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An evaluation of value-oriented care purchasing

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Preface

This thesis presents the research done for my graduation project for the master Business Administration with a specialization in Purchasing and supply chain management at the University of Twente. Within this research I could combine my interest in health care and purchasing.

First, I would like to thank my supervisor Dr. Frederik Vos for the very helpful, enthusiastic, and outstanding supervision. He consistently answered my questions on time so that I could continue my research. I could not have completed this research without your cooperation. I also would like to thank Dr. Louisa Knight as second reader of this thesis for her valuable comments on this thesis.

I also want to thank Company X, especially everyone from the MSZ department for answering all my questions and the opportunity they gave me to do conduct this interesting research in one of the largest insurance company in the Netherlands. Furthermore, I would like to thank all participants who responded to the questionnaire and providing information that I needed. Without their help, this research could not have been carried out.

I hope you will enjoy reading this thesis.

Marli Leus

15-05-2020

Abstract

Introduction: Health insurers are facing numbers of major challenges as rising healthcare costs, changing client behavior, and growing technological possibilities. For quality, healthcare organizations still do not sufficiently meet the needs and wishes of patients. A solution is shifting to a focus on value of healthcare. Health insurers are increasingly experimenting with how to increase the value of healthcare with a focus on different value-oriented activities. However, results of such activities are unclear. Therefore, the aim of this study is to evaluate value-oriented activities from a health insurers perspective. The purpose is to determine which value-oriented activities are most likely to influence quality and costs of care.

Methods: Based on literature search, four value-oriented activities were identified; Integrated practice units / coordinated care, benchmarking, output rewarding and concentration of care. Different research methods are evaluated to examine the effects of value-oriented activities. A questionnaire was used as research method. The questionnaire was developed by combining different existing validated questionnaires. The questionnaire would be spread at members of Company X' value-oriented care purchasing process. Results of the questionnaire were validated by performing interviews. However, due to COVID-19 the questionnaire could not be disseminated among medical specialists. Instead of collecting and analyzing results of the questionnaire, an extensive method is written where qualitative, quantitative and desk research were discussed.

Data analysis: Qualitative Comparison Analysis (QCA) will be used for analyzing the questionnaire. QCA methodology contains five different steps. The first step was identifying relevant outcomes and a list of conditions associated with the outcomes. Outcomes in this study were based on Porters three-tiers. The second step is developing calibration metrics. Step three is calibrating the data and step four is developing a truth table. The last step is assessing these pathways with parameters of fit. Opinions of medical specialists and quality employees about the value-oriented process will be compared performing Student-t-tests.

Discussion: There is suggested to conduct this study with a larger sample size, because QCA does not assess significance. There is suggested to continue this research focusing on one disease/ condition. In this way, the questionnaire will be modified to this specific condition and can be related to relevant outcomes. Another suggestion is to take patient reported

outcome measures into account, because a main goal of value-oriented activities is increasing patient value.

Practical and academic relevance: The theoretical relevance of this study is that the effect of different value-oriented activities will be identified in terms of costs, quality, and opinions. The porter view and other value-oriented activities will be assessed on a larger scale in the Netherlands. Also, the relationship between quality and costs will be further analyzed. Does the introduction of value-oriented activities result in a win-win or win-lose situation? The practical relevance of this study is to provide information for health insurers about whether to focus on value-oriented activities and which activities should be focused on.

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Index of abbreviations

VBHC	Value-Based Healthcare
DTC	Diagnosis Treatment Combinations
DOT	DTCs Toward Transparency
ICHOM	International Consortium for Health Outcomes Measurement
IPUs	Integrated Practice Units
PROMs	Patient Reported Outcome Measures
RCT	A randomized controlled trial
QCA	Qualitative Comparative Analysis

1. Introduction

Dutch citizens rate the quality of the Dutch health system and their health as good (Kroneman et al., 2016, p. 187). Moreover, international comparisons show that quality of care is high in the Netherlands. However, healthcare organizations still do not sufficiently meet the needs and wishes of patients (Kroneman et al., 2016, pp. 187, 188). Some indicators reveal improvement in efficiency of care over the past years. Nevertheless, at this moment the Netherlands still has one of the highest per capita health expenditures in Europe. The fee-for-service health care payment system within the Netherlands that reimburses providers for individual services is worldwide known for promoting care that is inefficient and uncoordinated (Kroneman et al., 2016, p. 184). The increase in the elderly population, the number of patients with (multiple) chronic diseases and technological progress, will increase the costs even more due to high medication and treatment costs (Ouwens M, 2011, p. 1). The focus of healthcare in the Netherlands is on improving quality of care and containing costs (Kroneman et al., 2016, p. 184). Best practices from various sectors show that high quality and low costs of care can go hand in hand (Ikkersheim D, 2010, p. 10).

Within this process in the Netherlands, there is an important role for health insurers. Health insurers task is to contribute to affordable, accessible, and good quality of care. Health insurers are facing numbers of major challenges as rising healthcare costs, changing client behaviour and growing technological possibilities (De Nederlandsche Bank, 2017, p. 4). The future of health insurers need to face these challenges, therefore it is suggested that the insurer of the future will need to be: (1) customer centric, (2) data savvy and automated, (3) a partnering organization, (4) strong in the core insurance business and (5) flexible and cost-efficient (EY, 2015, p. 11). To remain relevant, health insurance will need to reinvent their business model (EY, 2015, p. 11). A solution for this could be a shift from paying for quality of care instead of paying for quantity. Health insurers should ‘buy’ the best possible health care for the lowest possible costs. Health providers and insurers should become partners whose interests are aligned around a common goal of improving the health of patients. At this moment, many difficulties exist. Health providers time is scares, administrative burden could be a barrier and there exists distrust between health providers and insurers (Beveridge, Happe, & Funk, 2016, pp. 1-2).

In order to control costs and improve quality, investments in the national implementation of programs which have shown to increase quality and reduce costs must be made (Ouwens

M, 2011, p. 1). This can be done by developing an overarching goal of healthcare delivery, based on achieving high value for patients (Porter, 2010, p. 1). A well-known approach to improve quality of care and reduce costs is Value Based Healthcare (VBHC) developed by Michael Porter. This approach is focused on maximizing value of patient care: health outcome per euro of cost expended. In this way health providers that achieve excellence are rewarded with more business, and better care can result in lower costs. To achieve competition on results, the results that are measured should be shared (M. E. Porter & Lee, 2013, p. 6). At this moment, many variants of VBHC were developed. The case for countries to align their health systems with value-based approaches has never been stronger. Focusing on healthcare outcomes, helps health providers manage cost increases, make the best use of finite resources, and deliver improved care to patients. This requires a shift from a supply-driven model to a patient-driven model (The Economist Intelligence Unit Limited, 2016, p. 6).

To shift from a supply-driven model to a patient-driven model, health insurers are increasingly experimenting with how to increase the value of healthcare with a focus on different activities. Results of such activities are unclear. Value-oriented programs promise increased patient experience, cost reductions and increasing quality of care (Bozic, Wright, & Research®, 2012, p. 2) (Porter, 2010, p. 1). However, for health insurers it is unknown whether these programs result in better outcomes. Health insurers want to identify if these programs result in a better image of the organization, improves the quality of care and whether these programs result in cost savings. Literature about the outcomes of maximizing value strategies are scarce (Groenewoud, Westert, & Kremer, 2019, p. 2). This results in uncertainties for health insurers. For example, Company X a large health insurance company in the Netherlands has started a value-oriented care purchasing process for knee- and hip osteoarthritis, rheumatoid arthritis, cataract, breast cancer and heart care focussed on benchmarking and output rewarding. Company X has eliminated volume agreements with participating institutions, to give room to possible improvement to the institutions. Now this free volume could lead to a widening of indicator assessment to increase revenue. Company X is curious as to whether participating institutions have improved the quality of care and whether they widen indicator assessment, but has no evidence for this (Menzis, 2018, p. 1). Company X has started a value-oriented care purchasing process for knee- and hip osteoarthritis, rheumatoid arthritis, cataract, breast cancer and heart care. These diseases are suitable for value-oriented care programs because these are elective procedures and there is

a wide variation in approaches (Bozic et al., 2012, p. 2). There are also clearly defined metrics of value in terms of costs and quality, there are patient reported outcomes, there is sufficient information about the pathway to make it possible to shape and evaluate improvements in effort, and in these procedures there is room to improve value for patient care (Zelmer, 2018, pp. 15-16).

The aim of this study is to evaluate value-oriented activities from a health insurers perspective. The purpose is to determine which value-oriented activities are most likely to influence quality and costs of care. This can help health insurers find what the innovation yields, and which value-oriented activities should be focused on, and what should be improved. Healthcare organizations are setting up value improvements, and there are many papers about promising effects of value-oriented activities. However, literature about the real outcomes of value-oriented activities is still limited. Van Deen et al. (2017) found that with the use of a VBHC program, the number of emergency department visits were reduced. Another study found that the pathway costs were lower after the introduction of VBHC (Gabriel et al., 2019, p. 6). However, this should also be tested for the long-term and on a larger scale (W. K. van Deen et al., 2017, p. 1). Knowing these effects, could have a beneficial influence on the outcomes of value-oriented activities, because in this way difficulties can be identified, and more attention can be paid to them. To investigate the outcomes of value-oriented activities for health insurers, the following research question is formulated: "*What are the outcomes in terms of quality, costs and opinions of value-oriented care activities from a health insurers perspective?"*

This study contributes to the existing literature by presenting the effects of different value-oriented activities for health insurers in terms of quality, costs, and opinions of medical specialists. The porter view and other value-oriented activities will be assessed on a larger scale in the Netherlands. Gabriel et al. (2019) found that the introduction of Integrated Practice Units resulted in a higher value of care because of lower pathway costs (Gabriel et al., 2019, pp. 6-7). A study of Van Deen et al. (2017) found that concentration of care and continuous monitoring resulted in fewer emergency visits and imaging studies (W. K. van Deen et al., 2017, p. 1). This study will try to add knowledge about the results of different components of VBHC to the existing literature. This study will assess the relative strength of different value-oriented activities and whether those activities can enhance each other. According to Porter, it is expected that different value-oriented activities will enhance each other because value in care is reached in different steps (M. E. Porter & Lee, 2013). This

could help health insurers to decide whether value-oriented activities are important for health insurers when deciding the need of a value-oriented program and based on which activities. The second contribution to the literature is that there will be tested to what extent output rewarding already exists in the Netherlands and whether this will result in an increased quality of care and/or a reduction in costs. Doran & Zabinski (2015) found that bundled payment has already successfully decreased the costs of total joint replacement by a decreased number of hospital days and an increased discharge to home rather than to nursing homes (Doran & Zabinski, 2015, p. 1). This is relevant in the current discussion about payment structures in the Dutch fee-for-service reimbursement system. The third contribution is to investigate the relationship between quality and costs with the introduction of value-oriented components. The theoretical relationship between quality of care and healthcare costs indicates that the higher the costs, the higher the quality achieved (Donabedian, Wheeler, & Wyszewianski, 1982, p. 1). However, in the literature it is expected that value-oriented components will result in an improvement in quality and at the same time a reduction in costs. This study will try to find evidence for this relationship to add to the existing literature. Therefore, this study contributes to the existing literature by presenting whether the introduction of value-oriented programs results in a win-win situation in terms of quality of costs or in a win-lose situation.

Above, the research goal and relevance of this study are discussed. To answer the research question, first a theoretical framework and literature review is exhibited. In chapter three hypothesis and research model of this study are presented. In chapter four possible research methods that could answer the research question will be discussed. In chapter five the research method is explained. Finally, in chapter five and six the discussion, optimal method, future research, and limitations are presented.

2. Theoretical framework

2.1 Insurance market in the Dutch context

In the Netherlands, in 2006 a major health care reform was introduced. This was aimed at reinforcing regulated competition in the health care sector, to keep healthcare affordable. The basic idea was to give risk-bearing health insurers appropriate incentives and tools to act as prudent health services buyers on behalf of their customers. Consumers were free to choose among all basic health plans offered by insurers (Schut & Varkevisser, 2017, p. 1). Due to this law, health insurers have more room to negotiate with health providers about price, volume, and quality of care. They were allowed to contract selectively and use financial incentives for channelling patients to preferred providers (Schut & Varkevisser, 2017, p. 2).

At this moment, the health insurers sector faces several major challenges: rising healthcare costs, changing client behaviour, growing technological possibilities and changing laws and regulations (De Nederlandsche Bank, 2017, p. 4). Pressures on restraining costs and efforts on health care reform have intensified interest in moving away from fee-for-service (Zuvekas & Cohen, 2016, p. 1).

Health insurers should modernize their business model to fulfil the directing role as intended by law (De Nederlandsche Bank, 2017, p. 4). The most important tasks of health insurers is described as guaranteeing solidarity and stability, cost control and distinctiveness of health insurers (De Nederlandsche Bank, 2017, p. 5). Health insurers are moving to reshape economic incentives. This is done to drive providers to realign business models around value programs: outcomes metrics, reduced costs, and empowered patients. They move to a heightened scrutiny of the value of interventions in coverage decisions (EY, 2015, p. 3). Despite the huge shift to data and analytics as value drivers, health insurers make relatively little use of data they already generate. The catalysts of change are out there, patients' expectations have increased and they are demanding transparency from health providers (EY, 2015, p. 3). EY suggests that health insurers must respond to this. A way to do this is focusing on long-term partnerships with health providers to improve behaviours and health outcomes (EY, 2015, p. 3). Cost control has become increasingly important and health insurers must make choices for a sustainable business model. Selective purchasing, long-term agreements, and policies with a focus on appropriate care use, prevention, advice and smart use of data and ICT can be important building blocks for this. (De Nederlandsche

Bank, 2017, p. 5) Health care purchasing may be considered the centerpiece of market-oriented part of the reform (Maarse, Jeurissen, Ruwaard, & Law, 2016, p. 166).

2.2 Cooperation factors

The basic assumption of the competitive insurance market in the Netherlands is that this will trigger insurers to negotiate value-based contracts. However, this obligation is ambiguous. The introduction of free price negotiations in hospital care were only gradually introduced. The introduction of free price negotiations has required the development of activity-based funding models such as Diagnosis Treatment Combinations (DTC) and DTCs Toward Transparency (DOTs). The activity based funding models are a source of administrative complexity and administrative costs (Maarse et al., 2016, p. 167). This results in a situation where the healthcare sector does not optimally create maximum value for patients. The Healthcare Authority (NZa) demonstrated that the regulated competition has resulted in less price effect than the effect of volume change and treatment change. Many providers are saying that insurers are mainly cost-driven instead of quality driven. (Maarse et al., 2016, p. 168). Therefore, a shift in thinking is needed. The incentive structure must encourage a focus on patient outcomes rather than volume.

At this moment, the relationship between insurers and providers is being framed as a power conflict. Regulated competition intends to establish a power balance between insurers and providers. However, many providers think that insurers have become too powerful and only focus on the cost aspect (Maarse et al., 2016, p. 173). The tragedy of the commons results in insurers focusing on minimizing short-term risk and providers are incentives to maximize production. It is straightforward to explain such problems as risk averse and opportunistic behaviours (van Raaij, 2016, p. 29). This will be discussed with the agency theory below.

2.3 Agency theory

In the previous section, the problems between insurers and providers is highlighted. Agency theory aims to clarify the interaction between agents and principles and their incentives. The first authors that wrote about a theory of agency were Stephen Ross and Barry Mitnick, independently (Mitnick, 2019, p. 3). Agency theory stems from an economic view but has

now been used across several disciplines such as corporate governance and political science. An agency problem occurs when cooperating parties have different goals and division of labor (Ross, 1973, p. 1). Agency theory is about a relationship, in which one party (the principal) delegates work to another (the agent). In the theory of corporate ownership structure is described that agency problems occur when collaborating parties have contrasting perspectives on goals and division of labor (Jensen & Meckling, 1979, p. 308).

Two different problems can occur in agency relationships: the first agency problem that can arise is when the desirers or goals of the principal and agent conflict. The problem is that the principal cannot verify whether the agent has behaved appropriately (Kathleen M Eisenhardt, 1989, p. 58). The second agency problem that can arise is the problem around risk sharing. This can arise when the principal and agent have different attitudes towards risk. This result in a situation in which the principal and agent prefer different action because of different risk preferences (Kathleen M Eisenhardt, 1989, p. 58). At the heart of the agency problem lies self-interest behavior. This can encourage an overzealous agent to not act in the best interest of the principal. When the agent takes action counter to the agreement, the principal will perceive more risk (Bendickson, Muldoon, Liguori, & Davis, 2016, p. 439).

The focus of agency theory is on determining the most efficient contract governing the principal-agent relationship taking into account assumptions about: (a) human beings act in self-interest to maximize their own welfare, but with bounded rationality; (b) principals and agents have different goals and preferences and are both trying to maximize their utilities; (c) information asymmetry, this can lead to adverse selection and moral hazard. Agency theory emphasises to use incentives and shared goals to equalize the interest of different parties to solve these problem (Kathleen M Eisenhardt, 1989, p. 58). When the principal and agent are both utility maximisers, there is reason to believe that the agent will not always act in the best interests of the principal. The principal can limit this by establishing incentives for the agent and by incurring monitoring costs to limit deviant activities of the agent (Jensen & Meckling, 1976, p. 308). When agents have equity in the firm, it is more likely to embrace the actions desired by principals, especially when those actions are outcome-based. However, when a perceived inequity exists, agents are likely to engage in self-interested behaviour. In this was information asymmetries are created where the principal is unable to monitor properly (Kathleen M Eisenhardt, 1989, p. 59).

Agency theory can be applied to relationships that represent the agency structure of a principal and an agent who are involved in cooperative behaviour with different goals and attitudes toward risk. Agency theory has already been used in a variety of settings. Most frequently it has been applied to organizational issues such as compensation, acquisition and diversification strategies, board relationship, ownership and financing structures, vertical integration and innovation (Kathleen M Eisenhardt, 1989, p. 59).

2.4 Agency theory and problems experienced in healthcare

Within the healthcare sector in the Netherlands, there is a special relationship between health insurer and physicians. Agency theory gives more insight into the problems that can arise between insurers and healthcare providers. An agency relationship exists when one party (principal) delegates to another (agent) the responsibility to perform certain tasks on his or her behalf (Jiang, Lockee, & Fraser, 2012, p. 145). Under fee-for-service (FFS) the provider is paid for each procedure dispensed to the patient. The health insurer function as a principal in this relationship, they pay providers to perform certain tasks. Providers act as agents, accountable to the health insurers for their actions and outcomes.

Providers goal is providing best possible care to patients. Within an FFS model, there is a minimal amount of risk for the provider. Providers also do not know the correct price of the services delivered; they only know how much is reimbursed. What is not measured can also not be improved. Therefore, providers are unable to link costs to quality (Kaplan & Porter, 2018, p. 1). FFS encourages to provide more services, to encourage use of services. The provider is not responsible for the costs and therefore they are maximizing profit at the "expense of the interest of the insurer" (Nguyen & Planning, 2011, p. 1). Agency theory assumes that there is an asymmetry of information between different actors. This applies to the healthcare setting, because for insurers it is difficult to control healthcare providers. This results in overuse of care for the physicians to maximize profit, and this is unknown to the health insurers (Choné et al., 2011, p. 21). This also result in providers that deliver effective and efficient care go unrewarded while inefficient ones have little incentive to improve. Therefore, it is important to measure costs and compare them to the quality outcomes (Kaplan & Porter, 2018, p. 1).

Agency theory emphasises to use incentives to equalize the interest of different parties to solve these problems. This could be done in ways of investments in output

monitoring and designing the optimal contract with the best incentives (Kathleen M Eisenhardt, 1989, p. 1). However, there is found that Dutch consumers have little trust in their healthcare insurer and the relationship between provider and insurer is often still characterized by extensive contracting, monitoring and conflicts (van Raaij, 2016, p. 30). Health insurers invest in monitoring to protect against provider opportunism, providers are generally unwilling to share tacit knowledge with health insurers and both actors underestimate each other's positive intentions. This all result in little trust in the insurer-provider relationship and undermines a good functioning (van Raaij, 2016, p. 30). This could also result in conducive to fraudulent behaviour. Research in the US suggests that 10% of the healthcare spending may be due to fraudulent behaviour such as overbilling (Stevens et al., 2015, p. 200).

In healthcare settings a solution could be a focus on measuring patient value and a changing incentive structure, such as bundled payments. In this way providers are stimulated to deliver efficient and good quality patient care and in this way the goals of the health insurer and provider are aligned (Nguyen & Planning, 2011, p. 9). Below, focussing on value in healthcare will be further explained.

2.5 Definition of value in healthcare

In the previous part is described that focussing on patient value and a changing incentive structure could possibly reduce agency problems that exist between insurers and health providers. Incentive structures focussed on output rewarding are designed to create patient value by incentivizing providers to advance coordination and efficiency of care, while simultaneously also improve quality and outcomes at lower costs (Catalyst, 2018, p. 1). This because the number of different services provided does not matter to patients (Kaplan & Porter, 2018, p. 1). In this way, patients, healthcare providers and health insurers all benefit.

Health insurers should critical look at the effectiveness of treatments and focus on sensible and economical appropriate care (De Nederlandsche Bank, 2017, p. 41). This could be done by looking to the value of health care. Porter defines health care value as: "health outcomes achieved which matter to patients relative to the cost of achieving those outcomes". In this report the definition of Porter will be used, because the patient input is important to increase the value of care. Since value depends on results, value in health care should be measured by the outcomes achieved, not volumes (Porter, 2010, p. 1).

In this definition, outcomes are inherently condition-specific and multidimensional (Porter, 2010, p. 1). The health outcomes include both quality and patient experiences associated with the provision of healthcare services (Bozic, 2013, p. 1). Quality can be defined as: “the cumulative impact of all that happens to a patient while in an organization’s care”. This definition includes the care provided the outcomes as well that are achieved. Because quality is a subjective outcome, relevant indicators are needed to measure quality. Multiple quality outcomes collectively define success. In healthcare, there is a complexity of competing outcomes such as near-term safety versus long-term functionality. Therefore, these competing outcomes should be weighed against each other to determine relevant outcomes (Porter, 2010, p. 2479).

Outcomes for any medical condition should be measured in a three-tiered hierarchy according to Porter. Each tier contains two levels, with each level involving one or more outcome dimensions. Success can be measured with one or more metrics. Tier 1 is health status achieved or retained and is generally considered most important. The first level is survival and can be measured over various time periods. The second level within tier 1 is health or recovery achieved/retained, this is often measured as freedom from disease and different aspects of functional status. Tier 2 is related to the recovery process. The first level is the time required to return to normal or best attainable function. Outcome dimension that can be used is time needed to complete various phases of care. The second level in tier 2 is disutility of the care process in terms of discomfort, retreatment, complications, and errors. Tier 3 contains the sustainability of health. The first level is recurrences of the original disease or long-term complications. The second level contains new health problems created due to the original treatment. Each medical condition has their own outcome measurers (Porter, 2010, pp. 2479-2480). International Consortium for Health Outcomes Measurement (ICHOM) has developed standard sets of outcome measures for many diseases. In appendix 1 a standard set of outcome measures developed at ICHOM for relevant diseases are shown (International Consortium for Health Outcomes Measurement, 2017). In figure 1 outcome hierarchies for breast cancer and knee osteoarthritis are shown.

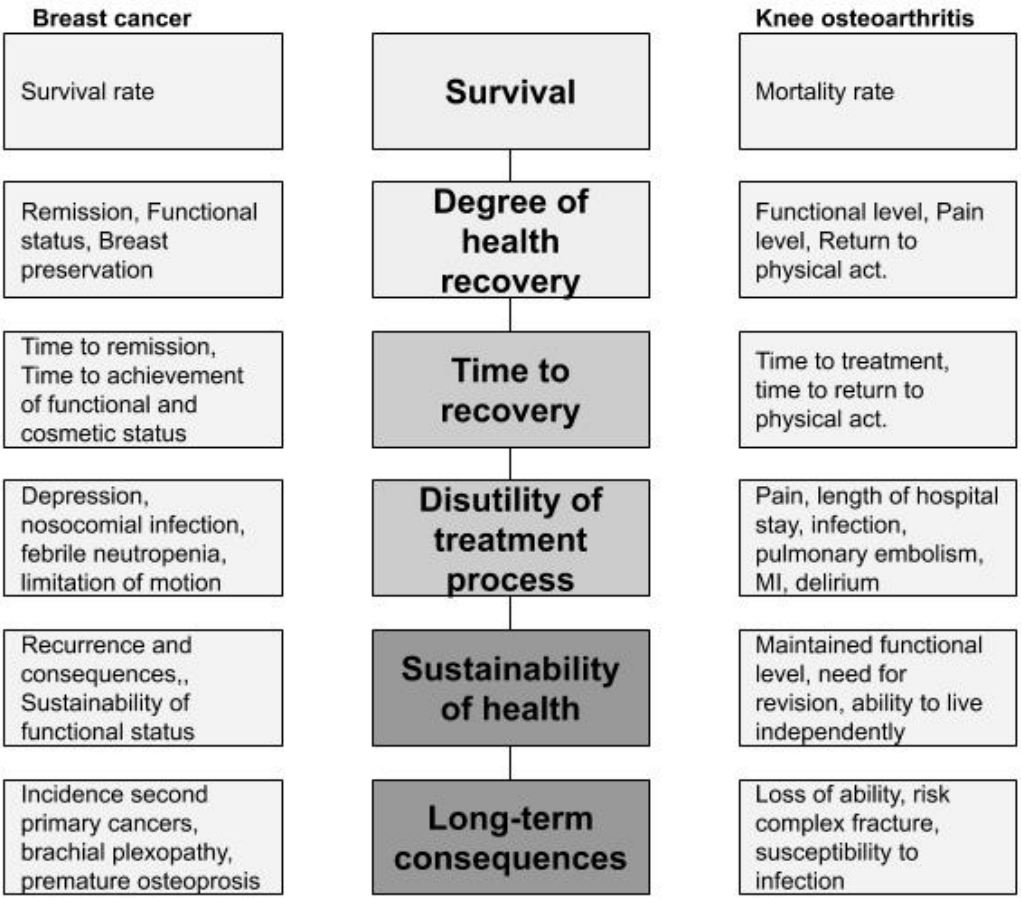

Figure 1: Outcome hierarchies for breast cancer and knee osteoarthritis (Porter, 2010 p. 2479)

Costs of care are defined as the equation's denominator, referring to the total costs of the full cycle of care for the patient (Porter, 2010, p. 1). Cost measuring is difficult in the healthcare sector and this often results in wrong estimates of actual costs for individual patients. Costs of hospital treatments are still not transparent. The price for a treatment or procedure within the same hospital may vary between health insurers. There are also differences between hospitals in the cost price for treatment and procedures. Care costs are rising, however, there is an almost complete lack of understanding of patient care costs and how these costs are linked to the outcomes achieved. Costs, like quality outcomes should be measured around the patient. Measuring costs over a patient's total care cycle and weighting against outcomes will reduce costs. The cost reduction will be a result of reallocation of spending among types of services, elimination of non-value-adding services, better use of capacity, shortening care cycle time and providing care in appropriate settings (Porter, 2010, p. 2481).

2.6 Medical specialists' opinions about value-oriented initiatives

In the world, there is widespread agreement about the benefits of value-oriented initiatives. However, there exist a difference in opinion between executives and clinicians in healthcare. A survey in the US shows that 55% of executives thinks that value-based healthcare significantly improves the quality of care against 38% of clinicians and 50% of executives thinks that VBHC reduces the cost of care against 36% of clinicians. 51% of executives think that output rewarding will become the primary revenue model in US, but 36% is uncertain whether this will happen. This percentage is again for clinicians lower (Feeley & Mohta, 2018, pp. 7-8).

A reason for skepticism among medical specialists is that within value-oriented initiatives, targets and performance management is very important. This leads to greater standardization, measurement, auditing, and bureaucracy which results in tighter organizational control. Medical specialists are afraid that professional values are under pressure, professional ethics turned into business ethics. Patients will be treated as profit or loss centers due to one payment for the whole disease. Medical specialists will experience stress, loss of ownership and are discouraged to develop new initiatives (A. S. Groenewoud, G. P. Westert, & J. A. Kremer, 2019, pp. 5-6).

2.7 Review value-oriented activities in healthcare

Healthcare organizations in many countries are setting up value improvement collaboratives, especially in the United States, Canada, Australia, and European countries. However, literature about the effects of value programs is still limited (W. van Deen et al., 2016, p. 1). There are three different well-known types of value-oriented programs that will be discussed. The first one is Value Based Healthcare; the second approach is the Aravind model and the last approach that will be discussed is Lean.

2.7.1 Porters Value Based Healthcare (VBHC)

At this moment, the most important and well-known value-oriented initiative in healthcare is VBHC. In 2006, Porter published a book named Redefining Health Care: Creating Value-Based Competition on Results. According to Porter, VBHC is the solution for improving quality of care and decreasing costs in healthcare (M. E. Porter & Lee, 2013, p. 1). VBHC has become a hot topic issue in the healthcare sector, many hospitals are implementing programs based on VBHC (W. K. van Deen et al., 2017, p. 1). Porter describes the

transformation to VBHC based on six interrelated elements. Below the six steps that are needed are shown:

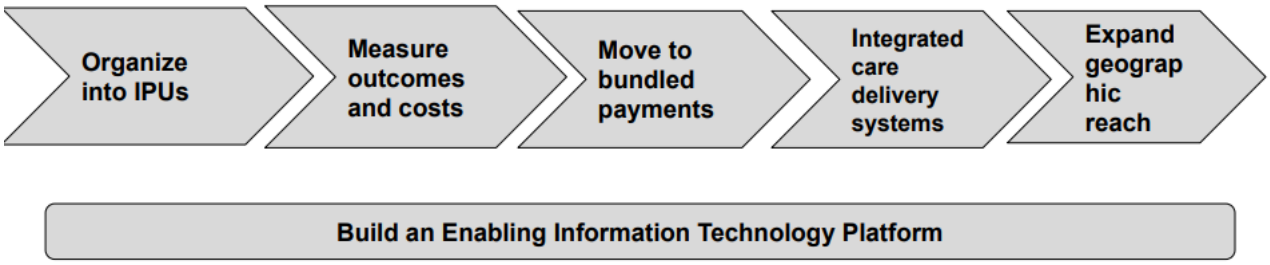

Figure 2: The principle of Value based healthcare (M. E. Porter & Lee, 2013)

A study of Van Deen et al. (2017) investigated the impact of VBHC for inflammatory bowel diseases on healthcare utilization. The VBHC program was focused on highly coordinated care, task differentiation of providers and continuous monitoring. They found that fewer endoscopies were performed, fewer surgeries, fewer emergency visits and imaging studies. This results in a 16% decrease in costs compared with the control group. However, these results need to be confirmed in a larger sample with more follow up (W. K. van Deen et al., 2017, p. 1). Another study performed by Gabriel et al. made an analysis of joint replacement surgeries for patients with hip osteoarthritis. They did a pathway redesign based on the principles of VBHC. They created specialized and organized multidisciplinary team, also named an Integrated Practice Unit (IPU). The teams measure outcomes, costs, and processes for each patient across the full cycle of care. They evaluated and compared two models: a traditional model without the influence of VBHC and a standardized multidisciplinary pathway. There were no significant differences in clinical outcomes, but the standardized multidisciplinary pathway delivered better value care because there were lower pathway costs (Gabriel et al., 2019, pp. 6-7).

Santeon, a Dutch network of seven leading teaching hospitals has implemented a VBHC approach among five patient groups: breast cancer, prostate cancer, lung cancer, cerebrovascular accident, and hip arthrosis. Implementation was based on four stages: use multidisciplinary teams to define metrics to improve outcomes, share and learn within cycles, share results externally to accelerate improvements, engage with patients and payers to move toward value-based contracting. At this moment they have achieved reductions in inpatients stays, rate of reoperations and complications (D. Biesma, De Bey, Kuenen, & Van Leeuwen, 2018). Porter suggest to use bundled payments instead of normal payment models (M. E. Porter & Lee, 2013, p. 1). A review of Siddiqi et al. (2017) found that alternative

payment models such as bundled payments reduce costs and improve quality of care largely by reducing hospital length of stay and decreasing readmission rates (Siddiqi et al., 2017, p. 2590).

Studies indicate that the clinical outcomes are better, and that costs are reduced with the introduction of VBHC. According to VBHC, value is increased by using different activities. Therefore, it is expected that the use of IPUs, measuring/benchmarking outcomes, expanding reach and bundled payments result in a higher value of patient care.

2.7.2 Aravind model

Another value-oriented program is the Aravind model. The Aravind model adheres the principle of providing large volume, high quality and affordable services in a financially sustainable manner for the patient and institute (Ravilla & Ramasamy, 2014, p. 1). This approach was developed to address the needs of the poor. 40% of the total pool are paying patients that are seeking the high-quality services they would seek in a private clinic (Rangan & Thulasiraj, 2007, p. 42). The paying patients are provided with better services like a private bathroom, air conditioning and a bed instead of a floor mat. The paying patients are central to the funding model because they subsidize its non-paying patients. They also play an important quality assurance role because they provide market feedback. Aravind's doctors are challenged to master new skills to make sure that Aravind keeps the bests in the market. (Rangan & Thulasiraj, 2007, p. 43). The care pathway is designed that staff is trained to carry out routine procedures, this results in high utilization and also improves the quality of care (Rangan & Thulasiraj, 2007, p. 44).

Rangan & Thulasiraj found that Aravind's cost of providing cataract surgery was about $18 per person in comparison with $1800 in the US while quality of care in Aravind is comparable to that in top hospitals (Rangan & Thulasiraj, 2007, p. 45). Ravilla and Ramasamy also evaluated this efficient high-volume cataract system. The Aravind hospital has worked with more than 300 hospitals across Asia, Africa and Latin America to help them replicate this model, and this results in high quality and affordable care (Ravilla & Ramasamy, 2014, p. 2).

From the Aravind model can be learned to create high utilization which can result in a higher quality of care due to make use of an efficient care pathway for high volumes that reduces waste.

2.7.3 Lean in healthcare

In the past years Lean has been increasingly adapted and adopted in healthcare. The principle of lean is based on increasing productivity (D'Andreamatteo, Ianni, Lega, & Sargiacomo, 2015, p. 1197). Lean in healthcare uses industrial processes to improve patient care (D'Andreamatteo et al., 2015, p. 1198). It is focused on the identification and elimination of all types of wastes and losses and continuous improvement. The goal is increased value in production and business processes, with increased quality, improved safety and reduction of delays and failures (Kovacevic, Jovicic, Djapan, & Zivanovic-Macuzic, 2016, p. 220).

A comprehensive review performed by D'Andreamatteo shows that Lean results appear to be promising, but findings so far do not allow to say that Lean results in positive impacts when introduced in healthcare. They suggest that a lot should be learned from past research, to a more effective implementation of lean in the healthcare sector (D'Andreamatteo et al., 2015, p. 1197). However, there are also successfully finished projects where are measurable improved value benefits for patients and hospitals. For example, reductions in patient waiting times, patient flow improvements, savings, reduced manpower and reductions in number of infections (Kovacevic et al., 2016, p. 233). The results of Lean are differing, but this approach is most relevant in the business sector. A lot should be learned from past research for a good implementation in the healthcare sector. When the implementation is done successful, lean results seem promising in continuous improvement and reducing waste. At this moment lean in the Dutch hospitals is primarily used as cost reduction technique instead of increasing value of patient care (de Koeijer-Gorissen, 2019, p. 242). Another systematic review of lean interventions in healthcare shows that Lean interventions in healthcare does not result in quality improvements. Lean had an overall negative effect on worker satisfaction, no significant improvement in patient experience and no significant improvement in health outcomes like mortality, adherence to care and adverse events. Reduced financial cost is often mentioned as benefit of Lean. However, in this literature systematic literature review there were no articles found that were able to identify reduced financial costs due to a Lean intervention. They report that $1511 was spent on Lean for

every dollar saved by the province, if the numbers reported were accurate and true (Moraros, Lemstra, & Nwankwo, 2016, pp. 161-163).

2.7.4 Summary of different value-oriented approaches

Different approaches in healthcare are used to increase value. In the above-mentioned approaches, they all work with a different approach and focusing on different activities to increase value. In empirical studies about understanding VBHC, there was found that hospitals/institutions understood the concept of VBHC, however they did not focus on all aspects. Most of them focused on measuring outcomes (Nilsson, Bååthe, Andersson, Wikström, & Sandoff, 2017, p. 2). There is uncertainty about which activities are successful for increasing value in healthcare. In table 1 the most important activities that are used to create value according to relevant literature are summarized for every approach. In the literature, it was questionable to what extent LEAN works in the healthcare sector and to what extend this result in better outcomes to improve the value of patient care. Another systematic review found that Lean had an overall negative effect on results in healthcare. Therefore, these activities will not be considered in the remainder of this study.

Porter describes six steps to create value in healthcare. However, in relevant studies only four activities are often mentioned; IPUs, measuring outcomes/ benchmarking, bundled payments and expand geographic reach (volume bundling) (M. E. Porter & Lee, 2013). The Aravind model focusses on volume. In comparable research, IPUs, benchmarking, bundled payment and concentration of care all seem promising for increasing value in patient care (Low et al., 2017; McLawhorn & Buller, 2017; D. C. Miller et al., 2011). A study of Orthochoice shows that bundled payment can result in huge improvements. It is a trigger for changes in care coordination, care pathways and protocols (Iorio, 2015, p. 350). In the Netherlands this is not fully integrated yet, therefore it is interesting to identify whether bundled payments result in increased patient value.

	VBHC	Aravind model	Lean
Coordinated care/IPUs	x		
Measuring outcomes/benchmarking	x		
Bundled payment	x		
Volume Bundling	x	x	

Continues improvement			x
Reducing unnecessary care			x

Table 1: Characteristics of different value-adding approaches

3. Hypothesis

As mentioned before, maximizing value can be done by either improving quality of patient care, reducing costs or both (M. E. Porter & Lee, 2013). Within this study, quality and costs are measured subjectively. There is chosen to measure quality of care according to Porters' three tiers as explained in the theoretical part. This means that quality is allocated into achieved healthcare status of the patient group (tier 1), recovery process (tier 2) and sustainability of health (tier 3) (Porter, 2010, p. 2479). For costs, three concepts that are used in this study are: experienced cost-effectiveness in healthcare, reduction of unnecessary care and focus on the right care in the right place. This was chosen because costs could not directly be measured. At this moment there is much attention for these concepts in healthcare (Verkerk, Tanke, Kool, van Dulmen, & Westert, 2018, p. 736).

In the literature review above is found that IPUs, measuring outcomes/ benchmarking, bundled payments and concentration of care seem promising to improve value of patient care. Below, in separate paragraphs, the four above mentioned value-oriented activities will be further explained and the expected relationship between those four activities and quality and costs will be explained. To develop a full understanding of the characteristics that play a role in the contribution of different activities to maximizing value in healthcare, a conceptual model is constructed. Figure 3 shows the conceptual model.

3.1 Integrated Practice Units (IPUs) in care

Porter believes that an important step to maximize value, is to organize care into integrated practice Units (IPUs) (M. E. Porter & Lee, 2013, p. 1). In an IPU, a dedicated team made up both clinical and nonclinical personnel provide the full care cycle for the patient (Van Harten, 2018, p. 113). The IPU works to reach the goal of maximizing patient's overall outcomes as efficient as possible (M. E. Porter & Lee, 2013, p. 1). Within the healthcare sector is experienced that advantages of IPU's lay in improving patient centeredness, breaking through professional boundaries, and reducing waste in unnecessary duplications (Van Harten, 2018, p. 115). Additionally, Porter and Lee found that wherever IPUs exist, there is faster treatment, better outcomes, lower costs and improving market share in the healthcare condition (M. E. Porter & Lee, 2013, p. 1). A randomized controlled trial showed that patients treated in an IPU concept had a significant reduction in the number of 30-days readmissions and the number of 30-day emergency department attendances compared to

those receiving standard hospital care. Also the number of hospital days was reduced (Low et al., 2017, p. 2). Keswani, Koenig and Bozic found that IPUs offers advantages such as: offering more integrated care, engaging patients virtually, addressing risk factors, fewer readmissions, and fewer reoperations. However, most current models of practice fall short due to an inability to measure outcomes that truly matter to patients, limited transparency around the outcomes and lack of care coordination (Keswani, Koenig, Bozic, & Research®, 2016, p. 2100). So, there are suggestions that IPUs will result in improved quality for patients for tier 1, 2 and 3. Also for costs, there is a reduction in waste expected and a higher cost-effectiveness. At this moment it is questionable to what extent IPUs contribute to care in the right place.

Integrated practice units are particularly relevant for diseases that contains multiple specialism (breast cancer) and are developed around medical conditions instead of medical specialties. Within the Netherlands Integrated Practice Units are not common, with the exception of Rijnstate (Van Harten, 2018, p. 115). Integrated Practice Units include coordination of care. In comparable studies there is often focused on coordinated care (W. van Deen et al., 2016, p. 1). Coordinated care is also focused on improving the quality of care and reducing costs with a focus on multidisciplinary teams (Battersby, 2005, p. 1). Within the Netherlands coordinated care is more common, therefore this will be included in this study. Therefore,

Hypothesis 1a. A coordinated care pathway has a positive effect on quality in healthcare.

Hypothesis 1b. A coordinated care pathway has a positive effect on costs in healthcare.

3.2 Measuring and benchmarking outcomes

Another important characteristic of Porter's VBHC is measuring outcomes and costs for every patient and comparing this with other hospitals (Pantaleon, 2019, pp. 357-358). "Benchmarking is the continual and collaborative discipline of measuring and comparing results of key work processes with those of the best performers. It is learning how to adapt these best practices to achieve breakthrough process improvements and build healthier communities" (Mosel & Gift, 1994, p. 240). Realizing a good improvement cycle is one of the most complex parts. It requires specific skills from medical specialists to share outcomes, to collaborate interdisciplinary, to search for best practices and to adjust their own working

methods (D. H. Biesma, 2018, p. 2). Research in England and France show that benchmarking quality of care has considerable potential to improve patient outcomes (Nolte, 2012, p. 1) (Ettorchi-Tardy, Levif, & Michel, 2012, p. 102). DICA found that benchmark information improves care and reduces healthcare costs by achieved improvements (DICA, 2017, p. 1). However, conditions for successful benchmarking are careful preparation of the process, monitoring relevant indicators and staff involvement (Ettorchi-Tardy et al., 2012, p. 115). Seven cooperating hospitals (SANTEON) have started a VBHC improvement cycles by measuring and comparing treatments and approaches. In this way they have already achieved less revisions and less hospital days (SANTEON, 2017, p. 18). Therefore, it is expected that outcomes in tier 1, 2 and 3, reduction of unnecessary care, focus on right care in the right place and cost-effectiveness will all improve through measuring and benchmarking. Consequently:

Hypothesis 2a. Measuring and benchmarking have a positive impact on quality in healthcare.

Hypothesis 2b. Measuring and benchmarking have a positive effect on costs in healthcare

According to the used definition of quality according to Porter, one of the most important outcomes for patients belonging to tier 1 is quality of life. Patient Reported Outcome Measures (PROMs) offer patients and orthopedics insight in the outcome of treatment and patient-oriented aftercare (SANTEON, 2018, p. 26). PROMs can help patients and clinicians make better decisions, but they also enable comparisons of providers' performances to stimulate improvements in services. The response rate of the PROMS differs across different hospitals (Black, 2013, p. 1). The more effort is done to increase the response-rate of PROMs, the more information is available for benchmarking (Peters, Crocker, Jenkinson, Doll, & Fitzpatrick, 2014, p. 1). It is expected that a higher response rate of the PROMs has a moderator effect on the relationship between benchmarking and quality and costs. Therefore:

Hypothesis 2c. The response rate of PROMs is a moderator on the relationship between benchmarking and quality and costs of healthcare.

3.3 Output rewarding

At this moment, payment systems in healthcare in the Netherlands are mostly based on rewarding volume, not value. Physicians and hospitals gain increased revenues and profits by delivering more services to more people, fueling inflation in costs without any corresponding improvement in the health outcomes. The current payment systems often penalize providers financially for keeping people healthy, reducing complications, and avoiding unnecessary care (H. Miller, 2009, p. 1). Bundled payment is an output rewarding method. The bundle is a fixed amount, where the provider can flexibly allocate the funds. The new financial incentives will encourage efficient care for the patient because the episode focus will facilitate only on measuring the patient outcomes (Luft & Research®, 2009, p. 2498). In this way hospitals are concerned about how long patients stay, the tests that are used and how much is paid for the resources used in caring for the patients (Altman, 2012, p. 1). There is found that current care episode payments for certain inpatient procedures varied by 49-130 percent across hospitals. Bundled payments can result in savings for healthcare payers, especially at hospitals where the procedures are relatively expensive in comparison with other hospitals (D. C. Miller et al., 2011, p. 1). Alternative payment models represent a major change in the reimbursement landscape for total joint arthroplasty. At this moment, early results seem promising (McLawhorn & Buller, 2017, p. 375). Another research showed that bundled payments have already successfully decreased the costs of total joint replacement. This cost reduction has primarily been achieved by fewer hospital days, increased discharge to home rather than to nursing homes or rehabilitation facilities and migration of cases to lower cost sites of service (Doran & Zabinski, 2015, p. 1). By providing a fixed amount, removing unnecessary care, and delivering care in the right place is stimulated. Also, outcomes of tier 1, 2 and 3 are stimulated to improve, because in case of readmissions, revisions, infections etc. the costs are for the caregivers. Therefore:

Hypothesis 3a. Output rewarding has a positive impact on quality in healthcare.

Hypothesis 3b. Output rewarding has a positive impact on costs in healthcare.

3.4 Concentration of care

Both, VBHC and Aravind model stimulate concentration of care. To perform a treatment, a certain threshold volume of surgical cases per year exist. This suggest that a number of procedures is needed to perform well (H. Miller, 2009, p. 586). In another study was found

that surgeons performing greater than 146 total knee arthroplasty surgeries per year, face lower complication and revision rates. Also, hospitals that are supplying more than 645 total knee arthroplasty surgeries per year suffer lower complication and revision rates (McLawhorn & Buller, 2017, p. 374). This suggest that high volume results in better operative outcomes and improved quality of care. There are indications that providing a higher volume results in lower costs and fewer complications (Ho & Aloia, 2008, pp. 720-721). Some researchers attribute this to a learning effect. Schmidt et al. (2010) found that an higher volume of patients results in better outcomes such as mortality (Schmidt et al., 2010, p. 1).

RIVM found that concentration of care results in better care, less complications, less admission days and so a reduction in costs (D. H. Biesma, 2018, p. 2). For Bariatric surgery optimal outcomes often depend on the presence of an experienced surgical team in a well-structured multidisciplinary program. However, in hospitals that perform more surgeries, there is often better equipment and the care process is better organized (H. Miller, 2009, p. 592). A study in England found that fewer adverse events occur in high volume centers and in orthopedic training centers. The reason that is given for this is standardization of procedures (Judge, Chard, Learmonth, & Dieppe, 2006, p. 1). So, it is expected that outcomes of tier 1, 2 and 3 will improve even as the experienced cost-effectiveness and reduction of unnecessary care. Whether concentration of care will stimulate care in the right place is unclear. Therefore:

Hypothesis 4a. The more patients treated in a medical department, the higher the quality of healthcare.

Hypothesis 4b. The more patients treated in a medical department, the lower the costs per patient.

Outcomes after surgeries have been shown to be better for high-volume surgeons compared with low-volume surgeons. However, reasons for this have been difficult to identify in practice (Bilimoria et al., 2009, p. 1). There is found that surgeon experience remained an important determinant of overall morbidity, however, there is also found that experienced surgeons have comparable outcomes irrespective of annual volume (Schmidt et al., 2010, p. 1). A study of Bozic et al. (2010) identified the relationship between surgeon and hospital procedure volumes in total joint arthroplasty. There was found that surgeon and hospital procedure volumes are unquestionably correlated with patient outcomes in total joint

arthroplasty. When surgeons gain more experience in performing operations, the outcomes will improve (Bozic, 2013, p. 1). Therefore, it is expected that performing more surgeries will have a positive influence on the quality and costs. Therefore, the following hypothesis are developed:

Hypothesis 4c. The more surgeries performed by a certain orthopedic the higher the quality of care.

Hypothesis 4d. The more surgeries performed by a certain orthopedic the lower the costs.

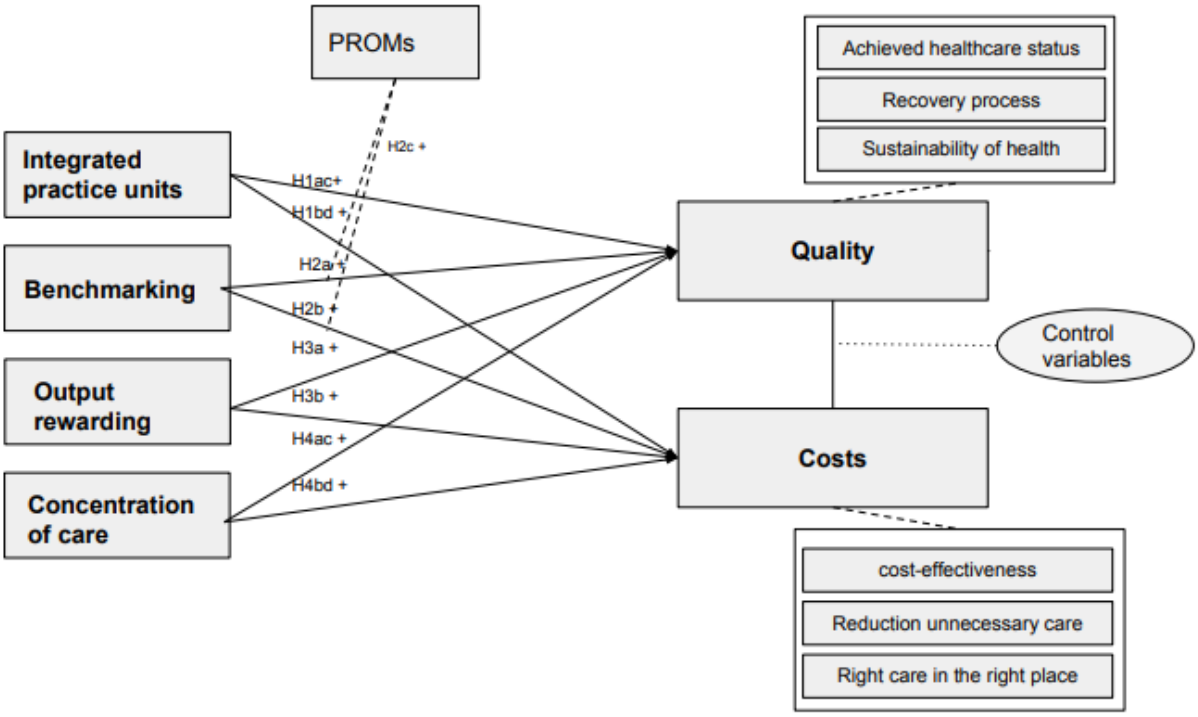

Figure 3: Conceptual model for value in healthcare

3.5 Combined benefits of value-oriented activities

A theoretical relationship between quality of care and healthcare costs indicates that the higher the costs, the higher the quality achieved. However, higher healthcare costs do not automatically result in higher quality of care. (Donabedian, Wheeler, & Wyszewianski, 1982, p. 1). A powerful driver of creating value in health care is better quality often go hand in hand with lower costs (Kaplan & Porter, 2018, p. 1). Physicians are facing increasing pressure to improve the quality of care while simultaneously decreasing healthcare costs

(Moriates, Mourad, Novelero, & Wachter, 2014, p. 1). In the Netherlands volume growth is the most important cause of increasing healthcare costs. Everyone wants to receive good quality care, and good care is expensive care. Realizing the best possible care seems a dream solution to the problem of rising healthcare costs. However, significant improvements in care are not reached due to a wrong reimbursement system. A barrier for improving care is that there is paid for the number of treatments. This is a problem because good care can also consist of not treating patients after discussions with the patient. The caregiver lacks income when the patient decides to wait with/stop treatment. Good care also consists of avoiding complications (PWC Strategy &, 2012, p. 7). In total joint arthroplasty, readmission is a major cost driver (McLawhorn & Buller, 2017, p. 374). PWC has performed an analysis to show that a focus on better quality of care can lead to a decrease in healthcare costs. They think that an increase in care, results in less unnecessary and avoidable care. This results in less healthcare costs and more time for patients and increasing care (PWC Strategy &, 2012, p. 5).

Conjunctional causation means that combinations of various factors rather than one factor alone cause a certain outcome. It is better to model in terms of conjunctive statements rather than only testing net effects of variables on dependent variables (Woodside, 2013, p. 472). Porter argues that six interrelated steps are needed to improve the value of care. The more steps performed, the better the outcomes (M. E. Porter & Lee, 2013, p. 1). For example, there is expected that IPU's and benchmarking both have a positive effect on quality and costs of care. However, when fee-for-service instead of output rewarding is used as payment system, there will still be a focus on volume rather than value. This means that there is no stimulation for reducing unnecessary care, care in the right place and improving the cost-effectiveness. Therefore, the following hypothesis is developed:

Hypothesis 5. The more activities integrated in the organization, the higher the improvement in quality and reduction in costs.

4. Possible methods for answering the research question

Quality improvements in healthcare have become important issues, but so far there is little evidence on the effectiveness of such programs. Quality or value improvement interventions are often labeled as black boxes (Broer, Nieboer, & Bal, 2010, p. 1). Black boxes refer to the fact that when quality/value improvement interventions are evaluated, there is tendency to assume a simple, linear path between the quality improvement intervention and outcomes. To evaluate the improvement, there must be a greater understanding of the complexity in the healthcare setting. Many improvement interventions are implemented within complex contexts. Using a different research model often results in mixed outcomes of the quality intervention (Ramaswamy et al., 2018, pp. 15-16). Knowing what occurs in a quality improvement would seem crucial for interpreting effectiveness results (Broer et al., 2010, p. 1)

In this chapter, different research methods that could answer the research question will be discussed. Possible methods are divided into quantitative, qualitative and desk research. For each method, background, advantages, and disadvantages are mentioned. Evaluating quality improvements is challenging and therefore rigorously evaluated (Balasubramanian et al., 2015, p. 2). Therefore, within this chapter different research methods will be discussed and in the next chapter the most suitable research method to test the research model is chosen.

4.1 Quantitative research

Different definitions of quantitative research exist. According to Cohen (1980), quantitative research can be defined as research that uses empirical methods and empirical statements (Sukamolson, 2007, p. 2). In additions, Creswell (1994) defines quantitative research as a type of research that explains phenomena by gathering numerical data that are analyzed using statistical methods (Sukamolson, 2007, p. 2). Quantitative research is mainly concerned with collecting data from a range of individuals and after that saying something about averages for a group, it is concerned with looking for general patterns in a population (Seers & Critelton, 2001, p. 487).

There exist different types of research questions that can be answered with quantitative research methods. Six main types of research questions can be answered using quantitative as opposed to qualitative methods. The first type of questions is about

developing quantitative answers. The second type of research question is about identifying increasing or decreasing numbers. Thirdly, for conducting audience segmentation; quantitative research is used to estimate the size on an audience segment as a follow-up step to qualitative research to quantify results that were obtained in qualitative research and to verify data obtained in qualitative research. Fourth, quantitative research is also used to quantify opinions, attitudes, and behaviors. This means that there can be tried to find out how a population feels about a certain issue. The fifth type of research question is about explaining phenomena. This includes determining factors that predicts certain outcomes. Many statistical techniques have been developed to predict scores on one variable. Lastly, quantitative research is used for testing hypotheses (Ingham-Broomfield, 2014, p. 33) (Sukamolson, 2007, p. 9). Within the healthcare sector, quantitative research is very useful for questions which address effectiveness of interventions (Seers & Critelton, 2001, p. 487). However, quantitative research should not be used when a problem in depth should be explored because quantitative methods are too shallow. Quantitative research also cannot do very well develop hypotheses and theories. Another type of research question that is not well suited to quantitative research is an issue studied in a complex situation because there is a limit to how many variables can be looked at. Lastly, quantitative research is not suited for looking at the meaning of events or circumstances (Sukamolson, 2007, p. 10).

Quantitative research contains a large range of research approaches. Broadly, methods could be divided into two categories. The first category is defined as observational studies. This means that data is collected about research participants, but there is no intervention or change. These studies are used for describing sizes of diseases and characteristics of people with the problem. Difficulties faced within observational studies are confounding and the sampling method. Usually a representative sample is used that is generalizable for the whole sample. However, in healthcare it is difficult to create a generalizable sample because often participants are chosen within the same hospital. Within this method it is unclear whether this group is typical for the wider population and may result in selection bias. Random sampling is usually difficult, because complete lists of target populations are often missing in healthcare (Seers & Critelton, 2001, pp. 488-489). The second category are experimental studies, these studies attempt to intervene a treatment in some way and then assess the effectiveness. These studies have their origin in agricultural experiments to investigate the effectiveness of fertilizers on crop production (Seers &

Critelton, 2001, pp. 487-488). In figure 4, the hierarchy of evidence for quantitative approaches is shown.

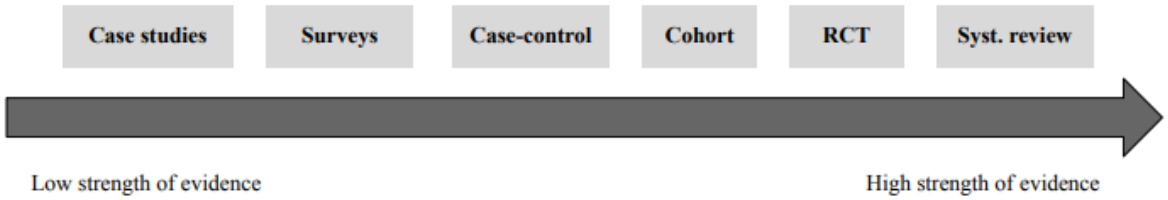

Figure 4: Types of research methods (Hoe & Hoare, 2012)

A systematic review has the highest strength of evidence. Systematic reviews provide an overview of existing evidence relating to a specific research domain / question. Within the systematic review, the quality of the included studies is systematically assessed. Preferably a meta-analysis is performed to determine the effectiveness of interventions (Hoe & Hoare, 2012, pp. 55-56).

A randomized controlled trial (RCT) is the second approach and belongs to experimental studies. Within an RCT, one group will be treated with an observed intervention and a comparison group will receive a standard treatment for the conditions or no treatment (placebo). Randomization is undertaken to protect against selection bias. Ideally, both researcher and participant are blinded. However, this is only possible within drug research. RCTs are considered the most successful and unbiased approach for healthcare interventions but there are many difficulties on the ethical aspect (Hoe & Hoare, 2012, pp. 55-56) (Seers & Critelton, 2001, pp. 495-499).

The third approach is a longitudinal study/ cohort study and can be classified as an observational study. This research approach includes following a group of people overt time, to see what happens to them and are suitable for common outcomes. Data are collected at two or more points over a period. This is often used to look at causative relations and is useful because these studies do not rely on memories. These studies are considered as time-consuming and expensive and many people will be lost (Hoe & Hoare, 2012, pp. 55-56) (Seers & Critelton, 2001, pp. 495-499).

Case-control studies can also be classified as observational studies. Within a case-control study, people are selected because of the presence of a disease. A control group without the disease is matched on demographic variables. It is useful when the time between

exposure and outcome is long. This type of study is easy to carry out, but it is difficult to get a similar control group. Participants also must recall information about exposure and behavior from many years ago which can result in inaccurate results (Hoe & Hoare, 2012, p. 56)(Seers & Critelton, 2001, pp. 490-495).

Cross-sectional surveys are used to determine the frequency of diseases, risk factors and events and provides a snapshot in time (Hoe & Hoare, 2012, p. 56). Surveys are one of the most frequently used research methods in healthcare because it can be used as descriptive and to test associations (Safdar et al., 2016, p. 1273). Advantages of surveys are that large numbers of people can be reached in a short period of time and it is easy to undertake. However, there may be missing data and a low response rate (Seers & Critelton, 2001, pp. 490-492). Also, the development of a survey can be difficult. Each question included in a survey must be deliberately positioned and included only if responses will contribute to the research question. Unclear, complex or inconsistency in survey can result in a lower validity (Safdar et al., 2016, p. 1273).

The weakest quantitative method in healthcare is a case study. Case studies are qualitative by nature but can incorporate quantitative data. Case studies are descriptive and are used to determine factors contributing to the development of an illness (Hoe & Hoare, 2012, p. 56). This type of study is useful when this design type is the only feasible way of assessing the impact (Seers & Critelton, 2001, pp. 495-499). A case study is often used in the early stages of research about a disease (Hoe & Hoare, 2012, p. 56). These studies suffer that is difficult to attribute causation to the intervention with the absence of a control group (Seers & Critelton, 2001, p. 499).

4.2 Qualitative research

Qualitative methods are increasingly accepted in social science and business research. It differentiates from a scientific positivist paradigm because human organizations and behavior are difficult to isolate and change constantly. Therefore, it is suggested to not only look at numerical measured evidence when trying to understand an organization or a group (Rowlands, 2005, p. 84). At first it may seem that qualitative research is less precise and more subjective. In fact, qualitative research is governed by clear rules and offer a way of exploring issues (Greener, 2008, p. 80).

Qualitative research was first used by sociologist and anthropologist as a method of inquiry. Qualitative research is often described as action research using interview methods and observations. It is inductive and depends on the intentional selection of participants. It is used to determine the meaning of a phenomenon through description. Qualitative research aims to develop concepts that aid in understanding of natural phenomena emphasizing meaning, experiences and view of participants (Al-Busaidi, 2008, p. 11). The choice for qualitative research depends on the research question. Patton selected several conditions suitable for qualitative research. The research questions must include questions about people's experiences, inquiry into the meanings people make of experiences, studying a person and research where it is difficult to develop a standard instrument (Patton, 2002). Qualitative research is used when little knowledge exists and can generate hypotheses for future quantitative research (Safdar, Abbo, Knobloch, & Seo, 2016, p. 1275). Research instruments used for data collection within qualitative research include interviews, analysis of documents, case studies, focus groups, action research and observations (Greener, 2008, p. 81). Interviews are the most common method to gather information. Interviews can be divided into structured, semi-structured and unstructured interviews (Grbich, 1998, p. 93). Case study research involve more than one way of deriving data. This can include analyzing documents, talking to people, survey data, observation, and other data collection techniques that offer qualitative information (Greener, 2008, p. 81).

The debate about quality of qualitative research is longstanding in social sciences. Three different generations of evaluative criteria of qualitative research exist according to Welch & Piekkari. The first generation formalized in the 1950s was striving to establish scientific credentials. Qualitative research was judged by the same criteria as quantitative research. Better qualitative research was indicated as applying quantitative procedures as much as possible. This meant that the sample needs to be representative, the larger the number of cases the better and software programs need to be used. This results in a low rate of qualitative work being published (Welch & Piekkari, 2017, pp. 715-716). In the second generation, positivistic criteria were invoked together with procedures of Eisenhardt and Yin. This meant that standards of validity were developed. Qualitative research meet the standards by experimental design, but it can achieve greater validity than traditional hypothesis testing research (k.m. Eisenhardt, 1989, p. 546). Eisenhardt's roadmap was important for legitimizing qualitative research in management. A transparent set of steps to follow was provided. In this period, theoretical sampling, triangulation and use of multiple

cases were most mentioned procedures. During the 80's, researchers in other social science disciplines were beginning to critique the assumptions behind qualitative positivism. There was a shift from positivistic to interpretive (Lincoln & Guba, 1999, p. 294). Multiple criteria and multiple procedures are used and vary depending on the paradigm being followed. Quality of a study results from following the right procedures. Context dependence of validity is relevant to any project. Acknowledging that quality criteria are context dependent recognizes that research is a process of self-critique and studies need to build in opportunities for questioning (Welch & Piekkari, 2017, pp. 717-721). At this moment, an increasing number of qualitative articles is published in key journals in international Business. Evaluative criteria for the quality of qualitative research needs to be done by editors that have sufficient methodological understanding in order to ensure that qualitative paper receive fair treatment (Welch & Piekkari, 2017, p. 723).

In the past, qualitative research was relatively uncommon for studying health care interventions. Now, qualitative research is increasingly used in health care research with social and cultural dimensions (Al-Busaidi, 2008, p. 11). However, healthcare related research is still dominated by quantitative research (Al-Busaidi, 2008, p. 17). Within the healthcare sector, interviews are used when research is related with interpersonal aspects of care, for the development of questionnaires or if evidence is limited. When an interview is chosen as research method, semi-structured interviews are most often used. This means that the interview is characteristically based on a topic guide that provides a loose structure of open-ended questions. It is intended to explore experiences and attitudes. This enables the researcher to enter new areas and produce richer data. This is often used to obtain information on perspectives, understandings, and meanings. However, there is claimed that this type of research reduces the researcher's control (Pope, Van Royen, & Baker, 2002, pp. 148-149). Another method used in healthcare is a focus group. This type of interviews is frequently used to gain in-depth understanding of social issues. Focus groups are interviews with a small group of persons who participate in a facilitated discussion. This is more time efficient and provides a richer source of data because of interaction among members. Persons are encouraged to communicate with each other and comments their point of view. In contrast, focus groups provide more public opinions than private. This means that some people are not suited to give their opinion in a focus group (Wong, 2008, p. 256).

Advantages of qualitative research are that subjects can be evaluated in more detail because interviews are not limited to questions and can questions can be redirected quickly.

Qualitative research is also useful in building the context needed to further understand a phenomenon or issue (Safdar et al., 2016, p. 1275). An often-mentioned disadvantage of qualitative research is generalizability of findings because of small and unrepresentative number of cases (Saunders, 2011, p. 335). In the past the main idea was the larger the sample size, the better and the sample size has to be representative (Welch & Piekkari, 2017, p. 716). However, a case study contains a wide range of different people and activities invariably examined. The single case may encompass several settings, involving a study in large organizations across the country or even around the world while surveys are often restricted to one locality. The second argument is that you can demonstrate that the findings of qualitative research have a broader theoretical significance than the case that form the basis of your work. It is up to the researcher to establish the relationship to existing theory in order to be able to demonstrate the broader significance of the findings (Bryman, 1988). Another disadvantage is that there is no predetermined sample size. Sampling stops when the saturation end point has been reached. Researchers should spend time reviewing theories, frameworks and models that may assist in criteria for selecting and recruiting study participants, research setting, data analysis and interpreting data (Anderson, 2010, p. 2). This is time consuming and analyzing and interpreting results is time-consuming (Safdar et al., 2016, p. 1276). Quality of qualitative studies is seriously dependent on the experience and skills of the researches. This, because researches can make interpretations that biases results. Research quality could also be affected by the presence of a researcher during data gathering. Researchers can affect responses and it is challenging to maintain confidentiality during presentations of findings (Anderson, 2010, p. 2).

4.3 Desk research / secondary data

Different definitions of secondary data analysis exist. A well-known definition of Glaser (1963) is: “the study of specific problems through analysis of existing data which were originally collected for another purpose” (Glaser, 1963, p. 11). Another definition of Hewson (2006) is defined as: “the further analysis of an existing dataset with the aim of addressing a research question distinct from that for which the dataset was originally collected and generating novel interpretations and conclusions”(Hewson, 2006, p. 274). Secondary data analysis has a long history especially in social sciences. In 1790 the first national population census was undertaken in the United States of America (Smith & Smith Jr, 2008, p. 8). Secondary data can have many empirical forms; data can obtain from systematic reviews,

documentary analysis and large-scale datasets. Secondary data can be qualitative data obtained from interviews, ethnographic accounts and conversations, or secondary data can be quantitative obtained from questionnaires, administrative records or longitudinal studies (Smith & Smith Jr, 2008, p. 5).

Within the healthcare sector, secondary data plays an increasingly important role in public health research and epidemiology. Examples of secondary data sources are national surveys, claims data and public vital statistic records. In healthcare, much information is available, with the advent of technology much data is becoming available. However it can be difficult to access the data and many ethical restrictions exist (Boslaugh, 2007, p. 1).

The use of secondary data has many advantages. An advantage is the availability of data. Studies using secondary data can be conducted on a larger scale within a shorter time and against lower costs. Another advantage of the usage of secondary data is that people do not know that they were observed. The phenomenon that people will behave differently when they know that they are being observed will be little (Hoffmann, Bobrowski, & Fendrich, 2008) (Martin-Sanchez, Aguiar-Pulido, Lopez-Campos, Peek, & Sacchi, 2017, p. 30). There are also many limitations of the usage of secondary data. There is a significant risk of bias due to the quality of data. Routinely acquired data is different than data primary collected for a study. There is also often missing data and complementary data is missing (Martin-Sanchez et al., 2017, p. 31).

Secondary data is increasingly being used for the evaluation of health interventions. These studies use baseline and follow-up data from patients that were exposed to the intervention and compare this to a group not exposed to the intervention. Often, these data come from different sources. Regression is methods are used to estimate the causal effects of the intervention on health outcomes. There are many advantages of using secondary data such as lower costs, larger sample sizes, longer follow up times and more representative. However, there are also significant limitations of the usage of secondary data. This type of research has a lower strength of evidence than for example RCTs. Confounding is the main threat for this type of research. There is a risk that the exposed group is essentially different from the control group. Also, different methods are used within different hospitals, and there exist differences in the way of register (poor-quality). Missing data can also pose a significant challenge to the adjustment for confounding. (Martin-Sanchez et al., 2017, p.

33). When these issues are ignored, this can lead to inaccurate conclusions and affect the reliability and validity of results generated to support the results (Bibb, 2007, p. 98).

4.4 Summary

There is a debate about performing qualitative or quantitative research. However, the most optimal research method is to combine both methods to be complementary and overlapping rather than exclusive of each other. Neither quantitative nor qualitative research is superior (Al-Busaidi, 2008, p. 12). Mixed methods research, where quantitative and qualitative research methods are combined is increasingly valuable. This combination can potentially capitalize on the strengths of both quantitative and qualitative approaches (Östlund, Kidd, Wengström, & Rowa-Dewar, 2011, p. 369). Quantitative and qualitative are both needed to provide an understanding of complex phenomenon in healthcare (Al-Busaidi, 2008, p. 12). When quantitative and qualitative methods are mixed in a study, often one method will receive more priority over the other. This focus has to be clearly explained in the study (Östlund et al., 2011, p. 371). A large group senior academics suggest that different study designs provide complementary perspectives. They suggest that research in healthcare topics should also be understood through qualitative research. Qualitative studies can help explain both successes and failures of implemented quality initiatives (Greenhalgh et al., 2016, pp. 2-3).

5. Explanation of methods used in this study

In this chapter the methodology of this study is discussed. To evaluate the effectivity of quality initiatives, there was suggested to combine quantitative and qualitative research, but the focus must be on one of these two (Östlund et al., 2011 P.371). Within this study, the focus is on quantitative research because a research model was developed based on existing knowledge. To test stated hypothesis, quantitative research can be used. Different research methods were discussed in the chapter above. The most cost-effective, easiest research method to test the research model using a large sample size is to make use of secondary data. However, information about the degree of coordinated care, benchmarking processes, and output rewarding is not available within an existing database. Therefore, desk research is not possible to test the research model developed in chapter three. When one disease is selected, secondary data could have been used for outcomes. However, in this study multiple diseases are included and can therefore not be compared.

In healthcare, the highest evidence is to make use of a randomized controlled trial using comparison groups (Ramaswamy et al., 2018, p. 16). Within this study an RCT is not possible because this is too time-consuming, and many ethical restrictions exists. A longitudinal study is also to time-consuming and expensive (Hoe & Hoare, 2012, pp. 55-56). A case control study can be used, however in this way the degree of coordinated care, benchmarking, output rewarding and concentration of care per hospital is not known. A survey is an appropriate research method for testing associations and determine the degree of value-oriented activities (Safdar et al., 2016, p. 1273). The research question of this study is about identifying outcomes in terms of quality, costs, and opinions of value-oriented activities. Therefore, a questionnaire will be used to identify quality, costs, and opinions of value-oriented care activities and to test above mentioned hypothesizes. Qualitative research can add the understanding and give emphasis on the meanings, experiences and views of healthcare providers and patients (Al-Busaidi, 2008, p. 12). Qualitative research will be used for validating the results of the questionnaire.

A quantitative approach is used to gather empirical evidence of the hypothesis. First Company X value-oriented care purchasing process will be explained. After that, outcome measures will be discussed followed by the data collection process. After that, the design of the questionnaire is explained. Lastly, the statistical analysis is discussed.

5.1 Value oriented care purchasing process of Company X

Company X has started a three-year process based on the principles of VBHC to improve the value of patient care. The value-oriented care purchasing is seen as the key for future-proof and better healthcare for customers. The goal is to stimulate the quality of care with better health outcomes and to control costs (Menzis, 2019). This is done based on improvement cycles: collect data and benchmark with peers, examine differences and identify improvements and implement improvements (Menzis, 2018). At this moment, the value-oriented care purchasing process is introduced for knee and hip replacement, breast cancer, cataract, rheumatoid osteoarthritis, and heart care. Company X wants to connect as much as possible with the standard set of indicators developed by ICHOM for diseases to prevent a higher workload. These indicators were already mentioned in the theoretical part. Indicators will be compared and differences between healthcare providers will be made transparent. An independent party analyses the outcomes and costs, and this is reported to the participants.

Participants participate in annual meetings in which the benchmark data is presented and discussed. The goal of these meetings is that participants are inspired by other hospitals and that the value of patient care will increase by creating an environment of continuous learning. Every participant is obliged to develop a specific improvement plan. This improvement plan will be evaluated on the presence of an improvement team, concrete improvement points and a time lap for the implementation and monitoring of the improvements. After a year, these improvements should have been reached. Hospitals are especially focusing on increasing the patient reported outcomes rates, reducing hospital days, and reducing unnecessary care. Hospitals that participate, will have no volume constraint. However, when outcomes of care (based on indicators developed by ICHOM) have reduced, the volume constraint will be implemented again.

In 2018 Company X has started making episode-based payment including diagnostics, surgery, outpatient visits and complications. This is the first step in the principle of bundled payment. In the coming years, these bundles will be expanded (Menzis, 2018). At this moment 20 hospitals are participating in the value-oriented care purchasing process for knee and hip arthroplasty, 10 for heart care, 10 for cataract, 8 for breast cancer and 10 for rheumatoid arthritis. This value-oriented care purchasing process is especially focused on benchmarking and output rewarding.

5.2 Dependent measures used in this study

The most important outcome that is used in this study is value in healthcare. Value was defined as quality divided by costs. Most preferably, quality is defined as measurable indicators such as readmissions, revisions, PROMs, survival etcetera. However, for every condition separate quality indicators exists. Therefore, this is not comparable among different conditions. In this study different conditions are included. Therefore, there is chosen to measure quality subjective based on Porters' three tiers as explained in the theoretical part. This means that quality is allocated into achieved healthcare status of the patient group (tier 1), recovery process (tier 2) and sustainability of health (tier 3) (Porter, 2010, p. 2479). A question that is used to determine tier 1 is: "How do you assess the outcomes of the care provided in your department based on the achieved health status of the patient group (survival and degree of recovery). At the end, a control question is included to assess the overall quality of care. Outcome measures were measured on a 1-10 scale, because with a standard scale 1-5 there is expected that less difference in outcomes can be identified. This because it is unlikely that medical specialists will grade themselves lower than agree.

As explained in the theoretical part, costs are difficult to measure and not comparable in healthcare because, different price agreements exist between hospitals and insurance companies. These differences are untransparent. Preferable costs are measured as care activities such as hospital days, imaging, outpatient visits and physiotherapy sessions (International Consortium for Health Outcomes Measurement, 2017). However, in this study multiple conditions are included, these outcome measures are not comparable for different conditions. Therefore, in this study costs are measured using three subjective relevant concepts in healthcare. The first concept used in this study is experienced cost-effectiveness in healthcare. Within the Netherlands multiple effective treatments exists. However, costs of these different treatments vary greatly. It is suggested to look at the cost-effectiveness of treatments in order to reduce healthcare costs (Eichler, Kong, Gerth, Mavros, & Jönsson, 2004, p. 1). The question in the questionnaire was: "How do you asses the cost-effectiveness in your department". The second cost measure is reduction of unnecessary care. A large portion of hospital care is spent on diagnostic tools. Many unnecessary diagnostic tests are performed routinely. There is estimated that 30% of computed tomography tests may be unnecessary. Improving awareness may result in a significant reduction in costs (Vegting et al., 2012, p. 71). The third cost measure is focus on right care in the right place. The essence of this is avoiding expensive care, moving the point of care closer to the patient's homes,

and replacing care delivery with other forms such as e-health (Van den Dungen, 2018, p. 5). Those three concepts were chosen, because at this moment there is much attention for these concepts in healthcare. (Verkerk et al., 2018, p. 736). Those concepts are related to each other, Cronbach's alpha should be checked in the pre-testing phase. Company X' value-oriented care purchasing process enhances to these outcome and cost measures. Cost measures were measured on a 1-10 scale, because with a standard scale 1-5 there is expected that less difference in costs can be identified.

A separate measure that is used in this study is identifying the opinions of medical specialists and quality about the effects of value-oriented purchasing. This will be done to provide more insight in the effects of the value-oriented care purchasing process for Company X, because of different perceptions of caregivers about value-oriented activities (Feeley & Mohta, 2018, p. 7). There will also be tested whether differences exist between caregivers and quality employees. Also, the degree of coordinated care, benchmarking, concentration of care and the usage of output rewarding in departments of hospitals in the Netherlands will be identified. This is measured on a standard scale ranging from strongly agree to strongly disagree.

Independent variables that are used in this study are coordinated care, benchmarking, concentration of care and output rewarding. With the independent variables, the effect of different value-oriented activities on quality and costs of care will be identified. Control variables that are used are patient safety and waiting times.

Category	**Indicators**	**Measurement level**
Quality	Tier 1 (achieved healthcare status of the patient group)	1-10
	Tier 2 (recovery process)	1-10
	Tier 3 (sustainability of health)	1-10
	Overall quality of care	1-10
Costs	experienced cost-effectiveness in department	1-10
	Reduction of unnecessary care	1-10
	Focus on the right care on the right place	1-10
	Increasing quality	Strongly agree – strongly disagree

Opinions value-oriented activities	Reducing costs	Strongly agree – strongly disagree
	Enough evidence	Strongly agree – strongly disagree
	Movement of total payment system to bundled payments	Strongly agree – strongly disagree
	Complexity	Strongly agree – strongly disagree
	Decisions value-oriented activities should be left to the government	Strongly agree – strongly disagree

Table 2: Outcome measures used in this study

5.3 Questionnaire design

5.3.1 Independent measures part in the questionnaire

The questionnaire contains seven domains: Coordinated care, benchmarking, output rewarding, concentration of care, opinions about Value-Based Healthcare, Experienced quality and costs of care and a general part. There was no complete questionnaire available to test the whole research model. Therefore, the questionnaire was developed based on existing and validated questionnaires for each component and this was combined. Different departments will fill in the questionnaire. Therefore, first two questions were included to determine the respondents' function and working department. Based on these two questions, the questionnaire flow will be determined. This was done to create relevant questions for different departments. An example of this was that rheumatologist got to see the question: *How many rheumatoid arthritis patients were treated in your department in the year 2018?* Cardiologists had to answer the question*: How many patients received primary surgery for breast cancer at your department in the year 2018?*

The first domain was about coordinated care. To test hypothesis 1a and 1b, an existing validated questionnaire was derived from the paper of Brotman et al. (2017). The questionnaires goal was measuring care coordination in a hospital. The questionnaire consists of 12 questions with 4 subjects: teamwork, handoffs, patient engagement, and transitions. The response scales were ranging from 1 (agree strongly) to 5 (disagree strongly). An extra question was added at the end of the first part, to help assess construct

validity: “Overall, how would you rate the care coordination at the hospital of your primary work setting”. The response will be measured on a 10-point Likert scale ranging from totally uncoordinated to perfectly coordinated (Brotman, 2017, p. 815).

The second domain of the questionnaire was about benchmarking. Relevant and validated questions were derived from two different questionnaire (Abbas, 2014; C. Wagner, 2006). Three questions were derived from European research network on quality management in health care. They developed a questionnaire about quality and safety in hospital. From the domain Elements of quality and safety management systems three questions were derived. These questions were about the degree of benchmarking and monitoring the opinions of patients. The response scales were ranging from 1 (disagree strongly) to 5 (agree strongly) (C. Wagner, 2006, p. 6). Two other questions about measuring the results of benchmarking processes and current use of benchmarking service by third party provider were derived from an survey about successful benchmarking implementation (Abbas, 2014, p. 42). The response scales were ranging from 1 (disagree strongly) to 5 (agree strongly). An extra question was added to help assess construct validity: “Overall, how would you rate the benchmarking process at the hospital of your primary work setting”. The response was measured on a 10-point Likert scale.

The third domain was about the relationship between output rewarding and the quality and costs of healthcare. Output rewarding is not common in hospitals in the Netherlands (Struijs, 2015, p. 1). A study of Kamath et al. (2015) investigated bundled payment in total joint care. They developed and tested a survey of AAHKS membership attitudes and experience with alternative payment models (Kamath et al., 2015, p. 2047). A part of the questionnaire of Kamath et al. (2015) was used in this questionnaire. Questions were about familiarity with alternate payment models, whether the department is enrolled in alternate payment models and what payment model will be most effective in improving quality and reducing costs. For the first question, the response scales were ranging from 1 (familiar) to 4 (not familiar). The other two questions were explorative questions. Responses were: Fee for service, Pay for Performance, bundled payment, shared savings, other and do not know.

Domain four of the questionnaire was about concentration of care. In this part the number of patients that are being treated in the department will be identified. Six different questions were developed, specified on the different departments. Medical specialists only

had to fill in the number of patients treated in their own department. The number patients were compared with information from Zorginzicht.

The fifth domain of the questionnaire was about experiences of Value-Based Healthcare. This part of the questionnaire was not used for answering the research model. This was an addition to identify the opinions of participants of Company X' value-oriented care purchasing process. An existing validated questionnaire was derived from an article about from fee-for-service to Value-Based Healthcare. Questions were about increasing quality, reduction of costs, and complexity of Value-Based Healthcare. The response scales were ranging from 1 (disagree strongly) to 5 (agree strongly) (Feeley & Mohta, 2018, p. 7).

5.3.2 Dependent measures part in the questionnaire

Part six of the questionnaire was about experienced quality and costs of care. First two control variables were included. In the literature was found that patient safety and waiting times are important aspects of the experienced quality and costs of care for caregivers (Maulik S. Joshi, 2014, p. 32). Therefore, one question from SOPS hospital survey about patient safety was included. (SOPS, 2016, pp. 3-4). A question about waiting lists was included from ENQual (C. Wagner, 2006, p. 11). After that, questions about quality and costs of care were included. Quality was measured according to Porters' three tiers: achieved healthcare status of the patient group (tier 1), recovery process (tier 2) and sustainability of health (tier 3). An overall question about quality of care was included to help assess construct validity. Questions about costs of care were about cost-effectiveness, focus on reduction of unnecessary care and focus on care in the right place. Two questions were derived from EnQual and SOPS. The other questions were self-developed, and pilot tested.

The last part of the questionnaire was about general characteristics. These questions were about gender, age, hospital, and experience. There were also questions included about the opinion of the questionnaire: did the respondents have enough knowledge and possible comments. The questionnaire is shown in appendix 3 and 4.

5.4 Validation of the questionnaire

Different existing questionnaires were combined, and a few questions were self-developed. Therefore, the questionnaire was several times tested, to provide a well-developed

questionnaire. The first step in this process was discussing the questionnaire with peers and project leaders from Company X. Modifications were made to the questions based on received feedback. Feedback was especially focused on formulation of questions because existing questionnaires were only available in an English version. One question about barriers for alternative payment models was left out, because that question was difficult to answer, because different barriers could arise for different payment models, so multiple answers should be given. Another question about incidents was left out because of a lack of knowledge. There was also questioned whether all questions were relevant for Cataract and rheumatoid arthritis. Questions that were left out in the digital questionnaire are marked yellow in appendix 4.

The second step was sharing the questionnaire with two medical specialists. This was done, because different specialties had to fill in the questionnaire and to control the relevance. There was a selection of what questions were relevant per specialty, but this had to be checked. The medical specialists had no further comments. After that, the questionnaire was undeclared pretested to increase the validity and reliability of the survey. The intention was to send the survey to 10 medical specialists before spreading the questionnaire to the whole sample. If these medical specialists noticed any unclarities or comments in the questionnaire, this could still be processed before sending the questionnaire to the whole sample. These caregivers were randomly assigned. At this point COVID-19 came up in the Netherlands. Therefore, this undeclared pretesting phase has not been performed.

5.5 Problems caused by Covid-19

The beginning of March was the planned period to distribute the questionnaire. In this month COVID-19 came up in the Netherlands. To prevent further spread of COVID-19, routine and non-urgent appointments were postponed or done by phone. To ensure enough numbers of skilled staff, medical specialists from different departments were helping at the Intensive Care instead of their own departments. Therefore, the questionnaire could not be spread in that period. Because it was not possible to get data from the questionnaire the results are not known. Instead an extensive method is written where quantitative, qualitative and desk research were discussed. In appendix 2 an explanation and summary of this process is given. The below paragraphs describe the process that would have been used to collect and analyze the questionnaire.

5.6 Data collection process

The questionnaire will be conducted by participants of the value-oriented care purchasing process developed at Company X. An email will be sent to contact persons of participating hospitals. In this e-mail the goal of the study will be explained. This information letter is shown in appendix 5. Frequently, this is a manager or quality employee and a medical specialist. There will be asked if these persons will spread the questionnaire to colleagues (medical specialists and quality employeer working in the same department. It takes approximately 15 minutes to fill in the questionnaire. Qualtrics will be used to fill in the online questionnaire. Multiple reminders will be sent to fill in the questionnaire. In April, during a meeting with participants of the value-oriented care purchasing process medical specialist will be memorized to fill in the questionnaire.

To recruit as many respondents as possible, efforts will be made to make the questionnaire as anonymous as possible. However, to obtain additional information, it is necessary to ask in which hospital the respondent works. This might be a barrier for medical specialist to participate in this study. Therefore, only the researcher will have access to see the hospital name. When additional information such as PROMs is linked to the data, the hospital name will be removed from the data. Respondents must agree with this before starting the questionnaire. Information about the PROMs response rate and the total amount of patients treated in a certain hospital/clinic will be collected from Vektis intelligence.

5.7 Data analysis

Means and standard deviations will be calculated for general characteristics of respondents. To analyze above stated hypothesis Qualitative Comparative Analysis (QCA) will be used. This methodology enables the analysis of multiple cases in complex situations and is useful for data with intermediate number of cases and in situations where there are too few cases to apply statistical analysis (Berg-Schlosser, De Meur, Rihoux, Ragin, & techniques, 2009, p. 4). Software that will be used in this study is fsQCA 2.0 software (C. C. Ragin, Strand, & Rubinson, 2008). QCA identifies one or more pathways that produce an outcome of interest (C. C. Ragin, 1999, p. 1234). QCA methodology contains five different steps. The first step is identifying relevant outcomes and a list of conditions that may be associated with that

outcome. This was already done in chapter three. The method for analyzing quality of care will be illustrated with fictive numbers. The same method must be repeated for costs of care.

The second step is developing calibration metrics. A fuzzy set is used, fsQSA requires raw data variables to be transformed into scores through the process of calibration (Schneider & Wagemann, 2010, p. 403). Fuzzy set analysis enables to draw conclusions about logical relationships without having to reduce all data to binary sets. Within fsQCA, scores for each case concerning the degree of coordinated care, benchmarking, output rewarding, and concentration of care factors will be plotted against outcome scores. (Chang, Tseng, & Woodside, 2013, p. 96). Coordinated care will be assigned into fuzzy thresholds (1, 0.5, and 0) according to a coordinated or uncoordinated care pathway. Benchmarking will also be assigned into fuzzy thresholds (1, 0.5, and 0). A higher fuzzy score represents a better arranged benchmarking process and zero means uncoordinated care and no benchmarking processes. The split in the original scale to assign them to the fuzzy set is based on the mean outcomes of the respondents. For output rewarding, 1 is classified as shared savings and bundled payments, 0.5 for pay for performance and 0 for fee-for-service. The scale values number of procedures performed in a hospital and the mean number of procedures per medical specialist are divided into categories. The mean of the outcomes is set as the crossover point. Quality and costs are measured on a 1-10 scale. This is done because it is expected that medical specialists all rate their quality of care as “good”. To identify variation, the scale is expanded from a five-scale to a 10-scale. The crossover point is also based on the mean outcomes of the respondents. The expected crossover point is set at 7. However, this will be decided based on responses of the questionnaire. To identify the relationship between quality and costs, quality is used as a predictor for costs and costs is used as predictor for quality. The calibration metrics are shown in table 3. Step three is calibrating the data.

Condition	**Crisp value**	**Fuzzy form**
Coordinated care	1: strongly disagree 3: Neutral 5: strongly agree	0: full non membership 0.5 Crossover point 1: Full coordinated care
Benchmarking	1: strongly disagree 3: Neutral 5: strongly agree	0: full non membership 0.5 Crossover point 1: Full benchmarking
Output rewarding	1: Fee-for-service	0: Full non output rewarding

	3: Pay-for-Performance 3: Bundled payment / shared savings	0.5 Crossover point 1: Full output rewarding
Concentration of care	1: 50-85 surgeries 3: 120-155 surgeries 5: 190 or more surgeries	0: low concentration of care 0.5 Crossover point 1: Full concentration of care
Quality of care	Based on results of questionnaire	0: full non membership 0.5 Crossover point 1: Full coordinated care
Costs of care	Based on results of questionnaire	0: full non membership 0.5 Crossover point 1: Full coordinated care

Table 3: Calibration: transformation of crisp value to fuzzy form

Step four is developing a truth table showing all possible combinations and identifying necessary conditions. In table 4 a possible truth table for quality of care with 8 configurations is shown. Logic will be used to minimize truth table and identity pathways to outcomes. In this example, a minimum of three observations is used. Configurations with less than three observations are neglected.

Configuration	**CC**	**Bencm**	**OR**	**ConcC**	**Number of respondents that associate with this configuration**
1	1	0	1	0	7
2	0	1	1	0	4
3	0	1	0	0	1
4	0	0	1	0	9
5	0	0	1	1	2
6	1	1	1	0	4
7	1	1	1	1	8

Table 4: Truth table for increased quality of care (fictional numbers)

The last step is assessing these pathways with parameters of fit. For assessing parameters of fit, consistency and coverage can be used. This measures the proportion of memberships in fuzzy terms in the outcome that each logical configuration explains. The lower bound of the consistency threshold value is 0,85 (C. Ragin, Fiss, & Ragin, 2008). Results reveal five

configurations for value-oriented activities to outcomes of care. The solution coverage of 0.58 indicates a degree of how much the quality of care is covered by the five configurations. In this fictive case, the five configurations account for 58% of the membership in quality of care. The consistency of 0.85 are in line with recommendations in the literature (Schneider & Wagemann, 2010). Raw coverage means the proportion of membership in the outcomes that are explained by each term of the solution, so the extent to which a configuration covers the quality of care (C. C. Ragin, Drass, & Davey, 2006, p. 86). Unique coverage expresses the unique contribution of a configuration under exclusion of other configurations contributions (C. C. Ragin, 2014). This is graphical exhibited in table 5. Black dots represent a necessary condition of a value-oriented activity. Blank spaces represent a do not care situation. This means that the activity might be present or absent. White dots mean absence of a condition. C1 means that coordinated care and output rewarding are both necessary and enough for quality in care. Benchmarking may either be present or absent. Concentration of care is absent. In table 10, solution formula for quality of care is shown.

	Configurations				
Conditions	C1	C2	C3	C4	C5
Coordinated care	●			●	●
Benchmarking		●		●	●
Output rewarding	●	●	●	●	●
Concentration of care	○		○		●
Raw coverage	0.37	0.37	0.36	0.39	0.39
Unique coverage	0.01	0.02	0.02	0.03	0.02
Consistency	0.88	0.89	0.88	0.88	0.87
Solution coverage	0.58				
Solution consistency	0.85				

Note: black dots represent a needed presence, white dots represent the absence of a condition, blank spaces mean either presence or absence (do not care).

Table 5: Configurations of value-oriented activities to outcomes of care (fictional).

Note: * indicates and, + represents or, ~ indicates the absence of a condition
Coordinated care * Output rewarding + Benchmarking * output rewarding + Output rewarding + Coordinated care * Benchmarking * Output rewarding + Coordinated care * Benchmarking * output rewarding * concentration of care → quality of care

Table 6: Formula for sufficient conditions

Within the fictional formula for sufficient conditions in table 6, each configuration separated by + represents one column of table 5. The solution formula shows five alternative configurations resulting in quality of care. It can be interpreted as coordinated care and output rewarding, or benchmarking and output rewarding or coordinated care and benchmarking and output rewarding etc. resulting into quality of care.

The opinions of medical specialists and quality employees about value-oriented care are descriptively analyzed. This is done using means and standard deviations in SPSS (corperation, 2015). A student-t-test is used to test whether differences exist between medical specialists and quality employees. The significance level is set at $P<0,05$.

5.8 Qualitative research for identifying opinions of VBHC

Results of the questionnaire will be validated using qualitative research. An explorative and qualitative research design will be used for identifying opinions and experiences of VBHC on quality and costs of healthcare using semi-structured interviews. This method is useful when new questions will come up based on the reaction of respondents. A semi-structured interview scheme will be developed based on the results of the questionnaire. In this way there will be tried to determine reasons for the presence or absence of certain value-oriented activities to increase quality and/ or reduce costs. For example, there is expected that output rewarding will have a positive effect on quality and costs of care. If results of the questionnaire do not indicate these positive effects, interviews will be used to try to determine reasons for not seeing positive effects.

Five medical specialists and five managers/ purchasers/ quality employees from different departments will be asked to participate in an interview. This will be done because the opinions of medical specialists and managers/ quality employees might be different. Contact persons of Company X' value-oriented care purchasing process are asked to participate in an interview. Respondents will be randomly selected using Excel. Five medical specialists and five managers will randomly be contacted by e-mail and asked if he/she is willing to participate. When the medical specialist/ manager of the value-oriented care purchasing process is not willing to participate in the interview, another participant will be

randomly selected. After this, participants will be informed about the study and about voluntary participation. This will also be recorded at the beginning of the interview.

Interviews will be recorded and after that interviews will be transcribed verbatim. Transcripts should be verified by respondents. After transcribing, transcripts are coded using open coding without a coding system. The transcripts will be read to identify overarching themes and codes will directly be derived from the transcripts. The second step in the analyzing process is axial coding. Codes will be categorized into different topics. When codes do not fit within the specific topics they will be recoded. The last step is building a story by comparing all information that is associated with specific topic and themes.

6. Discussion and recommendations for further research

Unfortunately, this study does not provide any results. Therefore, in this part results of comparable studies will be discussed. After that, the chosen study method will be discussed, followed by limitations of this study, the most optimal method will be described and lastly, recommendations for further research will be done.

6.1 Discussion comparable studies

Healthcare organizations in many countries are setting up value improvement collaboratives. However, programs focus on different activities and evidence is limited (W. K. van Deen et al., 2017, p. 1). Porter describes the transformation to a higher value of care in six interrelated different steps (M. E. Porter & Lee, 2013). Four of these steps would have been investigated within this study. There would be investigated which activities of increasing value in healthcare has most impact and whether doing more steps resulted in a higher value of care. An existing study that investigates the effects of these four activities; IPUs/coordinated care, benchmarking, output rewarding and concentration of care using a questionnaire could not be found. Below, two studies about the effectiveness of two value improvement collaboratives are described.

Santeon has started a value improvement collaborative based VBHC. Santeon focusses on measuring, benchmarking, and starting with output rewarding. The first outcomes for breast cancer have been investigated using a retrospective cohort study. Santeon hospitals have achieved decreasing hospital days decreasing rate of revisions and complications (D. Biesma et al., 2018, p. 3).

In Stockholm, an Orthochoice bundle was developed to increase value for patients with hip and knee replacements. This Orthochoice bundle focussed on volume (concentration of care), measuring and benchmarking, and a bundled payment for the total inpatient process. The results were retrospectively analysed and a lower complication rate and a reduction in costs was found. PROMs did not significantly change following the implementation of the Orthochoice bundle. Qualitative research was done to investigate what changes brought the greatest improvements. Improvements that were mentioned were caused by measuring, analysing and, benchmarking (M. E. Porter, Marks, & Landman, 2014, pp. 1-2).

In comparable studies is found that IPUs, benchmarking, output rewarding, and concentration of care all result in better quality and lower costs (Bozic, 2013; DICA, 2017; Low et al., 2017; McLawhorn & Buller, 2017; D. C. Miller et al., 2011). The study about Orthochoice suggest that measuring and output rewarding are very important to increase value of patient care. In the Netherlands, output rewarding is not fully integrated yet. In a fee-for-service reimbursement model there are difficulties to prioritize value. Output rewarding is needed to improve quality metrics and cost effectiveness of provided care. Output rewarding trigger changes in care coordination, care pathways and protocols (Iorio, 2015, p. 350). Therefore, it is expected that output rewarding is the greatest causation of an improved value in healthcare.

6.2 Discussion of the used research method

This study is a starting point for evaluating value-oriented activities in healthcare organizations. Understanding the effects of different value-oriented activities is useful to assess and agree on how we can increase patient value in healthcare. Many healthcare organizations are facing difficulties in increasing patient value. This study can help to identify which activities are needed to increase value of patient care.

In this study a questionnaire was used. Advantages of questionnaires are that large numbers of people can be reached in a short period of time and it is easy to undertake. Also, the anonymity of respondents can be guaranteed. This is important because hospitals do not want to be disadvantages when they provide honest information. In this way, the validity will be high, because problems with socially desired answers are prevented. Another advantage of using a questionnaire as data collection method is that results cannot be manipulated by the researcher's interpretation (Seers & Critelton, 2001, pp. 490-492).

In this study, the outcome measures used are relevant for all patient groups and the three tiers of Porter are well-known in the medical world (Porter, 2010). Those outcome and cost measures are not specified for a condition, but Porters three tiers are applicable for all medical conditions. This makes this study wide-spread applicable.

This study shows that with a small number of respondents' useful results can be obtained. Results of qualitative comparison analysis do not provide information about significance. However, qualitative comparison analysis is useful for determining different pathways in which patient value is increased (increasing quality, reducing costs or both).

Qualitative comparison analysis also shows which value-oriented activities should be combined to increase patient value.

6.3 Limitations of this study

A limitation of this study was a time-constraint. Value-oriented activities were identified based on comparable studies. This study could have been of a higher quality, when in addition to comparable studies, interviews or focus groups were used to identify value-oriented activities for the development of the questionnaire. There was found that qualitative research is useful for developing quantitative surveys (Calderon, Baker, & Wolf, 2000). Qualitative research is also useful for building the context needed to further understand value-oriented activities (Safdar et al., 2016, p. 1275). However, within this study this was too time-consuming and therefore there was chosen to select value-oriented activities based on comparable studies and experiences from Company X instead of interviews of focus groups.

Originally, the questionnaire was specified for total joint arthroplasty. There was conceived that the questionnaire would be spread at an orthopaedic conference. Quality and costs were measured on relevant indicators developed at ICHOM. Outcome measures that would have been used are readmissions, revisions, infections, etc. Cost measures that would have been used are hospital days, imaging activities and outpatient visits. An existing database at Company X contains information about those measures and this would be linked to the questionnaire. Unfortunately, this conference was cancelled, and a new data collection method had to be devised. Another limitation of the cancellation of the conference was that the same number of respondents would hardly be obtained. When the focus was only on total joint arthroplasty, a maximum number of 80 hospitals could be approached. The average response rate for individual surveys is 52,6 percent. For organizational surveys, the response rate is 37,2 percent (Baruch & Holtom, 2008, p. 1153). This would result in a very low number of respondents. Therefore, the focus of the questionnaire was widened into five different conditions that all participate in Company X value-oriented care purchasing process. To make the questionnaire suitable for all conditions, outcome and cost measures must be changed. These measures could not be linked to Company X' database. Therefore, outcome and cost measures are based on subjective opinions of medical specialists instead of data from an existing database.

With this new data collection method, there was expected that approximately 120 contact persons from different hospitals could be contacted. However, with this new data collection method, there is expected that the response rate would be high. First, an electronic survey will be sent by e-mail and after two weeks, a meeting with contact persons is scheduled. Within this meeting the contact persons are memorized of filling in the questionnaire. Because of these physical memorize there is expected that the response rate will be high. A higher response rate is more representative for a population, because in this way the population is not systematically different from the overall group (Baruch & Holtom, 2008, p. 1153). Another limitation of electronical questionnaires is that those have a high risk of nonresponse bias. It is possible that contact persons that were more involved and enthusiastic about the value-oriented care purchasing process will be overrepresented in the research population. This can result in an overestimation of coordinated care, benchmarking and opinions of value-oriented care purchasing process (Cheung, Peter, Smit, de Vries, & Pieterse, 2017, p. 1)

A disadvantage of questionnaires is that the quality of the questionnaire influences the validity of the study (Seers & Critelton, 2001, pp. 490-492). The questionnaire developed in this study is composed of existing questionnaires. There is assumed that these questionnaires are fully validated. However, the validity of those questionnaires can also be of a lower quality as expected.

Output rewarding is seen as a solution for better outcomes and as a stimulation for innovations (Froimson et al., 2013, p. 1) (Dundon et al., 2016, p. 1949). Therefore, health insurers and care providers increasingly apply output rewarding as reimbursement model. However, output rewarding is still not optimally working in the Netherlands. At this moment, the first output rewarding models in the Netherlands are working. However, financing is still fragmented, and reimbursement is limited to hospital care. Physical therapy, home care etc. is not included within the bundle and therefore there is still no push for care in the right place. Upscaling output rewarding requires standardization of contract elements and uniformity of bundles per condition. Otherwise, administrative burden will increase, and positive effects of output rewarding will not be achieved (van der Hijden et al., 2019, p. 223). Because output rewarding is not optimally integrated yet, it would have been difficult to identify the effects of output rewarding on the value of care.

6.4 Methods used in an optimal world

In a perfect world without constraints, the most optimal method would be an experiment. A key feature of an experiment is establishing cause and effect relationship. The independent variable is manipulated, and the dependent variable is measured. All external variables are controlled. Within an experiment there is a high validity and less bias (Seers & Critelton, 2001, pp. 487-488). An RCT is the best research method to analyse quality interventions in healthcare. Within this study, this means that a group of patients should be treated in a hospital where value-oriented activities are used and a control group where is no focus on value-oriented activities. Result of these patients will be compared and in this way the effect of value-oriented activities can be determined. However, An RCT is very expensive and time consuming. It is difficult to randomly assign hospitals to whether benchmarking exits in hospitals. Benchmarking is used in all hospitals, only the benchmarking process differs between hospitals. The effect of IPUs and output rewarding could have been identified with an RCT. Patients could have been randomly assigned to a hospital where the reimbursement is done based on output rewarding or to a hospital with a traditional reimbursement method. The same applies for integrated practice units.

An example of such a study is the study of Gabriel et al. (2019). They performed a study about pathway redesign based on the principles of VBHC. The aim of this study was calculating the value of the treatment for hip arthroplasty by measuring quality and costs. Two pathways were compared; a traditional pathway and a pathway redesigned on the principles of VBHC. This study did not find significant differences in clinical outcomes, but a small non-significant reduction in costs (Gabriel et al., 2019, p. 1). Another randomized controlled trial showed that patients treated in an IPU had a significant reduction in readmissions, emergency department visits and hospital days compared with standard hospital care (Low et al., 2017, p. 2). However, it is still difficult to assume a simple, linear path between the quality improvement intervention and outcomes (Ramaswamy et al., 2018, pp. 15-16). Another difficulty is the ethical aspect of RCT's. In comparable studies, the effect of bundled payments is often analysed based on case control studies and case studies (Dundon et al., 2016, p. 1950).

Another method that could have been used was desk research. Advantages of secondary data are that it will save time and costs (Martin-Sanchez et al., 2017, p. 30). Clinical outcomes as mortality, hospital days, revisions, readmissions, and infections for certain diseases can be used from health insurers. However, when patient reported outcomes

will be considered, hospital data is needed. A disadvantage is that it is difficult to compare data from different data sets within hospitals. It is also difficult to classify hospitals on value-oriented activities. There is no data available about the degree value-oriented activity usage in hospitals. To identify this, a questionnaire is needed, or an experiment must be created.

6.5 Recommendations for conducting this study and reflections on current work

This study does address different limitations of this study as described in section 6.3. Therefore, to conduct this study, different recommendations will be done. The first recommendation is to make use of a larger sample size. As already mentioned above, within this research population, the sample size would have been low. With a Qualitative comparative analysis, logical conclusion about hypothesis can be developed, but a QCA does not provide significant results. It is suggested to continue this research with a larger sample size, to obtain significant results. This could be done by creating a larger research population. For example, all orthopaedics within the Netherlands.

The second recommendation is related to the first recommendation. When the questionnaire is related to one condition, outcome and cost measures can be more modified to this condition. In this way, outcomes and cost measures are more valid and not based on medical specialists' opinions. Quantitative research and desk research can be combined because outcome and cost data are available at health insurers companies.

The third recommendation is to make use of interviews or focus groups to develop the questionnaire. Qualitative research is useful in the development of questionnaires. Qualitative research should be used for identifying relevant value-oriented activities and to make sure that most relevant outcome and cost measures are selected. The questionnaire is developed based on existing validated questionnaires, it would also be very useful to discuss the quality of the questionnaire with interviews or within a focus group.

The last recommendation is to take patient reported outcomes into account. The main goal of value-oriented activities is increasing patient value and is therefore an important outcome. Within this study, patient reported outcomes were not included because these could not be obtained. Patient reported outcome measures can have a positive effect on integrated practice units and output rewarding. Therefore, there is suggested to identify the effect of integrated practice units, benchmarking, concentration of care and output rewarding on

patient reported outcome measures. This could be identified by performing patient questionnaires or by qualitative research

This study is a good starting point for identifying the effect of different value-oriented activities. The most used value-oriented activities in healthcare are already identified. Many studies did find positive results of IPUs, benchmarking, output rewarding and concentration of care on value of patient care (increasing quality of care, decreasing costs or both). Company X can continue this study in the future and find out which value-oriented activity, or which combination of value-oriented activities result in the biggest increase in patient value. In this way they can determine which value-oriented activity/ activities to focus on to increase value of patient care.

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8. Appendixes

8.1 Appendix 1: ICHOMs outcome measures

Disease	Outcome measures
Knee and hip arthroplasty	Mortality, Readmissions, Pain, physical functioning, work status, health-related quality of life, overall satisfaction with results, treatment progression, need for surgery and reoperation or revision.
Cataract	Complications, Visual activity, Refractive error and patient reported visual functioning.
Rheumatoid arthritis	Pain, fatigue, activity limitations, health impact, work/school/housework ability and productivity, serious adverse events, treatment response and inflammatory disease activity.
Heartcare	Mortality, quality of life, complications, duration of rehabilitation and consequences of treatment.
Breast cancer	Reoperation, complications, depression, pain, fatigue, body image, arm and breast symptoms, vasomotor symptoms, neuropathy, arthralgia, sexual dysfunction, health-related quality of life, survival, recurrence free survival.

8.2 Appendix 2: summary conversation 30-03-2020

This thesis method went different than expected beforehand. It is well-known that questionnaires among orthopaedists have a low response rate. Therefore, an innovative way of data collection should be used. Therefore, a questionnaire was developed to spread at an annual NOV conference day in January. The NOV board was also very curious about the results of my research It was expected that almost all orthopaedic surgeons in the Netherlands attend this two-day conference. There was discussed that I should have 10 minutes of the time to take a questionnaire through a program such as Kahoot. In this way, a high response rate could be achieved. However, a week before the conference, my time was cancelled because the conference was not intended for the distribution of questionnaires.

After this, a new way of data collection had to be devised. The new idea was to distribute the questionnaire among participants of the value-oriented care purchasing process of Company X. Because Company X had contact information for these people. Only 20 hospitals were participating in the value-oriented care purchasing process for knee and hip arthroplasty. In this way, the number of respondents would be far too low. Therefore, there was chosen to also use other value-oriented care purchasing processes (cataract, breast cancer, rheumatoid arthritis and heart care). Originally, the questionnaire was developed for orthopaedics. Therefore, the questionnaire was adapted to suit all these medical specialists. There was planned to start the pretesting phase in the week of 16 March. In that period Covid-19 was in the Netherlands. Medical specialist was helping on Intensive Care instead of their own departments. Therefore, Company X did not want to distribute the questionnaire at that time because it is bad for the image of the health insurance company. At that moment it was unclear until when COVID-19 rules the Netherlands. So, it was also unclear for me when I could spread the questionnaire.

In order to create less delay, in a conversation with Frederik Vos and Louisa Knight there was decided to omit the results. Instead of this, I had to make sure that I could show knowledge and that I was able to perform a master thesis. I had to show this by: (1) discussing several possible methods (both qualitative and quantitative) that could have been used in this study and (2) writing a hypothetical results part about what could have gone wrong and how to solve this.

8.3 Appendix 3: Questionnaire exported from Qualtrics

Evaluatie waardegerichte zorg

Het doel van dit onderzoek is het evalueren van waardegerichte programma's voor heup- en knie artrose, borstkanker, cataract, hartzorg en reumatoïde artritis. Er wordt gekeken naar het effect van gecoördineerde zorg, benchmarkingprocessen, concentratie van de zorg en uitkomst financiering op de kwaliteit en kosten van de zorg. Het invullend van de vragenlijst zal ongeveer 15 minuten in beslag nemen. Wij vinden het van belang dat u weet hoe er met uw gegevens wordt omgegaan. Hieronder vindt u dit verwoord in een verklaring en wij vragen u zich akkoord te verklaren met deze verklaring.

- Ik verklaar hierbij op voor mij duidelijke wijze te zijn ingelicht over de aard en methode van het onderzoek.
- Ik stem geheel vrijwillig in met deelname aan dit onderzoek. Ik behoud daarbij het recht deze instemming weer in te trekken zonder dat ik daarvoor een reden hoef op te geven. Ik besef dat ik op elk moment mag stoppen met het onderzoek.
- Als mijn onderzoeksresultaten worden gebruikt in wetenschappelijke publicaties, of op een andere manier openbaar worden gemaakt, dan zal dit volledig geanonimiseerd gebeuren.
- Mijn persoonsgegevens worden niet door derden ingezien zonder mijn uitdrukkelijke toestemming.

Als ik meer informatie wil, nu of in de toekomst, dan kan ik me wenden tot:

Marli Leus.

0657553036

Leus.m@company X.nl

√ ik begrijp de bovenstaande tekst en ga akkoord met deelname aan het onderzoek

Als u een vraag niet wilt beantwoorden of als een vraag niet op u van toepassing is, kunt u het antwoord leeg laten.

Wie heeft deze vragenlijst ingevuld?

- ❍ Medisch directeur/ lid van het management
- ❍ Medisch specialist
- ❍ Beleids-/ kwaliteits-/ zorgverkoopmedewerker
- ❍ Anders, in de volgende positie…….

Aan welke afdeling bent u voornamelijk verbonden?

- ❍ Verschillende afdelingen, geen specifieke afdeling
- ❍ Orthopedie
- ❍ Oncologie
- ❍ Cardiologie
- ❍ Reumatologie
- ❍ Oogheelkunde
- ❍ Chirurgie
- ❍ Zorgadministratie
- ❍ Anders, namelijk…….

Deel 1: Gecoördineerde zorg

Gecoördineerde zorg betekent het doelbewust organiseren van patiëntenzorgactiviteiten en het uitwisselen van relevante informatie over de patiënt tussen alle betrokken partijen zowel binnen en buiten het ziekenhuis om tot veiligere en effectievere zorg te komen.

Geef aan in hoeverre u het eens of oneens bent met onderstaande stellingen.

In mijn werkomgeving…

	Sterk mee oneens	Oneens	Neutraal	Eens	Sterk mee eens

Helpen multidisciplinaire overleggen om de zorgcoördinatie te verbeteren.	❍	❍	❍	❍	❍
Delen leden van het behandelteam informatie die tijdige besluitvorming mogelijk maakt.	❍	❍	❍	❍	❍
Waarschuwt ons afdelingshoofd het behandelteam over situaties die de patiëntenzorg kunnen beïnvloeden.	❍	❍	❍	❍	❍
Komen leden van het behandelteam bijeen om het zorgplan opnieuw te evalueren wanneer de situatie van de patiënt is veranderd.	❍	❍	❍	❍	❍
Gebruikt het behandelteam input van multidisciplinaire overleggen om het zorgplan van de patiënt te helpen bepalen.	❍	❍	❍	❍	❍
Legt het behandelteam informatie uit aan patiënten en hun families in lekentermen.	❍	❍	❍	❍	❍
Heeft mijn afdeling een duidelijk protocol voor het delen van informatie tijdens overdracht van patiënten.	❍	❍	❍	❍	❍
Weten de patiënt en/ of familie wie het primaire contact is in hun behandelteam.	❍	❍	❍	❍	❍

Zijn patiënten actief betrokken bij het ontwikkelen van hun zorgplan.	❍	❍	❍	❍	❍
Zijn patiënten actief betrokken bij het ontwikkelen van hun ontslagplan.	❍	❍	❍	❍	❍
Leren leden van het behandelteam patiënten hoe ze voor zichzelf moeten zorgen nadat zij het ziekenhuis verlaten.	❍	❍	❍	❍	❍
Geeft het behandelteam patiënten de handvaten die zij nodig hebben voor een veilige overgang van het ziekenhuis naar huis, of de volgende zorginstelling.	❍	❍	❍	❍	❍

Hoe beoordeelt u in het algemeen de zorgcoördinatie in uw afdeling?

- ❍ 1 (Totaal ongecoördineerde zorg)
- ❍ 2
- ❍ 3
- ❍ 4
- ❍ 5
- ❍ 6
- ❍ 7
- ❍ 8
- ❍ 9
- ❍ 10 (Perfect gecoördineerde zorg)

Deel 2: Benchmarking

Benchmarking is het verzamelen van prestatie uitkomsten/ indicatoren en dit vergelijken met een standaard of best practice van vergelijkbare ziekenhuizen.

Geef aan in hoeverre u het eens of oneens bent met onderstaande stellingen.

In mijn werkomgeving…

	Sterk mee oneens	Oneens	Neutraal	Eens	Sterk mee eens
Vergelijkt de afdeling specifieke resultaten (indicatoren) intern om verbeteringen door te voeren (bijvoorbeeld het vergelijken van indicatoren in verschillende tijdsperiodes).	❍	❍	❍	❍	❍
Vergelijkt de afdeling specifieke resultaten (indicatoren) met andere ziekenhuizen (de beste in hun klasse) om verbeteringen door te voeren.	❍	❍	❍	❍	❍
Meet de afdeling aan het einde van een benchmarkingsproces (dit kan zowel het Waardegerichte Zorginkoop traject zijn als andere benchmarkingsprocessen) verbeteringen die zijn opgetreden.	❍	❍	❍	❍	❍

Meet de afdeling de meningen van patiënten (inclusief patiënt tevredenheid onderzoeken).	❍	❍	❍	❍	❍

Gebruikt uw afdeling momenteel benchmarkingservices die worden aangeboden door een derde partij (met uitzondering van landelijk verplichte registraties en het waardgerichte zorginkoop traject van Company X)?

- Ja, namelijk…….
- Nee

Hoe beoordeelt u in het algemeen de benchmarkingsprocessen in uw afdeling?

- ❍ 1 (Niet aanwezig)
- ❍ 2
- ❍ 3
- ❍ 4
- ❍ 5
- ❍ 6
- ❍ 7
- ❍ 8
- ❍ 9
- ❍ 10 (Perfect georganiseerd)

Deel 3: Prestatiegerichte financiering/ bundled payment

Prestatiegerichte financiering is gericht op het stimuleren van het verhogen van de waarde van de geleverde zorg. Voorbeelden van prestatiegerichte financieringsmethode zijn pay for performance, bundled payments en shared savings.

Hoe bekend bent u met verschillende alternatieve vergoedingsmodellen?

- Helemaal niet bekend
- Een beetje bekend
- Basiskennis

- Helemaal bekend

Welke betalingssystemen zijn momenteel van kracht in de afdeling waar u werkzaam bent? Meerdere antwoorden zijn mogelijk.

- Fee for service (een betalingsmodel op basis van DBC-zorgproducten)
- Pay for Performance (een betalingsmodel dat artsen, ziekenhuizen etc. financieel stimuleert om aan bepaalde prestatie indicatoren te voldoen, vaak ontvangen zij een bonus wanneer bepaalde prestatie indicatoren worden overtroffen).
- Bundled payment (de vergoeding van zorgaanbieders op basis van verwachte kosten voor het gehele behandeltraject van een aandoening, inclusief complicaties).
- Shared savings (het verdelen van een zorgkostenombuiging tussen de zorgverzekeraar en de zorgaanbieder).
- Anders
- Weet ik niet

Welke van de volgende betalingsmodellen denkt u dat het meest effectief is bij het verbeteren van de kwaliteit en het verlagen van de kosten in uw afdeling?

- Fee for service (een betalingsmodel op basis van DBC-zorgproducten)
- Pay for Performance (een betalingsmodel dat artsen, ziekenhuizen etc. financieel stimuleert om aan bepaalde prestatie indicatoren te voldoen, vaak ontvangen zij een bonus wanneer bepaalde prestatie indicatoren worden overtroffen).
- Bundled payment (de vergoeding van zorgaanbieders op basis van verwachte kosten voor een aandoening.
- Shared savings (het verdelen van een zorgkostenombuiging tussen de zorgverzekeraar en de zorgaanbieder).
- Anders, namelijk……..
- Weet ik niet

Deel 4: concentratie van zorg

Hoeveel patiënten worden er bij benadering behandeld **in uw afdeling** in het jaar 2018? U hoeft alleen het aantal patiënten in te vullen voor de aandoening die u behandelt.

Hoeveel patiënten met knie- en heup artrose hebben bij benadering een primaire knie- of heupprothese (bij elkaar opgeteld) ontvangen op uw afdeling in het jaar 2018?

……..

Hoeveel cataractoperaties werden er bij benadering uitgevoerd in uw afdeling in het jaar 2018?

……

Hoeveel reumatoïde artritis patiënten werden er bij benadering behandeld in uw afdeling in het jaar 2018?

……

Hoeveel patiënten kregen bij benadering een primaire operatieve behandeling voor borstkanker in uw instelling in het jaar 2018?

……

Hoeveel patiënten met coronarialijden werden bij benadering behandeld met een PCI of een CABG in uw instelling in het jaar 2018?

……

Deel 5: Meningen waardegerichte zorg

In hoeverre bent u het eens met onderstaande stellingen...

	Sterk mee oneens	Oneens	Neutraal	Eens	Sterk mee eens
Waardegerichte zorg verbetert de kwaliteit van de gezondheidszorg substantieel.	❍	❍	❍	❍	❍
Waardegerichte zorg verlaagt de zorgkosten substantieel.	❍	❍	❍	❍	❍

Er is voldoende bewijs voor de positieve impact van waardegerichte zorg; het gezondheidszorgsysteem als geheel zou hiernaar over moeten gaan.	❍	❍	❍	❍	❍
Bundled payments vergoedingsmodellen zouden de huidige vergoedingssystemen moeten vervangen.	❍	❍	❍	❍	❍
Waardegerichte zorg is te complex om mee te werken.	❍	❍	❍	❍	❍
Waardegerichte zorg moet niet aan de overheid worden overgelaten.	❍	❍	❍	❍	❍

Deel 6: Ervaren kwaliteit en kosten van de zorg

Geef uw afdeling een algemeen cijfer voor de patiëntveiligheid

0-10

Wat is de gemiddelde wachttijd in dagen voor uw afdeling?

Toegangstijd tot poli……

Tijd tot behandeling…….

Hoe beoordeelt u de uitkomsten van de geboden zorg in uw afdeling op basis van…..

	Schaal
De bereikte gezondheidsstatus van de patiëntengroep (overleving en mate van herstel).	0-10
Het herstelproces van de patiëntengroep (tijd tot herstel en de mate van diagnostische fouten en complicaties).	0-10
Behoud van gezondheid van de patiëntengroep (recurrence en lange termijn gevolgen door de behandeling.	0-10
De kwaliteit van de geboden zorg in mijn afdeling.	0-10

Hoe beoordeelt u…

	Schaal
De kosteneffectiviteit in uw afdeling.	0-10
De focus op reductie van onnodige zorg. (Denk hierbij aan onnodige ligdagen, diagnostiek en polikliniekbezoeken).	0-10

De focus op juiste zorg op de juiste plaats.	0-10

Deel 7: Algemene vragen

Wat is uw leeftijd?

- ❍ Jonger dan 40
- ❍ 40 - 50
- ❍ Ouder dan 50

Wat is uw geslacht? Man/Vrouw

Aan welk ziekenhuis/ instelling bent u voornamelijk verbonden?

Deze vraag wordt gesteld om de vragenlijst te kunnen koppelen aan enkele benchmark gegevens van uw instelling die in het waardegerichte inkooptraject zijn gegenereerd (kwaliteit en zorgactiviteiten). De koppeling tussen de vragenlijst en de benchmarkt gegevens van de instelling wordt uitgevoerd door een Trusted Third Party (i2i) en zij verwijderen daarna de naam van de instelling uit de dataset. Op deze manier blijft de anonimiteit van de invuller van de vragenlijst gewaarborgd.

……

Hoeveel jaar bent u werkzaam in uw huidige afdeling?

……

Ik had genoeg kennis om alle vragen in deze vragenlijst te kunnen beantwoorden.

- ❍ Sterk mee oneens
- ❍ Oneens
- ❍ Neutraal
- ❍ Eens
- ❍ Sterk mee eens

Heeft u nog aanvullende op- of aanmerkingen?

……..

Bedankt voor het invullen van de vragenlijst!

8.4 Appendix 4: English version questionnaire

Please indicate who has completed this questionnaire

- Medical director
- Medical specialist
- Quality or purchasing employee
- Other…….

What is your primary work area or unit in this hospital? Select ONE answer.

- Cardiology
- Surgery
- Ophthalmology
- Oncology
- Orthopedics
- Rheumatology
- No specific department
- Other……..

Part 1: Coordinated care

Please indicate how much you agree or disagree with the statements below.

In my work setting…

	Disagree strongly	Disagree some-what	Neutral	Agree some-what	Agree strongly
Multidisciplinary rounds help to improve care coordination.	❍	❍	❍	❍	❍
Members of the health care team share information that enables timely decision-making.	❍	❍	❍	❍	❍

Our clinical leader alerts the health care team about situations that may affect patient care.	❍	❍	❍	❍	❍
Members of the health care team meet to reevaluate the patient care plan when the patient's situation has changed.	❍	❍	❍	❍	❍
The health care team explains information to patients and their families in lay terms.	❍	❍	❍	❍	❍
My discipline has a clear protocol for sharing information during patient hand-offs.	❍	❍	❍	❍	❍
The patient and/or family know who the primary contact is on their health care team.	❍	❍	❍	❍	❍
Patients are actively engaged in developing their plan of care.	❍	❍	❍	❍	❍
Patients are actively engaged in developing their discharge plans.	❍	❍	❍	❍	❍
Members of the health care team teach patients how to take care of themselves after they leave the hospital.	❍	❍	❍	❍	❍
The health care team gives patients the tools they need for a safe transition from the hospital to home, or the next care setting.	❍	❍	❍	❍	❍

Overall, how would you rate the care coordination at the hospital of your primary work setting?

0-10

Part 2: Benchmarking

Please indicate how much you agree or disagree with the statements below.

In my work setting…

	Disagree strongly	Disagree some-what	Neutral	Agree some-what	Agree strongly
Comparing specific results (indicators) internally to implement improvements.	❍	❍	❍	❍	❍
Comparing specific results (indicators) to other hospitals (the best in class) to implement improvements.	❍	❍	❍	❍	❍
At the end of a benchmarking project we measure the improvements that have occurred.	❍	❍	❍	❍	❍
Patients are periodically requested to give their opinion of the care provided (including satisfaction surveys).	❍	❍	❍	❍	❍

Does your organization currently use benchmarking services provided by a third party?

- o Yes
- o No

Overall, how would you rate the benchmarking processes at the hospital of your primary work setting?

0-10

Part 3: Output rewarding

Please indicate how much you agree or disagree with the statement below.

In my work setting…

	Disagree strongly	Disagree some-what	Neutral	Agree some-what	Agree strongly
I am familiar with the various alternate payment models (for example, an accountable care organization, bundled payment plan, gain sharing)?	❍	❍	❍	❍	❍

Which of the following payment systems are currently in place?

- o Fee for service (a payment model based on DBC care products)
- o Pay for performance (a payment model that financially encourages doctors, hospitals, etc. to meet certain performance indicators, often they receive a bonus when certain performance indicators are exceeded)
- o Bundled payment (reimbursement of healthcare providers based on expected costs for a condition)
- o Shared savings (offering incentives for providers to reduce health care spending for a defined patient population by offering them a percentage of net savings. These savings are realized as a result of their efforts)
- o Other, namely……..
- o I do not know

Which model will be most effective in improving quality and reducing costs?

- o Fee for service

- Pay for performance (a payment model that financially encourages doctors, hospitals, etc. to meet certain performance indicators, often they receive a bonus when certain performance indicators are exceeded)
- Bundled payment (reimbursement of healthcare providers based on expected costs for a condition.
- Shared savings (offering incentives for providers to reduce health care spending for a defined patient population by offering them a percentage of net savings. These savings are realized as a result of their efforts)
- Other, namely……..
- I do not know

Which of the following barriers to implementation of alternative payment models do you see?

- Cost
- Uncertainty about revenue sharing
- Medical record integration
- Administrative logistics
- Legal issues
- Loss of autonomy
- PCP referral patterns
- Quality measures too numerous
- Quality measures not reflective of outcomes

Part 4: Concentration of care

Please indicate how many knee and hip arthritis patients were treated in your department in 2018?

…….

Please indicate how many cataract surgeries were performed in your department in 2018?

…….

Please indicate how many rheumatoid arthritis patients were treated in your department in 2018?

…….

Please indicate how many patients received primary surgery treatment in your department in 2018?

…….

Please indicate how many coronary artery disease patients were treated in your department in 2018?

…….

Part 5: opinions value-based healthcare

Please indicate how much you agree or disagree with the statements below. In my work setting...

	Disagree strongly	Disagree some-what	Neutral	Agree some-what	Agree strongly
Value-based contracts significantly improve the quality of care	❍	❍	❍	❍	❍
Value-based contracts significantly lower the cost of care	❍	❍	❍	❍	❍
There is enough evidence on the positive impact of value-based care that the health care system should move toward it aggressively	❍	❍	❍	❍	❍

Federal bundled payment programs should be mandatory	❍	❍	❍	❍	❍
Value-based care is too complex to work	❍	❍	❍	❍	❍
Value-based care should be left to private markets rather than government	❍	❍	❍	❍	❍

Part 6: Experienced quality and costs of care

In the past 12 months, how many patient safety events have you reported?

- None
- 1 to 2
- 3 to 5
- 6 to 10
- 11 or more

How would you rate your unit/work area on patient safety?

0-100

What is the mean waiting time for your hospital in days?

Access time to clinic……

Time to treatment……

How do you assess the outcomes of the care provided in your department based on ...

	Scale

The achieved health status of the patient group (survival and degree of recovery)	0-10
The recovery process of the patient group (time to recovery and the degree of diagnostic errors and complications).	0-10
Maintaining the health of the patient group (recurrence and long-term consequences of the treatment).	0-10
How do you assess the quality of the care offered in your department?	0-10

How do you assess…

	Scale
the cost-effectiveness in your department?	0-10
focus on reducing unnecessary care. (Think of unnecessary hospital days, diagnostics and outpatient visits).	0-10
focus on the right care in the right place.	0-10

Part 7: General questions

What is your age?

- < 40
- 40-50
- >50

What is your gender? Male / female

Which hospital / institution are you primarily affliated to?

This question is asked in order to be able to link the questionnaire to some data from your institution that have been generated in the value-oriented care purchasing process (quality and care activities). The link between the questionnaire and the institution's benchmark data is carried out by a Trusted Third Party (i2i) after that, they remove the name of the institution from the dataset. In this way, anonymity of the person who completed the questionnaire is guaranteed.

……

Total years worked in speciality?

0-50

I had enough knowledge to answer all questions in this questionnaire.

- Agree strongly
- Agree somewhat
- Neutral
- Disagree somewhat
- Disagree strongly

Do you have any additional comments or remarks? Please leave them here

……

8.5 Appendix 5: Information letter

Beste contactpersoon van de Waardegerichte Zorginkoop trajecten,

Uw instelling doet mee aan een of meer Waardegerichte Zorginkoop trajecten van Company X. Het doel van deze trajecten is de waarde van zorg te vergroten. Dit betekent een gunstiger verhouding tussen de uitkomsten van de zorg (kwaliteit) en de inspanningen die hiervoor geleverd worden (zorgkosten). De waardegerichte zorginkoop trajecten lopen inmiddels al enige tijd sinds de start in 2017. Daarom denken wij dat het een goed moment is om de ervaringen van deelnemers aan deze trajecten te onderzoeken.

Het onderzoek heeft ten doel om inzicht te krijgen in de ervaringen van zorgverleners met waardegerichte zorginkoop. In welke mate draag het inkooptraject bij aan het vergroten van de waarde van zorg en welk element uit het inkooptraject heeft het meeste impact. Is dat de benchmarking van uitkomsten en kosten, inclusief spiegelbijeenkomsten of de prestatiegerichte inkoopafspraak (bundled payment, shared savings of vrij volume). In de literatuur over waardegerichte zorg worden verschillende methoden genoemd om waarde van zorg te verhogen. In dit onderzoek wordt geëvalueerd welke methode de meeste invloed heeft op de kwaliteit en kosten van de zorg. De methoden die onderzocht worden zijn: gecoördineerde zorg, benchmarking van uitkomsten, concentratie van zorg en prestatiegerichte financiering[1].

De master student Marli Leus van de Universiteit Twente voert dit onderzoek uit en heeft voor dit onderzoek een vragenlijst samengesteld. Deze vragenlijst is gebaseerd op gevalideerde lijsten die elders zijn ontwikkeld en waarover gepubliceerd is in de internationale literatuur[2345].

Wij willen u als contactpersoon voor waardegerichte zorginkoop vragen de vragenlijst door te sturen naar de medisch specialisten binnen uw instelling die betrokken zijn bij de waardegerichte inkooptrajecten. Daarnaast vinden we het in het kader van dit onderzoek relevant om te weten hoe andere medewerkers van de deelnemende instellingen die betrokken zijn bij de waardegerichte zorgtrajecten, hiertegen aan kijken. Wij doelen hiermee bijvoorbeeld op u als contactpersoon, een afdelingsmanager, kwaliteitsmedewerker of verkoper van de instelling. Wij vragen u als contactpersoon de vragenlijst ook door te sturen naar deze collega's van u.

De vragenlijst kan online worden ingevuld en het invullen duurt maximaal 15 minuten. De vragenlijst worden met de grootst mogelijke zorg anoniem verwerkt. Alleen de onderzoeker kan de brongegevens inzien. Anderen, waaronder Company X, heeft alleen toegang tot de geaggregeerde uitkomsten van het onderzoek. De resultaten zullen uiteraard ook gedeeld worden met de deelnemers aan de waardegerichte inkooptrajecten tijdens de spiegelbijeenkomsten.

Indien u nog vragen of opmerkingen heeft over dit onderzoek, kunt u contact opnemen met Marli Leus via telefoonnummer 06 5110 5673 of u kunt een e-mail sturen naar: leus.m@company X.nl

Met vriendelijke groet,

(Marieke van der Lans? Aline Stolk-Vos?)

[1] Porter, M. E., & Lee, T. H. (2013). The strategy that will fix health care.
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[3] C. Wagner, R. C., M.C. Poortvliet. (2006). *Quality and Safety Management in Hospitals (QSMH) Survey manual of the QSMH* Retrieved from https://nivel.nl/sites/default/files/bestanden/Quality-and-Safety-Management-in-Hospitals.pdf
[4] Feeley, T. W., & Mohta, N. S. (2018). Transitioning Payment Models: Fee-for-Service to Value-Based Care.
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