreement of cooperation on the development of 80 sets of condition specific indicators over the next 5 years. The first 10 sets are those developed in the ZONMw project. The goal is to develop indicators which can be used for choice by patients, contracting by insurers, oversight by the health care inspectorate and quality improvement by medical professionals and hospitals. A project bureau has been established within the health care inspectorate to coordinate all activities needed to reach the mentioned goals. The agreement of cooperation is not specific on who is responsible for the development, the implementation, the data-gathering, analyses and presentation. Moreover there is debate about the way the separate activities need to be and will be financed. A project plan dealing with the aforementioned issues is currently being written by the project bureau.

An additional complicating factor is that since there is no formal legal basis for the implementation and publication of these indicators at present and since a signature by the boards of the associations of hospitals and medical specialists is not necessarily perceived as binding by the members of these associations, their cooperation will be difficult. As a result implementation of the condition specific indicators might not be easy in the short term. However, as the stated in paragraph 1.1 the availability of condition specific quality information is presumed to be an important requisite for the functioning of the system of regulated competition. The fact that this information is not available is perceived as a threat to

the development of the system by the Dutch health care authority (NZA). Recently the NZA warned that if the information would not be come available on a voluntary basis in the short term, they will oblige the hospitals to publish this information. The basis of this obligation lies in the law 'Wet Marktordening Gezondheidszorg' (WMG). If the WMG is adapted, as to oblige hospitals to publish the information the problem ownership will shift to the hospitals.

Thus, at this moment problem-ownership is ill defined. Without a statutory basis it is hard to determine who is responsible for the successful implementation of the condition specific indicators. Up until now most initiatives were the result of 'good will' or of grants. Major objective of the current government is to increase the transparency of the Dutch healthcare system. To achieve this goal all involved actors have to be formally committed and the specific tasks and responsibilities have to be assigned. In conclusion, if one problem owner has to be mentioned, presently it seems to be the Dutch government.

1.3 Problem definition

The main goal of this research is to write an advise on the implementation and diffusion for registering and using condition specific performance indicators. The main question that will be used to support this goal is:

'What are the critical factors for a successful implementation of the registration and the use of condition specific performance indicators within Dutch hospitals?'

Research questions

To give an answer to the main question, five research questions are formulated. These questions will be the guidelines for this research:

- 1. In what way can hospitals be stimulated to start the registration and the use of condition specific indicators?
- 2. What factors have influence on the diffusion of the registration and the use of condition specific performance indicators among health care institutions?
- 3. What are the barriers for registering and using condition specific performance indicators for the different stakeholders?
- 4. Which intervention methods can be used when health care institutions want to implement the registering and the use of condition specific performance indicators?
- 5. Will the condition specific performance indicators, in the near future, be used in practice?

1.4 Research structure

This research concentrates on implementing performance indicators that are officially accepted by the stakeholders. All stakeholders were assumed to be involved in the development process. We will not focus on the development of performance indicators.

The research is divided into two parts, a general part and a case study. This is done to verify whether the general findings are similar to the findings on case level. The general part of the

research focuses on the system wide implementation of condition specific performance indicators. In this part we describe the incentives that simulate the registration of the indicators, which resistances can occur, how to cope with these, and what other critical factors there are for registration and using condition specific indicators.

The lumbosacral radicular syndrome (sciatica) performance indicators are used as setting for the case specific part. The sciatica indicators are already developed within a workgroup setting and now they have to be implemented in hospitals. The complexity of the patient logistics, for example, makes this implementation process very interesting.

Thesis structure

The theoretical framework is described in chapter two; the focus of this framework is on the nature of performance measurement, on diffusion theories, and on implementation strategies. In chapter three the methodology of the research is discussed, different types of research methods were used: the interviews, the survey, and the case study. The results are analyzed in chapter four and five: the focus is on the incentives, critical dynamics, barriers, interventions and use in practice of the condition specific indicators. Chapter four displays the interview results and chapter five the survey results. The sciatica case is described in chapter six. We have compared the results of chapter four and five with the whishes/ideas of the developers of the sciatica indicators. In what way will the critical success factors for the implementation of the sciatica indicators differ from the general findings? And what practical interventions can be used during the implementation process. In the last chapter (seven) we describe the conclusions of this research, we discuss the strong and weak points of this research, and we also present recommendations.

2 Theoretical framework

This chapter contains the literature that is used as a guideline for this research. To outline this research we first discus the subject of quality measurement in the health care sector. This is followed by a description of implementation incentives that were found during the literature search. Third, diffusion theory is explained and critical dynamics related to the diffusion of innovations in health care are presented. The next paragraph contains a description of implementation between different indicator projects is made, and at the end of this chapter a conclusion is drawn and we elaborate the focus of this research.

The theoretical literature search was conducted with help of a number search engines, most used were pubmed medline, google scholar. Keywords were: '*performance measurements*', '*performance indicators*', '*incentive in health care*', '*pay for performance*', '*public reporting in health care*', '*diffusion of innovation in health care*', '*implementation in health care*'. Other means that were used are IOM reports and books concerning the subjects

Dutch journals like 'Zorgvisie' and 'Medisch contact' were used for background information or expert opinions. Besides those also governmental reports, Dutch laws, and reports form branch organizations were examined.

2.1 Measuring quality of care

Quality of health care is related to the performance of health care institutions. Performance can be measured in several ways. Donabedian (1988) states a classic paradigm for assessing quality of care. The paradigm is divided into three categories: structure, process, and outcome measurement. He also states that each category has a direct influence on the next (figure 2.1). Structure refers to the attributes that are necessary to provide health care. The process of care describes what is actually done in the delivery of health care. Health outcomes are the direct result of a patient's health status as a contact with the health care system.



Figure 2.1: three categories of quality measures

In this thesis the following definition is used for quality for health care: "The degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge." It was stated by the Institute of Medicine (IOM). In 'Crossing the Quality Chasm' (2001) the IOM recommends the adoption of six quality aims for improving the United States health care system. They are defined as followed: **safe, effective, patient-centered, timely, efficient, and equitable**. When meeting these aims we can speak of good quality of health care. The balance between these aims is crucial, for example; when the focus is only on the efficiency of health care, the patient becomes less important, which will lead to less quality of health care.

Performance indicators developed in the Netherlands are commonly divided in the three categories of Donabedian for this reason we chose to adopt these terms. The six IOM aims cover the whole subject of quality in care and are also frequently used in the Netherlands, for this reason we keep these aims in mind when speaking of quality of care. The goals of performance measurement are explained in the next subparagraph.

Performance measurement

Performance indicators can be used to measure quality. The definition: 'statistics or other units of information which reflect, directly or indirectly, the performance of the health care system in maintaining or increasing the well-being of its target population' (Boyce et al, 1997).

Indicators can be used for different goals; they can be used for internal quality improvements, for external accountability, or for research purposes (Grol, 2006). On professional and hospital level there is more focus on internal quality improvement. On government, inspectorate, insurer, and patient level, there is more focus on external accountability.

In 2006 the IOM published the report 'Performance Measurement: Accelerating Improvement'. A special committee was formed to investigate the ongoing efforts of the IOM on health care quality in the United States. The report introduces a framework and implementation strategy for translating public and professional concerns about performance and accountability into measures of health care quality. Within this report the committee designs a model for quality measurement and reporting. The committee concluded that the following attributes (figure 2.2) should be included in a national system of performance measurement.



Figure 2.2: System for quality measurement and reporting

Additionally, the committee concluded that a national system should support the needs of stakeholders within public and private health care sectors along three dimensions. These three dimensions are more or less similar to the three goals of indicators that are defined by Grol (2006).

- "Accountability. Information should be available to assist stakeholders in making choices about providers. These stakeholders include patients identifying a clinician, hospital, or other providers form which to seek services; purchasers and health plans selecting providers to include in their health insurance networks; and quality oversight organizations making accreditation and certification decisions.
- **Quality improvement.** The information provided should be value to stakeholders responsible for improving the quality of care, including clinicians, and administrators and governing board members of health care organizations.
- **Population health.** The information should be useful for stakeholders making decisions about access to services; those involved in communitywide programs and efforts to address racial and ethnics disparities and promote healthy behaviors; and public officials responsible for disease surveillance and health protection." (IOM, 2006)

To improve the quality of care, it is important to have insight where the possibilities are for improvement, so a correct way of measuring performance is essential. When comparing the results of one organization with another, standardization is necessary. Agreements on what to measure and how to measure it, is the base of a good performance measurement system.

The performance measurement system used in the United States corresponds to the projected Dutch system. The goals are similar, as is the way to achieve them. However Dutch hospitals nowadays only register en publish hospital wide indicators. During this research we want to look to the condition specific indicators, and see how to implement these indicators. Which incentives there are for the implementation, will be discussed in the following paragraph.

2.2 Incentives for implementing performance measurement

Incentives can be used to persuade hospitals to start implementing the condition specific indicators. In this chapter we discuss four incentives; law and regulation, public reporting, pay for performance and the intrinsic motivation of the professional. During the literature search these types of incentives were most frequently found.

Law and regulations

A prominent incentive for the registration and using performance indicators is to oblige it by law. The inspectorate indicators on hospital level are obliged by the inspectorate. The first results were released in the report 'Het resultant telt' (Inspectie voor de Gezondheidszorg, 2005). All hospitals in the Netherlands have returned their results on the performance indicators, and the results are available in the public domain.

The law 'Kwaliteitswet zorginstellingen' (KWZ) was introduced in 1996. The KWZ contains four main standards. First the institutions have to provide 'reliable health care'. Second the institutions are obliged to have a 'quality policy', in terms of people, resources, responsibility, and planning. This policy is in practice commonly shaped into a 'quality system'. The last standard is the publishing of an 'annual quality report'. The law was less successful than anticipated. The KWZ is directed towards self-regulation and responsibility of providers, which draws guidelines for care quality, and was meant to stimulate institutions and professionals to pay more attention to quality of care. Because of unclear goals and expectations, the first annual quality reports were very diverse in contents and volume (Casparie et al., 2001). The branch organizations criticized the annual quality report for its incorrectness as an instrument

for external accountability. Some institutions perceive it as a formality; others use it as a PR instrument in favor of personal and external contact; or using it for accountability for the IGZ and insurers.

The law 'Wet Marktordening Gezondheidszorg' (WMG) introduced in 2006 is stricter than the KWZ. It gives shape to the regulated market competition; market competition, or regulations. The Dutch health care Authority (NZa) is the market supervisor as well as the regulator. Obligations to inform the consumers that are stated in the WMG are applicable for health care providers and insurers. These obligations can be enforced by the NZa. This means that the NZa is authorized to introduce regulations in relation with consumer information, with the focus on effectiveness, accuracy, comprehensiveness, and comparability. The NZa is also authorized to maintain these regulations and obligation by for example to give penalties or binding instructions.

Law can be an incentive for the implementation of condition specific indicators, although it is shown (Casparie et al., 2001) that when a law is not strict or feasible it does not have to be successful incentive. Other reasons for lack of success can be bureaucracy or the acceptation of the law.

Public reporting

Transparency is important for market-oriented hospital care. Transparency can be improved when data on the performance of hospitals are published. The goal of public reporting is to create a better informed consumer choice, and improvements on the quality of care (IOM, 2001). The evidence of the effect on improving the quality of care is not convincing (Marshall, 2002). There are also resistances for public reporting. Professionals are concerned of a loss of image after publishing poor performance data, and they are afraid that the published data is not correctly measured (Hibbard, Stockard and Tusler, 2003). These resistances triggers a need for evidence based performance measurement. When the registration and the use of condition specific performance indicators prove to measure the correct data, this can stimulate the implementation process.

In the Netherlands, performances of hospitals are publicly reported. The Inspectorate of Health care (IGZ) publishes the basic set of indicators on hospital level. Patients are able to view the results of these 'IGZ indicators' on websites like 'www.kiesbeter.nl' or 'www.ziekenhuizentransparant.nl'. Patients can see the scores of multiple hospitals on different indicators and can choose where they go to get the desired care. A top 100 based on selected indicators is published in the Dutch newspaper 'AD'. A major constraint of this ranking list is that it does not take patient casemix into account. The result: specialized clinics that treat more 'difficult' patients will not be high on the list. Ranking lists of the Dutch consumer association focus mainly on patient experiences and on the routine of hospitals. Result: a hospital that performs 200 surgeries is ranked higher than a hospital that performs 60 surgeries. Another well known ranking list in the Netherlands is published in 'Elsevier magazine'. Elsevier conducts a survey among hospital personal and general practitioners, what results in a list based on the reputation of the hospital. They name it however 'The best hospitals' and this can be misleading.

All lists claim to give the list of best hospitals, although comparing the top three's of these lists shows that these are very different from each other (see figure 2.3). Because of the variation in focus it is hard to say which list is best. (Hoorn et al, 2006).

Transparency has to lead to more informed consumer choice. Nevertheless research shows that patients mainly base their choices on the reputation of the specialist (25%), or on the advise of the general practitioner (21%). Also absence of waiting lists (17%) and accessibility (9%) are important factors. Treatment costs (2%) and insurer advise (0.3%) have hardly any

influence. (Abn-amro, 2005) It can be questioned why the general practitioners are not involved with the indicator development, when they have a great deal of influence on the patient choices. This data is found in a commercial news bulletin, and is not scientifically justified, but we think it represents the current reality.



Figure 2.3: Correlation between the Elsevier list and the AD list (Maarse, 2004)

Pay for performance (P4P)

Pay for performance is a method that is used to increase quality of care by means of rewarding hospitals/professionals with financial bonuses. It has already been said that public reporting is an incentive to improve quality of care, but the study of Lindenauer et al. (2007) proved that there is a more positive effect on the quality of care when P4P is combined with public reporting, opposite to only public reporting. P4P is primarily designed to improve the effectiveness and safety of health care and it can serve as a positive force in health care systems. In the United States, P4P is an incentive for improving quality of care that is rapidly diffused. More than half of the health maintenance organizations (HMOs) in the private sector started to use this method. Also the Centre of Medicare and Medicaid Services (CMS) are mandated by the congress to introduce P4P programs into Medicare. In the United Kingdom, P4P is introduced in their own version that puts 25-30% of the income of family practitioners at stake (Epstein, 2007). It is surprising that P4P is adopted so easily, because the evidence for an improvement in quality is thin.

Fair and ethical P4P programs are patient-centered and link evidence-based performance measures to financial incentives. This payment model rewards physicians, hospitals, medical groups, and other health care providers for meeting certain performance measures for quality and efficiency. There are a number of principles (American Medical Association, 2005) that have to be followed if P4P wants to be a success:

• Ensure quality of care

P4P programs are committed to improve patient care as their most important mission.

- Foster the patient/physician relationship P4P programs support the patient/physician relationship and overcome obstacles to physicians treating patients.
- Offer voluntary physician participation P4P programs offer voluntary physician participation and do not undermine the economic viability of non-participating physician practices.
- Use accurate data and fair reporting P4P programs use accurate data and scientifically valid analytical methods.
- **Provide fair and equitable program incentives** P4P programs support the goal of quality improvement across all participating physicians, and give a clear explanation on the criteria for the incentives.

If these principles are not followed, some unintended consequences of P4P programs may arise (Rosenthal, Frank, 2006). Health care providers could miscode diagnoses patients for the benefits of their own. Also, providers will focus less on patients that are in great need for care, but will concentrate on the patients that will lead them to more benefits. Davis (2007) states in his article that P4P can lead to more time consuming care and it will decrease the efficiency of professionals.

P4P has a limited effect on quality of care if patients are treated by more than one specialist, because it is not clear to professionals who will get the bonus, or what part of the bonus they will get. So it is important that on forehand it is clear who is responsible for the patient care (Pham, Schrag, O'Malley, Wu and Bach, 2007). A way to solve this problem is to reward total groups of professionals or complete hospitals, in this way the discussion on responsibility can be avoided (Davis, 2007).

Another effect of P4P is the improvement of the documentation of performance measurement (Epstein, 2007). So when we want to implement the registration and the use of performance indicators, P4P can serve as an incentive for adoption.

In the Netherlands there is also interest in P4P method. In an advise to the Dutch government in 2004/2005 the Social and Economic Council of the Netherlands (SER, 2005) has written that market-oriented hospital care can lead to more efficiency and more quality of care, but there have to be incentives to be more competitive. Suggested incentives are public reporting and financial incentives like P4P. They state that the government has to be responsible for conditions that have to be set for introducing P4P.

Intrinsic motivation of the professional

When taking the oath of Hippocrates the medical specialist promises to do everything within his means to make patients better. The delivery of good health care is defined as the primary process for the professional. Secondary processes, like policies, and administration, are often considered more important. The professionals want to protect the patient care; they see an emphasis on organizational and financial considerations as a threat for the medical quality (Maassen, 2006).

The basic assumption, the 'contract' between care provider and community, where by the first has got a (job) commitment to deliver qualitative and safe care, obligates that more transparency in health care will be offered, than is done currently.

More transparency can directly be linked to accountability. When medical professionals are held accountable it is important to distinguish two main goals: learning from experiences (internal) and controlling actions (external). When information with the goal of learning is used for controlling actions, it will lead to a violation of trust. This can lead to less willingness for providing information. Because of professional autonomy the professional was not always directly held accountable for his medical decisions. So when professionals will be held accountable by means of performance measurement, it is important to involve them within the process. They are the persons who can judge the delivered performance on medical outcomes best (KNMG Manifest, 2007).

When performance indicators are implemented in hospitals it is important to involve the professionals with this process. With the development of the condition specific indicators the professionals have been involved to deliver the medical content for the indicators. Currently most professionals see the registration of indicators as an obligation. For this reason it is important that the intrinsic motivation of the professional is appealed. To achieve this, it is necessary to involve the professionals and make them accountable for their actions. When professionals see the added value of registering indicators they can function as opinion leaders for other professionals. It is known that professionals will adopt innovations from other professionals more easily than from management (Greenhalgh, Robert, Macfarlane, Bate and Kyriakido, 2004).

In the Danish model for indicators (The Danish National Indicator Project) for instance, it is shown that with involvement of professionals, a good multidisciplinary quality project can be set up. Professionals have developed evidence based clinical indicators. These clinical indicators are registered, analyzed and outcomes are sent to the hospitals. They also perform regional audits when the outcome will be discussed. The system is nation wide implemented (Grol and Wollersheim, 2005). In paragraph 2.5 a comparison is made between different indicator projects.

2.3 Diffusion of innovations in health care

After determining what incentives could be used to start the implementation, it is important to see what theories there are on the diffusion of innovations in health care.

The definition for innovation: "An innovation is an idea, practice, or object that is perceived as new by an individual or some other unit of adoption." (Rogers, 1995) We can use the term innovation for the registration and the use of condition specific performance indicators, because it is new in the Dutch health care system. The condition specific indicators that are developed are not yet system wide implemented and hospitals perceive this practice as new.

"Diffusion is the process by which an innovation is communicated through certain channels over time among members of a social system." This definition of diffusion was given by Rogers (1995), he describes a well know theory on the diffusion of innovations. According to Rogers the spread of technologies and other innovations can be covered in an S-curve model. The S-curve model imposes that any innovation is first adopted by a few people. When the innovation seems an improvement on the current state, more and more people will adopt the innovation. After a while the diffusion proceeds rapidly, although at some point the innovation reaches a part of the population that is less likely to adopt, and the diffusion will saturate (see figure 2.4).

Rogers divides the population into five categories, these are based on the likeliness of the adoption along the S-curve path. There are innovators, early adopters, early majority, late majority, and laggards. Every category has its own characteristics and the size of the categories differ. Rogers also mentions a phenomenon, stagnated diffusion, this happens when the diffusion curve flattens or shows a halt. As mentioned in the introduction, Schuring and Van Harten (2004) question the automatism of the diffusion theory for in the health care sector. Particularly when the adoption of the innovation is voluntary and costs a lot of effort and/or the advantage is not perceived, the diffusion only reaches the early adopters. Another aspect that contributes to a slow diffusion in the health care is the social and cognitive boundaries between medical professions, particularly if the professionals have influence on

the socially constructed interpretation of the evidence. Network memberships are of influence on the distribution of innovations (Rye and Kimberly, 2005).



Figure 2.4: The diffusion S-curve of Rogers (1995)

Critical dynamics for diffusion

A successful diffusion of innovations in health care can be related to a number of critical dynamics. The California Health care Foundation has written a report on the diffusion of innovation in health care (Cain and Mittman, 2002). In this report they describe ten critical dynamics that are essential for the diffusion of innovations in health care.

1. Relative advantage

The more benefit anticipated form adoption of innovation relative to current practice, the more rapidly it will diffuse.

2. Trialability

The ability to try out an innovation without total commitment and with minimal investment improves the prospects for diffusion.

3. Observability

The extent to which potential adopters can witness the adoption of an innovation by others improves the prospects for diffusion.

4. Communication channels

The paths through which opinion leaders and others communicate about an innovation affect the pace and pattern of the diffusion.

5. Homogeneous groups

Innovations spread faster among groups with similar characteristics than among groups that differ in important ways.

6. Pace of innovation/reinvention

Some innovations are relatively stable and do not evolve much while they diffuse. Others evolve much more rapidly and are altered by users along the way.

7. Norms, roles, and social networks

Innovations are shaped by rules, formal hierarchies, and informal mechanisms of communication operative in the social systems in which they diffuse.

8. Opinion leaders

Individuals whose opinions are respected by others in a population affect the pace of diffusion.

9. Compatibility

The ability of an innovation to coexist with technologies and social patterns already in place improves the prospects for diffusion.

10. Infrastructure

The adoption of many innovations depends on the presence of some form of infrastructure or of other technologies that cluster with the innovation.

Adoption of innovations in health care

From an organizational point of view, adoption is perceived as a positive attitude and the decision to change the current situation. The adoption of an innovation can only take place when the organization is ready for this change. There are a number of elements that are important for assimilation (Greenhalgh et al, 2004):

• Tension for change

The current situation is intolerable.

- Innovation system fit The innovation fits into the current values, ways of working and norms of the organization.
- Assessment of implications
 The expectations of the innovation are clear.
- Support and advocacy There are more supporters of the innovation than people that oppose to the innovation.
- Dedicated time and resources
 There is time and budget available for the innovation.

 Capacity to evaluate the innovation

The innovation impact is monitored and evaluated.

Although Rye and Kimberly (2005) state in their article that adoption theories are better fit for discrete product or programs, it is wise to recognize these elements, while they can give an explanation for the success of one innovation and the failing of another.

2.4 Implementing innovations in health care

The definition of implementation we will use in this thesis is the English translation of the Dutch definition of implementation stated by ZON (Zorg Onderzoek Nederland, 1997) 'A planned introduction of evidence based innovations and/or quality improvement, aimed at structurally changing medical treatment, professional practice, organization or the structure of health care.'

When an innovation is developed the goal is to establish it in an organization. This can be done in different ways; there are a lot of implementation strategies. This also applies to the implementation of the registration and use of performance indicators. Gross et al (2001) gives a short summary on change theories in the study they have done to investigate optimal methods for guideline implementation.

Change theories (Gross et al, 2001)

- Educational theories emphasize that change is driven by the desire to learn and be professionally competent.
- Epidemiologic theories promote change based on the theory that we are rational beings and will arrive at rational decision based on the available evidence.
- Marketing theories propose that behavioral change will occur when exposed to an attractive marketing package.
- Behaviorist theories propose that change occurs under the influence of external factors that are applied before, during, or after the targeted change objective.
- Social influence theories emphasize the importance of the social group for influencing the desired change.

- Organizational theories promote change by altering the system of care.
- Coercive theories proponents think that exerting pressure and control will achieve the necessary change.

Barriers

Before choosing a change theory it is important to recognize the different barriers that are present is the organization. In the review of Fleuren, Wiefferink, and Paulussen (2006), 50 determinants are discussed that influence the implementation process in a positive or negative way. Summarizing these determinants, the main items are:

- The innovation has to be able to create a positive advantage for the user
- There has to be capacity and resources available
- The users have to be willing to use the innovation
- Availability of clear rules and guidelines are necessary

Other barriers are public reporting, the financing, and administrative load. (Wollersheim, 2006) As said earlier professionals are skeptical about publishing performance data, because they do not trust the validity. Still underexposed are the effects of public reporting on costs and administrative load. It is expected that a fair investment is needed to cover all costs that performance measurement brings along. It is also predicted that administrative load will increase, because of the extra registration offsets that are to be developed.

Interventions

Interventions are methods used by an organization for informing or supporting a newly introduced procedure. Grol (2006) describe a number of inventions in an adjusted model of Van Woerkum (1990), shown in figure 2.5.



Figure 2.5: Methods to implement changes

The model can form a directory for choosing the right forms of intervention. The effectiveness of an intervention depends on the nature of approach to implement a guideline. There are controlled intervention methods and there are educative intervention methods. When for example the implementation activities are imposed from outside the organization, the more controlled interventions are more effective. When the implementation activities are undertaken voluntary, the educative interventions are more effective.

Maintaining the changes

When an innovation is implemented within an organization it is important that the change is maintained. In order to prevent a fallback into the old system, the replacement of new routines in old routines has to be done structurally. It is important that the whole organization adapts to the new situation, it can be necessary to change protocols and to revise the norms and rule within the organization (Grol, 2006).

Another important aspect after the implementation of an innovation is the evaluation; not only has the effectiveness of the innovation but also the process of implementation to be taken into account. If the effectiveness of the innovation is not meeting the expectations, some adjustments can be made in the process. Other departments that want to implement the innovation the evaluation on the process can be very useful, because they do not have to overcome the same barriers as the first department. Evaluations are also important for continuous improvement. The health care sector is a dynamic market where it is important to stay up to date with the latest changes in technology, policies and management. Frequent evaluation on the use of condition specific indicators assures that these indicators stay up to date. This can be accomplished with incremental adjustments. However when the system changes frequently, resistance can arise with the users.

2.5 International indicator projects

Internationally many different indicator projects are established. To get insight in the features of these projects we compared the indicator projects of various countries. The choice was made to concentrate on the countries that have near similar performance measurement systems: Denmark, Great Brittan, United States of America, and Germany. The information we used for this paragraph was derived from different internet sites (see table 2.1).

In all projects that are described below, the medical professionals take an important place. Or they initiated the project or they cooperated close with the parties that set up the projects. In many countries the extra workload is a central issue. Some indicator sets are therefore merged with each other to meet these resistances. Most also try to use existing data files whenever it is possible.

Denmark

The government of Denmark has initiated in cooperation with the working field the National Indicator Project. In this project, six indicator sets are developed that exist approximately out of 96 indicators in total. The hospitals are obliged by law to provide the performance data. Monthly feedback is given about the hospital performances and a comparison is made with other hospitals. Besides this a two-annual audit takes place, the hospitals can elaborate unusual outcomes. The hospital performances are published, and the goal is to create choice information for patients, medical specialist, and other care providers.

The Denmark government has determined 2 criteria's for the success of the project. The first is that all involved providers in the health care system must take responsibility for the development and accept the implementation of the project. The second is that the counties

are active in the project both regarding the economical framework, prioritizing, of practical back-up, when the project is ready to be implemented locally.

Great Britain

Since the nineties the British government pays attention to the development of indicators to track the performances of the NHS. The Healthcare Commission is the most important and independent institute in Great Brittan on the area of performance indicators. They mostly cover England, but they also have activities in Wales and Scotland. The goal of the commission is to monitor the health care and to create consumer choice information. The NHS hospitals take part in the performance measurement; private hospitals are inspected annually, but did not register the indicators until April 2007. Currently private hospitals also have to comply with national minimum standards. The commission describes annually, in the State of Healthcare Report, the status of the effectiveness, patient-centeredness, and accessibility. Also once a year a performance rating is handed out to the NHS hospitals. The indicator development is done in cooperation with medical specialists and NHS managers. The performances and ratings of the hospitals are published on the internet.

United States

In the United States numerous of organization are active in indicator projects. In this subparagraph we will discuss three. The Hospital Quality Alliance (HQA) aims making all hospitals accountable for the quality of care. Medicare and Medicaid hospitals are obliged to provide a limited set of performance data. If they do not meet this objective the hospitals get paid les by the Centre of Medicare and Medicaid Services (CMS). The reaming indicators can provided voluntarily. The private hospitals and Health Maintenance Organizations (HMO) also register indicators but these are not used national level. The HMO's stimulate hospitals to have a high quality of care by P4P (see paragraph 2.2). The Joint Commission on Accreditation of Healthcare Organization (JCAHO) has developed most indicators that are used by the HQA. The JCAHO uses performance indicators for the accreditation of American hospitals. This is compulsory, and because of that the information can be used for comparisons as well. The Agency for Healthcare Research and Quality uses quality indicators to give managers and researchers information on the quality of care. The performances can be compared on State level and are published in an annual quality report.

Germany

The development of the performance indicators in Germany is done by the 'Bundesgeschäfststelle Qualitätssicherung' (BQS). This organization is established by the German government. The development takes place in 'fachgruppen', with representatives of medical specialist, hospitals, health insurers and patients. The BSQ collects performance data on all hospitals and publishes this anonymous on their website. Hospitals are obliged by law to provide their performance data, and they can compare their results with other hospitals. The goal of the indicators is to let hospitals be accountable for their performances. The BQS had developed 330 indicators in 2003; this amount caused resistance with the medical specialist. Their argument: the system is inefficient and increases the workload substantial. Although the data that is derived from this many indicators is very valuable, as a consequence the BQS has reduced the amount of indicators to 180.

Netherlands

The hospital wide indicators of the IGZ are comparable with the projects of Great Brittan, Denmark, and the United states (HQA). They are all compulsory, and are limited in size. Also the fact that the data is not anonymous corresponds. The condition specific indicator project is with regard to future size more comparable with the German system. The goal is to develop in five years time, 80 sets within each set \pm 5 indicators. The Dutch and German indicators have the goal to be used by health insures to make agreements on performance. However the Dutch condition specific indicators will not be published anonymously. It is known that in Germany the medical specialists have formed resistance to the administrative load. This is also happening in the Netherlands because of the extended amount of indicators.

	Table 2.1	Overview	of international	external	indicator	projects
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Organization	Goal	Actor(s)	Compulsory	Public	Anonymous	# Indicators ¹	Web link
Netherlands ZONMw (CBO & OMS)	Consumer choice and care purchase information	OMS, ZN, NPCF	No	Yes	No	50 ²	http://www.cbo.nl/thema/folder20020822130331/article2007 0628102531/articleCBOextra_view
IGZ	Accountability	Government	Yes	Yes	No	47	http://www.igz.nl/pdfs/presind/Basisset_prestatie_indicato2. pdf
Denmark National Indicator Project	Accountability and consumer choice information	Government	Yes	Yes	No	96	http://www.nip.dk/nipUK.htm
Great Britain Health care Commission	Accountability	Government	Yes	Yes	No	40	http://ratings2007.healthcarecommission.org.uk/Indicators_2 007/home.asp
United States Hospital Quality Alliance	Accountability	Government	Yes	Yes	No	17	http://www.hospitalcompare.hhs.gov
Joint Commission on Accreditation of Healthcare Organizations	Accreditation	Government	Yes	No	-	28	http://www.jointcommission.org/PerformanceMeasurement
Agency for Healthcare Research and Quality	Benchmark information	Hospital	No	Yes	Yes	86	http://www.qualityindicators.ahrq.gov/general_faq.htm
Germany Bundesgeschäfststelle Qualitätssicherung	Accountability	Government	Yes	Yes	Yes	180	http://www.bqs-outcome.de

¹Numbers are indicated ²10 sets of approximately 5 indicators

2.6 Conclusion

The theories discussed in this chapter conceptualize the guideline for this research. This paragraph describes what has to be explored further in this research and what elements are considered to be known. This is discussed per research question.

1. In what way can hospitals be stimulated to start the registration and the use of condition specific indicators?

Paragraph 2.2 described four possible incentives: Law and regulations, public reporting, P4P, and intrinsic motivation of the professional. It is interesting to see if these incentives are recognized by the involved actors, and what other incentives have influence on the implementation of condition specific indicators. And which incentive is found to be the most effective.

2. What factors have influence on the diffusion of the registration and the use of condition specific performance indicators among health care institutions?

In paragraph 2.3 the theory of Rogers was discussed, in this research we try to recognize the differing factors between the various adoption categories. In what extent are the ten critical dynamics, stated by Cain and Mittman (2002), suitable to the diffusion of condition specific indicators.

3. What are the barriers for registering and using condition specific performance indicators for the different stakeholders?

Before implementing the registration of condition specific indicators, the main barriers have to be recognized. In paragraph 2.4 a number of barriers are described. During this research we aim to find out how these barriers can be overcome and which theory of change is most appropriate to establish the registration and the use of condition specific indicators in the organization.

4. Which intervention methods can be used when health care institutions want to implement the registering and the use of condition specific performance indicators?

Every hospital is different, for this reason it is hard to describe which method is best to use. However it is explored which general intervention will have the most effect. This research will concentrate on five interventions: financial rewards, practical support, feedback on performance, registration reminders, and educational support.

5. Will the condition specific performance indicators, in the near future, be used in practice?

Performance measurement is emerging, in the United States it is widely promoted and improving quality is an important issue. In the Netherlands we also see a rising number of indicators that is been developed, and in the future more is planned to be developed. It is not described in the theoretical literature if these indicators will be used in practice. For this reason a section of the research is devoted to this subject, because a successful implementation can only be reached if the condition specific indicators are widely used in practice.

3 Research methodology

In order to answer the research questions, we made use of different research methods. In this chapter these methods for collecting the research data are discussed. In paragraph 3.1 we describe the interview methods, paragraph 3.2 the survey method, and in paragraph 3.3 the case study. First is explained what type of research we have performed, and what methods were used to collect the relevant research data. The book of Verschuren en Doorewaard (1999) was used as background information for this paragraph.

Type of research

For the questions identified in chapter 2 we use a mix of qualitative and quantitative methods. The research has an exploratory character, because we want to explore what the critical factors are for a successful implementation of the condition specific indicators. The objectives of exploration may be accomplished with different techniques. We have chosen for a combination of qualitative and quantitative research. (Cooper and Schindler, 2003)

Given that the subject of implementing condition specific indicators is not widely explored, a small preliminary investigation on the subject is done by means of interviews (qualitative). In this way we can determine, test, and adjust the relevant issues. After performing the interviews, a survey (quantitative) was spread under a larger population. In the next subparagraphs these data collecting methods are described and the choices concerning these methods are illustrated.

3.1 Interviews

The main objective of the interviews was to verify the completeness of survey questionnaire. The questions are based on the literature found during the literature search. The interviews are use to replenish the missing answer options. The second objective was to get a general idea of the interviewee opinions on the subject of indicator implementation. The interviews were semi structured. This method was chosen, because this benefits the comparability of the results. The interview questions were divided in five subjects: Incentives, critical dynamics of division, barriers, interventions, and practical use (see annex 2). Every subject began with open-end questions, then we checked the elements that were found in the literature, and the interviewee was asked to give a response on these elements.

With the implementation of condition specific indicators, a number of different parties are involved. Figure 3.1 visualizes their positions in the indicator pyramid, and can be found across all three levels: micro, meso and macro. Between the levels there are different purposes for the indicators, accountability and improvement.

On micro level medical professionals and hospital staff members can be found. They are responsible for the registration of the condition specific indicators. Hospital board members, insurers, and patients are on meso level, because their choices can be influenced by the performance indicators. On macro level the government and the collective organizations give general guiding on the use performance indicators.

A total of eight interviews were executed, see annex 3 for the list of interviewees. The persons that we have spoken to are on different levels connected with the indicators. We have spoken with a surgeon and a head of staff, they are directly involved with the registration of the indicators. Two members of different board of directors in two hospitals, a care purchase manager of a health insurer, who will use the indicators as guidelines. Other interviewees were: a senior advisor of the NVZ, a Medical advisor of the ZN, and an inspector

of the IGZ, who all were closely related to the development of the indicators and who coordinate the national use.



Figure 3.1: indicator pyramid

Interviewing was done face-to-face; this choice gave the possibility to interact with the interviewee. For example, the interviewee could be asked to elaborate on the answer; on the other hand the interviewee was able to ask a more detailed explanation when the question was not clear. Another advantage of face-to-face interviews is the opportunity to obverse the face expression and body language of the interviewee, which may be important for a correct interpretation of the answers.

After the interviews the answers were summarized with help of written notes and voice recording. These were sent to the interviewees to check if the whether there was no inaccuracy in the interpretation. This method contributes to the internal validity of the research. Three interviewees made minor adjustments to the summaries.

The analysis of the interviews was done in a structured way. The questionnaire subjects were formed put into tables, the answers of the interviewees were shortly formulated in to these tables. This allows us to compare the results. We have described the general outcomes; they were admitted anonymously in this thesis and can be found in chapter four.

3.2 Survey

The main objective of a survey is to gain an overall picture of a comprehensive phenomenon. Characteristics of a survey are: large number of respondents, more broad than depth, random sample, and quantitative data analysis. Often the aim of a survey is to generalize the data to the whole population.

The survey questionnaire was tested and replenished with the results of the interviews. The subjects were the same: incentives, critical dynamics of division, barriers, interventions, and practical use. A number of questions are multiple-choice, from which some have an open-end answer option. The other questions are Likert Scaled statements, the answer options range

between strongly agree and strongly disagree (see annex 4). The multiple choice options and the Likert Scaled statements were based on the interview results.

Additional questions to the survey questionnaire were included. Since the interviews it did not gave any insight on how the opinions of the medical specialist are referred to the use of condition specific indicators. These extra questions were based on the article that Meterko (2006) has written about providers' attitudes. He tested six subjects: impact, clinical relevance, awareness, cooperation, unintended consequences, and control. The respondents had to score a statement for each subject on a Likert Scale.

A web based survey was chosen as format for the questionnaire. The advantage of this method has relative low costs and quick response compared to written surveys. The survey was spread with two e-newsletters of the OMS and the 'Sneller Beter' project. These e-newsletters were sent to approximately 450 persons. The survey was also published on the websites of the OMS and the NVZ. In order to create a more random sample of the population, and to reach more respondents, we also published the survey on the OMS and NVZ websites. Disadvantage though is the possibility that respondents filled in the survey more than once. To overcome this problem, we compared IP-numbers and have removed double numbers.

After a period of two months 66 surveys were filled in, because of this small number we decided to do a non-response analysis. At an OMS/CBO conference on performance indicators we have asked an additional 100 people to fill in the survey. A total of 16 surveys were filled in properly. We assume a 50-50 distribution of management and medical specialists. The data (N=82) was analyzed with the analytical software program SPSS.

Data analysis

A descriptive analysis was conducted to test the hypothesis:

"It is expected that different critical factors are considered to be important by management and medical professionals."

Average scores on the Likert Scale are presented in a table as well as the specific classes: strongly disagree (1), disagree (2), not disagree/not agree (3), agree (4), and strongly agree (5). The outcomes of management and medical staff are presented in separate bar diagrams. For every subject the bar presents the percentage of agreement with the variable. We have chosen to dichotomize the variable outcomes:

strongly agree + agree

 $Agree \% = \frac{bhough agree + agree}{strongly disagree + disagree + not disagree, not agree + agree + strongly agree}$

$$Agree \% = \frac{5+4}{1+2+3+4+5}$$

The category 'other' is left out of the analyses because their small frequency (N=6) and diversity (patients, patient representatives, advisers, unknown origin). A number of variables were compared with each other by means of cross tabulation. This descriptive method was used to analyze the connection between different variables. The results of these data analysis can be found in chapter five.

3.3 Case study

A case study is a method to gain a profound insight into one or several subjects. It is characterized by research depth, whereas surveys are broader. It is a qualitative research method. To complete this research we have chosen to translate the results of the interviews and the survey to one specific case, to see what the consequences are for the practical implementation of condition specific indicators.

The implementation of the sciatica indicator set (annex 5) was chosen as the case. During the development of these indicators the scientific associations had the specific request for an implementation plan. Besides this, the sciatica indicators are interesting because of the multiple disciplinary nature of the set; this causes a complex patient logistic.

The sciatica indicators were developed in a workgroup setting that included three neurologists, three neurosurgeons, two orthopedists, one representative of the patient association, and one representative of ZN. Primary data collection was done by means of attending workgroup meetings, observing dialogues between workgroup members, and analyzing documents concerning the development of the indicators. After analyzing the survey results we have formulated an advise on the implementation of the sciatica indicators.

The findings were presented to the members of the workgroup that developed the indicators. They commented on the findings and shared their opinions on the implementation advise of the indicators. These comments are converted into a number of recommendations. An extended description and the results of the case study can be found in chapter six.

4 Interview results

As described in chapter three, eight interviews have been conducted within different levels of the health care sector. In this chapter, the general outcomes of these interviews are being reviewed.

4.1 Incentives for implementing performance measurement

In paragraph 2.2 four incentives for the registration of performance measurement are reviewed. These incentives are discussed in the first paragraphs, the last paragraph deals with possible incentives that came forward during the interviews.

Law and regulations

The general opinion of five interviewees is that law and regulations are an incentive for registration of performance measurement. Three interviewees said it will not stimulate the implementation of the condition specific indicators.

Law and regulations are not seen as positive oriented incentives, because of the mandatory character of this incentive. The IGZ indicators have shown that regulations can lead to a national implementation. One interviewee was not satisfied with the way IGZ indicators were introduced, due to the external pressure on the subject.

However one interviewee said law and regulations are the only way that all Dutch hospitals will implement the registration and use of condition specific indicators. He made a distinction between innovative hospitals that automatically implement the indicators, and more 'critical' hospitals that will wait adopting the indicators until they are forced to do so.

The opinions about law and regulations differ among user levels. At macro level the interviewees agree that law and regulations is an incentive. On meso and micro level there is no consensus.

Public reporting

All interviewees acknowledged public reporting as an incentive for the registration of performance measurement. Three interviewees think it is not wise to start with publishing performances without a check on the validity and responsiveness of the indicators. Two interviewees do not agree with this restriction. They believe that the check of validity and responsiveness are part of the development phase. And assume that when the indicators are recognized by the scientific associations they are ready to use. The other three interviewees did not elaborate on this subject.

Five interviewees gave the example of ranking lists that are used to publish performance results of hospitals. The current ranking lists are not considered to be credible. However, the AD list and the Elsevier list have had their influence on the reputation of the hospitals. This leads to the fact that low-listed hospitals will attempt to get a higher ranking next year. If the ranking lists include condition specific indicators, it can lead to a better registration and use of the indicators. The interviewees said that we have to keep in mind though that a reliable benchmark is hard to accomplish, because of the numerous variables that have to be taken into account. Additionally, the benchmark has to be moderated if they are intended for facilitating condition specific consumer choices.

It can be stated that public reporting in general is regarded as an incentive on all user levels. However, there is no consensus on the need of a check on validity and responsiveness during the implementation phase.

Pay for performance

In the interviews the term P4P was avoided, and we addressed this subject as financial rewarding. This was deliberately done, because not all interviewees were familiar with the term "P4P".

Three interviewees thought that financial rewarding for the registration of performance measurement and the realization of good quality of care would be an incentive. The other five interviewees did not regard the incentive for the implementation of the condition specific indicators. They are afraid of the potential adverse effects that financial rewarding can cause.

Four interviewees believed that before hospitals get rewarded for the realization of good quality, their performance have to be measured. Only when this condition is met, financial rewarding can be an incentive to improve the quality of care. So before implementing such an incentive, it is important to know what the current quality of care is. This can be done by means of measuring the indicators.

All interviewees agreed that there has to be a financial compensation for the extra work that registration brings along. If not, the registration will probably not be successful. One interviewee mentioned: "this is however not an incentive but a precondition".

On the different levels there is no agreement if financial rewarding as an incentive for the implementation of condition specific indicators. During the interviews it has become clear that financial rewarding is a sensitive subject. The interviewees all want financial compensation, but not all interviewees think that the registration and realization of quality has to be financially rewarded.

Intrinsic motivation of the professional

All interviewees state that the intrinsic motivation of the professional is an important incentive for the implementation of the indicators. Five interviewees go even further by considering professional motivation as a crucial element. The other three interviewees would like to see that the implementation is stimulated by the motivation of the professionals, but do not think this is the case.

One interviewee states that the medical specialists are obviously interested in the quality of care, but they do not see the need to use the indicators for external indicators. They rather use them for internal improvements. Another interviewee states that medical specialists are currently not focused on managing the care process as a whole, but are concentrating too much on individual patients.

Three interviewees stated that medical specialists are more and more interested in understanding the whole care process. They want to improve the quality of care and they believe that implementation of the indicators leads to more substantive conversations between management and professional.

The opinions on this subject contradict each other. It is fair to say that the perceived importance of the incentive 'intrinsic motivation of the professional' differs between hospitals and professionals. When looking to the different user levels, the interviewees on macro level do not think it is a useful incentive. The interviewees on meso level however do think it is a significant incentive. On micro level there is one interviewee who does not regard the intrinsic

motivation of the professional as a useful incentive for the implementation of condition specific indicators.

Other incentives

During the interviews it became clear that there were other incentives for the registration of performance measurement. Only the incentives which were mentioned at least once will be considered.

Two interviewees acknowledge that the social pressure from the hospitals organization or other concerned parties can be an incentive. The public demand for more transparency is pointed out by three interviewees. Two interviewees said the chance to improve the internal care processes could be an incentive.

These other suggestions can also be considered incentives. The incentives mentioned by the interviewees will be added to the answer options in the survey questionnaire, to the ones which were found in the literature search.

4.2 Critical dynamics for diffusion

In paragraph 2.3 we reviewed ten critical dynamics for the diffusion of condition specific indicators. In the interviews these ten dynamics were discussed and it became clear that some of the dynamics were more applicable for the diffusion of condition specific indicators than others.

Relative advantage

1. All interviewees see a relative advantage in the registration and use of condition specific indicators. The interviewees stated that they will lead to more transparency in health care, but they have to be valid, reliable, and responsive. When the advantages are visible, this will certainly be beneficial for national diffusion.

2. Trialability

The trialability is also an important factor. In six interviews was mentioned that the indicators have to be tested before implementing them nationwide. Because the interviewees focus on the validity and reliability, the indicators have to be tested before they can be used for external accountability. Two interviewees said that testing the indicators should be done in the development phase.

3. Observability

On the subject of observability the opinions differed. Six interviewees thought that it would make a difference when hospitals could see the success of condition specific indicators implemented in other hospitals. Two interviewees did not think it would make a difference because of the different characteristics of hospitals. They also mentioned that nowadays hospitals do not follow each other blindly.

4. Communication channels

Communication was stated to be crucial. Without communication no diffusion and no implementation of condition specific indicators will be possible. Because a lot of different actors are involved in the development and implementation process, the communication has to be accurate. All interviewees agreed on this, but do not think that hospitals already meet this condition.

5. Homogeneous groups

In hospitals we cannot speak of a homogenous group of workers. Four interviewees said that good communication between management and medical staff would be

necessary to avoid problems. Two interviewees were less definite and thought that it would be depending on the involved parties and that it would differ per indicator. The other two interviewees said it would have impact on the diffusion process.

6. Pace of innovation/reinvention

Because the indicators are not yet implemented it is hard to say something about the pace of the innovation. Two interviewees stated that too many indicators being developed will lead to confusion. Continuous improvement is an important feature of the indicators. Three interviewees found it hard to say if the continuous improvement has influence on the diffusion of the condition specific indicators. The other three interviewees said that it would have a positive effect on the diffusion.

7. Norms, roles, and social networks

It is important that the registration and use of the condition specific indicators is imbedded in the norms, roles, and social network. The primary process - delivering health care - may not come in oppression with the extra administrative work. All interviewees agree on this fact. However they did not fear that the implementation of condition specific indicators will result in these negative consequences.

8. Opinion leaders

The views on the effect of an opinion leader that advocates the use of condition specific indicators are divided. Seven interviewees thought opinion leaders will have a positive effect on the diffusion, while only one interviewee thought it will not have any effect. Two positive interviewees regarded opinion leaders as not really necessary any more, since most people have accepted the implementation of indicators.

9. Compatibility

All interviewees said that the compatibility of the registration is an important issue for successfully implementing the condition specific indicators. Because of the large amount of indicators that are being developed, the registration has to be integrated into the current processes. This however is currently not the case.

10. Infrastructure

The ICT-infrastructure is a very important condition. All interviewees say that this has to be organized in a good way. Without good ICT-systems the registration will not be feasible.

There are five critical dynamics that all interviewees agree on: advantage, communication, norms, compatibility, and infrastructure. Although, hospitals have to work on the dynamics: communication, compatibility, and infrastructure, because these are currently not met by most hospitals. When looking at the different user levels there are no specific connections.

Other conditions

During the interview also a number of other conditions were mentioned by the interviewees. We will shortly discuss them in this subparagraph. All interviews pointed out that accurateness of the indicator development is most important. The indicators have to be valid, reliable, and responsive. Because in this research we assume that the development is done properly, we will not elaborate on this subject.

Standardization of the indicator results is considered by four interviewees to be important, because of the numerous different indicators. Three interviewees said that integrating the condition specific indicators with the guidelines would have a positive effect on the diffusion.

Another frequently mentioned condition is the ICT, the involvement of ICT suppliers is considered by two interviewees as very important as well in the implementation phase as in the development phase.

These three conditions are not included in the survey questionnaire because each of them can be placed under one of the ten critical dynamics: compatibility, norms, and infrastructure.

4.3 Barriers

In paragraph 2.4 we described the barriers that were found in the literature. In this paragraph we discuss to what extent these barriers really cause resistance.

Administrative load

Four interviewees acknowledge extra administrative load as a barrier for the implementation of the condition specific indicators, because the registration of the indicators will take time when it is not fully integrated in the care process. The other four interviewees do not agree and said that the extra administrative load is often been used as a sophism. They think this barrier is related to the attitude towards the condition specific indicators.

The interviewees on macro, meso, and micro level do not agree whether the administrative load is a barrier. Administrative load is not an unconquerable barrier, because there are solutions that can solve this problem, like integrating the registration in the care process, or hiring extra people.

Costs

Two interviewees regard the expenses necessary for the registration and use of condition specific indicators as a barrier. The other six do not think they will form a barrier. However it was said by two interviewees that this probably differs by hospital; it depends for example to what extent the current ICT-systems are compatible. Two other interviewees state that expenses are unavoidable, because hospitals have to meet the public demand for transparency.

On micro level, the two interviewees agreed on the fact that expenses are not a deal breaking barrier for the implementation of condition specific indicators. On other levels there was no real consensus.

Publishing performances

All interviewees acknowledge public reporting as a barrier. The most resistance is found on professional level. As described in paragraph 2.4, professionals are skeptical about publishing performances when the indicators are not reliable and valid. If the results are not comparable and there is a probability that wrong conclusions will be drawn. Three interviewees stated that also for hospital management the publishing of performance can be a barrier. The image of the hospital can suffer from poor performances that are publicly reported. Logically hospitals that perform accurately do not see the reporting of performances as a barrier.

This also means that there is a consensus between the different user levels. Public reporting is a barrier to those hospitals that do not perform that well. This barrier can cause problems for the voluntary implementation of the condition specific indicators.

Trust in indicators

The barrier of trust in the indicators is closely associated with the barrier of publishing performances. Hospitals do not want to be accountable for indicators they do not trust. All interviewees acknowledge this barrier. Validity, reliability, and responsiveness are very important to create trust, and it depends on how well hospitals/ professionals perform on the indicators. It was also stated by two interviewees that the indicators are hard to compare, as a results of the patient case mix. Four interviewees said that professionals have to get familiar with the indicators before they will 'trust' them to measure the correct data. They are not used to the fact that other people register their performances.

As stated above all interviewees see the level of trust in indicators as a barrier. This means that again there is consensus between the different user levels.

Breaking through barriers

The above described barriers can be found in all levels of the indicator pyramid. The implementation affects the medical specialist as well as the hospital management. Both parties are more aware of performances and this will lead to more insight in hospital processes. Trust in indicators and public reporting are barriers closely related to cultural aspects.

Most important to break trough the barriers is good communication between all involved parties.

4.4 Interventions

The condition specific indicators will be implemented when there is an external pressure to do so, according to three interviewees. Two interviewees think the indicators will be implemented from an internal motivation. The other three said that the indicators will be implemented from both perspectives. It is likely to say that the motivation to implement the indicators differs per hospital.

General interventions

In all interviews it became very clear that the formulation of clear rules and guidelines on a national level are essential for a successful implementation. Currently there is confusion about the registration, the methods used and the details of publishing performances. What also was mentioned by one interviewee is that there should be more help available on national level for the hospitals that do not perform well. Indicators give insight in the hospital processes, so it is not only a tool to identify problematic areas but to improve them.

Financial rewarding

Financial rewarding can be used as an incentive in an early phase of the implementation. However it is also possible to support the implementation in a further phase as an intervention method.

Seven interviewees stated that there has to be a financial compensation for the extra work that has to be done. Four interviewees said that financial rewarding would support the implementation. Two interviewees pointed out that financial rewarding could stimulate the quality improvement, but before that will happen, hospitals first have to start with the registration of the indicators. The other two interviewees thought financial rewarding is not a good way to support the implementation, because of the adverse effect that could occur.

On meso level the interviewees did not agree with each other. On macro and micro level however all interviewees think that financial rewarding could support the implementation of
the condition specific indicators. The idea of financial rewarding organizations/people in the Dutch health care sector is fairly new. Because it is not a widely used incentive in this sector, the effects are not clear and this could 'scare' people to use financial rewarding as an incentive.

Practical support

During all interviews it became clear there is a need for practical support on the implementation of the indicators. An example the interviewees mentioned: When implementing condition specific indicators it is very important that there are compatible ICT-systems available. The registration of the indicators has to be integrated with the care processes. When the use and registration of the indicators is well organized, it may lead to less resistance. Practical support like, good ICT and a registration helpdesk can be of great use. It can be questioned though to what extend these are preconditions.

Two interviewees thought that the establishment of the electronic patient record (EPR) would be a great step that could make registration of indicators easier. One of the interviewees pointed out that the involvement of ICT suppliers is very important. They have the knowledge and can support the implementation process practically.

Another interviewee said it can be helpful if hospitals first check what data already has been registered. Hospitals do not have clear reports on what already is done; more insight in this could make the implementation of the condition specific indicators easier.

Feedback

The involvement of the medical staff and/or the nurses that are going to register is important for the implementation. That is why giving feedback on the registered data is an intervention that can be very useful. Medical specialists understanding of the outcomes and ways to improve will result in more 'feeling' with the registration of indicators.

All interviewees think that feedback is a useful intervention. One interviewee pointed out that this feedback has to be organized within the hospitals. Branch organizations and insurers should not interfere with this. Another interviewee even said that this feedback has to come from the medical staff. Anyone else providing feedback could be perceived as an 'assault' to the medical autonomy.

Feedback is seen as a successful intervention that will support the implementation of condition specific indicators. However it is important to not only give feedback, but also to improve the quality of care by using the feedback. Hospital management has to monitor if the feedback is used.

Education

The opinions on education as intervention were diffused. In five cases it was said to be a good and helpful method to stimulate hospital staff. The other three said it would not make much difference; one interviewee said there was no time for this kind of things. Another interviewee pointed out that education and sharing information on improving quality can be useful, however education on how to register the indicators is not required.

To what extent education is a useful intervention may be different for every hospital and it depends how the staff reacts on educational interventions. Information sharing is important when communication is considered crucial.

There is no consensus in the different user levels. The intervention education is close related to the organization of the hospital, and the success of this intervention is different for every hospital.

4.5 Use of condition specific indicators in practice

The condition specific indicators will be used for external accounting; this was stated by all interviewees. Three interviewees expect that in the future there will be a shift to a more internal use of the indicators, although it is also possible that other indicators will be developed within the hospitals that have the goal of internal improvement. These interviewees foresee that after a while the focus will be more on improving health care by means of using the condition specific indicators.

Quality of indicators

The interviewees were being asked how they think about the validity and the comparability of the condition specific indicators. The validity of the indicators was according to most interviewees acceptable, but they can be improved. The fact that medical specialists helped with the development of the indicators has a positive effect on the opinions of the interviewees.

When we asked about the comparability of the condition specific indicators the opinions were different. All interviewees said that the comparability of the indicators is not sufficient enough. Because there is not yet a national guideline on how to register, the definitions can be interpreted differently. Also the translation from analogue to digital codes can be unclear. These issues have to be dealt with, before comparisons of performances can be made. Although the interviewees think that the comparability can be improved, a lot has to be done before the incentives can be used for benchmarking.

Goals

The condition specific indicators have the intention to deliver consumer choice information and to deliver information on performances for the care purchase negotiations. Currently these goals are not met according to the interviewees. Just a small group of patients make use of the consumer choice information that is available. The interviewees do not see this changed in the near future. The same for the care purchasing, insurers will probably make more use of condition specific indicators in the future, but currently most of the insurers do not use quality information.

It was interesting to see that only the interviewees on meso level said that quality of care already is a subject during the purchase negotiations. The interviewees on macro and micro level did think that quality of care will be more important in the future.

Increase in value

Views on what the condition specific indicators are going to deliver to the hospitals the opinions vary. With regard to 'care consumers', four interviewees think the indicators can cause a shift of customers between hospitals. Hospitals that perform better will have an increasing patient population. The other interviewees did not think this will happen, because patients dominantly base their choice on distance and on the reference of the general practitioner.

All interviewees think that condition specific indicators will have influence on the reputation and image of the hospital when they are published. The image can be influenced positively or negatively, that depends on the performances of the hospital. It is not expected that in the short future the use of indicators will cause the insurers to pay more for health care. One interviewee said the market is not ready for negotiations on quality of care, because the Dutch government is still too much in control. Five interviewees do think the insurers want to pay more for better performances.

4.6 Conclusion

The objectives of the interviews were, verifying the completeness of the survey and getting a general idea of the opinions on the subject of implementation. The personal perceptions of the interviewees differed from each other, this however gave us a good idea on were the differences were in the different user levels, and showed some interesting insights. To get a clear overview of the interview results table 4.1 to 4.5 give a short summary on the opinions of the interviewees. The plus sign stands for a positive response to the factor. The minus sign indicates the interviewee responded negative to the factor.

Table 4.1: Incentives

	Macro			Me	eso	Micro		
Law and Regulation	+	+	+	+	-	-	+	-
Public reporting	+	+	+	+	+	+	+	+
Financial rewarding	-	-	+	-	-	+	+	-
Intrinsic motivation	-	-	+	+	+	+	-	+

The interviewees on macro level regarded law and regulation as a good incentive, the other user levels did not agree on that. The incentive of financial rewarding was least favored by the interviewees. A number of them were troubled by adverse effects. Others did not think the Dutch health system was ready for this kind of incentives. The intrinsic motivation of the professional was regarded as most ideal incentive, however four interviewees did not think this would become reality. An argument for this was: the medical specialists want to improve the quality of care, but they do not yet see the use of external accountability.

Table 4.2: Barriers

	Ma	acro		Meso			Micro	
Administrative load	+	+	-	-	+	-	+	-
Expenses	-	+	-	-	+	-	-	-
Public reporting	+	+	+	+	+	+	+	+
Trust in indicators	+	+	+	+	+	+	+	+

Interesting to see is when we compare table 4.1 and table 4.2, all interviewees' state that public reporting is an incentive that stimulates the implementation of condition specific indicators, but they also state that public reporting is a barrier. Also the trust in the indicators was pointed out to be an important barrier. Medical specialist and hospital management want to be sure that the performances are measured right. The administrative load and expenses were according to the interviewees not unconquerable barriers.

Table 4.3: Critical dynamics

	Ma	acro		Me	eso		Micro	
Relative advantage	+	+	+	+	+	+	+	+
Trialability	+	+	+	-	+	-	+	+
Observability	+	+	+	-	-	+	+	+
Communication	+	+	+	+	+	+	+	+
Homogeneous	+	±	-	±	-	-	-	+
Pace of innovation	±	-	+	+	+	-	±	-
Norms, roles, and social networks	+	+	+	+	+	+	+	+
Opinion leaders	+	-	+	+	+	+	+	+
Compatibility	+	+	+	+	+	+	+	+
Infrastructure	+	+	+	+	+	+	+	+

Relative advantage, communication, norms, compatibility, and infrastructure are recognized as the most important critical dynamics. All interviewees saw the advantage of using the condition specific indicators. They did not think that the norm, roles, and social networks had to change before implementing the indicators, they unite with the current values: improve the quality of care, and make health care more transparent. The communication, compatibility and infrastructure were regarded as very important dynamics, but not all hospitals fulfill these dynamics. The compatibility has to become better, because the indicators are not integrated with the primary process and this causes inefficiency. The ICT infrastructure is also a concern, it was said that without good ICT the registration of the indicators was not manageable.

Table 4.4: Interventions

		Macro			Meso			Micro	
Motivat	on	i	Е	ie	ie	е	i	е	е
Financia	al rewarding	+	+	+	-	+	+	+	+
Practica	al support	+	+	+	+	+	+	+	+
Feedba	ck	+	+	+	+	+	+	+	+
Educati	on	-	+	+	-	+	+	-	+

i: internal motivation

e: external pressure

ie: both are motives

There is no consensus on the motivation to implement the indicators. Only on micro level the interviewees state that they are motivated by external pressure. Practical support was regarded to be an effective incentive, although the interviewees came forward with different examples on how to organize the practical support. Feedback was also pointed out as effective intervention, especially for the improvement of the quality. However on the other interventions the interviewees were not negatively, all means good help to implement the condition specific indicators.

Table 4.5: Use of indicators

	Ma	icro		Me	eso		Mi	cro
Goal	е	е	е	е	е	е	е	е
Validity	+	+	+	+	+	-	+	+
Compatibility	-	-	-	-	-	-	-	-
 Number of customers	+	-	+	-	+	-	-	+
Influence image	+	+	+	+	+	+	+	+
 Economical benefits	+	-	+	-	+	+	-	+
 Already used for care purchase	-	-	-	+	+	-	-	-

e: external accountability

i: internal quality improvement

The indicators are implemented with the purpose of external accountability, all interviewees agree on that. It was mentioned that the care purchase negotiations also can be a goal to implement the indicators as well. However this will be more suitable in the future, because the interviewees did not think that the indicators already are used for the negotiations. The validity was considered to be good, but on the comparability of the indicators was responded negatively. None of the interviewees thought that the current indicators could be used for benchmarking. When the indicators are publicly reported they will influence the image of the hospitals.

Survey

After analyzing these results, a number of adjustments were made to the survey questionnaire. It was decided to ask the opinions on some additional incentives, to get clear on what would stimulate the implementation best. It is important to know which groups perceive what type of barrier, so this was asked more specifically in the survey. Because all interventions were received positive the respondents are asked to prioritize them, to see what they find most important. The opinions of the medical specialist toward registration and using the indicators do not become clear after analyzing the interview results. So this is given more attention in de survey. This is done by adding a number of questions that are too be answered by medical specialists only.

5 Results of the survey

After the literature search and the interviews, a survey was conducted. The results of the survey are described in this chapter. The five subjects: interventions, critical dynamics, barriers, interventions, use in practice, form the guideline for this chapter. The respond rate of the survey was 15% (82 out of 550). The analyses were performed with help of the statistical program Spss and Microsoft Excel. In the first paragraph we determine the profile of the respondents.

The goal of the survey analyses is to present which critical factors are considered to be of importance to management and medical professionals. To test this goal a hypothesis is formulated:

"It is expected that different critical factors are considered to be important by management and medical professionals."

5.1 Profile respondents

Eighty two people responded on the request to fill out the questionnaire, six of the respondents belonged to the category 'others'. We decided to exclude the 'others', because their small frequency (N=6) and diversity (patients, patient representatives, advisers, unknown origin). The data analysis were done for a group of N=76. In table 5.1 to 5.4 the general characteristics of respondents are depicted. Table 5.1 shows that the respondents represented mostly general hospitals (N=48, 63,2%). Management was represented by N=43 and N=33 people are medical professionals. The survey was spread by means of enewsletters, websites and a symposium, assuming a 50-50 distribution of management and medical specialists.

	Function of respondents								
Hospital category	Management N (%)	Medical professional N (%)	Total N (%)						
Academic	3 (3,9)	4 (5,3)	7 (9,2)						
Top Clinical	9 (11,8)	7 (9,2)	16 (21,1)						
General	28 (36,8)	20 (26,3)	48 (63,2)						
Categorical	3 (3,9)	2 (2,6)	5 (6,6)						
Total	43 (56,6)	33 (43,4)	76 (100)						

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To determine to what extent the respondents were influenced be their knowledge on indicators we asked them to fill out if they were involved in any sort of indicator development project. In table 5.2 is shown that only a few of the representatives of the management group were involved in the development of indicators. For the medical professionals and the others, about half of the respondents have been involved in the development of indicators.

Table 5.2: Involvement of the respondents

	Function of respondents								
Hospital category	Managem	ent (N)	Medical prof						
	Yes	No	Yes	No	Total (N)				
Academic	1	2	3	1	7				
Top Clinical	5	4	6	1	16				
General	5	23	7	13	48				
Categorical	-	3	1	1	5				
Total	11	32	17	16	76				

To illustrate the awareness of the indicators, the respondents were asked if they knew about the indicators that were developed by the OMS and CBO (see table 5.3). Most respondents (N=69) were aware of the developed indicators. Only N=7 people never heard of the condition specific indicators. This means that the respondents were well informed on the existence of the indicators.

	Function of respondents									
Hospital category	Managem	ent (N)		Medical professionals (N)						
	Yes	No	Heard of	Yes	No	Heard of	Total (N)			
Academic	2	1	-	4	-	-	7			
Top Clinical	8	-	1	7	-	-	16			
General	21	4	3	12	-	8	48			
Categorical	-	2	1	2	-	-	5			
Total	31	7	5	25	-	8	76			

Table 5.3: Awareness of the respondents of the CBO/OMS indicators

In table 5.4 we show if the hospitals already started the registration of the CBO/OMS indicators. A total of N=20 respondents said they already register the indicators. N=34 respondents are partly registering the indicators, N=16 do not register and N=5 do not know if their hospitals are registering the indicators. The results show that most respondents have started the indicator registration this indicates that the sample is positive biased.

	Function of respondents											
Hospital category	Managem	ent (N)			Medical p	ledical professionals (N)						
	Yes	Partly	No	Unknown	Yes	Partly	No	Unknown	Total (N)			
Academic	-	1	-	1	1	-	2	1	6			
Top Clinical	-	8	-	-	2	5	-	-	15			
General	11	12	4	1	5	6	9	-	48			
Categorical	-	1	1	1	1	1	-	-	5			
Total	11	22	5	3	9	12	11	1	74*			

* N=2 are missing

In table 5.4 it was shown that N=56 of the respondents were registering the indicators. It was interesting to see how these registrations were done. N=15 registered the indicators in the hospital information system. N=19 registered in separate database. N=16 registered in multiple systems. N=4 registered on paper and N=3 said they did it in another way. This data tells us that most registration is done with means of ICT systems, although only N=15 people registered the indicators in their own hospital information system.

5.2 Incentives for implementing performance measurement

In paragraph 2.2 four different incentives have been discussed that will stimulate the implementation of the condition specific indicators. After conducting the interviews four more incentives were included, because the interviewees gave notice that there were more incentives then the four found in literature. In the survey we asked the respondents to indicate if they would be stimulated by the following incentives:

- 1. Law and regulation
- 2. Financial rewarding for the delivered quality
- 3. Public reporting of performances
- 4. Intrinsic motivation
- 5. Stimulation from the scientific associations
- 6. Social pressure from the health care organization or other concerned parties
- 7. Public demand for transparency
- 8. Improvement possibilities for the internal processes in the hospital

According to the interviewees public reporting is the most effective incentive. In the survey the respondents were asked in what way they would be stimulated. We expect that the different groups will perceive the importance of the incentives differently. According to the hypothesis, the incentives for management and medical professionals will be different.

When looking to table 5.5, all incentives are scored positively. According to the survey respondents, 'improvement possibilities for the internal processes in the hospital' is the most effective incentive. With a mean of 3,90 more than two-third of the respondents (69,7%)stated that they would be stimulated by this incentive. Law and regulations are also perceived as an important and effective incentive by the majority of respondents. Social pressure on the organization would stimulate the respondents the least. The mean of 3,11 it is still above average and 44,7% said they would be stimulated by this incentive.

Incentives (N=76)	Mean (1-5)	Agree %	Management (N=43)	Medical professionals (N=33)
Law and regulation	3,68	65,8	3,91	3,33
Financial rewarding	3,77	63,2	3,88	3,52
Publishing performances	3,47	60,5	3,67	3,06
Intrinsic motivation	3,81	68,4	3,88	3,82
Stimulation by scientific associations	3,63	55,3	3,65	3,45
Social pressure on organisation	3,11	44,7	3,23	2,94
Public demand for transparency	3,43	59,2	3,70	3,15
Possibility to improve internal processes	3,90	69,7	3,98	3,79

Table 5.5: Descriptive analysis of incentives

The differences on agreement per variable are shown in figure 5.1 for management and medical professionals.



Figure 5.1: percentage of agreement on the incentive variables

Figure 5.1 shows that in general management recognize the importance of the incentives. Management agrees most on 'Possibility to improve internal processes', 'Publishing performances', and 'Law and regulation. Medical professionals agree most on 'Intrinsic motivation' and 'Possibility to improve internal processes'. Interesting to see is that management perceives 'Publishing performances' as an important incentive. The medical professionals however do not perceive this as a main incentive, which is ranked on the last but one place. Other differences can be found in 'Law and regulation', 'Public demand for transparency', and Social pressure on the organization'. The last however is regarded to stimulate both groups the least.

5.3 Critical dynamics for diffusion

In paragraph 2.4 the ten critical dynamics were described for the diffusion of innovations in health care (Cain and Mittman, 2002). The interview results revealed that these ten dynamics are applicable for the diffusion of the registration and use of indicators. The interviewees however did not think that these ten dynamics are already met by the hospitals.

In table 5.6 is shown what statements were used to measure the different dynamics. The dynamics homogeneous, compatibility, and infrastructure will form obstacles for the diffusion. Only 9% of the respondents agree with the fact that when many different people are involved

in the implementation of indicators, this has no influence on the diffusion (homogeneous). 89% of the respondents agreed with the statement that the integration of the hospital processes with the registration of the indicators takes a great deal of time. And only 14% agreed that less has to be done to the ICT systems before they can register the indicators. Overall it shows that medical staff has a stronger opinion on these statements than management.

Trialability and communication were found to be important factors as well. The respondents (76%) find it important to test the indicators extensively on validity and comparability. This however is not done yet. There has been a practical test on the first six indicators, but this is not common practice yet. Also communication is indicated to be very important. The respondents (80%) said it would positively influence the implementation of the indicators if there is personal contact between the involved actors. The medical staff values this factor more than management. Nevertheless the communication about this subject is very concise, and not all involved actors are up to date with information. These dynamics have to be paid attention to if we want to successfully diffuse the use and registration of the indicators. Observability has also a low mean. This could indicate that most respondents find it less important to see if the implementation of the indicators is a success in other hospitals.

Critical dynamics (N= 72)*	Statements	Mean (1-5)	Agree %	Management (N=41)	Medical professionals (N=31)
Relative advantage	The use of indicators brings along more advantages than disadvantages	3,17	37,5	3,70	2,97
Trialability	It is important, before using, to test the indicators extensively on validity and comparability	4,21	76,4	4,24	4,19
Observability	We only going to start implement the indicators if we see that it is a success in other hospitals	2,40	19,4	2,24	2,81
Communication	Personal contact between involved actors is going to positively influence the implementation	4,11	80,0	3,95	4,31
Homogeneous	The fact that many different people are involved with the use of indicators has no influence on the implementation	2,24	8,6	2,37	2,07
Pace of innovation	It has the preference to wait with the implementation of the indicators until the development is ready.	3,00	50,0	3,15	3,10
Norms, roles, and social network	The primary process of the hospitals will not be oppressed by the implementation of the indicators	3,52	54,3	3,73	3,03
Opinion leaders	Authoritative colleagues influence me with respect to starting to use of the indicators	3,33	42,9	3,24	3,33
Compatibility	The integration of the hospital processes with the registration of the indicators takes a great deal of time	4,12	88,6	4,07	4,48
Infrastructure	In our hospital less has to be done in the area of ICT-systems before the indicators can be registered	2,21	13,9	2,34	1,90

Table 5.6: Descriptive ana	lysis of critical	l dynamics
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* N=4 are missing

The bar diagram show that the medical professionals find the critical dynamics infrastructure, compatibility, and homogeneous most important. Management finds these dynamics slightly less important, but rates 'trialability' equally important. They regard the critical dynamics of norms, roles, and social network more important than the medical professionals, and this is the same for the dynamics relative advantage.



Figure 5.2: percentage of agreement for critical dynamics

5.4 Barriers

In the literature and in the interviews it was pointed out that different groups of actors in hospitals (management, medical staff, and supporting departments) each experience different barriers. This statement is related to the hypothesis, by means of cross tabulations we try to determine if the hypothesis is correct.

The interviewees regarded publishing performances and trust in the indicators to be the largest barriers. Survey respondents were asked to score the different barriers to the implementation of indicators (administrative load, expenses, trust in indicators and public reporting). In table 5.7 we see that the survey respondents consider the administrative load to be the largest barrier. Trust in indicators is the second barrier. The interview results gave publishing performances as one of the most important barriers. This however is according to the survey results the smallest barrier.

	Function of respondent		
Barrier	Management N (%)	<i>Medical professionals N (%)</i>	Total N (%)
Administrative load	19 (26,4)	19 (26,4)	38 (52,8)
Expenses	4 (5,6)	4 (5,6)	8 (11,1)
Trust in indicators	12 (16,7)	6 (8,3)	18 (25,0)
Publishing performance	4 (5,6)	2 (2,8)	6 (8,3)
Different	2 (2,8)	-	2 (2,8)
Total	41 (56,9)	31 (43,1)	72* (100)

Table 5.7: Cross tabulation barrier * function of respondent

* N=4 are missing

It is interesting to see who the respondents consider to be the group of resistance. Are they pointing to their own actor group or do they believe that the resistance lies with another actor group. In table 5.8 we see that management regards the medical staff to be the largest group of resistance with 36,1%. Medical staff thinks the supporting departments are the group of resistance with 15,3%. They both consider their own groups to give the least resistance. Overall the medical professionals are appointed to the group that gives the most resistance.

i unction of respe	ondent		
Management N (%)	Medical professionals N (%)	Other N (%)	Total N (%)
26 (36,1)	7 (9,7)	5 (6,5)	33 (45,8)
5 (6,9)	9 (12,5)	-	14 (19,4)
4 (5,6)	11 (15,3)	-	15 (20,8)
6 (8,3)	4 (5,6)	-	10 (13,9)
41 (56,9)	31 (43,1)	5 (6,5)	72* (100)
	Management N (%) 26 (36,1) 5 (6,9) 4 (5,6) 6 (8,3) 41 (56,9)	Management N (%) Medical professionals N (%) 26 (36,1) 7 (9,7) 5 (6,9) 9 (12,5) 4 (5,6) 11 (15,3) 6 (8,3) 4 (5,6) 41 (56,9) 31 (43,1)	Management $N(\%)$ Medical professionals $N(\%)$ Other $N(\%)$ 26 (36,1)7 (9,7)5 (6,5)5 (6,9)9 (12,5)-4 (5,6)11 (15,3)-6 (8,3)4 (5,6)-41 (56,9)31 (43,1)5 (6,5)

Table 5.8: cross tabulation function of respondent * group of most resistance

* N=4 are missing

It is not shown in the data that medical professionals and management experience different barriers. They both experience the administrative load to be the largest barrier. It is also indicated that medical professionals see trust in indicators as a barrier. What is interesting as well is that management points the finger to the medical staff as group of resistance while the medical professionals consider the supporting departments as the group of resistance. Just a small number of respondents pointed their own population group as the group of resistance.

5.5 Interventions

In paragraph 2.4 we discussed the model of Van Woerkum, which describes that different motives to implement have to be approached with different interventions. With an external motive the more controlled interventions are effective and with an internal motive the more educative interventions have effect.

However, in table 5.9 it can be seen that the results of the survey do not show this relation. All interventions are regarded as positive stimulant. We cannot find a major distinction between the interventions that are more preferred by respondents that use the indicator for the internal quality improvement, or for external accountability, or for negotiations with the insurer. Additionally, the medical staff is more positive on the interventions in general, especially on financial rewarding and feedback.

Motivation for use (management)		Financial rewarding (1-5)	Practical support (1-5)	Feedback (1-5)	Reminders (1-5)	Education (1-5)
Internal quality improvement	(N=7)	3,29	4,86	4,14	3,29	4,00
External accountability	(N=12)	3,33	3,83	4,25	3,83	4,00
Negotiations with insurer	(N=18)	3,11	4,39	4,17	3,11	3,56
Motivation for use (medical professionals)						
Internal quality improvement	(N=12)	4,00	4,50	4,42	4,17	4,00
External accountability	(N=10)	4,30	4,80	4,50	3,00	4,20
Negotiations with insurer	(N=8)	3,63	4,50	4,25	3,88	3,88
Total	(N=72)*	3,65	4,47	4,28	3,52	3,83

Table 5.9: comparison of motivations* interventions

* N=4 are missing

The respondents were asked to prioritize the interventions by rewarding points. Most important interventions got three points, second got two points, third got one point and the remaining got no points. Table 5.10 illustrates that practical support is number one in the priority list. Feedback is ranked second and this is an important signal. When feedback becomes available it can be used to improve the internal processes of the hospital. And that was the most important incentive for management and medical specialist to implement the indicators (see paragraph 5.2).

Interventions	Points	Priority order
Financial rewarding	87	3
Practical support	164	1
Feedback	111	2
Reminders	38	4
Education	37	5

Table 5.10: prioritize interventions

Interesting is, the population groups are mostly pointing out that the initiator of the implementation will come from their 'own group'. In table 5.12 is shown that 32,9% of the management respondents think that the board of the directors will be the initiators. 25,7% of the respondents that are members of the medical professionals think the initiative lays with the medical staff self.

Table 5.12: cross tabulation function of respondent * initiator

	Initiator					
Function of respondent	Board of directors N (%)	Medical staff N (%)	Management N (%)	Supporting departments N (%)	Total N (%)	
Management	23 (32,9)	9 (12,9)	2 (2,9)	5 (7,1)	39 (55,7)	
Medical professionals	8 (11,4)	18 (25,7)	3 (4,3)	2 (2,9)	31 (44,3)	
Total	31 (44,3)	28 (38,6)	5 (7,1)	7 (10,0)	70* (100,0)	

* N=6 are missing

5.6 Use of condition specific indicators in practice

The use of condition specific indicators was measured in three different ways. Questions were asked about the quality of the indicators, the added value, and a separate category questions for the medical specialists.

Table 5.13 shows the respondents opinions on the quality of the indicators. Although the response is reasonably positive, the opinions of the respondents are not really strong. Most respondents choose to fill in 'not disagree/not agree'. When comparing the results of management and medical staff there is a slight difference (see figure 5.3).

Quality of indicators (N=69)*		Mean (1-5)	Agree %	Management (N=39)	Medical professionals (N=30)
Development	Validity	3,26	31,9	3,21	3,23
	Reliability	2,95	24,6	2,87	3,00
	Comparability	3,03	29,0	2,97	2,90
Goals	Consumer choice information	3,20	36,2	3,33	2,90
	Care purchase negotiations	3,31	42,0	3,36	3,20

Table 5.13: Descriptive analyze for quality of indicators

* N=7 are missing

When looking at figure 5.3 it shows that there are differences between management and medical professionals. In general the percentage of agreement is under 50%, this means that the respondents are relatively negative on this subject. Management has a more positive view on the quality of the indicators towards the goals of the indicators: comparability, care purchase information, and consumer choice information. The medical professionals are more positive about development methodology of the indicators: validity and reliability.



Figure 5.3: percentage of agreement for quality of indicators

The use of condition specific indicators can create added value for the hospitals. Most respondents (62,3%) said the indicators would lead to some degree of added value (see table 5.14). And 66,7% of the respondents think that the use of the indicators would lead to a better reputation of the hospital. Overall management is more positive than medical staff. Medical staff responds negative on the statement that the indicator will lead to an increase of consumers. Management is more optimistically on this statement.

Added value (N=69)*	Mean (1-5)	Agree %	Management N=39	Medical professionals N=30
More 'consumers' of care	2,88	26,1	3,10	2,60
Better reputation	3,57	66,7	3,69	3,37
More money	3,09	33,3	3,21	2,93
More efficiency	2,99	33,3	2,90	3,03
Nothing	2,32	37,7	2,26	2,57

Table 5.14: Descriptive analysis of added value

* N=7 are missing

The differences in percentage of agreement are shown in figure 5.4. Management and medical professionals both agree that indicators would lead to a better reputation of the

hospital. The other point score less than 50%. This means that they disagree with the statements.



Figure 5.4: percentage of agreement for increase in value

After conducting the interviews we decided to add a number of questions to the survey that were aimed to verify the opinions of the medical professionals on the use of the indicators. The medical professionals were asked to react on six statements (see table 5.15). The professionals agree on the fact that the indicators are clinically relevant, 61,3% of the respondents agree with the statement. Interesting to see is that the specialists do think that they are able to treat fewer patients because of the registration. However they do not think they will give more attention to patients that have a condition that has to be registered.

Medical professional point of view (N=31)*	Statement	Mean (1-5)	Agree %
Impact	I will pay more attention to the quality of care of patients that have conditions that have to be registered	2,03	25,8
Clinical relevance	The registration and use of the indicators is clinically relevant	3,45	61,3
Awareness	At this moment I have enough information to start the registration of the indicators	3,48	54,8
Cooperation	I can aspect cooperation of my colleagues when I am going to register and use the indicators	3,26	51,6
Unintended consequences	I can treat less patients because of the time that it takes to register the indicators	3,23	35,5
Controle	I control the registration and use of the indicators	3,13	38,7

Table 5.15: Descriptive analysis of medical professional point of view

* N=2 are missing (Medical professional)

The hypothesis states that management and medical specialist consider different critical factors to be important. It is hard to say anything about this statement after conducting these analyses. However it can be said that there are different opinions on the quality of the indicators and on the increase in value they will bring. The medical specialists are carefully positive about the use of the indicators. They however do think that they will have less time to treat patients because of the registration time.

5.7 Conclusion

The response rate of the survey is low, just 15 % of the research population responded. A clarification for this is hard to give. Hospitals managers and medical specialists are regularly

asked to participate with surveys. They are bound to make choices between the numerous requests of researchers. Another possible reason for this low response rate could be the lack of time or interest in the subject. The consequence is that the survey results are not representative for the whole population. Nevertheless the survey results are interesting. At the beginning of this chapter a hypothesis was stated:

"It is expected that different critical factors are considered to be important by management and medical professionals."

After analyzing the results, we have to say that there are some differences between management and medical professionals. The incentive 'publishing performances' was perceived as a good stimulant by managers; the medical professionals perceive this incentive as less important. The critical dynamics did not show large differences between management and medical professionals. Administrative load was perceived as largest barrier and practical support as most effective intervention by both population groups. Feedback was ranked as second important intervention. When feedback becomes available it can be used to improve the internal processes of the hospital. That was the most important incentive for management and medical specialist to implement the indicators. When looking at the quality of the indicators management is more positive usability for care purchase and consumer choice information, while the medical professionals are more positive on the validity, reliability of the indicators. Both population groups see the possibility to a better reputation as most added value. There are no extensive differences between management and medical professionals.

6 Sciatica case

The choice to insert a case study in this thesis was made to give a practical example of an indicator implementation project. Until this chapter this research has been very general, and it was hard to give explicit advise on how to handle certain problems. It was mentioned frequently in the literature and in the interviews that the different sets of condition specific indicators can vary on critical factors which influence the effective implementation. We found it important to highlight one example, to provide more grip on the subject.

We were asked to sketch the outline of an implementation plan for the sciatica indicators. Due to time, the workgroup responsible for developing the sciatica indicators was not able to do this them selves. The sciatica workgroup specifically asked for an implementation plan, because of the potential implementation problems they saw arising. Without an implementation plan the workgroup did not want to authorize the indicators for general use. In this research we describe the critical factors for the implementation of the sciatica indicators. These can form the base for the effective implementation.

This chapter contains information that was derived from a number of conversations with workgroup members and being present at workgroup meetings, and a number of additional interviews have taken place (see annex 6).

6.1 Case description

Sciatica is a condition that is characterized by irradiating pain over an area of the buttocks or legs served by one or more spinal nerve roots of the lumbar vertebrae or sacrum, combined phenomena associated with nerve root tension or neurological deficit. It is estimated that there are between 60.000 and 75.000 new cases of sciatica in the Netherlands every year. Fewer than 20% of these cases will be referred to second-line medical care. There are two main treatment possibilities: Conservative treatment means that there will be no surgery, while the invasive treatment does include surgery. The patient can be referred by his physician to a second line specialist; this specialist can be a neurologist, a neurosurgeon, or an orthopedist. Al these specialists can treat sciatica. (Gezondheidsraad, 1999)

Developing the sciatica indicators

The development of the sciatica indicators was part of the by ZONMW financed project 'Kwaliteit van zorg in de etalage'. In April 2006 the sciatica workgroup was formed and guided by the OMS and CBO with representatives of:

- NOV (Dutch society of Orthopedics)
- NVvN (Dutch society of Neurosurgeons)
- NVN (Dutch society of Neurologists)
- NPCF (Federation of Patients and Consumer Organizations in the Netherlands)
- Patient Organization "Stichting Wervelkolom"
- ZN (Association of insurers)

During the development of the indicators a search is done within: international evidence based guidelines, (inter)national indicator projects, systematical search for international literature. Ideally the indicators are based on authorized national evidence based guidelines, because this creates support with the medical professionals. The guideline for sciatica is still in the development phase.

The workgroup has developed four performance indicators:

- 1. Number of days between the decision for invasive treatment and the effective surgery.
- 2. Disease specific functionality (Roland Disability Questionnaire, RDQ)
- 3. Pain intensity (Visual Analogue Scale, VAS)
- 4. Follow-up surgery within 30 days

The first indicator measures the waiting time between the decision for invasive treatment and the effective surgery. The fourth indicator is meant to measure the percentage of second surgeries that have taken place as a cause of complications, etc. These values can be found in the patient medical dossier.

The second and third indicators are outcome indicators. They measure the functional status and pain level at three points in time, t: 0, 8, 24 weeks. The RDQ is a questionnaire that consists out of 23 'yes' or 'no' questions; these questions can all be related to disease specific functionality, for example: 'I walk slower because of pain in my back/ leg'. The VAS is a visual analogue scaled instrument that scores the amount of pain; it can be used to measure a characteristic that cannot easily be measured directly. For example, the amount of pain that a patient feels ranges from the point 'none' to the point 'extreme amount of pain'. The duration of the symptoms is another important aspect to know and this has to be corrected when the outcomes will be compared.

The workgroup expected that the registration of the first and the fourth indicator would not be problematic. The second and the third indicator caused some discussion. Overall there were questions about the logistics of the registration. The neurologists had questions about the RDQ and the reported level of quality measurement when a conservative treatment is chosen. The workgroup came to the agreement that the start of an implementation plan had to be written and that the pilot project had to be supported by an independent scientific institute. (Peul, Steeg, and Boogeart, 2007)

6.2 Critical factors for implementation

In this paragraph a practical advise is given on how to implement the sciatica indicators, while making use of the information provided by the results of chapter four and five. Currently the involved scientific associations have not authorized the indicators. They would like to have more scientific research on whether the indicators are representative for the quality of care. The neurosurgeons and the orthopedics asked for a feasible implementation plan before they authorize the indicators. In addition the neurologists want prove of the validity of the RDQ and VAS in a population of sciatica patients treated conservative. This will be done by means of a pilot study. If the indicators show to be valid and responsive, the indicators will be accepted. For this reason we have focused this advise on the pilot study.

Incentives

In chapter five (survey results) 'The intrinsic motivation of the professional' and 'the possibility to improve internal processes' were defined as important incentives to stimulate the implementation of condition specific indicators. The appropriate incentive for initiating the implementation of the sciatica indicators would be 'the intrinsic motivation of the professional'. The reason for this is the need for support of the professionals involved in the pilot study. When looking further ahead it is very important that the indicators are supported by the scientific associations. Without their support the use of the sciatica indicators will probably not diffuse. The NOV and the NVvN are willing to support the implementation. Neurosurgeon Wilco Peul, who was chairman of the development workgroup, has got an enormous intrinsic motivation to start the registration and use of the indicators. He can serve as opinion leader to the medical professionals, because of his earned respect in the field. The incentive 'possibility to improve internal processes' is more appropriate for stimulating hospitals that can be

defined as 'late majority' or 'laggards'. Since those hospitals first want to see the benefits of the indicators before implementing them.

When using 'the intrinsic motivation of the professional' as incentive for the implementation of the sciatica indicators, the communication between the professional and the management of the hospital is crucial. When these actors are not in line with each other it will be hard to establish the registration of the indicators. The pilot study has to be done in at least two hospital were the professionals and the management are motivated to invest time into the implementation. If the pilot study is not a success the diffusion of the sciatica indicators will be at risk.

Critical dynamics

The results of the survey showed that 'trialability' and 'communication' are important dynamics. The pilot study contributes to the trialability of the sciatica indicators. The scientific research linked to the pilot, supports the need for testing the indicators on validity and reliability. Communication is also considered as a critical dynamic. In the pilot study good communication can be realized by proper project management. The project team has to share information with all involved actors, and have to keep them up to date with the progress of the implementation.

Critical dynamics that we have to pay attention to are: 'homogeneity', 'compatibility', and 'infrastructure'. The fact that multiple actors are involved with the implementation has impact on the implementation. Especially with the sciatica indicators, were the neurologists, neurosurgeons, and orthopedics are involved. As was said in the interviews (chapter 4), communication is crucial. The results of the survey point out that the respondents think that the adjustment of the internal processes for the registration of the indicators is time consuming. In the sciatica case the internal processes of the hospital do not have to change, but the project team has to examine if this dynamic will influence the pilot study.

Regarding the infrastructure, it is important that an ICT-expert is involved with the pilot study, or even takes a seat in the project team. Hospital ICT systems differ, therefore the registration system has to be simple and compatible. Not just within the pilot study, but also because of the eventual diffusion to other hospitals.

Barriers

The leading barrier according the survey respondents is the increase in administrative load. The interviewees regarded publishing performances and trust in indicators as the most important barriers. The sciatica workgroup also noticed these three barriers.

The registration of the RDQ and VAS is presumed to be time-consuming, because they have to be registered multiple times. The medical specialists in the workgroup thought this would create resistance with the persons that are responsible for the registration. Related to this problem is the patient logistic of the sciatica treatment. The patient can be referred to three different specialists: neurologist, neurosurgeon, or orthopedist. It cannot be determined at forehand if the patient stays with the first specialist. This depends for example on the severity of the condition, the way of treatment, or the availability of the specialist. To explain the complexity of the logistics we have tried to visualize the different 'routes' the patient can take, in figure 6.1.



Figure 6.1: Example patient logistic (see also annex 6)

At times 0, 8, 24 weeks the patient position can differ. Therefore agreements have to be made who is responsible for the data collection. Discussion arises because it is not clear who will be responsible for a new patient. In health care, there is no such thing as 'main contractors' and 'subcontractors'. For example, most sciatica patients are first referred to a neurologist. If they would be considered as the 'main contractors', they would be responsible for the data collection. As a consequence, the administrative load of the neurologist increases relatively more than the other specialists, this brings more resistance to the implementation of the sciatica indicators.

Also the foresight of publishing performances brought up resistance. The case mix of the patients plays an important role in this discussion. The neurologists in the workgroup were afraid that without casemix correction, the outcomes of the indicators do not give the accurate reflection of the situation.

The trust that the medical professional has in the indicators might also be a point of discussion. The question is to what extent the RDQ says something of the quality of care when there is chosen for a conservative treatment. Neurologists were afraid that the outcomes of the RDQ, when performing a conservative treatment, will be unfavorable when comparing them with the RDQ of the invasive treated patients.

Interventions

All intervention methods were acknowledged as useful by the survey respondents. When looking at the prioritization of the methods, practical support was ranked highest. The interview results had the same outcome.

Before the actual implementation of the pilot study can start, a number of practical conditions have to be met. Although the expenses of the implementation are not regarded as important barrier, the financing of the pilot study has to be organized before the project can start. Second, it is crucial that an ICT-system supports the registration, to control the administrative load. Since the national EPR is not implemented in the hospitals it is likely that a new system has to be developed, or that the existing systems have to be adjusted for the new data entry/execution. Another important aspect is the data management. Who is the 'owner' of the data and which rights do the users of the system have? Also, patients have to be informed about the role they play in the process. Perhaps they can have more influence on quality

measurement when they register their own data. The NPCF is very positive on this kind of ideas, empowerment of the patient can be an incentive for the accepting the indicators.

In the pilot study it is essential that the users evaluate the registration of the indicators. In this stage inaccuracies can be detected early. The ICT system and the registration methods can be adapted to new find solutions. This will ease the registration process in the next stages.

The scientific support during the pilot study is also used as an intervention method. This is done to convince the scientific associations that the indicators are reliable and valid. Without the support of the scientific associations the indicators will not be used nationally.

Use of the indicators

The practical use of the sciatica indicators depends strongly on the pilot study. Without success, it is possible that the sciatica indicators will not be used widely. So we have decided to give a suggestion on how to register and use the indicators during the pilot study. Evaluations will have to justify these choices afterwards

A project team has to be formed to support the implementation of the indicators. We suggest the team will start in one hospital to carefully monitor the project. This will allow the project team to detect and solve problems in an efficient manner. Scientific research has to be done during the pilot. To satisfy the scientific associations, this will be supported by an independent organization, preferably with experience in implementation research.

Because of the complex patient logistics that influence the VAS and RDQ, it can be an idea to let the patients register their own indicators. The medical specialists have to monitor the registrations, but they don't have to fill in the indicators themselves. This saves time in the administrative. The NPCF has a positive attitude towards involvement of the patient in his own care process. It brings along a feeling of responsibility, which is also being encouraged by the NPCF.

When choosing this kind of solution the registration of the indicators could be made tangible by means of a web based application. The patients would log in at home and fill in the questions of the VAS and RDQ. The medical specialist can examine the results of the indicators before seeing the patient. The administrative load of the medical specialist would decrease to a reasonable size and the patients are more involved in their own treatment.

A barrier for this problem could be the internet accessibility. According to the numbers of the Central Bureau of Statistics in the Netherlands (CBS) this dilemma is manageable because most sciatica patients can be found between the ages of 18 to 65. 93% of the Dutch population, aged between 18 and 44 have access to internet and from the 45 to 65 year olds, 80% still surfs the World Wide Web. Patients that do not have access to the internet can fill their VAS and RDQ in on paper. There is no scientific literature if patients are able to register the RDQ and VAS on their own without supervision of a professional.

The data administrative and management have to be managed and controlled at a central point. All medical specialists have to be able to access the data. However, the privacy of the patient has to be taken into account. The data has to be secured. The project team has to decide who of the users have which rights. This is important, and has to be clear to all involved parties.

After a successful pilot study, it is important that the diffusion of the indicators is stimulated. Incentives as discussed in the previous chapters could help. Most important is that the relative advantage of the sciatica indicators is shown.

6.3 Conclusions

The people we spoke to (see annex 6) stated that money is an important stimulant for this kind of innovative projects. The insurer we spoke to was very positive on the idea of patients registering the sciatica indicators, and possibly could help with financing the pilot test. The idea of involving the patient with the registration served multiple goals: less administrative load for the professional, more involvement of the patient, and tackling the difficulties towards patient logistics. The interviewees regard this as a challenge and are keen to find out if this could work. One interviewee did not think this was the best solution, he thought that the registration had to stay with the medical professional. Regarding data administration and management there will be a number of obstacles to work out. Another important point of interest is the confounding variables that are necessary to create comparable outcomes. The people that will be involved with the pilot test have to decide how to gather information like, duration of complaints or patient progress.

7 Conclusions and recommendations

In this last chapter we look back to the study results. The conclusions of this research are described in paragraph 7.1. Paragraph 7.2 contains points of discussion and recommendations will be given in the last paragraph.

7.1 Conclusions

The goal of this research is to write an advise on how to implement the registration and use of condition specific indicators. At the end of this thesis we are looking back to the main question that was asked at the beginning of this research:

'What are the critical factors for a successful implementation of the registration and the use of condition specific performance indicators within Dutch hospitals?'

To answer the main question we will first give answers to the research questions in the following subparagraphs.

Incentives for implementing performances measurement

In what way can hospitals be stimulated to start the registration and the use of condition specific indicators?

Hospitals can be stimulated in different ways. During the literature search we came across four incentives: law and regulations, public reporting, P4P, and intrinsic motivation. In the interviews it became clear that the interviewees found public reporting the most effective incentive. Ideally, they would like the implementation to be stimulated from the intrinsic motivation of the medical professional. However, they do not think that the specialists are motivated enough to start the implementation without external pressure.

After the interviews it was decided to replenish the incentives with four additional incentives: stimulation by scientific associations, social pressure on the organization, public demand for transparency, and possibility to improve internal processes. The data analyses of survey results show us that the best way to stimulate the management is the ability to improve internal processes. The medical professionals would be motivated by their intrinsic motivation.

We conclude that effectiveness of an incentive depends on the actors that want to make use of the indicators. For example if the insurers want to use the indicators for the care purchase information, they could consider to stimulate the hospitals with the incentive P4P. It has to be noted though that during the interviews it became clear that the insurers are not ready for this kind of incentive. They first want to know what the current quality of care is, before they reward hospitals for their performances. Finally, if the government wants to stimulate the transparency in health care they can choose to introduce laws and regulations as an incentive towards the hospitals.

Critical dynamics for success

What factors have influence on the diffusion of the registration and the use of condition specific performance indicators among health care institutions?

In the literature ten critical dynamics for the diffusion of innovations were found: relative advantage, trialability, observability, communication, homogeneity, pace of innovation, norms, opinion leaders, compatibility, and infrastructure. The interviewees were asked what their

opinion was on these dynamics and if the hospitals are ready for the implementation of the condition specific indicators. The interviewees all saw the relative advantage of using condition specific indicators, and they stated that communication is very important. The use of the indicators would fit in the norms of the hospitals. But on the other side, the compatibility and the infrastructure could create problems. They stated that hospitals are not ready on these areas for the registration and the use of the indicators.

The results of the survey give us a different view. The data shows that both management and medical professionals find it important that the indicators have to be tested before they can be used. The interviewees did not regard this as a necessary factor for the implementation. The survey respondents also think that the homogeneity of the groups will influence the implementation. Same as the interview results, the personal communication between the involved actors will have a positive influence. They think that hospitals are not ready for the registration in terms of infrastructure. The integration of the hospitals processes with the registration of the indicators will take time.

We conclude that the critical dynamics for the diffusion of the condition specific indicators are not yet met. The diffusion will probably not take off until the registration of the indicators can be integrated in the hospitals processes and when the ICT-systems are able to manage the registration. Another aspect that would stimulate the diffusion of the indicators is prove of the validity and comparability by a independent authority. We have to question though in what extend this has to be done. Including medical specialist to the development of the indicators should have already taken care a great deal of this aspect, since they know the medical contents of the indicator.

Barriers and resistance

What are the barriers for registering and using condition specific performance indicators for the different stakeholders?

The literature search resulted in four main barriers for indicator implementation: administrative load, expenses, publishing performances, and trust in indicators. These main barriers were acknowledged by the interviewees

The interviewees thought that publishing the performances and the trust in the indicators would be the main barriers but the survey results shows that the administrative load is the largest barrier. Both management and medical professionals point this out in the survey. There is a fear of spending a great deal of time registering the indicators, and not having time left to treat patients. Second barrier was trust in indicators, this tells us that this is also an important barrier.

Looking at the source of resistance, it was interesting to see that managers regarded the medical professionals as the group of resistance. The medical professionals were more divided on this point. Both medical professionals and management considered their 'own group' as the group of the least resistance.

In general we conclude that the administrative load is the largest barrier. The underlying barriers do not have to be ignored, for they do cause resistance to the implementation of the condition specific indicators. During the interviews it was said that the administrative load could be controlled when the ICT systems in the hospitals are able to support registration of the indicators. However, we have to place the note that during this study we have not spoken to ICT experts.

Supporting the implementation

Which intervention methods can be used when health care institutions want to implement the registering and the use of condition specific performance indicators?

The model of Van Woerkum was found in literature. This model describes different intervention methods that can be followed during an implementation project. According to this model the motive for implementation plays a role in the preferred intervention. In the interviews we asked the opinion of the interviewees on the following interventions: financial rewarding, practical support, feedback, and education. Feedback and practical support were found effective by all interviewees.

The results of the survey showed that the interventions were all perceived as a positive effect on the implementation of the indicators. The respondents were also asked to prioritize the interventions. They ranked practical support as the highest and feedback as the second highest intervention, in terms of influence on the implementation process.

An analysis was conducted to see if there was a relation between the motive of use and the perceived effectiveness of the interventions. The motive for using the indicators did not relate to specific intervention methods. Medical specialists were in general more positive on the effects of the intervention methods than management. The respondents chose initiators that are closely related to their own actor group.

We conclude that the all interventions can support the implementation of the indicators. Practical support is perceived as most effective intervention.

Using the indicators in practice

Will the condition specific performance indicators, in the near future, be used in practice?

During the interviews a number of questions concerning the use of indicators in practice were asked. The interviewees all agreed on the fact that the indicators will be used for external accountability. They did not think that the current condition specific indicators are comparable. They did think the indicators would have an influence on the hospital image.

In the survey questionnaire this subject was divided in three categories: quality of the indicators, increase in value, and professional point of view on the use of indicators. The medical professionals are more positive on the validity and reliability of the indicators than management. Management on the other hand is more positive on the use of indicators for consumer choice information and care purchase negations than the medical professionals.

The survey results for the category 'increase of value' shows that the possibility to gain a better reputation scored the highest agreement. Most respondents said that the indicators would lead to some degree of added value. However they are just mildly positive on the other effect: more 'consumers' of care, more money, and more efficiency.

The medical professionals were asked a number of additional questions. They do not think that they will pay more attention to the quality of care of patients, when there are conditions involved that have to be registered. They do find the registration of the indicators clinical relevant, but they are afraid that they will treat fewer patients because of the time that they spend on the registration of the indicators.

It can be concluded that the quality of the indicators and the added value they bring to the users is not yet satisfactory. Both points were not scored not high by management as well as medical professionals.

7.2 Discussion

The aim of this study is to identify the critical factors for a successful implementation of condition specific indicators in Dutch hospitals. To estimate the value of the conclusions given in the previous paragraphs, a critical reflection on the used methods: literature search, interviews, survey, and case study are described.

Literature search

Many articles and books have been written on the subject of implementation and diffusion. During the literature search we have merely focused on literature that was related to health care, because time constraints did not allow us to read all literature on implementation and diffusion. The subject was clearly defined so the search for literature could be done between boundaries. Where we thought it was relevant to read articles and books that were not related to health care it was evidently done.

Although little literature was written about the implementation of indicators or performance measurement, we have found numerous articles and books on the subject of guideline implementation in healthcare. Literature on the diffusion of health care innovations was also sufficient available. It is possible that not all available literature was reviewed, but we think the most important subjects are covered in this study.

In order to outline the Dutch situation and to get background information on performance measurement we studied opinionated magazines and governmental reports. To compare different international indicator projects, internet was used to get a clear view on the current status of the different projects. In these cases no highly valued literature was used. Reason for this was the lack of up-to-date information on these subjects. We decided it was more relevant to use up-to-date information than to use outdated but valued literature.

Interviews

During the interviews semi-structured questions were asked. This has lead to a great amount of information on the subject of indicator implementation. The skills of the interviewer play a role in the application of this research tool. It is important to not only react on the answers of the interviewee but also on their behavior. The interviews were done face-to-face and this gave an advantage in interpreting these two aspects. It is hard to check if the interviewer has influenced the interviewees. It is possible that there is a bias in the results of the interviews. By sending the summaries of the interviews to the interviewees and giving them the opportunity to correct these, we have tried to gain more validity on these results.

The goals of the interviews were to replenish the survey questionnaire and to get an overall idea of the opinions of the interviewees regarding the subject of indicator implementation. These goals were both obtained, and additionally the interviewees gave their own opinions on the matter. The information gained out of the interviews was highly valuable to this study. The choice to interview different people that represented different levels in the indicator pyramid gave us a general view on the variation in opinions.

Survey

Due to the low number of respondents (15%) on the survey it is hard to generalize the conclusions for all hospitals and medical specialists. The research field was not keen on filling in the survey. This can be caused be several aspects. The survey had too many questions, or the survey did not focus sufficiently on matters that the respondents found useful. Another explanation for a low response rate could be the fact that the survey was (partly) conducted during the summer break. After actively spreading the survey during a symposium of the OMS

the response was not higher that 16% as. A low response could also tell us that the subject of implementing condition specific indicators is not interesting for the research population. This can be seen as an important conclusion on its own. Lack of interest in the field for this subject will probably restrain the automatic implementation and diffusion of the indicators.

When looking at the design of the survey we have to take some aspects in consideration. The greater part of the respondents already started registering the indicators. This indicates that the respondents are probably early adopters. This has to be taken into account when looking at the survey results. It is possible that the results show a more positive view on the subject than the reality. The study has got an explorative character and many variables have been taken into account. The goal of the study was to describe the critical factors that lead to a successful implementation of condition specific indicators. Therefore it was chosen not to concentrate on one aspect in the implementation. On the other side, the survey questionnaire could not contain too many questions because we wanted to keep it approachable for the respondents. For this reason no more than 20 questions were asked. This led to the restriction that only one question per variable could be asked. As a consequence the reliability of the variables can be questioned. Taking those points into account, the results do show what the main critical points are, and to which we have to pay attention when implementing the indicators in hospitals.

Case study

A case study has been conducted to give the results of the interviews and the survey a practical meaning. It came across in the literature and in the interviews that the implementation of the indicators highly depends on the medical condition. For this reason we want to underline one case with a number of recommendations to focus on important issues for implementation.

The sciatica indicators were chosen for the case study. The development course of these indicators was not spotless. A number of demands were made by the involved scientific associations, before accepting the set of indicators. These requirements were taken in consideration when we wrote the advise for the implementation of the indicators.

The advise is based on observations and information that was given by the workgroup members. It has to be taken into account that this data could be biased, because the workgroup members could be subjective.

Due to the time planning we have chosen to conduct a number of telephonic interviews with involved actors of the implementation of the sciatica indicators. This gave us not the advantage of a face-to-face interview, because it was not possible to observe the interviewees.

Research results

Development

At the start of this study we decided to focus on the implementation process of condition specific indicators that were officially accepted by the stakeholders. We assumed that all stakeholders were involved in the development process, and we would not look at the development process of the indicators. However the development and the implementation is closely related to each other, for this reason a note has to be made towards the development of the indicators. The Dutch government has written a highly ambitious policy concerning the development of condition specific indicators. In five years, 80 sets of condition specific indicators have to be developed. This means that the indicators are considered to be important. Our opinion is that the implementation process of the indicators will be

implemented automatically. During the study however it became clear that there are a number of factors that will influence the success of the implementation. A number of these factors can be addressed during the development phase. For example the feasibility of the registration and the quality of the indicators are factors that are established during the development, but have a large influence on the success of the implementation.

ICT

During the research it was often mentioned that the success of the implementation of condition specific indicators depends on ICT systems. Looking at the conclusions of this study we do not think that the success of the implementation solely depends on the existence and quality of ICT systems. But we have to acknowledge that compatible ICT systems would make it easier to register the indicators. The introduction of the electronic patient report (EPR) is not realized yet. This could mean that standardization of the indicator registration is harder to accomplish. Nevertheless the public demand for transparency of health care is not waiting for the introduction of the EPR. The indicators have to be registered. This however could mean that the expenses of registering the indicators will rise.

Pilot testing

Trialability is indicated by the survey respondents as an important criterion for the diffusion of the indicators. It is preferred that the indicators are tested extensively on the validity and comparability. Currently this is only done for the first six sets of indicators in practice. The request for testing indicators can be fulfilled by doing pilots for all indicators.

Communication

Communication and homogeneity are two dynamics that are closely related. The results of the survey point out that personal contact between the involved actors will positively influence the implementation of the indicators. The fact that many people are involved in the use of the indicators will influence the implementation as well.

Feedback

After practical support feedback was ranked highest by both the interviewees as the survey respondents. This is gives an important signal, because if both management and medical staff want to get feedback on their performance, it indicates that they want to improve their processes. It can be questioned in what form the feedback has to be given. This depends on who will be providing the feedback. It is very different when for example the Inspectorate or the medical association within the hospital is giving the feedback to medical professionals. We think that external feedback (form organizations outside the hospital) has to be on hospital level. Within the hospitals there have to be made agreements on how to give and receive feedback.

7.3 Recommendations

Based on the conclusions a number of recommendations can be given with regard to the implementation of condition specific indicators. The recommendations are divided into 3 subparagraphs. The first concerns the general recommendations on the subject. The second are focused on the sciatica case. In the last subparagraph we gave suggestions for further research.

Implementing condition specific indicators

- 1. Carefully pay attention to the feasibility of the registration and the quality of the indicators during the development phase.
- 2. The incentive "possibility to improve the internal processes" was perceived by both management and medical professionals as a large stimulant. However the overall

added value of the indicators was not perceived as high. We recommend, during the implementation attention has to be paid to the added value. If the users of the indicators see what relative advantage can be gained by using the indicators, the implementation will be more successful.

- 3. Hospitals should involve an ICT expert with the implementation of the indicators. More know-how on the capabilities of ICT systems will probably tackle an important bottleneck for the implementation of indicators.
- 4. Conduct pilots when they bring more confidence to the potential users of the indicators.
- 5. Communication between these different actors is important for a successful implementation. An integrated approach will positively influence people's opinion towards the implementation of the indicators.
- 6. Administrative load attended to the use of indicators is an important barrier. Involving people in the process and making them aware of the value indicators, may convince them that the administrative load is worth the time.
- 7. Feedback is an intervention to provide the possibility to improve internal processes. It is however important to adjust the providing of the feedback to the needs of the organization.

Implementing the sciatica indicators

- 1. The case study showed comparable conclusions to the rest of the research. According to the people involved, more attention needs to be given to communication in the implementation process.
- 2. We recommend that the pilot study will be supported scientifically to study the feasibility of the RDQ and the VAS scores as measurement for quality. There is no scientific literature whether the RDQ and VAS are suitable for registration by patients. Also the discriminating power of the scores for both the conservative and invasive treatment has to be studied. This can be done by an independent scientific organization.
- 3. The implementation has to be guided by a project team. This team has to be composed with representatives of the different involved parties, and clear goals and expectations have to be set. Our recommendation is that on crucial moments in the project planning go-no-go decisions will be made so that the progression of the project is monitored.

Further research

- 1. It would be interesting to research to what extend the indicators will achieve their goals of external accountability by means of providing consumer choice information and actual use during the care purchase negotiations.
- 2. P4P is a 'hot item' in the United States and the United Kingdom. Financial rewarding would be expected in market competition. During the interviews, it became clear that this type of rewarding is not yet accepted in the Netherlands. Research to the feasibility of P4P in the Netherlands would give more insight in the possibilities of financial rewarding.

- 3. A number of additional case studies of indicator sets in hospitals would give an extended view on the reality. To see how they cope with barriers, and which incentives and interventions are used to create a successful implementation.
- 4. Because of the explorative character of this research each of the five different subjects: incentives, critical dynamics, barriers, interventions and practical use, could be examined more extensively in further research.

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Annex 1: ZONMw indicators

Condition	Scientific associations
Inguinal hernia*	Dutch Society of Medical Science (NVvH)
Diabetes mellitus*	Dutch Society of Internal Medicine (NIV)
Incontinence women*	Dutch Society of Obstetrics and Gynaecology (NVOG)
Cataract surgery*	Dutch Society of Ophthalmology (NOG)
Hip- and knee replacement*	Dutch Society of Orthopedist (NOV)
lumbosacral radicular	Dutch Society of Neurologists (NVN)
syndrome (sciatica)	Dutch Society of Neurosurgeon (NVvN)
	Dutch Society of Orthopedist (NOV)
Mamma carcinoma*	Dutch Society of Medical Science (NVvH)
Tonsil and adenoid disease	Dutch Society of Otorhinolaryngology and Cervico-Facial Surgery
	Dutch Society of Anesthesiology (NVA)
Bladder carcinoma	Dutch Society of Urology (NVU)
Varicose	Dutch Society of Medical Science (NVvH)
	Dutch Society of Dermatology and Venereology (NVDV)

*Evidence based indicators that are being used by the insurers since 2006.

Annex 2: Interview questions (Dutch)

1. Prikkels voor implementatie van aandoeningspecifieke indicatoren

- a) Welke prikkels kunnen er op landelijk niveau leiden tot de implementatie van de indicatoren?
- b) Welke prikkels kunnen er op ziekenhuis niveau leiden tot de implementatie van de indicatoren?
- c) Welke prikkels kunnen er op professioneel niveau leiden tot de implementatie van de indicatoren?
 - Zou wet en regelgeving omtrent dit onderwerp een prikkel zijn om de indicatoren te implementeren?
 - Zou publiek rapporteren een prikkel zijn om de indicatoren te implementeren?
 - Zou het geven van financiële beloningen een prikkel zijn om te gaan implementeren?
 - Zou de intrinsieke motivatie van de professional een prikkel zijn om te gaan implementeren?

2. Randvoorwaarden voor verspreiding en implementatie

- a) Moeten er landelijke voorwaarden gecreëerd worden voor de implementatie van de indicatoren? Zo ja, welke?
- b) Wat zijn binnen het ziekenhuis de belangrijkste randvoorwaarden waar aanvoldoen moet worden bij de implementatie van de indicatoren?
- c) Welke randvoorwaarden zijn het belangrijkst voor de specialisten bij de implementatie van de indicatoren?
 - Ziet u voordelen van het gebruik van de indicatoren? Zo ja, welke?
 - Vindt u het belangrijk om de registratie en het gebruik van de indicatoren eerst uit te testen, voordat het geïmplementeerd wordt in het ziekhuis? Zo ja, hoe?
 - Zou u de indicatoren sneller gebruiken als u ziet dat het gebruik bij andere organisaties tot een succes leidt? Zo ja, waarom?
 - Denkt u dat de communicatie tussen de verschillende actoren belangrijk is voor de implementatie van de indicatoren? Zo ja, waarom?
 - Speelt de homogeniteit van de gebruikers groep een rol bij de implementatie van de indicatoren? Zo ja, waarom?
 - Zal een continue verbetering van de indicatoren invloed hebben op het implementatieproces? Zo ja, hoe?
 - Moeten de normen en waarden binnen ziekenhuizen aangepast worden als de indicatoren worden geïmplementeerd? Zo ja, hoe?
 - Hebben opinieleiders invloed op de implementatie van de indicatoren? Zo ja, hoe?
 - Hoe moeten andere processen binnen het ziekenhuis aangepast worden als de indicatoren worden geïmplementeerd? Zo ja, hoe?
 - Denkt u dat de infrastructuur van de ICT-systemen binnen het ziekenhuis moet worden aangepast wanneer de indicatoren worden geïmplementeerd? Zo ja, hoe?

3. Barrières

a)Welke barrières zijn er op landelijk niveau voor de implementatie van de indicatoren? b)Wat zijn de belangrijkste weerstanden van de ziekenhuizen?

c)Wat zijn de belangrijkste weerstanden van de specialisten?

- Levert de extra administratie weerstand op?
- Leveren de kosten weerstand op?
- Levert het publiceren van uitkomsten weerstand op?
- Levert het vertrouwen in de indicatoren weerstand op?
- d) Bij welke actoren binnen het ziekenhuis zit de meeste weerstand?
- e) Hoe kan deze weerstand op ziekenhuis niveau doorbroken worden?
- f) Hoe kunnen de branche organisaties helpen om deze weerstanden te doorbreken?

4. Interventies

a) Op welke manier ondersteunende branche organisaties de implementatie van de indicatoren?
- b) Hoe kunnen ziekenhuizen gaan ziekenhuizen de implementatie van de indicatoren faciliteren?
- c) Worden de indicatoren vanuit een interne of een externe motivatie geïmplementeerd?
 - Kunnen financiële of materiële beloningen de implementatie ondersteunen?
 - Kunnen veranderingen op de werkvloer de implementatie ondersteunen?
 - Kunnen feedback en reminders de implementatie ondersteunen?
 - Kunnen scholing en informatie overdracht de implementatie ondersteunen?
- d) Van welke actoren is de implementatie van de indicatoren afhankelijk?
- e) Welke factoren in de relatie tussen deze actoren zijn van belang voor de implementatie van de indicatoren?
- f) Vanuit wie moet het initiatief komen om aandoeningspecifieke indicatoren te implementeren?

5. Gebruik van indicatoren in praktijk

- a) Worden de indicatoren voor interne kwaliteitsverbeteringen of voor externe verantwoording gebruikt?
- b) Wat vindt u van de validiteit van de indicatoren die tot nu toe ontwikkeld zijn?
- c) Wat vindt u van de reproduceerbaarheid van de indicatoren die tot nu toe ontwikkeld zijn?
- d) Denkt u dat de indicatoren meer klanten gaan opleveren voor de ziekenhuizen?
- e) Denkt u dat de ziekenhuizen die de indicatoren publiceren een beter reputatie krijgen?
- f) Denkt u dat het ziekenhuis meer geld van de zorgverzekeraar kan krijgen als ze de indicatoren gaan gebruiken?
- g) Wie gaan de indicatoren gebruiken?
- h) Wie gaat het gebruik van de indicatoren financieren? En hoe?
- i) Is er al kwaliteitsinformatie op aandoeningniveau beschikbaar?
- j) Maken patiënten reeds een keuze op basis van beschikbare kwaliteitsinformatie?
- k) Is kwaliteit van zorg al een punt van aandacht bij de zorginkoop onderhandelingen?
- I) Zullen aandoeningspecifieke indicatoren een rol gaan spelen bij de zorginkoop onderhandelingen?

Eind interview

Zijn er nog kritische factoren die van belang zijn bij de implementatie van de indicatoren die nog niet benoemd zijn in dit interview?

Annex 3: List of interviewees

Interviewees	Function and organization
Jan Maarten v/d Berg	Inspector, IGZ
Peter Go	Surgeon, St. Antonius
Rob Verrips	Senior adviser, NVZ
Nico van Weert	Head of staff board, Atrium
Hans Kerkkamp	Board of directors, Atrium
Bas Geerdes	Medical adviser, ZN
Jeanine Kamp	Care purchase manager, Menzis
Rob Dillman	Board of directors, ZMC

Annex 4: Survey questionnaire (Dutch)

Meer en meer worden de Nederlandse ziekenhuizen en medisch specialisten gevraagd zich te verantwoorden over de geleverde prestaties. De gegevens worden uitvraagt door verschillende partijen, dit is deels het gevolg van wettelijke verplichtingen, bijvoorbeeld het toezicht door de IGZ.

Ten gevolge van de marktwerking maar ook de toenemende vraag van consumenten om informatie, is de laatste jaren echter nog een andere stroom van gegevens ontstaan. Ook partijen die niet tot de overheid behoren en geen wettelijke taak uitvoeren, kloppen in toenemende mate aan bij de ziekenhuizen om gegevens uit te vragen. Het is tegenwoordig meer dan in het verleden normaal dat organisaties met een maatschappelijke functie publiek verantwoording afleggen. Het gevolg is echter wel dat de ziekenhuizen geconfronteerd worden met een toenemende vraag naar gegevens en informatie en dus hogere kosten voor het bedienen van al deze partijen.

Stroomlijnen van de vele initiatieven die er op dit moment gaande zijn is noodzakelijk om te voorkomen dat zorginstellingen belast worden met steeds hoger wordende administratieve lasten. Daarom willen partijen in het veld het meten van kwaliteit nu simultaan en integraal aanpakken. Recent hebben, de Nederlandse Vereniging van Ziekenhuizen, de Orde van Medisch Specialisten, de Nederlandse Federatie van Universitaire Medische Centra, de Vereniging voor Verpleegkundigen en Verzorgenden Nederland, Zorgverzekeraars Nederland, de Nederlandse Patiënten en Consumenten Federatie en de Inspectie voor de Gezondheidszorg daartoe de samenwerkingsovereenkomst 'Kwaliteitsinformatie Medisch-specialistische zorg' getekend en aangeboden aan de minister.

Hoewel inmiddels een aantal sets aandoeningspecifieke indicatoren voor keuze en inkoop zijn ontwikkeld blijkt de implementatie en het gebruik van indicatoren achter te blijven. Middels een onderzoek proberen wij te achterhalen wat de randvoorwaarden zijn waaronder ziekenhuizen en medisch specialisten overgaan tot de implementatie en gebruik van indicatoren. Naast literatuuronderzoek en interviews, zetten wij hiervoor enquêtes uit. Op basis van de resultaten van het onderzoek zullen wij aanbevelingen doen die aan het ministerie van VWS zullen worden aangeboden.

Wij zouden het op prijs stellen als u uw medewerking aan de enquête zou verlenen.

De opzet van dit onderzoek is afgestemd met NVZ en Orde van medisch Specialisten. Alvast hartelijk dank voor het invullen van de enquête.

Met vriendelijke groet,

Ellen van den Berg, Student aan Universiteit Twente

Mede namens: Dr. M. Kallewaard. Q-consult Bedrijfskundige Adviseurs

Prof. Dr. W.H. van Harten Hoogleraar kwaliteitsmanagement van zorgtechnologie Universiteit Twente.

Algemeen

1. In welke categorie ziekenhuis bent u werkzaam:	 Academisch Top Klinisch Algemeen Categoraal
2. Welke functie bekleedt u binnen het ziekenhuis:	
3. Bent u betrokken of ooit betrokken geweest bij de ontwikkeling van aandoeningspecifieke indicatoren binnen ziekenhuizen?	☐ Ja ☐ Nee
 Bent u bekend met de aandoeningspecifieke indicatoren die ontwikkeld zijn door de Orde en het CBO: 	☐ Ja, bekend ☐ Nee, onbekend ☐ Wel eens van gehoord
5. Bent u al begonnen met de registratie en het gebruik van deze aandoeningspecifieke indicatoren:	☐ Ja ☐ Ja, deels ☐ Nee ☐ Onbekend
6. Worden er binnen uw instelling al aandoeningspecifieke indicatoren geregistreerd in het Ziekenhuis Informatie Systeem (ZIS):	☐ Ja ☐ Ja, deels ☐ Nee ☐ Onbekend

Prikkels voor implementatie van aandoeningspecifieke indicatoren

 De volgende prikkels zullen u stimuleren om over te gaan tot de registratie en het gebruiken van de aandoeningspecifieke indicatoren: 	Zeer oneens	Oneens	Niet oneens/ niet eens	Eens	Zeer eens
Wet en regelgeving					
Financiële beloningen voor geleverde kwaliteit					
Publiceren van prestaties in bijvoorbeeld ranglijsten					
Motivatie vanuit de individuele professional					
Motivatie vanuit de wetenschappelijke vereniging					
Sociale druk vanuit de ziekenhuisorganisatie en andere belanghebbende					
De maatschappelijke vraag naar transparantie					
Verbetermogelijkheden van de interne processen van het ziekenhuis					

Randvoorwaarden voor verspreiding en implementatie

 Beantwoord de volgende stellingen: Het gaat hier uitsluitend over aandoeningspecifieke indicatoren van de Orde en het CBO 	Zeer oneens	Oneens	Niet oneens/ niet eens	Eens	Zeer eens
Het gebruik van indicatoren brengt meer voordelen dan nadelen met zich mee					
Het is belangrijk om, voorafgaand aan het gebruik van indicatoren, te testen of ze valide en vergelijkbaar genoeg zijn.					
Wij gaan indicatoren pas registreren en gebruiken als we hebben gezien dat het een succes is bij andere ziekenhuizen					
Veel persoonlijk contact tussen betrokken medewerkers zal een positieve invloed hebben op de registratie van de indicatoren					
Het feit dat er veel verschillende medewerkers betrokken zijn bij het gebruik van indicatoren heeft geen invloed op de registratie en het gebruik.					
Het heeft de voorkeur om te wachten met de registratie en het gebruiken van de indicatoren tot deze zijn uitontwikkeld					
Het primaire proces van het ziekenhuis komt niet in de verdrukking wanneer men indicatoren gaat registreren en gebruiken					
Gezaghebbende collegae hebben veel invloed op de registratie en het gebruik van indicatoren					
In het afstemmen van processen binnen het ziekenhuis voor het gebruik van indicatoren gaat veel tijd zitten					
Er hoeft bij ons weinig op ICT-gebied te gebeuren voordat de indicatoren geregistreerd en gebruikt kunnen worden					

Barrières

-

9. Welk van de volgende punten levert de meeste weerstand op bij de implementatie van aandoeningspecifieke indicatoren (1 antwoord mogelijk):	 Administratieve lasten Kosten Vertrouwen in validiteit en vergelijkbaarheid van de indicatoren Publicatie van prestaties in bijv. ranglijsten Anders namelijk:
10. Bij welke partij in het ziekenhuis is de meeste weerstand merkbaar (1 antwoord mogelijk):	 Medische staf Management van het ziekenhuis Ondersteunende afdelingen Anders namelijk:

Interventies					
11. De registratie van aandoeningspecifieke indicatoren kan worden ondersteund door:	Zeer oneens	Oneens	Niet oneens/ niet eens	Eens	Zeer eens
Financiële beloningen					
Praktische ondersteuning					
Feedback op prestaties					
Reminders voor de registratie					
Scholing en informatieoverdracht					
 12. Welke prioriteit hoort er bij de verschillende ondersteuningen: (Eerste prioriteit: 3 Tweede prioriteit: 2 Derde prioriteit: 1) 	 Financiële beloningen Praktische ondersteuning Feedback op prestaties Reminders voor de registratie Scholing en informatieoverdracht 				
13. Het initiatief voor de registratie en het gebruik van aandoeningspecifieke indicatoren binnen het ziekenhuis komt vanuit (1 antwoord mogelijk):	 Raad van Bestuur Medische staf Management van het ziekenhuis Ondersteunende afdelingen 				

Gebruik van indicatoren in de praktijk

14. De aandoeningspecifieke indicatoren worden voornamelijk gebruikt voor (1 antwoord mogelijk):	 Interne kwaliteitsverbetering Externe verantwoording De onderhandelingen met de zorgverzekeraar 				
15. De huidige aandoeningspecifieke indicatoren voldoen momenteel aan de volgende punten:	Zeer oneens	Oneens	Niet oneens/ niet eens	Eens	Zeer eens
Ze zijn valide					
Ze zijn betrouwbaar					
Ze kunnen gebruikt worden om instellingen te vergelijken					
Ze kunnen worden gebruikt door de patiënt als keuze informatie					
Ze kunnen worden gebruikt met de zorginkoop onderhandelingen					
16. Het gebruik van aandoeningspecifieke indicatoren levert het ziekenhuis het volgende op:	Zeer oneens	Oneens	Niet oneens/ niet eens	Eens	Zeer eens
Meer klanten					
Een betere reputatie					
Meer geld vanuit de zorgverzekeraar					
Meer efficiëntie					
Niets					

Aanvullende vragen voor professional

 17. Beantwoord de volgende stellingen: Het gaat hier uitsluitend over aandoeningspecifieke indicatoren van de Orde en het CBO 	Zeer oneens	Oneens	Niet oneens/ niet eens	Eens	Zeer eens
Ik ga extra letten op de kwaliteit die geleverd wordt aan patiënten met aandoeningen waarvan indicatoren geregistreerd moeten worden					
De registratie en gebruik van de indicatoren is verbonden met de medische wetenschap.					
Ik heb op dit moment genoeg informatie om te beginnen met het registeren van de indicatoren					
Ik kan van mijn collega's medewerking verwachten als ik de indicatoren ga registreren en gebruiken					
Ik zal minder patiënten kunnen behandelen omdat er tijd gaat zitten in het registreren van de indicatoren					
Ik heb zelf de controle over de registratie en het gebruik van de indicatoren					

Hartelijk dank voor het invullen van de enquête De gegevens worden anoniem verwerkt en zullen niet aan derden worden verstrekt.

Annex 5: Sciatica indicators (Dutch)

1. Aantal dagen tussen operatie-indicatie door operateur en operatie

Relatie tot kwaliteit	 Wanneer de operateur de operatie-indicatie stelt, dient de OK binnen 7 weken plaats te vinden (Treeknorm). De werkgroep acht een termijn van 4 weken wenselijk tussen het stellen van de operatie-indicatie door de operateur en het uitvoeren van een operatie (mediaan), om onnodige pijn, onnodig ziekteverzuim en invaliditeit bij de patiënt te voorkomen. Een relatief lange periode tussen een operatie-indicatie en de operatie kan duiden op inefficiënte organisatie binnen de instelling.
Definitie (s)	Wachttijd tot OK: het aantal dagen tussen indicatiestelling voor operatie door de operateur en operatie.
	Datum van stellen operatie-indicatie= datum van opname op de OK-wachtlijst.
	Mediaan = de middelste waarde uit een reeks
Operationalisatie	Per patiënt:
	Datum uitgevoerde lumbale HNP operatie minus datum OK indicatie stelling door operateur.
	Van alle patiënten in deze groep zijn gemiddelde, mediaan en spreiding nodig van de wachttijd tot OK om een oordeel te kunnen geven over consistentie van gemeten waarden.
Rapportage	Per instelling weergeven:
	Gemiddelde: dagen
	Mediaan: dagen
	Spreiding: dagen
In/exclusiecriteria	Inclusie: <i>alle</i> patiënten (inclusief spoed) die een lumbale HNP- OK wensen en waarbij de operateur de indicatie voor OK heeft gesteld.
	Het gaat om 'afgeronde' patiënten in het registratiejaar: d.w.z. patiënten die daadwerkelijk een operatie hebben ondergaan.
Type indicator	Proces
Kwaliteitsdomein	Tijdigheid, patiëntgerichtheid

2. Ziektespecifieke functionaliteit

Relatie tot kwaliteit	De Roland Disability Questionnaire for Sciatica (RDQS-23) als meetinstrument op beperking- en handicapniveau geeft samen met de gemeten been- en rugpijn pijnintensiteit (VAS pijn als meetinstrument op stoornisniveau) weer hoe het effect is van behandeling in een patiënten populatie met een radiculair syndroom ten gevolge van een discushernia. De werkgroep is van mening dat de gemeten Roland- en VAS scores (zie indicator 3) betrekking hebben op een belangrijk aspect van de kwaliteit van de keten van zorg.			ca (RDQS-23) als veau geeft samen eit (VAS pijn als het effect is van een radiculair Roland- en VAS e een belangrijk g.
	(Om redenen va Ziektespecifieke gescheiden wee	n presentatie (functionaliteit rgegeven.)	en indicator 3:	or 2: Pijnintensiteit
Definitie (s)	a. Ziektespecifie b. Duur klachten	ke functionalite (in weken)	eit (RDQS sco	re)
Operationalisatie	Metingen per par A RDQS score B Duur klachten	tiënt: 1 ^e meting: Tijdens 1e consult in 2e lijn	2 ^e meting: Rond 8 weken na 1e consult in 20 liin	3 ^e meting: Na ± 24 weken na 1 ^e consult in 2 ^e lijn óf bii
2a Structuurindicator	 Per instelling weiler Meet u de zinde 3 meetmer Ja / Nee / N. Meet u de da lijn)? Ja / Nee / N. *Doorhalen wat u 	<i>ergeven:</i> ektespecifieke omenten? <i>v.t.*</i> uur van de klad <i>v.t.*</i> niet van toepa	functionaliteit chten (tijdens ⁻ ssing is.	(RDQS score) voor 1e consult in de 2e

2b Procesindicator Teller/noemer	<i>Teller</i> : Het aantal LRS-patiënten t.g.v. hernia waarbij voor de 3 meetmomenten de ziektespecifieke functionaliteit (RDQS score) is gemeten.
	<i>Noemer</i> : Totale aantal LRS-patiënten t.g.v. hernia tussen 1 januari t/m 31 december
	Percentage:%
	<i>Teller</i> : Het aantal LRS-patiënten t.g.v. hernia waarbij de duur van de klachten (tijdens 1 ^e consult in de 2 ^e lijn) is gemeten.
	<i>Noemer</i> : Totale aantal LRS-patiënten t.g.v. hernia tussen 1 januari t/m 31 december
	Percentage:%
2c Uitkomstindicator	<i>Teller:</i> Som van de RDQS score per patiënt van alle LRS- patiënten t.g.v. hernia tussen 1 januari t/m 31 december (apart voor meetmoment 1, 2 en 3)
	Noemer: Totale aantal LRS-patiënten t.g.v. hernia per meetmoment tussen 1 januari t/m 31 december
	Per instelling weergeven:
	Gemiddelde RDQS score 1 ^e meting:(95 % Bl)
	Gemiddelde RDQS score 2 ^e meting:(95 % Bl)
	Gemiddelde RDQS score 3 ^e meting:(95 % Bl)
In/ exclusiecriteria	Inclusie: Patiënten met een lumbosacraal radiculair syndroom ten gevolge van een discus hernia, welke gediagnosticeerd en (zowel conservatief als operatief) behandeld worden in de tweede lijn.
Type indicator	Structuur/Proces/Uitkomst
Kwaliteitsdomein	Effectiviteit, patiëntgerichtheid
	Als uw ziekenhuis verschillende locaties/vestigingen heeft waar operatieve ingrepen worden uitgevoerd, is het van belang dat u van alle locatie/vestigingen apart gegevens rapporteert.

3. Pijnintensiteit

Relatie tot kwaliteit	Een lumbosacraal radiculair syndroom (LRS) wordt gekenmerkt door in de bil en/of het been uitstralende pijn, vergezeld van één of meerdere symptomen of verschijnselen die een aandoening van een specifieke lumbosacrale zenuwwortel suggereren. Een discushernia is een anatomische afwijking van de tussenwervelschijf waarbij deze lokaal uitpuilt. Deze afwijking leidt meestal niet tot symptomen, is in enkele gevallen de oorzaak van een LRS, en leidt waarschijnlijk ook soms tot rugpijn.
	Het blijkt dat gestandaardiseerde pijnmetingen o.h.a. leiden tot meer inzicht in pijnervaring van patiënten en daardoor effectieve pijnbestrijding (IGZ 2006).
	Voor het meten van de intensiteit van pijn zijn verschillende meetinstrumenten ontwikkeld. Dit zijn over het algemeen schalen waarop men kan aangeven hoeveel pijn men in een bepaalde periode heeft gehad. De voorkeur van de werkgroep gaat uit naar de hantering van de VAS schaal om zowel VAS beenpijn, als VAS rugpijn te meten (Collins 1997).
	De werkgroep is van mening dat de gemeten VAS- en Roland scores (zie indicator 2) betrekking hebben op een belangrijk aspect van de kwaliteit van (de keten van) zorg.
	(Om redenen van presentatie worden indicator 2: Ziektespecifieke functionaliteit en indicator 3: Pijnintensiteit gescheiden weergegeven.)
Definitie (s)	a. Pijnintensiteit been (VAS beenpijn)
	b. Pijnintensiteit rug (VAS rugpijn)
Operationalisatie	Metingen per patiënt:
	1° meting:2° meting:3° meting:Tijdens 1e consult in 2e lijnRond 8 weken na 1e consult inNa ± 24 weken na 1° consult in 2° lijnaVAS beenpijn VAS rugpijnImage: Consult in the second s
3a Structuurindicator	 Per instelling weergeven: Meet u de VAS beenpijn voor de 3 meetmomenten? Ja / Nee / N.v.t.*
	 Meet u de VAS rugpijn voor de 3 meetmomenten? Ja / Nee / N.v.t.* *Doorhalen wat niet van toepassing is.

<i>3b Procesindicator</i> Teller/noemer	<i>Teller</i> : Het aantal patiënten waarbij voor de 3 meetmomenten de VAS score beenpijn is gemeten.
	<i>Noemer</i> : Totale aantal LRS- patiënten t.g.v. hernia tussen 1 januari t/m 31 december
	Percentage:%
	<i>Teller</i> : Het aantal patiënten waarbij voor de 3 meetmomenten de VAS score rugpijn is gemeten.
	<i>Noemer</i> : Totale aantal LRS- patiënten t.g.v. hernia tussen 1 januari t/m 31 december
	Percentage:%
<i>3c Uitkomstindicator</i> Teller/noemer	<i>Teller</i> : Som van de VAS score beenpijn per patiënt van alle LRS-patiënten t.g.v. hernia tussen 1 januari t/m 31 december (apart voor meetmoment 1, 2 en 3)
	<i>Noemer</i> : Totale aantal LRS-patiënten t.g.v. hernia per meetmoment tussen 1 januari t/m 31 december
	Per instelling weergeven:
	Gemiddelde VAS beenpijn 1 ^e meting:(95 % BI)
	Gemiddelde VAS beenpijn 2 ^e meting:(95 % BI)
Teller/noemer	Gemiddelde VAS beenpijn 3 ^e meting:(95 % Bl)
	<i>Teller</i> : Som van de VAS score rugpijn per patiënt van alle LRS- patiënten t.g.v. hernia tussen 1 januari t/m 31 december (apart voor meetmoment 1, 2 en 3)
	Noemer: Totale aantal LRS-patiënten t.g.v. hernia per meetmoment tussen 1 januari t/m 31 december
	Per instelling weergeven:
	Gemiddelde VAS rugpijn 1 ^e meting:(95 % BI)
	Gemiddelde VAS rugpijn 2 ^e meting:(95 % BI)
	Gemiddelde VAS rugpijn 3 ^e meting:(95 % BI)
In/ exclusiecriteria	Inclusie: Patiënten met een lumbosacraal radiculair syndroom ten gevolge van een discus hernia, welke gediagnosticeerd en behandeld worden in de tweede lijn.
Type indicator	Structuur/Proces/Uitkomst
Kwaliteitsdomein	Effectiviteit, patiëntgerichtheid

Als uw ziekenhuis verschillende locaties/vestigingen heeft waar operatieve ingrepen worden uitgevoerd, is het van belang dat u van alle locatie/vestigingen apart gegevens rapporteert.

4. Heroperaties binnen 30 dagen (na te gaan door zorginstellingen én zorgverzekeraars)

Relatie tot kwaliteit	Een heroperatie kan worden verricht omdat een vorige operatie tot complicaties heeft geleid of niet de gewenst resultaten heeft opgeleverd. Complicaties kunnen altijd voorkomen, maar kunnen ook het gevolg zijn van onvoldoende kwaliteit van zorg (bijvoorbeeld een suboptimale operatietechniek bij de primaire operatie, suboptimale peri- operatieve zorg, suboptimale indicatiestelling) (IGZ 2006). Postoperatieve complicaties na een hernia operatie zijn: nabloeding, liquorlekkage, infectie, operatie op verkeerd niveau en een "vroeg" recidief hernia. Ernstige complicaties leiden mogelijk tot heroperatie.
Definitie (s)	Percentage heroperaties binnen 30 dagen na een herniaoperatie per kalenderjaar.
Teller	Na te gaan door zorginstellingen: Aantal heroperaties <30 dagen na een herniaoperatie in dezelfde kliniek van 31 januari t/m 31 december Na te gaan door zorgverzekeraars: Aantal heroperaties <30 dagen na een herniaoperatie in een andere instelling dan primaire behandelcentrum van 31 januari t/m 31 december
Noemer	Totaal aantal primaire hernia-operaties van 1 januari t/m 31 december
In/ exclusiecriteria	Inclusiecriteria: leeftijd 18 tot 70 jaar, primaire electieve hernia- operaties.
Type indicator	Uitkomstindicator
Kwaliteitsdomein	Effectiviteit, veiligheid
	Als uw ziekenhuis verschillende locaties/vestigingen heeft waar operatieve ingrepen worden uitgevoerd, is het van belang dat u van alle locatie/vestigingen apart gegevens rapporteert.

Annex 6: Case study

Interviewees	Function and organisation
Mona van de Steeg	Adviseur, CBO
Margreet Pols	Adviseur, CBO
Wilco Peul	Neurochirurg, LUMC/MC Haaglanden
Marieke Visser	Neuroloog, VUMC
Patrick Vromen	Neuroloog, UMCG
Martine Versluis	Beleidsmedewerker, NPCF
Harm Bruins Slot	Medisch adviseur, Delta Llyod



physician

Case study (Example patient logistic)

system

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