A gap between System Theory and Practice in the Healthcare sector

An explorative research on the relationship between value-adding-process and solution shop quasi-flow structures in general hospitals and the autonomy level of elderly patients and family companions

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Abstract

Introduction

This research explores the relationship between the structure of general hospitals and the autonomy level of elderly patients and family companions. For the structure of the general hospital, the focus is on so-called quasi-flow structures. Quasi-flow structures are flow structures designed over traditional functional departments. In this research, two types of quasi-flow structures take a central role: value-adding-process and solution shop quasi-flows. The autonomy level is the level of participation and involvement of elderly patients and family companions in the medical decision-making process.

The central research question:

*What is the relationship between value-adding-process and solution shop quasi-flow structures of general hospitals and the autonomy level of elderly patients and family companions?*

The objective of the research is twofold; a theoretical exploration of the structural design of quasi-flows and the relationship with the autonomy level of patients and family companions, and furthermore an empirical research of the expectations developed with the theoretical exploration.

The research focuses on elderly patients above the age of 70 with a hip fracture. The autonomy level is analyzed for the decision of aftercare. This decision is made during hospitalization in collaboration with multidisciplinary caregivers.

Theory

The autonomy level is an essential condition for the creation of value within healthcare. The patient is the one who decides which health outcomes matter.

Traditionally, the general hospital structure is composed of functional departments. However, current literature argues for the redesign of the structure of general hospitals through the creation of flows. Flow structures should distinguish processes on complexity level and medical condition. Therefore, standardized value-adding-process activities are separated from complex solution shop activities. General hospitals make first attempts for the creation of these flows. However, due to the maintenance of the functional departments, quasi-flows are developed. Current literature about quasi-flow structures is limited. Therefore, the theories of especially De Sitter (1994;1997) and Christensen et al. (2009) are consulted. Three theoretical expectations are formulated for the relationship between value-adding-process and solution shop quasi-flow structures and the autonomy level.

Methodology

The research is performed by a comparative case study in a general hospital. Qualitative and quantitative methods are used to analyze the structure of two types of quasi-flow structures and the level of autonomy of elderly patients and family companions. A value-adding-process and a solution shop quasi-flow are compared.

Results and analysis

The quasi-flow structures result in moderate values for the parameters of De Sitter (1994;1997). Therefore, the autonomy level of elderly patients and family companions is increased in the quasi-flow structure in comparison to the functional departments. However, the potential of flow structures for the creation of value for patients is not achieved in the quasi-flow structure. The complexity level of the quasi-flow structure is of influence on the design of quasi-flow structures and potential consequences for the autonomy level of elderly patients and family companions.

Conclusion

The quasi-flow structure results in a moderate level of autonomy. Practitioners and theorists must become aware of the design and consequences of the quasi-flow structure. Furthermore, the difference between value-adding-process or solution shop quasi-flows should be taken into account.

Keywords: quasi-flow structures, autonomy level of elderly patients and family companions, general hospital, Sociotechnical System Design theory, disruptive innovation.
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1. Introduction

General hospitals play an important role in the provision of care in the current healthcare sector. The value proposition of general hospitals is: ‘we take care of everything for everybody’ (Christensen et al., 2009). The structure of general hospitals is traditionally composed of functional departments. The structure of the hospital is composed of specialist departments, such as anesthetics, cardiology, oncology, neurology and so on (Porter & Teisberg, 2006).

The structure of functional departments has consequences for patients, caregivers and the regulation of the hospital. The patient receives care of caregivers stemming from different functional departments. This results in complex routes which can be seen as unsatisfactory for patients (Achterbergh & Vriens, 2013). The complex routes, for example, decrease the overview of the care trajectory (Achterbergh & Vriens, 2009) and consume time (Armony et al., 2015; Christis, 2011). Furthermore, patients have to tell their story multiple times to different caregivers (Christis, 2011; Fulmer et al., 2018; Thompson et al., 2013) and the waiting time can be extended due to the separate planning systems of the departments. Caregivers are also facing the consequences of the structure of functional departments. They are dependent on other caregivers in different departments. Caregivers stemming from different specialist departments should collaborate to find together the best treatment for the patient. The need for coordination between departments is high in the functional structure. Furthermore, the process of communication and coordination is complicated because of the structure (Achterbergh & Vriens, 2009). Lastly, the structure of functional departments has consequences for the regulation of the hospital. Due to the complex structure, the system becomes more expensive and less transparent. The overview of the costs of care and the quality for patients is complicated because of a functional department structure (Christensen et al., 2009).

Recent literature argues that a redesign is needed to simplify the current structure of general hospitals (Christensen et al., 2009; Block, 2013; Porter & Teisberg, 2006). A suggestion for the structure of general hospitals is the creation of flows (Armony et al., 2015; Bodt, 1995; Christensen et al., 2009; Hall et al., 2013; Kreindler, 2018; Liberati & Scaratti, 2016; Porter & Teisberg, 2006). Flows are streamlined processes in which caregivers stemming from different specialism collaborate to provide multidisciplinary care for a specific medical condition. For every medical condition, a group of caregivers is constructed. This group of caregivers, for example, includes nurses, doctors, surgeons, anesthetics, psychologist and many more. Caregivers no longer work in a functional department based on their specialism but work together in a group based on the complexity level of the process and the medical condition of the patient population (Achterbergh & Vriens, 2009; Christensen et al., 2009). With the creation of flows, there is a distinction made between activities for medical conditions on the complexity level and duration. The complexity level of a medical condition is explained in the
relationship between causes, symptoms and treatments (Christensen et al., 2009). An example to illustrate the complexity level of diseases will be given. A complex disease is, for example, depression. The treatment is not the same for every patient because the depression is influenced by the personal situation and can be a result of a variety of causes. For complex diseases, effective therapies are not always known and differ for patients. Complex diseases are diagnosed and treated in so-called solution shop. A less complex disease is, for example, a fracture. Fractures can be treated in a rule-based manner. Less complex diseases are diagnosed and treated in so-called value-adding-processes. Furthermore, the time a disease affects the medical condition of a patient can be short or long. This distinction results in acute and chronic diseases. Acute diseases are either diagnosed and treated or fatal for the patient. In contrast, chronic diseases stick to the patient for a longer period of time and treatment does not result in complete cure. Therefore, the treatment process can be lifelong and patients need to be motivated to adhere to treatment and change their behavior (Christensen et al., 2009). Current literature acknowledges that mixing the different complexity levels and durations of diseases together in one functional department no longer works. Therefore, flows should be designed to distinguish activities and process on the complexity level of the process and medical condition. Separate flows should be created for different complexity levels and medical conditions. Less complex medical conditions are treated in a more standardized quasi-flow and more complex medical conditions in a less standardized and more knowledge-intensive quasi-flow. In this thesis, two flows are under investigation: a standardized value-adding-process and a knowledge-intensive solution shop quasi-flow. With the creation of flows, the structure of the hospital is simplified and as a result the quality, costs and valuable outcomes for patients are enhanced (Christensen et al., 2009; Porter & Teisberg, 2006).

The structure of flows has consequences for patients, caregivers and the regulation of the hospital. Patients no longer have to follow the complex trajectory in the hospital. The trajectory for patients is simplified which could potentially lead to higher satisfaction levels for patients. Patients receive care from a group of caregivers. The multidisciplinary approach could enhance the diagnosis and treatment of patients. Furthermore, the waiting time decreases since a better oversight of the processes enhances the planning. Caregivers are also facing the consequences of the structure of flows. Caregivers are no longer dependent on caregivers in other functional departments. The coordination required between departments decreases. Caregivers can focus on continuous learning and innovation of the medical condition. The simplified structure facilitates the process of coordination and communication between caregivers within a team. The quality of care increases since caregivers can exchange information and discuss the most suitable care trajectory to be followed (Achterbergh & Vriens, 2009). Lastly, the structure of flows has consequences for the regulation of the hospital. The coordination between departments is decreased which results in more transparency in costs and quality (Armony et al., 2015;
The overview of valuable indicators for patients is enhanced with the creation of flow structures (Christensen et al., 2009).

The ideas of current literature on how to redesign the structure of general hospitals are relatively new and not fully adopted yet. General hospitals made first attempts for the creation of flows. However, general hospitals designed the flows over the traditional functional departments. The structure of the general hospital is therefore composed of a combination of functional departments and flows. The structure of functional departments and flows can be called quasi-flows. A quasi-flow is a process designed over the functional departments whereby caregivers stemming from different specialisms are grouped together in a flow but keep their relationship with the functional department. The structure of quasi-flows is narrowly discussed in the current literature and therefore the consequences of this structure are yet unknown. This research investigates the possible consequences of the structure of quasi-flows in general hospitals.

In figure 1 an overview is given of the structures previously explained: functional departments as the traditional structure, flows as the desired structure and quasi-flows as the current structure.

![Figure 1: overview structures general hospital](image)

Besides changes in organizational structures, there are also changes in ethical and social matters within healthcare. The focus on value creation for patients receives increased attention from both theorists and practitioners. The patient should value medical outcomes and treatments options to enhance the quality of life (Sullivan, 2003; Thompson 2007). This research focuses on the autonomy level of patients as an essential condition for the creation of value for patients.

In the current literature and practice, the concept of autonomy of patients is getting increased attention. Several trends have emphasized the importance of patient autonomy in healthcare delivery (Cook et al., 2015; Dent & Pahor, 2015; Thompson, 2007; Renedo et al., 2015). In traditional models, medicine is focused on objective measures such as the outcome of a diagnose pretest or the success rate of a treatment. More subjective measures such as quality of life and patients’ values are often neglected. However, bioethics has argued that objective biological facts need to be supplemented by subjective
There is a shift towards incorporating patients’ perceptions, values and preferences by focusing on subjective medicine outcome measures. Thereby the goals of current healthcare focus on the quality of life and patients’ perceptions of health (Sullivan, 2003; Thompson 2007). Respecting patients’ autonomy involves that caregivers listen to patients’ preferences and provide care based on these preferences (Florin et al., 2006).

This research explores the relationship between value-adding-process and solution shop quasi-flows and the autonomy level of patients and family companions in medical decision-making processes. A quasi-flow structure in this research is defined as a structure in which a process is designed over the functional departments whereby caregivers stemming from different specialisms are grouped together in a flow but keep their relationship with the functional department. A distinction is made between value-adding-process and solution shop quasi-flows. A value-adding-process quasi-flow is a standardized, controllable, routine-based process aimed at transforming incomplete inputs in more complete outputs. A solution shop quasi-flow is a trial-and-error process aimed at solving unstructured patient problems. Autonomy in this research is defined as the ability of patients to be involved and participate in their own trajectory whereby shared decision-making between patients and caregivers take a central role. The research investigates to what extent the often-used quasi-flow structure in general hospitals is of influence on the autonomy of patients and family companions over their own care trajectory.

The research first analyzes the literature to get insight into the design of quasi-flows, and the relationship between organizational structure and the autonomy level of patients. The complexity level of the quasi-flow structures is taken into account. Therefore, this research makes a distinction between value-adding-process and solution shop quasi-flows. The theoretical exploration provides the basis for an empirical research. The empirical research is performed by a case study in a general hospital. Two quasi-flow structures are analyzed by their influence on the autonomy level of patients. A value-adding-process and a solution shop quasi-flow are under investigation. The research combines qualitative and quantitative techniques. To analyze the level of autonomy, patients and family companions are asked to fill in a survey. To get a more in-depth view of autonomy some interviews are conducted with patients and family companions. The population of this research is elderly patients with a hip fracture. The research is performed with both the patient and the family companion because of the complexity of the medical condition of the patients due to co-morbidity and cognitive problems. The structure of the general hospital is investigated by analyzing internal documents, conducting interviews with caregivers and management, and finally observing meetings.
**Research objective**
This explorative research focuses on the relationship of structures and the autonomy level of patients and family companions in general hospitals at large. The aim is to analyze and give a possible explanation of how the relationship between structure and autonomy could be described. The research investigates and explores the relationship by taking a general hospital as an example. However, the aim of the research is to contribute to the theory and analyze theoretical expectations through conducting an empirical case study. Therefore, the research has two aims: to analyze the theory for the structural design of value-adding-process and solution shop quasi-flows, and the relationship between the two types of quasi-flows structures and the autonomy level of patients and family companions. The second aim is to empirically analyze the theoretical expectations through conducting a case study in practice.

The objective of this research is to provide a theoretical exploration concerning the quality of care by providing insight into the relationship between value-adding-process and solution shop quasi-flow structures and the autonomy level of patients and family companions in general hospitals and analyze the theoretical exploration through conducting a case study.

**Research question**
The central research question is derived from the problem formulation and research objective. The central research question is:

*What is the relationship between value-adding-process and solution shop quasi-flow structures of general hospitals and the autonomy level of elderly patients and family companions?*

The preliminary model used in this research is:

![Figure 2: the preliminary model](image)

There are three sub-questions formulated to answer the central research question:

1. What is autonomy?
2. What entails the structural design of value-adding-process and solution shop quasi-flows?
3. What is the relationship between value-adding-process and solution shop quasi-flows structure of general hospitals and the autonomy level of patients?
**Theoretical relevance**

Based on the current literature (Christensen et al., 2009; Liberati & Scaratti, 2016; Porter & Teisberg, 2006) and practice in the healthcare sector there are several reasons why the structure of functional departments for general hospitals no longer works. There are predictions in the current literature that the redesign of the structure with the creation of flows will work. Nevertheless, these predictions are relatively new and not widely adopted yet in practice. Practical insights show that general hospitals often design their structure by quasi-flows. However, there is limited theoretical knowledge of this currently often-used structure. This explorative research contributes to the current literature by giving insight into the advantages and disadvantages of the structure of quasi-flows. With an empirical research to this relatively unknown structural design in literature, this research not only theoretically analyzes the quasi-flow design but also empirically analyzes the practical usability of this design.

Furthermore, the difference in value-adding-process and solution shop quasi-flow structures is addressed in this thesis. Current literature describes the need for the creation of flows to separate complex from less complex activities (Christensen et al., 2009). However, literature does not provide insight in the design of these different flow structures and possible consequences. This research provides insight in quasi-flow structures through a theoretical exploration and empirical analyses of value-adding-process and solution shop quasi-flows. Therefore, the complexity level of processes is taken into account in the design of quasi-flow structures.

Moreover, current literature emphasizes the importance of the quality of care and the value creation for patients (Cook et al., 2015; Dent & Pahor, 2015; Porter & Teisberg, 2006; Thompson, 2007; Renedo et al., 2015). This research focuses on the autonomy level of patients and family companions as an important condition to enhance the quality of care. Literature is not consistent about the definitions of patient participation and involvement (Thompson, 2007). Furthermore, researches on the consequences of patient participation are conducted but gave conflicting results (Guadagnoli & Ward, 1998; Thompson, 2007). The theoretical relevance of this research to the literature about patient autonomy is the insight into the desired level of participation of patients and family companions and the possible influences for the conditions to support autonomy by structural design. Empirical insights give a first glance at the importance of the concept autonomy within healthcare.

Furthermore, this research provides theoretical insight into the relationship between value-adding-process and solution shop quasi-flow structures of general hospitals and the autonomy level of patients and family companions. Both concepts are combined and the potential relationship is theoretically and empirically addressed. Current literature addresses the importance of the structural change (Christensen et al., 2009; Porter & Teisberg, 2006) and patient autonomy (Dent & Pahor, 2015; Thompson, 2007) separately, but the link between the concepts is relatively new.
Finally, this research focuses on the largest population for the need for care in medicine, namely elderly patients (Chiou & Chen, 2009; Lyttle & Ryan, 2010). The aging of the population and the increase of chronic diseases for elderly patients result in an increase in the demand for care of this patient population (World Health Organization, 2002). Even though it is known that the desired level of participation for elderly patients is lower (Schneider et al., 2006; Sulmasy et al., 2007), it is also known that this population has to make sensitive and complex choices (Lynn, 2000). Literature and research to this population and the level of participation is limited. This research gives insight into the concepts of autonomy for the understudied but relevant population in healthcare.

**Practical relevance**

This research gives insight into the practical situation in which general hospitals find themselves today. The research reflects on the current situation in the healthcare sector in which hospitals increasingly focus on the creation of quasi-flows and give attention to the creation of patient value as an important outcome of the care provided. The research reveals the possible match between quasi-flows and the creation of value for patients and addresses the possible disadvantages of quasi-flows.

Furthermore, the case study is performed in a general hospital which was interested in a research to the structural design and the outcomes for elderly patients. The recent structural changes in the general hospital ask for an analysis of potential outcomes. Furthermore, the geriatric department of the general hospital is normally not included in a research. Therefore, the practical relevance for the particular case is supported.

**Outline of thesis**

This thesis consists of five chapters. Chapter two discusses the relevant theories and perspectives to give insight into the concepts of quasi-flow structures, autonomy and the relationship between these concepts. The theoretical sub-questions are addressed to develop a conceptual model. Chapter three addresses the methodology used to give insight into how the relationship between structure and autonomy is analyzed. The method, sample, procedure, limitations and ethics of the research are discussed. In chapter four an overview of the results and analysis is provided to give insight into the structure of the quasi-flows and the level of autonomy of patients in the quasi-flows investigated. In chapter five an overall conclusion is given to give insight into the relationship between the structure of general hospitals and the autonomy of patients. This chapter gives an answer to the central research question. Furthermore, this chapter provides practical recommendations for general hospitals, gives ideas for further research and reflects on the research by addressing possible limitations.
2. Theoretical framework

Chapter two discusses the relevant theories and perspectives to give insight into the concepts autonomy, quasi-flow structures and the relationship between these concepts in the healthcare sector. The sub-questions will be addressed to develop a conceptual model. Section 2.1 describes the autonomy level of patients by explaining the concepts patient participation and involvement. This section zooms in on elderly patients with a hip fracture and their family companions. Section 2.2 discusses the design of value-adding-process and solution shop quasi-flow structure in general hospitals. Section 2.3 focuses on the relationship between value-adding-process and solution shop quasi-flow structures of general hospitals and the autonomy level of patients.

2.1 Autonomy

In this section, the first sub-question will be answered: What is autonomy? Section 2.1.1 will discuss the trends in healthcare with regard to measuring and defining value for patients. Section 2.1.2 focuses on the autonomy level of patients and defines the concepts patient involvement and participation. In section 2.1.3 the autonomy level of elderly patients is discussed. The role of family companions who support patients in making medical decisions is given attention. This section is included since this research is conducted among older patients and their family companions. Section 2.1.4 gives an overview of the influences and conditions of patient autonomy by a conceptual model based on the literature discussed in the previous sections.

2.1.1 Value creation within healthcare organizations

Several trends have emphasized the importance of patient autonomy in healthcare delivery (Cook et al., 2015; Dent & Pahor, 2015; Thompson, 2007; Renedo et al., 2015). In the past years, medicine focused on objective biological measures of outcomes, such as results of diagnose tests and success rates of treatments. Medicine measurement did not include more subjective measures, such as perceived health, values of patients and desires of functionality and mobility after treatment. Bioethics has argued that objective biological facts known by the specialists should be supplemented by subjective values known by the patient (Sullivan, 2003). The patient instead of the specialist should judge the important aspects of the quality of life (Porter & Teisberg, 2006; Sullivan, 2003). The focus of specialists has changed to patients’ lives instead of patients’ bodies. Patients are not just bodies to be treated and healed, but autonomous beings with values and capacities to participate in the medical decision-making process (Sullivan, 2003). The patients’ quality of life has become an important goal for healthcare organizations (Callahan, 2000; Sullivan, 2003).

Relevant trends in healthcare will be discussed to understand the move towards subjective outcome measures which result in the focus on the autonomy of patients within their healthcare trajectory. The first trend is the change of focus on outcomes instead of process results. One of the first research on
this topic was the article by Paul Ellwood in 1988 (Sullivan, 2003). He developed a new system for healthcare in which specialists are evaluated on patient experiences instead of processes followed. The traditional healthcare system according to Ellwood was unsuitable to measure the consequences of medical, social and economic choices on patients’ quality of life. Therefore, the focus changed from process results to outcome results (Ellwood, 1988; Sullivan, 2003).

The second trend is the development of outcome measures instead of process measures (Field & Gold, 1998). Traditionally the objective measures of mortality and morbidity were used to measure the medical condition of a population. However, current changes in medical conditions such as the increasing number of chronic diseases, result in an inadequacy to measure the medical condition by these objective measures (Olshansky & Ault, 1986; Sullivan, 2003).

The third trend is the inclusion of subjective health measures. To integrate the patient in the measurement of the medical condition it is necessary to reject the idea of objective measurement. Initially, subjective measures were seen as unreliable. These measures were considered to have a negative effect on the validity and reliability of the measurement (Sullivan, 2003). However, refinement by psychometric principles led to more valid and reliable instruments (Cleary, 1999). Even though subjective measures are nowadays as predictive as previous objective measures such as mortality and morbidity (Clark et al., 1999), measurement by objective measures is often still preferred (Sullivan, 2003).

The final trend is the focus on the quality of life instead of medical conditions. Subjective health conditions do not necessarily represent the patients’ quality of life. Quality of life is namely determined by individual patients. Subjective measures are a first step to patient-focused care and acknowledge the influence of individual patients’ situations. However, the participation of the patient is the final step to provide patient-focused care (Sullivan, 2003).

The five trends from the focus of process results to the quality of life, result in the acknowledgment of the importance of patient participation in the medical decision-making process.

The focus on patient value and quality of life is currently better known as Value Based Healthcare. Porter and Teisberg argue that the overarching goal of healthcare organizations should be the value creation for patients. To redesign the healthcare system successfully, the primary goal of every healthcare provider should be the excellence in providing patient value instead of current goals such as financial performance and reducing costs. Patient education, engagement and shared decision-making are important attributes of the design of the healthcare system as prescribed by the theory of Value Based Healthcare (Porter & Teisberg, 2006).

2.1.2 Autonomy levels of patients
The several trends mentioned, increased the focus on patient autonomy since quality of life can only be determined by patients themselves. In traditional models, patients were passive recipients of
medical expertise. However, today there is an emerging shared idea that patient participation can and should be supported (Ellins & Coulter, 2005). It is argued that not the specialist, but the patient is the one who can decide which health outcomes matter for a patient’s medical condition. After all, value can only be determined by a patient’s perspective (Sullivan, 2003; Porter & Teisberg, 2006). Therefore, this research focuses on the autonomy level of patients as an essential condition for the creation of value for patients within healthcare. Autonomy in this research is defined as the ability of patients to be involved and participate in their own health trajectory whereby shared decision-making between patients, family-companion and caregivers take a central role.

**Patient involvement and participation**

Ideas about the importance of patient involvement and participation go long back in history (World Health Organization, 1978). Due to an increase in medical knowledge by patients and self-help through patient groups, leaflets, help-lines and the Internet, there is an increased awareness in uncertainties in diagnosis and caregivers’ fallibility (Beck, 1992; Eysenbach 2000; Olszewksi & Jones, 1998). The information of patients leads to stronger and more alert patients who can question the work of caregivers and therefore ask for higher levels of quality (Vrangbaek, 2015). These trends led to patients taking part in the decision-making of their own trajectory (Beck, 1992).

The need to respect patient autonomy is becoming widely accepted (Coulter et al., 1999; Elwyn, 2000; Richards, 1998). The ethical principle autonomy underpins patient participation. Respecting patient’s autonomy involves that caregivers listen to patient’s preferences and provide care based on these preferences (Florin et al., 2006). The trend of involving patients is expected to continue in the coming years by the advancement of personalized medicine and tailor-made treatment plans (Vrangbaek, 2015).

Some level of patient participation has always been part of healthcare delivery., for example, diagnosis, screening and rehabilitation require some degree of active involvement of patients through dialogue (Vrangbaek, 2015). However, current literature is focusing on a degree of participation and involvement beyond this level (Elwyn, 2000; Guadagnoli & Ward, 1998; Thompson, 2007).

However, current literature is not clear yet about the conceptual meanings of patient involvement and participation (Mead & Bower, 2000; Holmstrom & Roing, 2010; Penny & Wellard, 2007; Thompson, 2007). The concept participation is often used synonymously with ‘involvement’, ‘engagement’, ‘collaboration’ and ‘partnership’, because there is no understanding about differences in meaning between the concepts (Roberts, 2002; Thompson 2007). To optimize understanding of concepts there is the need to create a common language for theorists and practitioners (Holmstrom & Roing, 2010.), for example, Cahill (1996) argues that the concepts could be placed in a hierarchy of participation.
which starts with involvement, collaboration, participation and ends with partnership (Cahill, 1996). Overall literature argues that involvement is the passive form in which patients control is low. While in patient participation, the patient takes a more active role and thereby patient control is increased. Patient and caregiver determine together the health trajectory to be followed (Thompson, 2007). Patient participation requires the transfer of information from specialist to patient whereby some power of the specialist is hand over to the patient (Cahill, 1996).

Patients’ preference for the degree of participation

Studies to whether patients want to participate in decision-making resulted in conflicting answers (Guadagnoli & Ward, 1998; Thompson, 2007). These inconsistent results often were a consequence of differences in how participation in decision-making is defined (Guadagnoli & Ward, 1998). There are four most discussed models about the relationship between patient and specialist in making treatment decisions and thereby the level of participation.

1. ‘Paternalism’ in which the specialist has the knowledge and patient involvement is limited to receiving information or giving permission to take a certain decision;
2. ‘Professional-as-agent’ in which the specialist has technical expertise but also takes the patient preferences into account in their decision-making;
3. ‘Shared decision-making’ in which specialist and patients discuss together the process and outcomes of decisions for different treatment options;
4. ‘Informed decision-making’ in which the technical expertise of the specialist is transferred to the patient who in the end makes the decision (Coulter, 1997; Charles et al., 1997).

The patient power increases over the four models with lower levels of power in paternalism and higher levels of power in informed decision-making. Current literature focuses on the perspective of the specialist on these four models, instead of the patient’s understanding within the specific context (Thompson, 2007). Guandagnoli and Ward (1998) argue that patient participation should be defined by the level the patient wishes to be involved. The level of participation can namely differ among patients. Furthermore, the same patient may wish to participate at different stages of the process and the level of participation may even change over time for the same person in the same context (Thompson, 2007).

Research to the patient’s desirability of participation shows that a range of patients exist. A single approach to increase participation for all patients may therefore not be the most effective strategy (Guadagnoli & Ward, 1998). Rowland and Holland (1989), for example, describe four types of patients: ‘You decide for me doctor’, ‘I demand you do procedure X’, ‘I cannot decide’ and lastly, ‘given the options, your recommendations and my preferences I choose treatment X’. The four different patients also require different levels of participation as described before: a more paternalistic
style for type one patients and a more informative style for type four patients (Guadagnoli & Ward, 1998; Rowland & Holland, 1989).

Patients’ preferences for the level of participation can depend on several factors. Thompson (2007), for example, argues that the desire to be involved can depend on the seriousness of the disease, the personal characteristics of the patient and the professional relationship between patient and caregiver. Elwyn (2000) gives similar reasons for differences in the preference of the level of involvement of patients: the medical condition, the personality type of the patient, skills of the caregiver and socio-demographic variables of patients such as age or educational status. Guadagnoli & Ward (1998) argue that the desirability of patients to be involved rises especially if decisions must be made when multiple options for treatment exist. Besides the patient’s wishes for participation, caregivers also have a view on the desirability of the level of patient participation. Caregivers can doubt the ability of patients to participate in their own trajectory due to educational and social differences between caregiver and patients (Vrangbaek, 2015).

To conclude, patients support greater participation in their own healthcare trajectory. However, they want participation to be optional and variable according to context and time (Thompson, 2007). Even though not all patients always want to participate in the actual decision-making, it is important that patients’ concerns, values and desires are taken into account in decisions about their care trajectory (Guadagnoli & Ward, 1998).

Current ideas about patient involvement and participation led to an increase of patients interacting with caregivers. However, the balance of power between patients and specialists is still characterized by asymmetry of information and dependency of patients on specialists’ services (Vrangbaek, 2015). The imbalance in the patient-caregiver relationship is argued to always remain since the patient is sick and the specialist has relevant expert knowledge. Social, ethnic and educational differences can increase the gap between patient and caregiver which can result in the situation that the patient is too intimidated by the caregiver to participate even if they would like to (Guadagnoli & Ward, 1998). Furthermore, patients can be more concerned about doing what is expected from the caregiver, rather than participating in decisions (Waterworth and Luker, 1990). Therefore, an environment should be created in which patients are encouraged to participate at a level that satisfies them (Guadagnoli & Ward, 1998).

**Conditions to support patient participation**

Several concepts are important to create a relationship between patient and caregiver which promotes patient participation and thereby higher levels of autonomy. First it is important that the specialist investigates the readiness of a patient to participate and the preference for the degree of participation
in their own trajectory. Based on the readiness of the patient a suitable mode of participation can be expected of both parties (Quandagnoli, 1998; Elwyn, 2000). Furthermore, current literature argues that two-way communication between patient and caregiver and the transport of some power from caregiver to patient serves as the basis of mutual respect and openness (Thompson, 2007).

As argued an environment has to be created in which patients are encouraged to participate at a level that satisfies them (Quandagnoli, 1998). The skills, capacities and abilities of caregivers are essential in creating this environment for patient participation. The caregiver should, for example, establish a partnership with the patient, review the patient’s preference for information and their role in decision-making, respond to patient’s ideas, concerns and expectations and lastly check the reaction and understanding of information by patients (Elwyn, 2000).

In this research, first the desired level of participation in general for making medical decisions is tested by a questionnaire. Second, the actual autonomy level of patients and family companions in practice will be tested by the 9-item shared decision-making questionnaire (SDM-Q-9). This questionnaire is based on theoretical conditions for shared decision-making. Shared decision-making occurs when at least two parties are involved who exchange information in both ways. Both parties are aware which treatment options exist. Furthermore, both parties take actively and equally part in the decision-making process. These theoretical key conditions are transferred in practical steps:

1. Disclosure that a decision needs to be made
2. Formulation of equality of partners
3. Presentation of treatment options
4. Informing on the benefits and risks of the options
5. Investigation of patient’s understanding and expectations
6. Identification of both parties’ preferences
7. Negotiation
8. Reaching a shared decision
9. Arrangement of follow-up

These steps are acknowledged by current literature to be mandatory for caregivers to create an environment in which patients are encouraged to participate in their own healthcare trajectory (Ende et al., 1989).

**Potential disadvantages of patient participation**

Co-production between patient and caregiver receives increased attention in current practice and theory. However, patient participation does not only result in benefits according to some theorists (Aschcroft et al., 1986; Elwyn, 2000; Levy et al., 1989). In this section, some potential disadvantages of autonomy for patients will be analyzed which are often discussed in current literature.
The empirical evidence of the influence of patients participating in decisions on the improvement of healthcare outcomes are not unanimous. Involving patients in decisions can potentially have significant and enduring effects on healthcare outcomes (Elwyn, 2000). Patient participation leads to improved medical outcomes such as reduced pain and anxiety, quicker recovery and increased compliance to treatment (Schulman, 1979; Cassileth et al., 1980; Greenfield et al., 1985; Brody et al., Lerman et al., 1990; Webber, 1990). However, there are also studies with little or no effect on the mentioned outcomes (Elwyn, 2000). Other studies show that patient participation in decision-making resulted in improved psychological well-being but only in the short term. After some time, there is no difference in patients who have participated in decision-making in comparison to patients who did not (Guadagnoli & Ward, 1998). Furthermore, there are even studies who suggest that the responsibility for patients to make their own decisions in healthcare trajectories can lead to increased anxiety (Aschcroft et al., 1986; Levy et al., 1989).

There are concerns about potential abandonment of responsibilities by caregivers due to the increasing focus on decision-making responsibilities for patients (Quill & Cassel, 1995; Elwyn, 2000). These concerns are based on situations in which specialists provide information to patients about potential treatments but no guidance in selecting the most suitable treatment (Elwyn, 2000). These situations are a form of informed decision-making, as previously discussed (Coulter, 1997; Charles et al., 1997). The approach of specialists can result in patient anxiety for choosing the best treatment. Therefore, current literature focuses on the shared decision-making approach in which decisions and responsibilities are shared between patient and specialist. Information between specialist and patient is shared as a prerequisite of the process. The final decision for treatment – which might be to do nothing – is made if both, the patient and the specialist, agree with the decision (Elwyn, 2000).

**Conclusion**

From the previous sections, the conclusion can be made that patient autonomy currently receives increased attention from both theorists and practitioners. The acknowledgement of patient autonomy finds its results in increased focus on patients' participation and involvement in the decision-making of medical choices for their health trajectory. Inconsistent results about whether patients want to participate in decision-making were a consequence of differences in how participation was defined. The four most discussed models of the degree of participation were mentioned: paternalism, professional-as-agent, shared decision-making and informed decision-making. The level of patient participation should be defined by the level the patient desires to be involved.
Furthermore, caregivers can differ in their preference for the degree of patient participation. Caregivers play an important role in the creation of an environment in which patients are empowered to participate. Nine relevant conditions can be indicated to create an empowering environment.

However, this research is conducted by elderly patients with a hip fracture and family companions. Therefore, section 2.1.3 will discuss the autonomy level particularly for the elderly patient population and their family companions.

2.1.3 Autonomy levels of elderly patients
The world population is rapidly aging (Chiou & Chen, 2009; Chiu et al., 2016; Fulmer et al., 2018). The proportion of older people is globally expected to double from 11% in 2007 to 22% in 2050 (Chiou & Chen, 2009). In the Netherlands, the number of elderly people increases with 2.4% (Woittiez et al., 2009). Older patients are a dominant age group among patients receiving care (Chiou & Chen, 2009; Lyttle & Ryan 2010). The aging population leads therefore to an extensive increase in the demand for care. Furthermore, by an increase in the elderly patient population, there is an increase in the number of patients with chronic diseases (Block, 2013; World Health Organization, 2002).

About 80% of people older than 65 have one or more chronic diseases and 65% have multiple chronic diseases (Wolff et al., 2002). The complexity of medical conditions of elderly patients increases since they often deal with chronic and multiple diseases. These trends result in older patients increasingly facing the situation to make complex medical decisions (Boyd et al., 2005; Hogan et al., 2001).

Since older patients make up a large consumer group of health and social care, literature argues that this population should be more actively involved in decision-making in healthcare (Coulter, 2006; Ellins & Coulter, 2005; Sahlsten et al., 2005). Older patients are an interesting population to investigate the level of participation due to the combination and chronicity of diseases and the complexity of making decisions regarding end-of-life care (Lynn, 2000). Older patients are more likely found in the situation of making preference-sensitive decisions (Wolff et al., 2017). However, older patients are traditionally more likely to have a lower preference to participate in their own health trajectory and favor that their doctors make decisions for them (Chiu et al., 2016). Nonetheless, involving older patients in managing their health trajectory will help them determine their needs and thereby care they require for meeting those needs (Andrews et al., 2004).

In geriatric medicine, the quality of life might be differently defined than in traditional medicine. The traditional fight against premature death and objective diseases is often the wrong fight. Diagnosis and cure are not the primary aim of medicine anymore. Instead, the focus is on increasing the quality of life by maintaining and supporting the independent functioning of the patient (Sullivan, 2003). Even though elderly patients often have chronic diseases, they might see themselves as healthy. This insight...
shows that quality of life can be characterized by both health and illness at the same time (Morris, 1998).

**Older patient participation**

The age of patients influences the preference for being involved in healthcare management. An older age decreases the preference to participate in decision-making among adult patients (Schneider et al., 2006; Sulmasy et al., 2007; Chiu et al., 2016). The lower preferences to be involved among older patients is a result of the type of disease, lack of knowledge, low self-efficacy and fear for the disease (Belcher et al., 2006; Ekdahl et al., 2011; Schneider et al., 2006). Some older patients may not be used to taking major decisions. In this situation, participation in making decisions regarding health might result in increased worry and stress for the patient. Older patients may not have the knowledge or feel the confidence to make decisions (Faulkner, 2001). An individual patient approach is therefore preferred to assess the preference of the patient to be involved (Faulkner, 2001; Florin et al., 2006). Furthermore, older patients are often considered to be a group with similar needs. However, older patients are not a homogeneous group with the same characteristics. Within the group of older patients there are individual differences in needs for care (Reed & McCormack, 2005).

Preference for participation should be assessed and not assumed by caregivers (Lyttle & Ryan, 2010). If caregivers are aware of the individual preference of patients for the level of involvement, they can provide suitable decision support (Chiu et al., 2016). The caregiver influences the quality of treatment and the autonomy level of older patients. Communication and information provision are essential concepts of quality of care (Castellucci, 1998; Stevenson et al., 2000). However, these concepts are not always applied. Caregivers can hold stereotyping attitudes towards older patients’ autonomy levels (Lothian & Philp, 2001). These negative attitudes towards, for example, age can result in a lower level of patient participation (Andrews et al., 2004). However, when caregivers get to know patients and thereby change their attitude, they will less likely adopt a paternalistic approach which results in increased active involvement of patients (Sahlsten et al., 2005).

**Patients with a hip fracture**

Patients with a hip fracture are commonly the oldest, sickest and frail patients who need complex care. These patients often have several medical problems which require the involvement of care from multiple disciplines (Volparto & Guralnik, 2015). Literature suggest that comprehensive geriatric care (CGC) facilities increase the value delivered for patients with a hip fracture because it improves the function in mobility for patients (Prestmo et al., 2015; Volparto & Guralnik, 2015). CGC is a *multidimensional, interdisciplinary diagnosis to determine the medical, functional and psychological capabilities of a vulnerable elderly patient to create a coordinated and integrated plan for treatment and long-term follow up* (Volparto & Guralnik, 2015, p. 1595). Patients with a hip fracture often
develop disabilities in mobility after a hip fracture surgery. The ability to remain mobile after the surgery is an essential aspect of quality of life for older patients (Volparto & Guralnik, 2015).

**Family companions**

Patients with a lower decision control preference can be supported by a family companion in their decision-making process. Older vulnerable patients often include family companions for the management of their health (Wolff & Boyd, 2015; Wolff & Roter, 2011). Companions can facilitate the process and increase patient autonomy by clarifying health information, facilitating patients and caregivers understanding and empowering patients to participate in meetings with caregivers (Clayman et al., 2005; Wolff et al., 2017). However, companions can also discourage autonomy of patients by interrupting and criticizing or speaking for patients (Clayman et al.).

In general, older patients commonly rely on family in making medical decisions (Wolff & Boyd, 2015). Nonetheless, older patients can differ in their preference for the level of their own involvement and the extent to which family companions are involved in decision-making (Wolff & Boyd, 2015; Wolff et al., 2017). The extent of family involvement can also depend on the difference in medical knowledge of the patient's condition among family companions (Moon et al., 2016). Furthermore, companions can have their own preferences and capacity to participate in decision-making (Wolff & Roter, 2008).

Current literature focuses on increased patients’ autonomy in the patient-caregiver relationship. Literature to the patient-companion-caregiver relationship is limited (Garvenlik et al, 2016; Murray et al., 2006).
2.1.4 Conceptual model for autonomy

The conceptual model of autonomy is given below.

![Conceptual Model for Autonomy Diagram]

- **Key conditions to create environment of patient participation by caregivers**
  1. Disclosure that a decision needs to be made
  2. Formulation of equality of partners
  3. Presentation of treatment options
  4. Informing on the benefits and risks of the options
  5. Investigation of patient’s understanding and expectations
  6. Identification of both parties’ preferences
  7. Negotiation
  8. Reaching a shared decision
  9. Arrangement of follow-up

- **Patient preference for degree of participation**
  - Medical condition
  - Availability of multiple treatment options
  - Personal characteristics of patient
  - Relationship patient and caregiver
  - Socio-demographic variables such as age

- **Caregiver preference for degree of patient participation**
  - Educational and social differences between caregiver and patient

- **Family companion preference for degree of participation**
  - Personal characteristics of family companion
  - Medical knowledge of patient’s condition

*Figure 3: Conceptual model autonomy*
2.2 Organizational structures in healthcare

In the previous section, the concept of patient autonomy was discussed. However, in this research, the relationship between value-adding-process and solution shop quasi-flow structures and autonomy is at issue. In order to be able to empirically study this relationship, a further development of the conceptual model is required. The following two analyses are of relevance to finalize the conceptual model:

1. The structural design of value-adding-process and solution shop quasi-flows as a hybrid structural arrangement between the traditional functional departments and flow structures (sub-question two, discussed in section 2.2)
2. The relationship between value-adding-process and solution shop quasi-flow structures and the autonomy level of elderly patients and family companions (sub-question three, discussed in section 2.3)

This section will analyze point one; the structural design of value-adding-process and solution shop quasi-flow structures as a hybrid between the traditional functional departments and flow structures. The second theoretical sub-question will be answered: What entails the structural design of value-adding-process and solution shop quasi-flow? The theoretical sub-question will be discussed in five steps.

First, in section 2.2.1 a description is provided of the genesis of quasi-flow structures. It will be argued that quasi-flow structures emerged in the context of a disruptive innovation in healthcare. Although this innovation advocates the transition from functionally concentrated hospitals to flow oriented hospitals, in practice the hybrid form of quasi-flow structures emerged. The difference between value-adding-process and solution shop activities will be addressed.

Second, in section 2.2.2 a short overview is given of the three structural designs and their main characteristics: functional departments, flow structures and quasi-flow structures.

Third, in section 2.2.3 the Sociotechnical System Design (STSD) theory is discussed to analyze in-depth the main structural designs of the general hospital and their effects. In this section, the theoretical relationship between the characteristics of a structural design on the performance of the general hospital is made. The focus is on the structure of functional departments and flows. The analysis of these two structural designs is necessary to finally analyze the design of quasi-flows. The quasi-flow structure is namely a hybrid form of the functional department structure and flow structure.

Forth, in section 2.2.4 the quasi-flow structure and its effect on the performance of the organization is analyzed by the STSD theory. The structure of quasi-flows is analyzed given the information about the
structural designs of traditional functional departments and flow structures. The analysis of quasi-flows by the STSD theory is relevant because it provides an overview of the consequences of the quasi-flow arrangement on the performance of the general hospital and therefore can indicate possible effects on the autonomy level of patients. The analysis of the quasi-flow structure will provide the basis for section 2.3 in which the relationship between value-adding-process and solution shop quasi-flow structures and the autonomy level of patients and family companions is discussed.

Fifth, in section 2.2.5 an overview is given by a conceptual model of quasi-flow structures in general hospitals.

2.2.1 Disruptive innovation and the genesis of quasi-flows
In this section, the genesis of quasi-flow structures will be discussed through the theory of disruptive innovation of Christensen et al. (2009).

The healthcare sector is dealing with challenges regarding quality, cost and valuable outcomes for patients. The healthcare sector is under pressure because of the increase in consumption of care (Bitter et al., 2013) due to the aging population (Block, 2013; Hall et al., 2013), changes in patient lifestyles and new technologies and therefore treatment options (Bloom et al., 2010). Furthermore, the care delivery is not in synchronization with patients’ needs and the system is expensive due to inefficiencies (Armony et al., 2015; Christensen et al., 2009). Overall, the demand for care is increasing while the supply of care is not evenly increasing due to a shortage of caregivers and unproductive ways of working. Due to these economic and social challenges, the healthcare sector needs to change and renew their products and services (Achterbergh & Vriens, 2013).

A disruptive innovation is necessary to make the healthcare sector simpler, more affordable and accessible (Block, 2013; Christensen et al., 2009). Disruptive innovation is focused on creating simpler products and services with fewer features to serve customers for what they want. In disruptive innovation in contrast to sustaining innovations, the established market player is out-played through new players. Therefore, the industry composition changes (Christensen et al., 2009).

In the healthcare sector, the disruptive innovation is affected by the possible types to diagnose and treat medical conditions. There are namely three main types to diagnose and treat medical conditions. For acute medical conditions, there is intuitive medicine and empirical/precision medicine. The third option is the diagnosis and treatment of chronic diseases. The first types of diagnosis and treating acute medical conditions will be discussed briefly: intuitive medicine and empirical/precision medicine. For intuitive medicine, the diagnosis is made on symptoms and treatment is a trial-and-error process. There is little insight into the causes of the medical condition and therefore treatment is
undeterminable beforehand. Depression is an example of an intuitive medical condition. Causes depend on the individual patient and are often only known after several trials of treatment options. For empirical and precision medicine, the diagnosis is made on causes and treatment is routine-based. There is an insight into the causes of the medical conditions and therefore they are precisely diagnosed and treatment is more standardized. A fracture is an example of a precision medical condition.

Due to technological innovation and increased medical knowledge, diagnosis and treatment shifts from intuitive to precision medicine (Christensen et al., 2009). Therefore, uncertainty decreases and standardization increases (Achterbergh & Vriens, 2013). However, the business model of the general hospital did not evolve simultaneously with the types to diagnose and treat medical conditions. The business model of the general hospital is developed initially for intuitive medicine. However, the technology to diagnose and treat medical conditions has advanced and therefore empirical and precision medicine are incorporated into the traditional business model of general hospitals. Furthermore, the general hospital nowadays has also the responsibility to take care of chronically ill patients. Therefore, general hospitals are currently confronted with multiple technologies for diagnosis and treatment and related business models in their structure. According to Christensen et al. (2009) the combination of multiple business models can have several consequences such as the inefficient use of caregivers, lower quality of care, longer waiting and cycle times and the lack of insight into results. These consequences can have their effect subsequently on the autonomy level of patients and family companions.

Christensen et al (2009) argue for the simplification of the healthcare sector through the development of three new distinct general business models: value-adding processes, solution shops and facilitated networks. These business models relate to the three types to diagnose and treat medical conditions: intuitive medicine, empirical/precision medicine and chronic diseases. The value-adding process business model serves medical conditions which can be diagnosed and treated with precision and empirical medicine. The value-adding process is a standardized, controllable, routine-based process aimed at transforming incomplete inputs in more complete outputs. The solution shop business model serves medical conditions which can be diagnosed and treated with intuitive medicine. The solution shop is a trial-and-error process aimed at solving unstructured patient problems. The facilitated network serves chronic medical conditions (Christensen et al., 2009). A short overview of the three types to diagnose and treat medical conditions and the business models is given in table one.
<table>
<thead>
<tr>
<th><strong>Type of diagnosis and treatment</strong></th>
<th>Empirical/precision medicine</th>
<th>Intuitive medicine</th>
<th>Chronic medical conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Based on causes</td>
<td></td>
<td>Based on symptoms</td>
<td></td>
</tr>
<tr>
<td>Routine-based process</td>
<td></td>
<td>Trial-and-error process</td>
<td></td>
</tr>
</tbody>
</table>

**Business model**  
- Value-adding-process  
- Solution shop  
- Facilitated network

*Table 1: Overview of the three types to diagnose and treat medical conditions and related business models*

The disruptive innovation within the general hospital is the separation of business models. In traditional functional concentrated general hospitals, the types of diagnosing and treating medical conditions are integrated within one business model. Caregivers provide care for empirical/precision, intuitive and chronic medical conditions in their functional department. Christensen et al. (2009) argue for the creation of flows to separate these three types of diagnosis and treatment in distinct processes within the general hospital. Value-adding-process and solution shop flows are created. With the creation of flows, organizations can deliver better qualitative care, lower their waiting and cycle times and increase the quality of work (Kaplan & Porter, 2011; Porter & Teisberg, 2006). These positive consequences have their effect on the autonomy level of patients and family companions which will be discussed later.

Flows can be created on the basis of process types and medical condition. Flows on process types result in separate flows for solution shops, value-adding-processes and facilitated network processes. For general hospitals, flows can be created in two ways. General hospitals can transport either value-adding-processes or solution shops to a specialized clinic. Or the creation of process types can be executed within the boundaries of the organization. In this way, value-adding-processes and solution shops are separated in distinct flows within the hospital. Hospitals thereby transform themselves in so-called ‘hospitals within hospitals’. Whenever flows are created on the basis of process types, a further distinction can be made on the medical condition. For every medical condition, a streamlined process is designed in which caregivers work together. The traditional functional departments are replaced by teams of caregivers stemming from different specialisms focused on a specific medical condition (Christensen et al., 2009; Porter & Teisberg, 2006).

Current literature argues for the creation of flows as a simplification of the healthcare sector and thereby a support for the quality of care, patient satisfaction and caregivers’ work experiences (Armony et al., 2015; Bitter et al., 2013; Christensen et al., 2009; Hall et al., 2013; Kreindler, 2018; Liberati & Scaratti, 2016). Practitioners acknowledge the need for the creation of flows and first attempts are therefore made. The value-adding, solution shop and facilitated network processes in the general hospital structure are separated with the creations of flows. However, in practice, the flows are created over the traditional functional department. Flow structures are developed over functional departments wherefore the structure of the general hospital includes both, the functional departments
and the flow. Theoretical ideas are applied in an incremental manner wherefore the disruptive character of the innovation through the creation of flows is potentially missed. This thesis focuses on the hybrid structure of quasi-flows and the consequences of this structure on the performance of the organization.

2.2.2 Three main structural designs of the general hospitals
In the previous section, it was hypothesized that the separation of business models in the general hospital results in better outcomes for the performance of the organization. It was argued that flow structures in comparison to functional departments, lead to the separation of business models and is therefore theoretically the preferred structure of general hospitals. These ideas are acknowledged by practitioners but applied in a distinct way as prescribed. This led to the development of quasi-flow structures. With this reasoning, it can be concluded that there are three main structural designs of general hospitals which are of relevance to analyze for their effect on the performance of organizations and thereby the autonomy level of patients and family companions: functional departments, flows and quasi-flows.

In this section, a short overview will therefore be given of these three main structural designs and their consequence.

Functional departments
Traditionally the structure of general hospitals is composed of functional departments. For every medical specialism, a functional department is set up in which specialists perform their task. This results in the composition of several departments for every medical function in one structure. Mintzberg defines a general hospital’s structure of functional departments as a professional bureaucracy (Christis, 2011). In professional bureaucracies, the focus is on the knowledge and skills of specialists (Mintzberg, 1980). The structure of functional departments is therefore supply-driven; the structure is organized around the type of knowledge and skills of medical specialists (Bodt, 1995; Porter & Teisberg, 2006).

Flow structures
Current literature argues that the traditional functional supply-driven structure of hospitals is cost-inefficient and leads to quality sub-optimization (Christensen, 2009; Porter & Teisberg, 2006). Organizations in the healthcare sector need to redesign the traditional functional structure to a new structure driven by demand and thus the patients (Block, 2013; Christensen et al., 2009; Christis, 2011; Porter & Teisberg, 2006). A suggestion for the redesign is the creation of flows (Armony et al., 2015; Bodt, 1995; Christensen et al., 2009; Hall et al., 2013; Liberati & Scaratti, 2016; Porter & Teisberg, 2006). Flows are groupings of caregivers stemming from different specialisms with the
focus on a specific medical condition. For every medical condition, a streamlined process is designed in which caregivers work together in a group. With the creation of flows, the functional departments in the structure are broken down. Caregivers are no longer grouped in a functional department based on their specialism but grouped in a flow based on the patients’ medical condition. According to literature, the redesign of general hospitals with the creation of flows will simplify the structure and therefore result in enhanced quality, cost and valuable outcomes for patients (Achterbergh & Vriens, 2009; Christensen et al., 2009; Porter & Teisberg, 2006). The main reasons for the creation of flows is the multidisciplinary approach wherefore the coordination between caregivers is facilitated, the focus on a specific medical condition wherefore the learning aspect and therefore the quality of care is enhanced, and the oversight of the process of the cycle of care (De Sitter, 1997; Porter & Teisberg, 2006).

**Quasi-flow structures**

In practice, the introduction of the flow structure is commonly combined with the current traditional structure of functional departments. A flow structure is designed over the traditional functional departments which are thus kept intact. In this thesis, the combination of functional departments and a flow structure is called a quasi-flow structure. A quasi-flow is a process designed over the functional departments whereby caregivers stemming from different specialisms are grouped together in a flow but keep their relationship with the functional department. Literature about the hybrid quasi-flow structure is limited.

In this thesis, a distinction is made between value-adding-process and solution shop quasi-flows. These quasi-flow structures are developed to distinct activities of caregivers on their complexity level. Value-adding-processes are standardized, controllable, routine-based processes aimed at transforming incomplete inputs in more complete outputs. The value-adding-process quasi-flows are designed for empirical and precision medical conditions. In value-adding-processes specialists are less involved than in a business model for intuitive medicine since treatment is standardized and therefore qualified nurses can partly take over. Solution shops are trial-and-error processes aimed at solving unstructured client problems. The solution shop quasi-flows are designed for intuitive medical conditions. In solution shops specialists are required to diagnose and treat medical conditions. Experts can increase the quality of care and reduce costs by shortening the trial-and-error process in making informed choices and wisely interpreting feedback (Christensen et al., 2009). In the value-adding-process quasi-flows a standardized and controllable process is designed over functional departments. The standardized process aims a shorter waiting and cycle time, less complicated patient trajectory, lower required coordination between caregivers and therefore a higher quality of care. In the solution shop quasi-flow a complicated and undeterminable process is designed over functional departments. The
multidisciplinary collaboration between experts is of high influence on the quality of care for the solution shop quasi-flow.

In table two a short overview is given of the three main structural designs of general hospitals: functional departments, flows and quasi-flows.

<table>
<thead>
<tr>
<th>Structure</th>
<th>Functional departments</th>
<th>Flows</th>
<th>Quasi-flows</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Definition</strong></td>
<td>A structure composed of specialist departments in which caregivers perform specialized tasks for a variety of patients</td>
<td>Flows are groupings of caregivers stemming from different specialisms with the focus on a specific disease and therefore a specific patient population</td>
<td>A structure in which a process is designed over the functional departments whereby caregivers stemming from different specialisms are grouped together in a flow but keep their relationship with the functional department</td>
</tr>
</tbody>
</table>

Table 2: Overview of three main structures of general hospital

### 2.2.3 Sociotechnical System Design theory

In the previous sections, the **genesis** of quasi-flow structures and the three main structural designs of general hospitals are discussed. An overview of the three structures is provided wherefore it is now possible to analyze these structures and their consequences for the performance of the general hospital. In this section, the STSD theory is used to analyze the structural design of functional departments and flow structures. First, the concept of an organizational structure will be addressed. Later, the focus will be on the analysis of the structural designs of general hospitals by the STSD theory. An understanding of the structure and consequences of functional departments and flow structures will lead to a better understanding of the hybrid structure, quasi-flows. This section provides the basis to analyze quasi-flow structures in section 2.2.4.

**Organizational structure**

Organizations aim to achieve goals. Several activities within the organization are performed to attain these goals. The allocation of the activities to capacities results in tasks. Capacities are workers or resources. Dependencies between tasks lead to the need for coordination. This coordination results in a network of tasks. The structure of organizations can be described as the network of executed tasks related to orders. This definition of organizational structure is retrieved from the STSD theory (De Sitter et al., 1997).
The Sociotechnical design theory

This thesis consults the STSD theory to finally analyze the structural design of quasi-flow structures. Therefore, an overall understanding of this theory has to be given.

Design theories can be explained by their essential variables and relevant parameters. Essential variables are features that can be used to specify the goal. These variables are essential for achieving the goals of the organization. In healthcare, examples of essential variables could be the number of days for hospitalization after surgery, the number of recovered patients, the level of personnel turnover, or the satisfaction level of patients for the care delivered. In this thesis, the focus is on the goal of the organization to provide autonomy for patients and family companions. This level of autonomy of patients and family companions can thus be seen as an essential variable in this case. Relevant parameters are parts or aspects of the structure. In healthcare, examples of relevant parameters could be the ability of caregivers to advise management, the variety of patients seen by a caregiver or the level of specialization within a caregiver’s task. A change in the values of structural parameters results in a change in the values of essential variables. The structure should be designed in a supportive way to reach organizational goals through desirable levels of essential variables through the right levels for structural parameters (Achterbergh & Vriens, 2009).

Essential variables

The essential variables of the STSD theory are quality of the organization, quality of work and quality of working relationships. First, the quality of the organization is reflected in the order flexibility, control over order realization and the potential for innovation. Short and reliable production cycle times, product variations and effective control of quality result in a high quality of the organization. Second, the quality of work is indicated through the level of personnel absenteeism and turnover. Low stress situations and the possibility for workers to be involved, learn and develop enhances the quality of work. Third, the quality of working relationships is supported with effective communication. Effective communication is achieved by shared responsibility and the participation in communication (Achterbergh & Vriens, 2009, 2013; De Sitter, 1994).

The essential variables indicate the consequences of the structure and the ability to achieve goals. In this thesis, the goal of the structure is to enhance and support the autonomy of patients and family companions. In table three an overview is given of the essential variables by De Sitter (1994;1997). The essential variables are translated into external and internal functional requirements. Only the requirements which are relevant for the autonomy level of patients and family companions are presented. Other requirements are left out.
<table>
<thead>
<tr>
<th>Essential variables</th>
<th>External functional requirements</th>
<th>Internal functional requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quality of the organization</td>
<td>Order flexibility</td>
<td>Short production-cycle time</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sufficient product variations</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Variable mix of products</td>
</tr>
<tr>
<td>Control over order realization</td>
<td></td>
<td>Reliable production &amp; production time</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Effective control over quality</td>
</tr>
<tr>
<td>Quality of work</td>
<td>Low level of absenteeism</td>
<td>Controllable stress-conditions</td>
</tr>
<tr>
<td>Low level of personnel turnover</td>
<td></td>
<td>Opportunities to be involved, learn, develop</td>
</tr>
<tr>
<td>Quality of working relations</td>
<td>Effective communication</td>
<td>Shared responsibility</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Participation in communication</td>
</tr>
</tbody>
</table>

Table 3: Overview of essential variables (Achterbergh & Vriens, 2009).

**Three general conditions**

According to the STSD theory, the structure supports the achievement of essential variables if three general conditions are met. The first general condition is the efficiency of primary processes wherefore essential variables acquire the right value and thus organizational goals are realized. External disturbances can hinder the organization to achieve its goals. External disturbances could, for example, be a periodic increase in the demand for care or a small market to hire nurses. The second general condition is that the structure is not a source of disturbances. Besides external disturbances, the structure itself can be a source of internal disturbances. Examples of internal disturbances are the requirement for continuous coordination between actors, short cycle subtasks or the lack of overview over the complete process. A certain level of external and internal disturbances will always be there. This is not a problem if the regulatory capacity of workers is sufficient to deal with disturbances. The third general condition is therefore that the structure provides the necessary regulatory capacity to deal with potential disturbances. Individual workstations should acquire enough regulatory capacity to deal with disturbances quickly and locally. These three general conditions are the basis of the STSD theory and form the starting point of the coming arguments throughout this section. To conclude, the probability for internal and external disturbances should be low and the capacity to regulate high.

**Parameters**

The three general conditions of structures are realized if the organizational structure has the right values for several structural parameters. The three most relevant parameters of the STSD theory will be described.

The first parameter is the level of functional concentration. This is the degree to which tasks are related to multiple orders. If this parameter has a high value, then workers in the organization are potentially responsible to produce all possible orders and order combinations of customers. In healthcare, the traditional functional structure results in a high value for this parameter. Caregivers in the functional departments serve patients with a variety of medical conditions. In healthcare, low functional concentration is achieved through the creation of flows for every medical condition.
Caregivers are then given the responsibility to serve patients with the same complexity type of diagnosis and treatment, and identical medical condition.

The second parameter is the level of separation of operational and regulatory tasks. This is the degree to which operational and regulatory transformations are separated and assigned to different tasks. Operational tasks are aimed at the realization of the desired organizational goal. Regulatory tasks are dealing with possible disturbances for the execution of operational tasks. In healthcare, operational tasks are, for example, the execution of surgeries for surgeons and the distribution of medicine for nurses. The regulatory tasks are, for example, the investigation of new technologies for surgeries by surgeons and the ability to have an influence on the structural design by nurses due to their operational knowledge and experience. A high value for this parameter results in the separation of operational and regulatory tasks. A low value for this parameter results in operational and regulatory transformations integrated into one task (Achterbergh & Vriens, 2009; De Sitter, 1994; 1997). Flow structures more likely integrate operational and regulatory transformations in one task in contrast to a structure of functional departments (Bodt, 1995).

The third parameter is the level of specialization in operational transformations. This is the degree to which operational transformations are split up into short-cycle sub-transformations. A high value results in high specialization and a low value in low specialization of operational transformations (Achterbergh & Vriens, 2009; De Sitter, 1994; 1997). In traditional functional departments, a task serves only a part of the cycle of care. While in a flow structure the complete cycle of care is integrated into one team. Therefore, the traditional functional department structure results in higher values on this parameter than the flow structure.

Relationship general conditions and parameters

The relationship between the general conditions of the STSD theory and the parameters will be discussed. The essential variables are achieved when the structure attenuates the probability of disturbances and amplifies the possibility of regulatory capacity with the right values on parameters. The probability of disturbances is affected by the number of relationships and the variability of orders. First, the number of relationships are of influence on the possibility of disturbances. The number of relations increases when separation and specialization parameters have high values. Separation and specialization results in dependencies between workers. When tasks in an organizational structure have multiple relationships with other tasks, the possibility that something goes wrong in the coordination between tasks rises. Second, the variability of orders is of influence on the possibility of disturbances. The variability of orders increases when the functional concentration parameter has a high value. If caregivers provide care for multiple medical conditions, the variability in orders increases, which results in an increase in the possibility of disturbances. This is the case in the
functional department structure where patients’ trajectories with a variety of diseases are spread out over functional departments. Overall, to lower the probability of disturbances, caregivers should have a minimum number of relationships with caregivers from different tasks and provide care for a limited number of diseases.

Regulatory capacity is the capacity of individual workstations to deal with disturbances. The regulatory capacity is affected by the oversight of the processes and the separation of operational and regulatory tasks. First, if the oversight of the processes increases, the regulatory capacity increases. The oversight of the processes increases when specialization in subtasks decreases. If caregivers oversee the cycle of care for a patient, they understand how the provision of the care delivered with their tasks relates to the overall cycle of care. Therefore, caregivers can regulate the treatment trajectory and foresee possible problems or results. Second, the separation of operational and regulatory tasks is of influence on the regulatory capacity. When operational and regulatory tasks are separated, caregivers do not have the capacity to intervene when disturbances occur or adapt the way of working. Therefore, the integration of operational and regulatory capacity enhances the local regulatory capacity of caregivers. Overall, to increase the regulatory capacity, caregivers should have an oversight of the cycle of care and tasks should include both, operational and regulatory tasks.

Figure four gives an overview of the general conditions of STSD and how to achieve these conditions through an adequate design of the structure according to the discussed parameters.

| CONDITION 1 | Efficiency of primary processes is high and organizational goals are realized if...
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<tr>
<td></td>
<td>- Probability of disturbances is low</td>
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<td></td>
<td>- Regulatory capacity is high</td>
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| CONDITION 2 | Probability of disturbances is low if...
<table>
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<tbody>
<tr>
<td></td>
<td>- Number of relations is low... Due to low values for separation and specialization</td>
</tr>
<tr>
<td></td>
<td>- Variability of orders is low... Due to low values for functional concentration</td>
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| CONDITION 3 | Regulatory capacity is high if...
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<tr>
<td></td>
<td>- Oversight over processes is high... Due to low values for specialization</td>
</tr>
<tr>
<td></td>
<td>- Integration of operation and regulation is high... Due to low values for separation</td>
</tr>
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</table>

Figure 4: overview general conditions of STSD theory

As shown in figure four, the conditions are met when the three parameters have low values. As briefly argued, the flow structure results in lower values than the traditional functional structure. This reasoning will be supported and extended in the next part of this section.
Sociotechnical Design theory applied in the healthcare sector

An overall idea of the STSD theory is given. This theory can now be applied to the healthcare sector. First, the choice for the STSD theory will be addressed by explaining the relevance of this theory in analyzing the structure of general hospitals. Then, the design of functional departments and flow structures will be analyzed in-depth to provide the basis for section 2.2.4 in which quasi-flow structures are analyzed.

The choice for the STSD theory

There are several design theories which could be consulted to analyze organizational structures in healthcare. However, for this research, the focus is on the STSD theory of De Sitter. The STSD theory is the most complete and detailed theory and especially useful for understanding how changes in organizational structures in the healthcare sector could be managed (Achterbergh & Vriens, 2013). The STSD theory is suitable for the design of healthcare organizations due to the social and technical character of the theory (Cherns, 1976). In healthcare, the technical system is closely interrelated to the social system (Hicks et al., 2015). The STSD theory argues that organizational goals are best met with the joint optimization of the technical and social system (Bitter et al., 2013; Cherns, 1976). Furthermore, the arguments for developing flows of multidisciplinary teams in healthcare find their roots in the STSD theory (Bitter et al., 2013).

It could be argued to include the Lean approach due to its wide practical application nowadays in the healthcare sector. However, Lean and STSD are based on the same design strategy. STSD is the theoretical foundation of Lean and Lean is the practical execution of STSD (Christis, 2011). The origins of the Lean approach are found in the manufacturing sector. Despite its roots in manufacturing, Lean is widely adopted in the service industry and public sector (Holden, 2015; Radnor & Walley, 2008; Womack and Jones, 2005). The design of the healthcare sector is also influenced because of the ideas of the Lean approach (Aherne & Whelton, 2010; Hicks et al., 2015; Graban, 2012). However, the design of healthcare organizations is complex due to the integration of both the technical and social system. The concept of ‘customer value’ receives in both sectors a different meaning (Hicks et al., 2015; Radnor et al., 2012). This thesis focuses on the STSD theory since the STSD and Lean approach have the same ideas but the STSD theory better matches the technical and social character of the healthcare sector.

The general hospital

The structure of organizations can score on a continuum of high and low values for the discussed parameters. Figure four argues that essential variables are achieved when the relevant parameters have a low value. In this case, the probability of disturbances is low and the regulatory capacity to deal with disturbances is high. The influence of both, low and high values in the organizational structures of the
healthcare sector will be discussed. The focus will be on the discussed structures of the traditional functional departments and the desired flow structures in general hospitals.

**Functional departments**

High values result in a complex structure with simple tasks. A structure with high values for the parameters is characterized by operational tasks which are potentially coupled to all order combinations, operational and regulatory activities separated in distinct tasks and specialization in transformations which results in short cycle tasks. The traditional functional department structure is characterized by higher values for the three parameters. The number of relationships in the functional department is high due to high values for separation and specialization. Caregivers have multiple dependencies and relations with other caregivers due to the specialization of transformations in smaller subtasks and the separation of operational and regulatory tasks. Each relationship is a potential point for disturbances. The variability of orders is high due to a high functional concentration. This parameter might be the most relevant parameter to explain potentially disadvantages of the functional departments. Caregivers have to serve a broad variety of patients with different medical conditions. Orders for caregivers differ extensively wherefore standardization is complicated and learning processes are disturbed. The increase in variability also complicates the relationships between caregivers which result in a potential point of disturbances. The oversight of the process of care is low. Caregivers are responsible for a short cycle task of the complete cycle of care. Furthermore, operational and regulation tasks are more likely separated in a functional department structure. This way, caregivers are dependent on external regulators. This consumes time and external regulators do not acquire the knowledge operational executors have. Overall, the STSD theory indicates potential negative consequences for the traditional functional departments. The structure of functional departments amplifies external complexity and can be a source of disturbances (Achterbergh & Vriens, 2009; Bitter et al., 2013).

**Flow structures**

Low values result in a simple structure with complex tasks. A structure with low values for parameters is characterized by operational tasks which are coupled to selected order combinations, operational and regulatory activities integrated into tasks and low specialization which results in broad tasks. The desired flow structure is characterized by lower values for the three parameters. The number of relationships in flow structures is lower due to a lower level of separation and specialization. Tasks are integrated wherefore caregivers combine operational and regulatory transformations. Furthermore, less specialization leads to broader tasks. The variability of orders is lower. There are several criteria to separate flows, for example, geography, medical condition and patients’ demographic variables. These criteria result in more homogeneous groups of patients and therefore a lower variability in orders for caregivers. The right criteria should be selected for the right situation. The oversight of the process is
increased in the flow structure. Lower specialization results in broader tasks which result in a better oversight of the full cycle of care for caregivers. Furthermore, the integration of both operational and regulatory transformations in tasks result in a higher regulatory capacity to deal with disturbances. The creation of order flows results in a team of workers who perform a broader set of tasks for a more homogeneous group of patients. Ideally, these tasks together form an extensive part of the cycle of care and include regulatory tasks. In this way, the number of relations decreases and the regulatory capacity increases.

Overall, the STSD theory indicates potential negative consequences for the structure of functional departments and potential positive consequences for the structure of flows. The redesign of the structure of the general hospital with the creation of flows will decrease the complexity by reducing the functional concentration and increasing the local control which will optimize the conditions for multidisciplinary teamwork (Achterbergh & Vriens, 2009; Bitter et al., 2013; De Sitter et al, 1997). Flows will decrease the potential of disturbances with the reduction of the number of relationships and the acquirement of regulatory capacity wherefore the team can better cope with possible disturbances (Bitter et al., 2013). Flow structures will more likely result in the attainment of essential variables. In section 2.3 the consequences of the structural design for the autonomy level of patients and family companions is given. However, the design of quasi-flows should first be addressed. This section gave insight and provided the basis for the next section in which the functional concentrated structure and the flow structure are combined.

2.2.4 Quasi-flow structures
In this section, the quasi-flow structure of general hospitals is analyzed. An analysis of the structural design by the STSD theory and the theory of disruptive innovation will give insight into the practical applicability of quasi-flow structures.

From functional departments to flows with the creation of quasi-flows
The structure of multidisciplinary teams and separate ‘flows’ over functional departments is in this thesis defined as quasi-flows. Multidisciplinary teams are composed of caregivers stemming from a range of professional and disciplinary groups with different and complementary knowledge, skills and experience (Liberati & Scaratti, 2016). With the creation of these multidisciplinary teams, the hospitals separate precision and empirical medicine activities from intuitive medicine activities. However, these ‘flows’ are developed within the current traditional functional department structure. The previous literature analysis of functional departments, flows and the disruptive character of the creation of flows can now be consulted to analyze the practical combination of both functional departments and flow structures.
Analysis of quasi-flow structures

The quasi-flow structures will be analyzed by the three parameters of the STSD theory. First, the level of functional concentration. In quasi-flow structures, the functional concentration is likely to be higher than in flow structures. Tasks are related to order combinations of the quasi-flow but also to order combinations of the functional departments. Caregivers are responsible for the care of homogeneous patient groups in the quasi-flows. However, caregivers are also still responsible for the more heterogeneous patient groups who are served via the functional departments. Caregivers are potentially related to a variety of order combinations due to their responsibilities for the quasi-flow and the functional department. Quasi-flows do result in a better focus on homogeneous groups since these groups are made by the quasi-flow structure. However, the actual complete advantage of low functional concentration with the creation of flows is potentially not met since heterogeneous patients in the functional departments are still cared for by caregivers.

Second, the level of separation of operational and regulatory tasks. Within the quasi-flow the regulatory and operational tasks could potentially be integrated. This will result in a higher regulation capacity for caregivers’ tasks in the quasi-flow. However, the level of separation for the tasks within the functional department stays the same. Therefore, the lower values due to the integration of operational and regulatory tasks in the quasi-flow are increased by the maintenance of higher values in functional departments (Achterbergh & Vriens, 2009; De Sitter, 1997).

Third, the level of specialization of operational transformations. Within the quasi-flow, the complete cycle of care is integrated for the responsibility of one team. However, since caregivers originate from functional departments and keep their specialist role in the quasi-flow, it could be questioned whether caregivers’ tasks are enriched. Collaboration between caregivers in multidisciplinary teams is essential to score a higher value on this parameter as in the functional department structures. Therefore, the value on this parameter relies on the task description and maybe more importantly, the level of collaboration between caregivers. The mere existence of multidisciplinary teams does not guarantee the actual integration and collaboration between specialist. Existing functional boundaries between caregivers can hinder the functioning of teams (Christis, 2011; Liberati & Scaratti, 2016).

Overall it can be argued that the quasi-flow on itself results in lower values for the parameters. These lower values are attained with arguments mentioned for flow structures. However, due to the maintenance of the functional departments, these lower values are disturbed by higher values. Caregivers’ tasks seem to be split in two parts: the responsibilities for the tasks in the functional departments and the responsibilities for the tasks in the quasi-flow.
The right values for parameters should result in the achievement of the three general conditions: efficient production processes which lead to the achievement of essential variables, attenuation of disturbances and amplification of regulatory capacity. The consequences of the values on the parameters of quasi-flow structures will be discussed based on Figure four. First, the number of relationships with the quasi-flow structure might be lowered if the level of separation and specialization is decreased. Within the quasi-flow structure, the team should collaborate to make the flow actually work. However, the number of relations is increased because of the maintenance of the functional departments. Caregivers have relations within the quasi-flow structure but also keep their relations with the functional departments. The quasi-flow tasks have to be coordinated and synchronized with the tasks of functional departments. Furthermore, caregivers are potentially connected to multiple quasi-flow structures. It could be questioned whether the number of relationships for caregivers therefore decreases with the creation of quasi-flow structures. Second, the variability of orders in quasi-flow structures is higher than flow structures due to a higher level of functional concentration. Caregivers are responsible for orders from the quasi-flow structure and the functional department. Therefore, the variability of orders might not be decreased. However, within the quasi-flow the standardization and learning processes could potentially be increased since there is a focus on a homogeneous group. Third, the oversight of the process depends on the level of specialization. If caregivers’ jobs are enriched in comparison to their jobs in functional departments, then the oversight of the process could have been enhanced. Due to the necessary collaboration and coordination between caregivers in a quasi-flow structure, it might be that caregivers get more insight into the patients’ trajectory even if tasks are not enriched. Fourth, the integration of operation and regulation is increased in the quasi-flow structure itself. However, the same level of separation remains in the tasks for the functional departments (Achterbergh & Vriens, 2009; De Sitter, 1997).

The potential of flows for the enhancement of the quality of care, the reduction of waiting and cycle times, the insight into results and the efficient use of caregivers, is potentially not met with the creation of the quasi-flow structures. The diagnosis and treatment of diseases are analyzed through a multidisciplinary team in the quasi-flow. Therefore, there is an increased insight into possible dependencies and relations between medical specialist knowledge. This might result in a more accurate diagnosis and a more effective selection of treatments. However, the level of collaboration and openness of specialists determine the actual potential of the quasi-flow structure. Furthermore, the focus of caregivers on a specific medical condition might be decreased since their task also includes a variety of medical conditions from the functional departments. However, the quasi-flow structures could potentially lead to better cooperation and collaboration between caregivers in general and within the functional departments, since they better get to know each other in the quasi-flow team. Furthermore, the complete cycle of care is taken into account in the quasi-flow and therefore a planning system for the quasi-flow could enhance waiting and cycle times. However, the planning of
the quasi-flow is still dependent on the planning of the functional departments. Therefore, good and bad planning of departments and quasi-flows are still integrated which could undermine the potential of lowering waiting and cycle times.

Overall, it could be argued that structures of quasi-flows result in more complex tasks but not necessarily a simpler network. The advantages of the structure through the creation of flows are captured in the quasi-flow tasks with the integration of regulatory tasks and the decrease of the level of specialization. However, since functional departments are kept as the basis of the structure, the potential advantages of the structural change are disturbed. Therefore, the three general conditions are potentially less likely met in a quasi-flow structure than a flow structure. The general conditions provide a basis for the autonomy level of patients as will be discussed in section 2.4.

A true analysis of the effects of quasi-flow structures should be made through empirical data. Literature does not prescribe the actual characteristics of a quasi-flow structure since this structure is not well known yet. Since the concept quasi-flow structure is relatively new, it is difficult to theoretically analyze the structural design. Empirical insights are needed to get a better overview.

**Overview of the potential structures of general hospitals**

In table four a broad overview is given of the analysis of the three potential structures of general hospitals: functional departments, quasi-flow structures and flow structures.

<table>
<thead>
<tr>
<th>STSD theory</th>
<th>Functional departments</th>
<th>Quasi-flows</th>
<th>Flows</th>
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<tbody>
<tr>
<td><strong>Four parameters</strong></td>
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<tr>
<td>Functional concentration</td>
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<tr>
<td>Separation O&amp;R</td>
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<tr>
<td>Specialization Operational</td>
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<tr>
<td>Specialization Regulatory</td>
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<tr>
<td><strong>Consequences</strong></td>
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<td>Number of relations</td>
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<tr>
<td>Variability of orders</td>
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<tr>
<td>Overview over process</td>
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<tr>
<td>Integration O&amp;R</td>
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*Table 4: Overview potential structures of general hospitals*
2.2.5 Conceptual model quasi-flow structures
The conceptual model of quasi-flow structures is given below.

Value-adding-process and solution shop quasi-flow structures

- The number of relationships between caregivers
- Variability of patients
- Oversight over process
- Integration of operational and regulatory tasks

Parameter values
1. Functional concentration
2. Separation operational and regulatory tasks
3. Specialization in operational tasks

Flow structure

<table>
<thead>
<tr>
<th></th>
<th>Low values</th>
<th>High values</th>
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<tbody>
<tr>
<td>Functional departments</td>
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Figure 5: Conceptual model quasi-flow structures
2.3 Relationship autonomy and quasi-flow structures

In this section, the third theoretical sub-question will be answered: *What is the relationship between the value-adding-process and solution shop quasi-flows structure of general hospitals and the autonomy level of patients?* Section 2.3.1 discusses potential relationships between the creation of value for patients and the structural designs in healthcare situations. Autonomy is an essential condition for the creation of patient value. Therefore, section 2.3.2 is focused on the relationship between the structural designs in general hospitals and the autonomy level of elderly patients and family companions. The structural design of quasi-flows is analyzed for its potential to facilitate conditions for autonomy. Section 2.3.3 gives an overview of the relationship between the autonomy level of patients and quasi-flow structures. This section will summarize the theoretical framework by a conceptual model.

2.3.1 Relationship value creation and structural design

Healthcare systems and especially general hospitals have a major impact on our quality of life (Armony et al., 2015; Bitter et al., 2013). The technological initiatives in medicine are advancing rapidly and are a response to the new demand for care for high-quality, cost-efficient, accessible, patient-focused and integrated healthcare delivery (Block, 2013). The design of an organization has an influence on the efficiency and outcomes of the system (Hicks et al., 2015). Therefore, improving the structure of hospitals can have a significant impact on the quality and efficiency of care and the satisfaction of patients which ultimately leads to a better quality of life (Armony et al., 2015; Hicks et al., 2015).

The functional department structure is supply driven which might be an obstacle for patient value creation. In the functional department structure, value is defined from the caregivers’ point of view and their ability to provide care within their specialism. However, value creation should be defined from the patients’ point of view and thereby take the complete cycle of care and preventive care into account. The traditional functional departments are often too broad and general to measure value in this way. Literature argues that the fragmentation of care delivery through the functional departments across the cycle of care does not result in the creation of value for patients (Porter & Teisberg, 2006).

In contrast, the flow structure is demand driven and therefore takes the patients’ point of view in defining value. The focus is no longer on the caregivers’ ability to provide a part of the cycle of care, but on the complete cycle of care for the patient (Porter & Teisberg, 2006). Patient value and satisfaction result from the integration of care and cure processes rather than the sum of the various parts delivered by various caregivers (Bitter et al., 2013). A structure of multidisciplinary teams can address the increasingly complex needs of patients, ensure integrated and patient-centered outcomes, and attain quality and safety standards (Liberati & Scaratti, 2016).
However, in practice, the flow structure is commonly designed over the functional departments. The preservation of the functional departments could potentially influence the value definition and creation for patients within the flow structure. The mere existence of multidisciplinary teams in flow structures does not guarantee effective collaboration towards integrated patient care (Christis, 2011; Liberati & Scaratti, 2016). The provision of effective care may be obstructed by caregivers who defend the traditional boundaries of functional departments, specialized knowledge and pre-existing practices (Atwall and Caldwell, 2002; Oborn and Dawson, 2010). Furthermore, concepts and clinical approaches can differ for functional departments which need to be integrated into the flow structure. Caregivers stemming from different functional departments could have a problem in collaborating in flow structures because of differences in clinical approaches, construction of specific professional identities, or ideas about regulation. A geriatric department could, for example, have other ideas about quality of life than a surgery department (Liberati & Scaratti, 2016). Therefore, the question rises how quasi-flow structures define value and support patient-centric care.

Furthermore, this thesis focuses on the autonomy level of elderly patients and family companions. This patient population is according to literature extra sensitive for the structural design of the hospital. Theorists argue that general hospitals are traditionally not ideally structured for older patients. Patients find themselves commonly in settings in which caregivers work individually at a rapid pace and therefore care is delivered in a fragmented and reactive manner (Chiou & Chen, 2009). Traditional healthcare settings can undermine older patients’ autonomy through inadequate provision of information or the lack of opportunity to understand the diagnosis (Lothian & Philp, 2001). Older patients are more easily affected by unsatisfactory healthcare settings which can result in an inadequate process for making informed choices. Current literature therefore envisions new models to create an age-friendly healthcare sector (Fulmer et al., 2018).

2.3.2 Relationship autonomy and structural design
As mentioned, this thesis focuses on the autonomy level of patients as an essential condition for the creation of value for patients within healthcare. It is argued that value should be defined by the patient and not the specialist (Sullivan, 2003; Porter & Teisberg, 2006). The structure can support the autonomy level of patients in several ways. The structure of quasi-flows will be analyzed for its potential to support the autonomy of elderly patients and family companions. The STSD theory is consulted to provide this insight.

**Autonomy level and quasi-flow structures**
The STSD theory is consulted to analyze the relationship between the autonomy level of patients and the structural design of general hospitals more in-depth. A short recap; low values for parameters resulted in high values of essential variables and thereby the realization of organizational goals (De
Sitter, 1997). As discussed in section 2.2, flow structures lead to lower values of parameters than traditional functional departments. Therefore, essential variables are better met in flow structures than traditional functional departments. Quasi-flow structures led to higher values of parameters than flow structures but lower values than traditional functional departments. In this thesis, the autonomy level of patients is the goal of the organization under investigation. With the analysis of the previous sections, it could be argued that quasi-flow structures potentially lead to higher level of autonomy of patients and family companions than flow structures but a lower level than functional departments. This theoretical expectation will be analyzed more in-depth.

The essential variables and their external and internal functional requirements are of influence on the autonomy level of elderly patients and family companions. The relation between the essential variables and the autonomy level of patients will be discussed. These essential variables are better met in flow structures than traditional functional departments. An overview of the essential variables and external and internal requirements can be found in table two.

First, the level of quality of the organization. Order flexibility and control over order realization are necessary requirements to achieve organizational goals and thus quality of the organization. The first external functional requirement is the level of order flexibility. A short production-cycle time results in an efficient process of transforming input into output. In the general hospital, this will mean that the time of care for patients is short. This includes the hospitalization but also potential aftercare. Sufficient product variations and a variable mix of products indicate that there are several options for patients to choose between. The number of treatment options is of relevance to increase the level of autonomy. A ‘one size fits all strategy’ will decrease the level of autonomy patients have in making medical decisions. Furthermore, it was argued that with an increase in the number of treatment options, patients wish to participate more in the decision-making process (Guadagnoli & Ward, 1998). Overall, the order flexibility directly affects the autonomy level of patients since it indicates the leeway to distinct from the standard and thus make patient-specific choices.

The second external functional requirement is the level of control over order realization. Control over order realization results in high quality outcomes and a lower number of defects. A reliable production and production time and the control over order realization for caregivers have a positive effect on the level of autonomy of patients and family companions. Caregivers can control the order realization and therefore decide how to incorporate patients and family companions. A controllable process will result in a lower need to fix potential disturbances and therefore a better focus on patients’ valuable outcomes.

Second, the quality of work. The level of absenteeism and personnel turnover are the external requirements of qualitative work for caregivers. Controllable stress-conditions and opportunities to be
involved, learn and develop will enhance the motivation of workers. Controllable stress-conditions indicate a sufficient level of regulator capacity for workers. Sufficient regulatory capacity leads to the ability to deal with disturbances, to set and change goals and to adapt the infrastructure according to operational needs. Caregivers can optimize the operational process and thereby enhance the conditions for the autonomy of patients. The level of personnel turnover is of influence on the opportunities to be involved, learn and develop. When caregivers are part of a flow for a longer period of time, they have the opportunity to get familiar with the medical condition and thereby optimize the process. The quality of care will be supported through the learning process of caregivers. Thereby, the autonomy level of patients is increased. Motivated and dedicated caregivers will optimize the process for the specific patient and family.

Third, the quality of working relations. Effective communication is a requirement for efficient coordination between workers and thereby working relations. Shared responsibility and participation in communication are necessary for effective collaboration between caregivers. The multidisciplinary approach will be supported with effective communication and thereby the autonomy level of patients is increased. When caregivers work together, the advice to patients will be consistent and clear. The individual situation of patients is taken into account with the multi-perspective on the medical condition wherefore treatment options can be better focused on the individual situation of patients. The focus on the individual patient will support the participation of the patient and the family.

According to the analysis in this section, the mentioned essential variables have a potential effect on the autonomy level of patients. The realization of these essential variables will result in the support of the autonomy level of elderly patients and family companions. As argued, flow structure in contrast to the functional department structure will be better able to attain the right values of essential variables and thereby support the autonomy level of patients. The hybrid structure of quasi-flows is argued to have a moderate value for essential variables. This means that the autonomy level of patients is less likely served in a quasi-flow structure than in a flow structure but potentially better served than in the functional department structure. However, the practical situation of quasi-flow structures cannot be theoretically assessed since there is limited knowledge about quasi-flow structures. The theoretical expectation is that the autonomy level of patients in quasi-flow structures is supported with the creation of flow structure but potentially disturb with the maintenance of functional departments. However, this theoretical expectation should be tested by an empirical research to support the theory.
The first theoretical expectation is:

*The quasi-flow structure leads to a higher level of autonomy of elderly patients and family companions than the functional departments, but a lower level of autonomy than the flow structure. This is because the structure of a quasi-flow scores moderate values on the three parameters of De Sitter (1994; 1997)*;

**Different types of quasi-flow structures**

In this research, two quasi-flow structures are at focus: a value-adding-process quasi-flow and a solution shop quasi-flow. Therefore, this research further indicates whether the type of the process might be of influence on the consequences of quasi-flow structures on the autonomy level of patients and family companions. A short recap; a value-adding-process is a standardized, controllable, routine-based process aimed at transforming incomplete inputs in more complete outputs. A solution shop is a trial-and-error process aimed at solving unstructured patient problems. The treatment in a value-adding-process is in contrast to a solution shop more straightforward and less complicated with uncertainties. In the solution shop specialist need to reason based on intuition and experience which treatment option is best for the individual patient. With feedback loops of information about the success or failure of the treatment, new choices for treatment are made (Christensen et al., 2009).

Potential differences in the autonomy level of patients between the two types of quasi-flows will be analyzed.

It could be argued that in a value-adding-process, the steps and processes are standardized and determined beforehand. Therefore, the leeway to deviate from the standardized process is low. Standard criteria are defined which direct the medical choices of caregivers. This could indicate that there are fewer options for patients and caregivers to choose between and thus the autonomy level of patients could be low. In a solution shop, the steps and processes are not standardized or determined beforehand. Therefore, the leeway to deviate from the process is high. In this type of flow, it is impossible to set criteria beforehand which are decisive. Therefore, there might be more options for both caregivers and patients to choose between and thus the autonomy level of patients could be increased. In the solution shop, the treatment process is dependent on the individual patient’s situation and the reaction to treatments. According to this reasoning, the autonomy level of patients is hypothesized to be higher in the solution shop than in the value-adding-process.

However, this research is focused on quasi-flow structures and not flow structures. The reasoning that the autonomy level of patients is higher in a solution shop in contrast to a value-adding-process, is made on the basis of a flow structure in which there are no problems with collaboration and coordination between caregivers. However, the research is focused on and performed in quasi-flow
structures. The structure needs to facilitate its potential to meet the autonomy level. The quasi-flow structure could potentially disturb the previous reasoning.

In contrast to the flow structure, the quasi-flow structure leads to an increase in the number of relationships, the variability of patients, the overview over the process and the separation between operational and regulatory tasks. These consequences of the higher levels of structural parameters for quasi-flows, indicate that the need for coordination between caregivers is increased, the possibility of disturbances is increased and the regulatory potential to deal with disturbances is decreased. In a value-adding-process the treatment is standardized and caregivers know the steps to be followed through the separate caregivers. Decisions are made on standardized criteria and therefore coordination between caregivers might be moderated. However, in the solution shop, the information of all caregivers need to be integrated into one advice for the treatment of the patient. The unstructured problem of the patient should be analyzed from multiple perspectives and these ideas of different caregivers have to be combined to come at a final advice for treatment. Therefore, coordination between caregivers in the solution shop is extensive. Overall, the complexity of the medical condition treated in a solution shop might increase the possibility of disturbances and asks for an increased regulatory potential to deal with these possible disturbances. Therefore, the facility of the structure is potentially in a solution shop of more relevance than in a value-adding-process.

The level of coordination between caregivers can be of influence on the autonomy level of patients. When patients are approached through several caregivers who give different and inconsistent advices, the level of autonomy of patients might be decreased. In the case of a solution shop, it is extra important that information of caregivers is integrated, summarized and explained to the patient. The question arises which specialist will transfer the right information to the patient. The 9-steps as discussed in section 2.1 to achieve the relevant conditions for shared decision making could potentially be missed if the separate caregivers give their information distinctly to the patient. In a solution shop, there is an increased need for a leader of the process to integrate information and transfer this information to the patient. In the value-adding-process, the 9-steps could potentially be better standardized and assigned to a specific caregiver.

This reasoning indicates that the negative consequences of a quasi-flow structure in contrast to a flow structure could be of more influence on a solution shop than a value-adding-process. The negative consequences of the maintenance of the functional departments on the collaboration and coordination between caregivers could potentially be more destructive for the solution shop than the value-adding process.
Overall, the theoretical expectation is that quasi-flow structures lead to a higher level of autonomy of elderly patients and family companions than the functional departments, but a lower level of autonomy than the flow structure. Furthermore, the theoretical expectation is that the autonomy level of elderly patients and family companions is lower in a solution shop in contrast to the value-adding-process, in case the quasi-flow structure results in problems in the coordination and collaboration between caregivers and there is no supervisor who integrates the multidisciplinary information.

The second theoretical expectation is:

*The autonomy level of elderly patients and family companions is lower in a solution shop than in the value-adding-process, in case the quasi-flow structure results in problems in the coordination and collaboration between caregivers and there is no supervisor who integrates the multidisciplinary information.*

In case the quasi-flow structure is supported with high collaboration between caregivers and a supervisor who integrates the multidisciplinary information and coordinates between caregivers which results in an overall desired level of collaboration and coordination, the level of autonomy of patients might be higher in a solution shop than in a value-adding-process. This is because the leeway to deviate from standards might be higher in the solution shop than the value-adding-process.

The third theoretical expectation is:

*The autonomy level of elderly patients and family companions is higher in a solution shop than in the value-adding-process, in case the quasi-flow structure does not result in problems in the coordination and collaboration between caregivers and there is a supervisor who integrates the multidisciplinary information. The leeway to deviate from the standards might be higher in the solution shop than the value-adding-process which results in a higher level of autonomy.*
2.3.3 Conceptual model relationship autonomy and quasi-flow structures

The conceptual model of the relationship between the autonomy level of patients and family companions and quasi-flow structures is given below.

**Value-adding-process and solution shop quasi-flow structures**

- The number of relationships between caregivers
- Variability of patients
- Oversight over process
- Integration of operational and regulatory tasks

**Parameter values**
1. Functional concentration
2. Separation operational and regulatory tasks
3. Specialization in operational tasks

**Autonomy level of patients and family companions**

- Level of collaboration and coordination
- Supervisor

**Degree of patient participation**
1. Paternalism
2. Professional-as-agent
3. Shared decision-making
4. Informed decision-making

**Key conditions to create environment of patient participation by caregivers**
1. Disclosure that a decision needs to be made
2. Explanation of options of patients
3. Presentation of treatment options
4. Informed on the benefits and risks of the options
5. Investigation of patient’s understanding and expectations
6. Identification of both parties’ preferences
7. Negotiation
8. Reaching a shared decision
9. Arrangement of follow-up

**Patient preference for degree of participation**
- Medical condition
- Availability of multiple treatment options
- Personal characteristics of patient
- Relationship patient and caregiver
- Socio-demographic variables such as age

**Caregiver preference for degree of patient participation**
- Educational and social differences between caregiver and patient

**Family companion preference for degree of participation**
- Personal characteristics of family companion
- Medical knowledge of patient’s condition

*Figure 6: conceptual model relationship autonomy and quasi-flow structures*
3. Methodology

Chapter three addresses the methodology used in this thesis to give insight into the relationship between the autonomy level of patients and quasi-flow structures. Section 3.1 discusses the research design. Section 3.2 gives a description of the general hospital selected for this thesis. An overview of the two selected cases in the general hospital will be given. Section 3.3 provides an overview of the sample included in this research. Section 3.4 elaborates on the methods used and section 3.5 gives an overview of the data analysis. Section 3.6 discusses the quality of the research while section 3.7 includes possible limitations of the research. Last, section 3.8 provides insight into ethical considerations for this research.

3.1 Research design

For this research, a comparative case study within one organization is performed. A case study is defined by Yin (2009) as: ‘an empirical inquiry that investigates a contemporary phenomenon in depth and within its real-life context’. The case study provides practical insight and empirical data about the relationship between value-adding-process and solution shop quasi-flow structures and the autonomy level of patients and family companions. The case study is executed through the gathering of both qualitative and quantitative data.

Case studies are traditionally defined to be descriptive, exploratory and explanatory. Currently, case studies are also seen as an effective research design for the development of theories (Buchanan in Symon & Cassell, 2012). The aim of this research is to explore theoretical considerations about the influence of the structural design on the autonomy level of patients and family companions. Therefore, the focus is on analytical refinement instead of generalization. This means that results are not generalized from sample to population but from data to theory. In this thesis, current literature is used to investigate the structural design of value-adding-process and solution shop quasi-flows. However, the literature consulted does not include ideas about the design of quasi-flows. Furthermore, the difference between value-adding-process and solution shop quasi-flows are not analyzed through current literature. Theories about functional departments and flow structures (Christensen et al., 2009; De Sitter, 1994;1997) are applied to analyze quasi-flow structures and thereby enhance the current design literature with this new structural form. Therefore, this research combines inductive and deductive methods. First, theories about structure are consulted to develop three theoretical expectations in an inductive way. The three theoretical expectations are analyzed by an empirical research in a deductive way. Then, the empirical data is translated back inductively to the theory to explain how this theory works in the current organizational design of general hospitals which is not described through the theory yet. The literature of autonomy is used in a deductive way to analyze the level of autonomy of patients and family companions. However, the relationship between autonomy
and structural design is deductively analyzed to come to theoretical expectations which will be inductively tested through empirical research. This research contributes to the practical setting of general hospitals by naturalistic generalization and isomorphic learning. The results, experience and knowledge developed with this research could be applied to other general hospitals (Symon & Cassell, 2012).

### 3.2 Case description
According to literature cases should be selected on their representativeness for the phenomenon under investigation (Symon & Cassell, 2012). Therefore, the case in this thesis is chosen because of its potential to explain the relationship between value-adding-process and solution shop quasi-flow structures and the autonomy level of patients and family companions in general hospitals.

The case under investigation in this thesis is a general hospital. The hospital is a result of the merger in 2000 of multiple hospitals in the region. The hospital argues to provide care for everyone and for every medical condition. Furthermore, the hospital works together with other healthcare organization. The regional function is therefore served. Since the hospital acquires a broad value proposition, it can be defined as a general hospital serving care for precision, empirical and intuitive medicine. The hospital received in the previous two years a certificate for being an age-friendly hospital. The certificate checks under more the presence of a geriatric team, the coordination between multidisciplinary specialists and the provision of aftercare. The number of elderly patients above the age of 70 for hospitalization is around 14,000 a year.

The hospital acknowledges the need for the creation of flows and therefore envisions structural changes in the organizational design (Personal communication, 2018). In this thesis, the focus is on the two quasi-flows of hip fractures for elderly patients. In these quasi-flows, two functional departments play a crucial role: the surgery department and the geriatric department. Previously, patients with a hip fracture were under the supervision of the surgery department. However, the general hospital made a structural change on April 16th, 2018. Per this date, elderly vulnerable patients with a hip fracture are under the supervision of the geriatric department. Patients above the age of 70 with a hip fracture, will be screened before surgery on their vulnerability with the Comprehensive Geriatric Assessment (CGA). Based on this CGA, elderly vulnerable patients will be supervised by the geriatric department after surgery and elderly non-vulnerable patients will be supervised by the surgery department after surgery. The hospital’s argument for this structural change is the increased demand for multidisciplinary care for elderly vulnerable patients. Patients with chronic and multiple medical diseases should be cared for by caregivers stemming from different specialisms. With the introduction of the quasi-flow of the geriatric department, the structure for hip fractures of elderly vulnerable patients is enhanced by the integration of more specialists (Van Vloten-Bakker et al.,...
The quasi-flow structure of the surgery department is set up three years ago, while the quasi-flow structure of the geriatric department is set up on April 16th, 2018 (Personal communication, 2018). An overview of the ruling for the structural design before surgery can be found in Appendix I: An overview of the structure before surgery.

The cases of this research are two quasi-flows within a general hospital: the value-adding-process quasi-flow of the surgery department and the solution shop quasi-flow of the geriatric department. This thesis investigates the level of autonomy of patients and family companions within these flows. These quasi-flows differ in the complexity level of the processes. Fractures are by Christensen et al (2009) defined as precision medicine and therefore should be assessed by a value-adding-process. However, the patients in the population of hip fractures are commonly elderly (vulnerable) patients. Therefore, the medical condition might in some cases be better defined as empirical or even intuitive medicine. The differences in complexity levels and therefore business models within these quasi-flows are of relevance for the analysis of the structural designs and the relationship between structure and autonomy. By the inclusion of two different quasi-flows, this research explores the influence of value-adding-process and solution shop quasi-flow structures on the autonomy level of patients.

Furthermore, this case in the general hospital is chosen due to the population served within the quasi-flows. The new quasi-flow structure of the geriatric department is developed for elderly vulnerable patients with a hip fracture. Due to the aging population and the increased medical care for elderly patients, these patients make up the biggest population for the need for care. Therefore, this case is especially relevant to indicate insights into the quality of care and creation of value improvements in medicine in general. The geriatric patient population grew extensively in the previous years (Van Vloten-Bakker et al., 2015). Furthermore, as argued in the theory section, the autonomy level of elderly patients and family companions is a relatively new but highly relevant topic.

Autonomy level of patients and family companions should be measured by a specific medical decision that has to be made in the care trajectory. In this thesis, the focus is on the decision for aftercare. The choice broadly entails whether the patient will revalidate at home, revalidate at a rehabilitation center of a residential care home or will go to a residential care home. The decision for this choice is made during the hospitalization. Caregivers of the general hospital are responsible to include patients and family companions in the decision-making process. This research focuses on the autonomy level of patients and family companions for this choice for three reasons. First, the structural designs of the two quasi-flows distinct from each other only after surgery. Before surgery, the surgeon or orthopedist is responsible for the chirurgic consult and all patients above the age of 70 are screened by the CGA on their vulnerability (see Appendix I). Therefore, the patient populations in both quasi-flows follow the same trajectory before surgery. There is no difference in the structure of the quasi-flow structures
before surgery. However, after surgery, the quasi-flow structures do differ due to the incorporation of different specialisms, standards and procedures (see Appendix I and Appendix XII). Second, to make the choice for aftercare, several caregivers stemming from different specialist departments collaborate to formulate an advice. Therefore, there is the need for multidisciplinary care for the decision-making process of this choice. Flow structures are known for their multidisciplinary teams and the focus on the specific patient situation. It is interesting to investigate the moment of decision making in which multiple specialisms are included, to analyze, for example, the coordination in the structure due to the number of relations and the quality of care due to the variability of patients and the overview over the process. Furthermore, according to the reasoning for the relationship between structures and the autonomy level of patients, the coordination and collaboration between caregivers is of high influence on the autonomy level. Third, the quality of life for elderly patients is focused on care instead of cure. The mobility of an elderly patient is described to be a crucial factor of quality of life (Volparto & Guralnik, 2015). Therefore, the decision for aftercare is important for this patient population.

3.3 Sample
The target population of this research is vulnerable elderly patients with a hip fracture in the general hospital. Data from the hospital shows that on average one patient per day is treated for a hip fracture. The average time of hospitalization is seven days (See Appendix II). The research was performed for seven weeks. The population for the period in which the research was performed in the hospital is 32 patients. The sample consists of 21 patients and/or family companions. Due to non-response, this research gathered information of twelve patients and nine family companions for the quantitative research and one patients and two family companions for the qualitative research. The overall response rate is 66%.

This research includes beside patients also family companions. Elderly vulnerable patients are often supported by family companions in the decision-making process (Wolff & Boyd, 2015; Wolff & Roter, 2011). Therefore, family companions are included in the sample. The quantitative research is conducted with both, patients and family companions. The qualitative research is in first instance conducted with family companions. Due to the vulnerability and complexity of medical conditions of elderly patients, the family companions are of relevance to include in this research. Potential differences in results between patients and family companions’ level of autonomy will be investigated.

A distinction is made between patients treated by the quasi-flow of the Surgery department and the Geriatric department. The research is performed just after the structural change is executed. Therefore, it was expected that not all patients would directly be transferred to the new quasi-flow. A reason for this argumentation was, for example, the capacity problems for the Geriatric department (Personal communication, 2018). In first instance, the research was set up in the way that the group of
vulnerable patients in the quasi-flow of the geriatric department was compared to the group of
vulnerable patients in the quasi-flow of the surgery department who were not transferred to the new
quasi-flow. However, during the research it became clear that the number of vulnerable patients with a
hip fracture could all be served in the quasi-flow of the geriatric department. Therefore, the research
includes only the group of non-vulnerable patients in the quasi-flow of the surgery department and the
group of vulnerable patients in the quasi-flow of the geriatric department. A direct influence of the
structure on the vulnerable patients’ autonomy can therefore not be made. However, the research can
compare the rightly placed patients in the value-adding-process or solution shop quasi-flow. Data from
these patient groups can indicate whether the level of autonomy differs and thereby whether results
support the hypothesizes about the influence of structure on autonomy made in the theory section.

Besides patients and family companions, the caregivers are interviewed to get insight into the structure
of the quasi-flows and the way they assure autonomy for patients. The interviews are performed by the
following interviewees:

- Supervisor care for surgery department (also Head responsible of quasi-flow structure surgery)
- Surgeon
- Social worker for surgery department
- Supervisor care for geriatric department
- Geriatrician
- Social worker for geriatric department
- Physiotherapist for surgery and geriatric department

The interviewees are deliberately chosen. The supervisors of care for both the Geriatric and Surgery
department are the supervisors of the work floor. They have the overview over the process and share
ideas with higher management. Furthermore, the most important specialists for the decision of
aftercare are included in the research. The surgeon is focused on the chirurgic consequences for the
patient, the physiotherapist on the mobility of the patient, the social workers on the social situation and
possible rehabilitation centers for the patient and the geriatrician oversees the information of other
caregivers and the overall medical condition of the patient. Within the quasi-flows some less relevant
caregivers are sometimes included. However, for the decision regarding aftercare, the interviewed
caregivers play the most important and recurrent role.

The selection of the participants in this research was quite straightforward. The patients and family
companions who were included in this research were selected on age, medical condition and their
trajectory – either quasi-flow structure of geriatrics or quasi-flow structure of surgery. Furthermore,
the caregivers included in this research were selected based on their function. All caregivers
interviewed had a specific task in the quasi-flow structure. The caregivers are first approached by the Health Manager Geriatric to make the response for an interview high and the research accepted.

3.4 Methods
This research is performed by a multi-method design of a combination of qualitative and quantitative research techniques. The multi-method research approach has advantages in the triangulation of facts and thereby the accuracy of outcomes (Symon & Cassell, 2012). In this research, both the structure and the autonomy-level of patients and family companions need to be investigated. The methods used for these concepts will be explained.

Autonomy level of elderly patients and family companions
The autonomy level of patients and family companions is gathered by a combination of quantitative and qualitative techniques. A decision has been made to use a quantitative technique to measure the autonomy level to get accurate data from multiple patients and family companions. The use of quantitative techniques is common in healthcare research and a proposed method by the hospital. Furthermore, well-known and highly valid and reliable questionnaires are available to measure autonomy of patients and family companions. While the quantitative research was conducted with patients and family companions, the researcher wrote down important statements and notes of the specific situation. These memos were used in the analysis.

Two validated survey questionnaires are used to analyze both, the desired level of participation in general situations and the actual level of participation in the current hospitalization for the choice of aftercare. The first survey is the Autonomy Preference Index (API). This survey measures the desired level of participation (Ende et al., 1989). The survey is included because literature suggest there are different levels of desired participation for patients and family companions (Coulter, 1997; Charles et al., 1997). Therefore, it is important to get insight into this level of desired participation and compare it to the actual level of participation. The second survey is the 9-item Shared Decision Making Questionnaire (SDM-Q-9). This survey measures the actual level of participation by the decision-making of the healthcare trajectory (Kriston et al., 2010). This survey is included to measure the actual level of autonomy. The survey is based on the nine conditions for shared decision making which were given in section 2.1. Both surveys are in the field of medicine known for their validity and reliability. Furthermore, both surveys are initially tested by elderly patients which is also the population of this research (Heesen et al., 2013; Scholl, 2011). The English survey questionnaires can be found in Appendix III.

The surveys are validated in the English language. Since the research is performed in the Netherlands, the survey should be translated to Dutch to receive accurate data. For the translation of the API survey
the forward-backward translation method is applied (Sousa & Rojjanasrirat, 2010). An explanation of this method and the actual execution of the translation can be found in Appendix III. For the translation of the SDM-Q-9, a validated Dutch translation is used. A previously performed research translated the original English survey to Dutch (Rodenburg-Van den Bussche et al., 2015). The validated translation of the surveys can be found in Appendix III.

Since family companions were included in the qualitative research, the questions are adapted for their position as family companions. Therefore, there are two final surveys: one for the patients and one for the family companions. Furthermore, some questions are added to get inside in the personal situation of the patient such as age, gender, role of family companion and which caregivers were included in the choice of aftercare. The final surveys used for the conduction of the research can be found in Appendix IV.

Furthermore, the gathering of data about the level of autonomy is extended by using qualitative research. Open-ended semi-structured interviews are performed in first instance with family companions to get more in-depth information about their level of autonomy. The interview questions can be found in Appendix V. Interview questions are based on the theoretical framework and conceptual model of autonomy and quasi-flow structures as given in Figure 6. Qualitative research is relevant for the explorative character of this research. Furthermore, interviews can provide clarity on a phenomenon which can be interpret in different ways (Symon & Cassell, 2012). Interviews were shortly introduced in which the research was explained and the aim of the interview was addressed. Interviews with family companions took place at the hospital in a quiet room away from patients and caregivers. Interviews with patients were in the room of hospitalization.

Both, the qualitative and quantitative research are conducted with patients and family companions in the quasi-flow of the surgery department. For the surgery department, the research took preferably place on the third or fourth day of hospitalization. In the quasi-flow of the surgery department there is a standard whereby patients and family companions are approached on the first day after surgery to give the advice for aftercare. However, for the geriatric department patients most often are approached later in the trajectory due to the complexity of their medical conditions (Personal communication, 2018). For patients and family companions in the quasi-flow of the geriatric department the research therefore took often place after the fourth day. The researcher did approach them on the third or fourth day but in most situations patients and family companions were not yet in conversation with caregivers about the aftercare. Therefore, the research took place some days later so that patients and family companions did have the right information to answer the questions. The average number of days in the period of this research between surgery and aftercare for the quasi-flow structure of the surgery department was four days, and for the geriatric department six and a half days.
**Structure for the hip fracture quasi-flows**

The structure of the hip fracture quasi-flows is analyzed by documents, interviews and observations. Internal documents of the quasi-flow for the Surgery department are available and therefore analyzed to get insight into the structure. Internal documents for the quasi-flow of the Geriatric department are limitedly available. However, there are some documents available for elaborations of arguments and ideas for the design of the structure. These internal documents are analyzed. Appendix VI gives an overview of the analyzed documents.

To get insight into the structural design, semi-structured interviews are performed by caregivers and management. The focus in these interviews was on the structure of the quasi-flow. However, the autonomy level of patients is also included in the interview to get insight into the point of view of the caregivers and potential external disturbances or enhancements of the autonomy level.

The interviews were designed by open-ended semi-structured questions and took place face-to-face. Open-ended semi-structured interviews are chosen in this research to give interviewees the opportunity to use their own wording and give explanations according to their experiences (Symon & Cassell, 2012). Interview questions are based on the theoretical framework and the conceptual model of quasi-flow structures and the autonomy level of patients and family companions as given in Figure 6. Furthermore, the 9-Item-SDM-Q for caregivers is used in developing the interview questions (Rodenburg-Van den Bussche et al., 2015). For every interview a new questionnaire is developed adapted to the function of the interviewee. The interview questionnaires can be found in Appendix VII.

Furthermore, several orientating interviews were planned with Health manager of the Surgery department and Health manager of the Geriatric department to get insight into the arguments for the structural change, the execution of the change and the final structure of the quasi-flows. However, these meetings are not recorded or transcribed since they took place before the research design was made. However, notes of these meetings are used in the research.

Furthermore, the research is extended by observations of caregiver meetings. An overview of these meetings can be found in Appendix VIII. The first meeting was March 28th, 2018. In this meeting, all actors in the new flow structure of the Geriatric department were invited to discuss the plans and exchange information and ideas. This meeting was focused on the structural design of the quasi-flows. Furthermore, the researcher observed the daily/weekly meetings of the caregivers of both quasi-flows in which patients were discussed on their medical condition and the advice for aftercare. These meetings were focused on the structural design of the quasi-flows and the autonomy level of patients.
In the observations, the researcher did not participate in the research setting. The caregivers were informed about the observation.

3.5 Data analysis procedure
To explain the data analysis procedure a distinction will be made in the quantitative and qualitative research.

Quantitative research
The quantitative research is focused on measuring the autonomy level of patients and family companions by the two survey questionnaires. The analyses performed are descriptive to support the qualitative research. Four analyses will be performed to get insight into the autonomy level. First, the reliability of the surveys is tested by the Cronbach’s alfa. The construct autonomy is tested by two validated research questionnaires. However, their validity and reliability should be tested again in this research setting. Second, the results are tested for several descriptive measures. The mean, modus, median and standard deviation are analyzed. These measures are calculated for the two survey questionnaires for patients and family companions of the surgery department and separately patients and family companions of the geriatric department. By these measures an overall view of the autonomy level of patients of both groups is given. Third, an independent sample t-test is performed. The independent t-test analyzes the differences in means of heterogeneous groups in different situations. The patient groups in the two quasi-flows differ in their vulnerability and can therefore not be compared directly. Therefore, this research used an independent sample t-test. With this test, the groups of patients and family companions in the two departments are compared in their desirability for autonomy and the actual level of autonomy in making the decision for aftercare. Fourth, the Pearson correlation between the mean of the two surveys for both groups of patients and family companions is tested. The degree patients and family companions wish to participate in making medical decisions in general is compared to the actual level of autonomy in making the decision for aftercare (Field, 2014; Hair et al., 2010).

The output and the analysis of the SPSS statistics can be found in Appendix XIX.

Qualitative research
The qualitative research is focused on measuring both the autonomy level of patients and family companions via interviews with family companions and caregivers, and the structure of the quasi-flows via interviews with caregivers, documents and observations. The interviews, documents and observation notes are analyzed by a coding process. First, a verbatim transcript is made of the interviews (Halcomb et al., 2006). Second, the transcripts of the interviews, the documents and observation notes are analyzed via template analysis. In this research, the template analysis method
has been chosen because of the flexibility and possibility to set a-priori theoretical themes which can be adjusted by empirical findings according to this method. Template analysis does not prescribe a fixed number of levels of coding, but is focused on the development of themes around rich data. The method prescribes an in-depth analysis of the most important data to answer the research question. Template analysis assumes that there are multiple interpretations of the phenomenon and therefore this analysis method fits the heterogeneous population in this research (King in Symon & Cassell, 2012). An initial template was set up according to the literature. The conceptual models of autonomy, quasi-flows and their relationship, led the development of initial themes. An iterative process of applying, modifying and re-applying the initial template to the data resulted in the modified template in the form of a mind map (King in Symon & Cassell, 2012). The initial and modified template can be found in Appendix IX.

The transcripts of the interviews can be found in Appendix XXII. The initial and modified template can be found in IX. The codes, quotations and analyses of the interviews can be found in Appendix XIII.

3.6 Quality of the research
In this section, the criteria of Guba & Lincoln (1989) are used to analyze the quality of the research. They propose four criteria: credibility, transferability, dependability and confirmability (Symon & Cassell, 2012).

_Credibility_ refers to a good fit between the constructed realities of respondents and the reconstructions attributed to them. Credibility is achieved by evidence of an authentic representation of what happened. In this thesis, the credibility is supported by peer debriefing, member checking and the sampling of multiple perspectives within the cases (Symon & Cassell, 2012). Peer debriefing was conducted mostly by the supervisor of the university and the supervisor of the hospital for this thesis. Theory and ideas about the thesis were shared with the supervisor of the university who is familiar with structural designs in the healthcare sector. Specific questions and issues for the cases were discussed with the supervisor of the hospital. She played an important role in explaining situations, work methods and structural changes in the hospital. Furthermore, several meetings have taken place during the research with the health managers of the Geriatric and Surgery department. Member checking is achieved by the possibility for interviewees to check their transcript and the extra questions and summarizing of answers during interviews in case of confusion. The results were checked during a meeting with the health manager of the Geriatric department before final conclusions were made. Furthermore, the credibility is supported by the sampling of multiple perspectives in the case due to the inclusion of management, caregivers, patients and family companions. Several
caregivers are interviewed to include different views of the most prominent specialists in the decision-making process.

Transferrability is aimed at providing enough detail about the specific research case so that the reader can judge which other contexts could be informed by the findings. The focus for transferability is not on demonstrating how results can be generalized to every other context, but on giving readers an idea how results would apply to similar context by their own judgment. In the methodology section an extensive description of the organization and the two cases is given. The relevant context of the organization and an overview of the participants in the research is included to enhance the transferability of the research. As mentioned, this research does not aim generalization but analytical refinement. The research aim is to broaden the understanding of structural design of general hospitals with new and fresh observations. The results, experience and knowledge developed with this research could be applied to other general hospitals and further research (Symon & Cassell, 2012).

Dependability is met by demonstrating how methodological changes and shifts in constructions have been captured and made available for evaluation. Findings should be free from researchers bias and present biases should be minimized or accounted for (Symon & Cassell, 2012). In this research, dependability is achieved through an extensive elaboration on methodological decisions and choices. Some methodological choices are adjusted during the research and the reasons for these changes are given.

Confirmability is achieved by making clear where data came from and how such data were transformed into findings. By giving a detailed account of data collection and analysis processes the reader is assured that findings come from the contexts and participants and is not affected by the researcher (Symon & Cassell, 2012). Confirmability in this thesis is achieved through transcribing interviews by the verbatim transcript method, making use of quotes for presenting results and a detailed overview of the analysis process (Halcomb et al., 2006; Symon & Cassell, 2012).

3.7 Limitations
Despite the focus on the accuracy in making methodological choices, there are some limitations of this research. Therefore, this section will shed light on the methodological limitations of the research.

First, the research population was initially chosen to be vulnerable elderly patients in either the quasi-flow of the geriatric department or the surgery department. As mentioned, no vulnerable patients were treated in the quasi-flow of the surgery department as was expected. Therefore, the quantitative research could not directly measure the influence of structure. However, an independent t-test is
performed to measure the influence of structure and technology on the autonomy of patients. By the quantitative analyses the theoretical hypotheses can still be tested in an indirect way.

Second, the research of patients and family companions is performed by a combination of quantitative and qualitative methods. However, research to patient participation is commonly performed by qualitative methods. Qualitative methods commonly result in limitations for the population of the research. The sample size is small, selected purposefully and narrow on geographical basis. Literature therefore proposes to use quantitative methods with a larger sample which might provide a wider range of perspectives and views (Lyttle & Ryan, 2010). The quantitative research to the autonomy of patients is deliberately chosen. Nonetheless this choice was not straightforward to make due to the explorative character of the research. A quantitative research is performed to be able to compare the results of the different patients and family companions. Even though the research is carried out in a fixed homogeneous population, the differences between patients was expected to be present. Furthermore, the quantitative approach was chosen to be able to include a larger sample size. The use of validated quantitative surveys is common in the healthcare sector and was therefore desirable for the general hospital. The validation of the surveys increases the quality of the research and therefore the choice for quantitative research is made.

Third, the sample size is small. The population of the research is small wherefore the sample size is deemed to be small. The response-rate was 66%. At first instance this is a relatively high response rate for research, especially in medical situations. However, there were some extra reasons why the sample size was small which will be elaborated on. First, the population size was smaller than expected in first instance. Data from the hospital shows that one (1,2) patient on average is diagnosed with a hip fracture. The research is performed for seven weeks which should indicate that there would be 50 patients. However, the population is only 32 patients. There could have been several reasons why the population was smaller than expected. A methodological reason could be the way patient information was received by the researcher. The researcher did not have access to the patient registration and therefore received patient information from the supervisors of the department. It could be that not every relevant patient is passed on to the researcher. Second, the sample size was reduced by the vulnerability of patients. Especially in the geriatric department, patients had multiple and complex diseases which often led to the inability to participate in the research. A delirium or dementia were often a reason why the research could not be conducted with patients. Third, the presence of family companions was lower than expected. Because of the age of patients, they sometimes declared that they did not have any family or were not in contact with their family. Furthermore, family companions were not always present in the hospital. Therefore, a document was made to increase the response of family companions. This document was left by the patient to inform the family companions about the research and ask them to contact the researcher. The document can be found in Appendix X. Last, the
response was decreased because some patients lived already in a revalidation or residential care home which was suitable for the revalidation, wherefore there did not have to be made a choice for aftercare. These patients and family companions were less responsive to the research or left the hospital on the third day before researcher planned to conduct the research.

Fourth, the demographic characteristics of patients played an important role in this research. Age is the most prominent demographic characteristic which was of influence in this research. Because of the age of the patients and most commonly also the family companions, the research to autonomy is influenced. As discussed, age could be of influence on the desired level of autonomy. Older patients often have a lower preference to participate in their own health trajectory (Chiu et al., 2016). Furthermore, the age of participants could potentially have influenced the validity of the results of the research. Therefore, the results should be analyzed with the remark that the research is performed by elderly patients. Conducting the research was complicated by the age of patients and family companions. The researcher took the age of patients and family companions into account when approaching them and conducting the research by speaking clear and loud, and explaining extensively what the research was about. Furthermore, the researcher discussed and explained the statements of the survey when the patient or family companion was confused by what was meant by the statement.

Fifth, the research is performed by a population in a narrow geographic basis. The general hospital is the only hospital in the region. The hospital is located in one of the biggest cities regarded to be part of the Bible Belt. Therefore, an important characteristic of the community in this region is the percentage of religious people. Participants in this research were mainly Christian and it seemed that the religion did play a role for the answers given. Most respondents explicitly explained the importance of their religion in the autonomy level for making medical decisions. Results of this research should be interpreted with this characteristic of the population in mind.

3.8 Ethics
Ethical considerations for the research are taken into account in several ways.

Participants of the research are informed about the topic and aim of the research. Patients and family companions are informed about the research goal by a verbal explanation and an informed consent. The informed consent can be found in Appendix XI. The caregivers and management are informed by a verbal explanation.

Participants are guaranteed that information is kept anonymous. Furthermore, it was explained that participation in the research was voluntary and therefore participants could withdraw at any moment in time. Permission of participants for the use of information for this research and storage of the results
in the Radboud archive was asked. Furthermore, participants were asked whether they had any problem when the interview was recorded. The hospital is asked for the approval of publication of the thesis in the Radboud repository. The hospital gave the permission to publish the thesis in the Radboud repository under the condition that patient information was not shared. Since the thesis keeps patient information and the hospital name anonymous, there is permission given by the researcher to publish the thesis in the Radboud repository.

Transcripts and data are anonymously gathered and stored. The anonymity of participants and the organization itself is secured. Furthermore, transcripts and quantitative data are stored in the student drive of the Radboud University. Caregivers were given insight into their transcript and the opportunity to change or delete certain information.

Ethical considerations of this thesis are tested by the BeoordelingsCommissie Wetenschappelijk Onderzoek of the hospital. A research proposal including methodological choices, surveys and interviews is analyzed by the commission.

Before conducting the research at the care departments, the caregivers were informed by the research through an article in the weekly newspapers of the Geriatric and Surgery departments. Furthermore, every time before the researcher approached the patients, the nurses were informed and asked permission to approach the specific patient. Therefore, the situation of both the patient and the nurse were taken into account and the nurses were informed about the research.

Patients and family companions are not informed about the results. However, caregivers and management are asked whether they would like to receive a copy of the thesis per mail. The thesis is first transferred to the hospital via the contact person of the Geriatric department. The outcomes of the thesis indicated the need to first check by the contact person whether it was accepted that the research was shared with caregivers who participated in the research. A meeting took place between the researcher, supervisor of the hospital and the care manager of the geriatric department, in which findings were shared. In this meeting, a presentation was planned in which the researcher will share the results with all caregivers included in both quasi-flows. The purpose of this presentation is to inform the caregivers of the results but more importantly to give them insight into possible managerial recommendations. In this way, respondents of the research are informed about the results of the research and possible managerial recommendations.
4. Results and analysis

In this chapter, an overview of the results and analyses is provided to give insight into the level of autonomy of patients and family companions and the structure of the quasi-flows. Furthermore, the relationship between the level of autonomy of patients and family companions and the structural design of the quasi-flow is discussed. Therefore, three sections are developed to provide the results and analyses. Section 4.1 will focus on the value-adding-process quasi-flow structure of the surgery department. The quasi-flow is analyzed on the structure, the autonomy level of patients and family companions, and the relationship between the structure and the autonomy level of patients and family companions. Section 4.2 focuses on the solution shop quasi-flow structure of the geriatric department. The quasi-flow is analyzed on the same aspects: the structure, autonomy level of patients and family companions, and the relationship between the structure and the autonomy level. However, in this section, there are two analyses made: an analysis of the quasi-flow structure of the geriatric department and an analysis of the quasi-flow structure of the geriatric department in contrast to the quasi-flow structure of the surgery department. In section 4.3 an overview is given of the similarities and differences of both quasi-flow structures. The quasi-flows are compared to get insight into the influence of the technology of quasi-flows on the outcomes of the structural design. After all sections, a conclusion will be provided.

A comprehensive analysis of the interview transcripts and survey data can be found in Appendix XIII and Appendix XIX. This section will combine qualitative and quantitative data. Statistical analysis shows that the survey scales are reliable and valid in this research setting (Appendix XIX). Therefore, the statistical analysis is performed as stated in chapter three Methodology. The modified template is the basis for the structure of the sections and can be found in Appendix IX. Furthermore, Appendix XII provides an overview of the two quasi-flows and the responsibilities of caregivers.

The autonomy level of patients and family companions is measured for the decision for aftercare. The decision for aftercare is made during the trajectory of hospitalization. Multidisciplinary care is of high relevance in the medical decision-making process for aftercare. Other reasons why this thesis focuses on this decision can be found in chapter three Methodology.

4.1 Value-adding-process quasi-flow of surgery department

In this section, the quasi-flow structure of the surgery department will be analyzed. Section 4.1.1 will analyze the structure of the quasi-flow by the parameters of De Sitter (1994;1997) and the complexity levels described by Christensen et al. (2009). Section 4.1.2 will analyze the autonomy level of patients and family companions. Section 4.1.3 will finally analyze the relationship between the structure and the autonomy level of patients and family companions in the surgery quasi-flow structure.
First, a short conclusion will be given of the analysis of the value-adding-process quasi-flow of the surgery department. The structure of the surgery department is defined to be a value-adding-process quasi-flow. A flow structure is designed over functional departments and caregivers stemming from these functional departments are assigned to either the quasi-flow or the surgery department. A standardized, rule-based process is designed in which standards and agreements between caregivers facilitate the multidisciplinary coordination and required coordination. The quality of care and the cycle time are supported by the creation of the quasi-flow structure. However, the parameter values are not as low as expected for the creation of a flow structure. Particularly the specialization in operational tasks receives a higher value. Furthermore, the autonomy level of patients and family companions is low to moderate. Caregivers do not provide all the nine conditions to encourage patients and family companions to participate in the decision-making process. The required coordination is lowered by the daily multidisciplinary meeting. Caregivers describe the level of collaboration to be high. However, the supervisor care of the surgery department mentions caregivers are focused on their own specialism instead of the quasi-flow.

4.1.1 Structure
The structure of the quasi-flow is analyzed by the several interviews with caregivers, documents and observations. The structure of the quasi-flow will be analyzed and discussed to give insights into the structure itself and the consequences for the performance of the organization.

Combination flow and functional departments
The quasi-flow of the surgery department involves caregivers who have responsibilities in both the flow for hip fracture patients and functional department(s). The following caregivers are responsible for patients with a hip fracture and other patients of the surgery department: surgeon, assistant-surgeon, orthopedist, surgery nurses, physiotherapist. The following caregivers are responsible for patients with a hip fracture and patients of the surgery department and/or other departments: geriatrician and social worker.

The surgeons and assistant-surgeons have a specialization in traumatology and are therefore responsible for hip fracture patients. The surgery nurses and physiotherapist are responsible for all surgery patients. The physiotherapist is also responsible for the hip fracture patients in the quasi-flow of the geriatric department. The geriatrician is responsible for hip fracture patients above the age of 70 in the quasi-flow of the surgery department, and all other geriatric patients throughout the hospital. The social worker is responsible for all the surgery, gynecology and pediatric patients.

Caregivers are thus responsible for hip fracture patients and other patients in the general hospital. However, caregivers do have a specialization in or assigned responsibility to either hip fracture
patients or the surgery department. The functional departments are kept intact and therefore the structure is defined to be a quasi-flow in this research.

‘Yes, but physiotherapists work in our department and also in the geriatric department and so they come from their own department in our department actually’
(Surgeon)

Caregivers often described the current structure to be a flow. However, this is not the case since functional departments are kept intact and caregivers are assigned from their functional department to a specific patient population or quasi-flow. Furthermore, caregivers are commonly assigned to the surgery department instead of specifically to the patients with a hip fracture.

The development of the quasi-flow four years ago did lead to a more specialized patient population served by caregivers. Before the surgery quasi-flow structure, the hip fracture surgery was, for example, also performed by surgeons without a specialization in trauma patients. The start of the quasi-flow led to a streamlined process for hip fracture patients. Caregivers are given a place in this streamlined process and agreements are made between caregivers to ease and fasten the trajectory of the patient. However, caregivers provide care for a short cycle task in the complete cycle of care and protocols are, for example, developed for the functional departments separately instead of for the quasi-flow.

‘There are still protocols for every functional department actually and not for the flow as such’
(Supervisor care of surgery department)

After four years, the hospital is currently developing a flow scheme for the quasi-flow structure and protocols for the quasi-flow instead of the functional departments separately. This indicates the focus of the caregivers shifts from the functional departments slowly to the flow structure.

Possibility to make a flow
Caregivers were asked whether they thought it would be possible to create an actual flow structure. As expected, the caregivers did not react with great enthusiasm to this question.

Resistance
Most caregivers immediately replied with resistance to the question whether it would be possible to create a flow structure. The practical feasibility was questioned by all caregivers.

‘Yes, but that is not possible... that is not necessary at all... I do not see it have to be that way ... rather not actually ... it will not function I think. It is not going to function something like that.’
(Surgeon)
Expectation flow has negative consequences for quality of care

Several caregivers expected that the creation of a flow will have negative consequences for the quality of care. Caregivers expected that in a flow structure the multidisciplinary care was limited and the patient was only seen for the medical condition instead of a complete body for which many medical relations exist. Furthermore, caregivers expected a flow to be a standardized process in which unpredictable and undeterminable patients’ medical conditions cannot be treated. Said differently, they expected a flow automatically to be a flow of a value-adding-process. Therefore, caregivers did not oversee the actual design and consequences of a flow structure.

Expectation flow has positive consequences for quality of care

However, several caregivers also mentioned that they expected that the creation of a flow could potentially lead to an increase in the quality of care. The focus on one medical condition would increase the knowledge and experience of caregivers and therefore optimize the trajectory of diagnosis and treatment. Surprisingly, the same caregivers who thought it would lower the quality of care also gave reasons why it possibly would increase the quality of care. This indicates that caregivers were still unsure about possible consequences and first thoughts about creating a flow by breaking down the functional departments gave conflicting results.

Requirements to make flow/solutions

Caregivers gave options which were according to them practical solutions for the creation of flows. With these practical solutions, they actually described the quasi-flow structure as defined in this thesis. The solution of caregivers broadly entailed the development of teams of several caregivers with a specialization in certain medical conditions while these caregivers also keep their relationship with the functional department to be able to treat patients with other medical conditions. The durability of this team of caregivers was of high importance. The surgeon extra mentioned that the emergency department cannot be included in the flow since this department is focused on screening and diagnosing patients to the right department. The activities in the emergency department differ extensively from the activities in other departments.

Desired variability of patients

The desired variability of patients was an important reason why caregivers did not immediately advocate for creating a flow structure.

‘If they are all the same it would become very boring’
(Physiotherapist)

‘Yes, I would not want to do from both just one thing’
(Social worker surgery department)
The current variability in patients is highly appreciated and caregivers expect to be bored when they focus on only one medical condition.

**Education/specialism/personal development**

Furthermore, the education and specialization of caregivers make the creation of flows less practically feasible. Caregivers describe that they are educated in their specialization to diagnose and treat multiple medical conditions and thus a variety of patients. With the creation of flows, their task description will change wherefore their personal development and career will be affected. The career of the caregiver is given as a reason why patient-focused care is an unfeasible structure. The point of departure is therefore the caregiver instead of the patient.

*‘It would be a shame… a shame for the specialism… really a shortcoming’*

(Social worker surgery department)

However, this argument could have been expected and is also a reason for Christensen et al (2009) to describe the need for a disruptive innovation instead of multiple incremental innovations. The composition of the sector will change by a disruptive innovation. Therefore, several regulations and rules should change to support the disruptive innovation. The education program and the task description of caregivers have to change to create a new way of working within the healthcare sector. Incremental changes of individual organizations will not result in the desired situation as envisioned for the creation of flows.

**Volume of patients**

Lastly, the caregivers gave another reason why the creation of flows is not a realistic option for the general hospital. The volume of patients with a hip fracture is too small to appoint caregivers to only this patient population. Caregivers described they will have time left if they could only take care of patients with a hip fracture. Therefore, caregivers expect the creation of flows to be inefficient. Centralization of care will result in larger volumes of patients. However, individual general hospitals rely on the healthcare sector to make centralization of care possible. Furthermore, the variety of patients’ medical conditions in the general hospital asks for the creation of many quasi-flows. If multiple quasi-flow structures are incorporated, the structure of the general hospital will be complicated instead of simplified.

**Parameter values**

In the previous section, the structure is argued to be a quasi-flow structure since a flow structure is designed over the functional departments. The quasi-flow structure will be analyzed by the Parameter values of De Sitter (1994;1997).
Functional concentration – variability of patients
As mentioned the variability of patients for caregivers is high since caregivers are responsible for patients in the flow structure and patients in the functional departments. Caregivers are not necessarily assigned responsible to patients with a hip fracture but to all the patients of a specific department. The functional concentration, the degree to which caregivers are potentially related to all possible orders and order combinations, is therefore high in this structure. However, with the creation of the quasi-flow, the functional concentration did decrease in contrast to the structure of functional departments. With the creation of the quasi-flows, caregivers are assigned responsible for a specific patient population in a functional department. Therefore, the chance a physiotherapist assigned to the surgery department will, for example, receive a patient with a hip fracture is higher than in the case of functional departments in which the physiotherapist serves patients from all kinds of specialisms.

Separation operational and regulatory tasks – integration
The separation of operational and regulatory tasks in the surgery quasi-flow is limited. Caregivers are included for the execution of several regulatory tasks. The surgeon, for example, developed together with the care manager the quasi-flow structure for hip fracture patients.

‘At that time, I also have developed the complete quasi-flow with (Care manager geriatrics). So yeah from the first moment I have been involved by the quasi-flow.’

(Surgeon)

Furthermore, caregivers are included in weekly and yearly meetings for the regulation of the quasi-flow. An example of the responsibility caregivers take for the regulation of the quasi-flow is the restructuring of the weekly meeting of caregivers. Lately, the meeting is restructured by the caregivers.

Specialization in operational tasks – oversight of the process
Over hospital trajectory
The separation of operational tasks is moderate to high in the quasi-flow of the surgery department. Caregivers are responsible for a short cycle task in the complete cycle of care served by the quasi-flow structure. It seems that caregivers’ tasks are not enriched in contrast to a functional department structure. However, the oversight of the process could have been increased due to the increased collaboration between caregivers in multidisciplinary meetings and the agreements made between caregivers. However, caregivers still provide care for their own specialism and thus are focused on their specialism.

Caregivers describe they have a good overview over the cycle of care due to the registration of other caregivers’ activities. However, having the oversight of what happened before is not the same as having the oversight of the process and therefore being able to anticipate and correct early for possible disturbances.
The supervisor of the surgery department mentions that caregivers are still focused on their own specialism island and therefore do not take the responsibility for the cycle of care.

‘Everyone is focused on his own island, so yes everyone feels responsible but nevertheless not responsible enough that you think you should say something of how this is arranged.’

(Supervisor care of surgery department)

However, caregivers of the surgery department generally did not agree with this statement.

Of the cycle of care

The cycle of care is longer than just the process within the healthcare sector. Before and after hospitalization there are several care organizations which are incorporated in the hip fracture cycle of care. To have an overview over the complete cycle of care, a close relationship and high collaboration between care organizations are required. The general hospital and especially the social workers have close contact with the care organizations for revalidation after hospitalization. Monthly and yearly meetings are organized to increase the collaboration between care organizations and the general hospital in the region. Furthermore, social workers have daily contact with these organizations for the placement of patients with a hip fracture.

However, not all caregivers are convinced of the close relationship with care organizations. The surgeon, for example, describes that no feedback is received from the patients who revalidate in a residential care home.

‘Very minimal. If we do not hear anything, then it is fine. At least that is what we think… and that is also not our concern anymore because our care is in between these walls’

(Surgeon)

Consequences

In the literature, several consequences of the creation of flows were described. Caregivers mentioned some of these consequences as well. The two most mentioned consequences of the structure of quasi-flows will be described: quality of care and the waiting and cycle time.

Quality of care

According to caregivers, the development of the quasi-flow of the surgery department leads to an increase in the quality of care. The surgeon who was involved with the development of the quasi-flow, for example, said that the timing of interventions such as the surgery itself is better, the uniformity of work processes is more secured and complications for patients are decreased by the increased multidisciplinary care. Furthermore, an important reason to setup the quasi-flow was to give proof to the health insurer of the focus on the quality of care.
Waiting and cycle time

From the interviews with the caregivers, it became clear that the cycle time is of high importance for the hospital. The quasi-flow structure of the surgery department is focused on giving the advice for aftercare as soon as possible so that the time of hospitalization meets the criterion of maximum five days. The caregivers often gave the cycle time of the hospital as an argument for the focus on a fast decision for the aftercare of patients. The social worker mentioned that she anticipates in the conversation with the patient and/or family companion on the places available in the residential care homes to fasten the cycle time.

‘So the hospital does have the agreement that someone should revalidate as soon as possible. So you try to take into account the preference of patients for a specific residential care home, but if that place is, for example, only available after two weeks, then you are going to search for an alternative.’

(Social worker geriatrics)

The autonomy level of the patient and/or family companion is as mentioned affected by the capacity of residential care homes. Since the hospital deals with a pressure on the number of available beds, it is important that patients are transferred to the next step in the cycle process when the treatment in the hospital is finished. Therefore, social workers ask for a first, second and third preference. The patient and/or family companion cannot refuse one of these preferences when there is a place available. However, in case the patient will live in the residential care home, the patient and/or family companion get the option to refuse the first place available. The second place available cannot be refused.

Furthermore, it is in the interest of the patient to revalidate as soon as possible to minimize the possibilities for complications. However, in the interviews, the focus was mostly on the importance for the hospital instead of the patient to make the process short and efficient.

The time between operation and the research was four days for the surgery quasi-flow. This indicates that patients and/or family companions on average made the decision for aftercare after four days. However, the average number of days for hospitalization is seven days. In several meetings, it became clear that this result does not meet the standard and there is a need to analyze the cycle time of the hip fracture patient population in a better way.

Conclusion

The structure of the hip fracture patients of the surgery department is defined to be a quasi-flow. A streamlined process is set up to ease and shorten the trajectory of the patient. However, this process is designed over the traditional functional departments and therefore it is defined to be a quasi-flow instead of a flow. Caregivers are assigned to the hip fracture patients in the quasi-flow but also to other
patients in the hospital. Due to several reasons, caregivers did not think the creation of an actual flow structure was practically feasible.

The quasi-flow structure is analyzed by the three parameters of De Sitter (1994;1997). The functional concentration is high due to the combination of a flow and functional departments. However, the variability of patients did decrease with the creation of the quasi-flow structure since caregivers are assigned to a specific department and patient population. Separation of operational and regulatory tasks in the surgery quasi-flow is limited. The quasi-flow structure results in a better integration of operational and regulatory tasks. However, the specialization of operational tasks is moderate to high. It seems that caregivers’ tasks are not enriched in contrast with tasks in a functional department structure. However, the oversight of the process could have been increased due to the increased collaboration between caregivers in multidisciplinary meetings and the agreements made between caregivers.

With the creation of the surgery quasi-flow the quality of care is increased by a multidisciplinary approach and the specialism of caregivers. The cycle time is of high importance for the hospital and therefore the process in the quasi-flow structure is focused on a fast and standardized procedure. The advice for aftercare is given at the first day after surgery.

An overview of the surgery quasi-flow and the responsibilities of caregivers and an overview of the trajectory of the patient before surgery can be found in Appendix XII.

4.1.2 Autonomy level
The autonomy level of patients and family companions is principally quantitatively tested and thus analyzed by the surveys to the desired level of autonomy in making general medical decisions and the actual level of autonomy in making the decision for aftercare. Overall, the patients and/or family companions of the quasi-flow of the surgery department had a moderate to low value for the desired level of autonomy. The mean for the API was 2.67 out of 5 which indicates they are neutral or not in favor of participating in making medical decisions. A deeper analysis shows that respondents do not necessarily want to participate in making medical decisions as long as they agree with the final decisions made. Furthermore, they do prefer to participate in the decision-making process for everyday medical decisions. The actual level of autonomy in making the decision for aftercare was moderate. The mean for the SDM-Q-9 was 3.75 out of 6 which indicates that caregivers did provide some conditions to support shared decision making but not all. A lower value is given for the statement: ‘My caregiver wanted to know exactly how I want to be involved in making the decision’. A higher value is given for the statement whether caregivers asked which treatment option was preferred.
and for the statement whether caregiver and patient and/or family companion reached to an agreement on how to proceed.

A deeper analysis of the autonomy level of patients and/or family companions will be given.

**The degree of patient participation**

Literature describes four levels of patient participation: paternalism, professional-as-agent, shared-decision-making and informed decision-making. By these four levels, the degree of participation and control of the patient in making the medical decision increases (Coulter, 1997; Charles et al., 1997). Caregivers of the quasi-flow structure of the surgery department define their role for making the decision for aftercare as an advising role. Individual patients’ conditions are taken into account to advise the patient and/or family companion on the best option for aftercare.

*‘So the thinking and considerations of the patient will be taken into account and then the advice will be given’*

(Physiotherapist)

The advice given by caregivers cannot force patients and/or family companions to accept and agree with the trajectory advised on. Caregivers state that the final decision is made by patients and/or family companions. An important argument given for this statement is the fact that patients and/or family companions have to sign an acceptance testimony for the trajectory of aftercare. However, it is questioned by theory whether this indicates a high degree of patient participation. The sign of an acceptance testimony does not necessarily indicate that it was the patient and/or family companion who made the final decision (Coulter, 1997; Charles et al., 1997).

*‘I only had to give my permission for doing a request for revalidation by the care organization’*

(Family companion Surgery department)

For the aftercare trajectory, broadly two choices have to be made: which trajectory the patient will undergo and where the patient will undergo this trajectory. Caregivers give advice for both choices. However, the patient and/or family companion has a higher level of autonomy of the choice where the patient will undergo the trajectory than which trajectory will be followed. This is due to several reasons which will be discussed in this section. Examples are the criteria which should be met to follow a certain trajectory and the capacity of the care organizations which provide these care trajectories.

Based on the arguments given above but also the arguments which will be followed in the next sections, the degree of patient participation can be analyzed. For the choice which trajectory the patient will undergo, the degree of patient participation is in between *paternalism* and *professional-
as-agent’. Caregivers have the medical knowledge and experiences. Patient participation is limited to receiving information, giving permission and stating their preferences. Even though caregivers take patients’ and/or family companions’ preferences into account, they have to follow the criteria for the trajectories and are therefore forced to give a certain advice. The advice for the trajectory to be followed is often given as a statement by caregivers instead of a shared decision.

For the choice where the patient will undergo this trajectory, the degree of patient participation is in between ‘professional-as-agent’ and ‘shared decision-making’. The caregiver has the medical expertise and advises the patient and/or family companion by taking their preferences into account. The different residential care homes are explained and discussed between caregivers and patients and/or family companions. The final decision is made by the patient and/or family companion. Even though, the degree of participation of patients and/or family companions in relation to caregivers is relatively high for making the choice where the patient will undergo the trajectory. However, the actual degree of participation is limited due to the capacity of care organizations.

‘So for the choice of revalidation yes or no, the caregiver has the control and for the choice which organization, for example, the control is by the family companion and patient’

(Supervisor care for surgery department)

**Key conditions for participation**

Literature prescribes nine conditions for caregivers to create an environment in which patients are encouraged to participate in their own healthcare trajectory (Ende et al., 1989). The quasi-flow trajectory will be analyzed on these nine conditions.

1. Disclosure that a decision needs to be made

The survey of patients and/or family companions scores a 3.85 out of 6 as a mean on the statement whether caregivers disclosed that a decision had to be made. This indicates patients and/or family companions ‘somehow disagree’ to ‘somehow agree’ with this statement.

Caregivers mentioned that the decision for aftercare is given as an advice. However, patients and/or family companions stated that it was not always explicitly mentioned that a decision about aftercare had to be made. It was seen by caregivers and often most patients and/or family companions as a logical step which had to be followed after hospitalization. Therefore, the choice was not always explicitly announced.

‘No, no. But I also do not mind, because it is logical that she has to revalidate. I think that is a logical next step.

That is logical, you actually do not have to ask that.’

(Family companion of Surgery department)
However, not every patient and/or family companion was aware that a decision had to be made. Therefore, the advice from caregivers was sometimes experienced as unexpected and seen as a decisive statement.

‘Well, it was just like, u have to go there. The physiotherapist was in the beginning very radical about that I had to go to a residential care home and he told me it will take months. And then I thought …’

(Patient of surgery department)

2. Formulation of equality of partners
The survey of patients and/or family companions scores a 2.62 out of 6 as a mean on the statement whether the equality of partners was explicitly formulated. This indicates patients and/or family companions ‘disagree’ to ‘somehow disagree’ with this statement.

Caregivers do not explicitly formulate the equality of partners. Patients and/or family companions are not asked in which way they prefer to participate in making the decision for aftercare.

3. Presentation of treatment options
The survey of patients and/or family companions scores a 3.08 out of 6 as a mean on the statement whether the different treatment options were presented. This indicates patients and/or family companions ‘somehow disagree’ with this statement.

The treatment options are not always explicitly presented by caregivers. This is possibly explainable due to the fact that most patients will revalidate in a rehabilitation department and therefore actually only one treatment option is commonly advised by the caregivers. However, the choices for where the patient will undergo the treatment option is often presented. The social worker gives the options of the care organizations which have a place available for the patient to revalidate. For the choice which trajectory to be followed, the treatment options are often not presented but for the choice where the trajectory will be followed, the treatment options are often presented.

4. Informing on the benefits and risks of the options
The survey of patients and/or family companions scores a 2.77 out of 6 as a mean on the statement whether the caregivers informed the patient and/or family companion on the benefits and risks of the treatment options. This indicates patients and/or family companions ‘disagree’ to ‘somehow disagree’ with this statement.

Patients and/or family companions often stated that the caregivers did not explain to them what the actual benefits and risks are of the treatment options. Even the benefits and risks of rehabilitation are most often not discussed. It was seen as given by both the caregiver and sometimes the patient and/or
family companion that revalidation in a rehabilitation department will result in more benefits than the other treatment options. In the documents of the hospital, it is stated that the patient must be informed about the revalidation process by caregivers. However, the researcher often got the question whether she came to discuss about the decision for aftercare. This indicates that patients and/or family companions were waiting for more information from caregivers and were confused about the next steps to be followed. Furthermore, the documents state that a leaflet will be given to the patient and/or family companion in which they are informed about the revalidation process and the different care organizations of the cycle of care. However, this leaflet seems not to be given to any patient and/or family companion.

5. **Investigation of patient’s understanding and expectation**

The survey of patients and/or family companions scores a 4.39 out of 6 as a mean on the statement whether caregivers helped to understand the information given. This indicates patients and/or family companions ‘somehow agree’ to ‘agree’ with this statement.

The patient population included in this research is above the age of 70 and therefore commonly dealt with cognition problems. However, this statement receives a relatively high score. This indicates that patients and/or family companions were supported in understanding the information given by caregivers. However, a remark must be made because there were several patients who were confused about the trajectory to be followed and therefore scored an extremely low value on this statement. Furthermore, several patients and/or family companions declared that they asked themselves questions to caregivers. Therefore, the information was given only after they asked for it themselves.

6. **Identification of both parties’ preferences**

The survey of patients and/or family companions scores a 3.92 out of 6 as a mean on the statement whether the caregiver asked for the patients’ and/or family companions’ preference of the treatment options. This indicates patients and/or family companions ‘somehow agree’ with this statement.

The preference of patients and/or family companions for where the trajectory will be followed is often asked. However, the mean score for this statement is biased since patients and/or family companions declared that the preference for which treatment option was not asked. The social worker does ask the preference of patients and/or family companions for where they would like to revalidate. However, other caregivers do not always ask the preference of patients and/or family companions for the treatment option itself to be followed. Often, the advice was given by caregivers and the patient and/or family companion either agreed or disagreed with this advice. The question whether the patient and/or family companion agrees with the advice from caregivers is another question than the question for the preference of the patient and/or family companion.
‘You give advice like ‘I think it is sensible that...’, and then patient will say indeed yes or no.’

(Physiotherapist)

7. **Negotiation**

The survey of patients and/or family companions scores a 3.08 out of 6 as a mean on the statement whether the decision for aftercare was negotiated. This indicates patients and/or family companions ‘somehow disagree’ with this statement.

Patients and/or family companions give a low score for the statement whether they have negotiated with the caregiver on the treatment option chosen. They often stated that there had not been a conversation about the treatment options. Most often the family companion was only called by the social worker to give approval for revalidation in a rehabilitation department of a residential care home. The physiotherapist indicated that there is the option for negotiation but it is not a standard procedure to extensively discuss with patients and/or family companions about the treatment options for aftercare.

‘No, no, it is not a family meeting that we have to uhm advise on how or what’

(Physiotherapist)

It is mentioned by caregivers that patients and/or family companions often agree with the advice from the caregivers. When patients and/or family companions do not agree with the advice, caregivers try to convince patients and/or family companions of the decision which is best for the patient according to the opinion of the caregivers.

‘Then we will start the dialogue to uhm convince of what is best for them’

(Physiotherapist)

Caregivers state that further questions from patients and/or family companions can always be asked. However, this should come from the patient and/or family companion themselves and is not standardly provided by the caregivers.

The social worker mentions that it will be explained if the patient cannot revalidate at the preferred care organization for rehabilitation in case there is no place for the patient. However, it is mentioned by caregivers and experienced by the researcher that patients and/or family companions are still often confused if revalidation cannot take place in the preferred residential care home.
8. **Reaching a shared decision**
The survey of patients and/or family companions scores a 3.85 out of 6 as a mean on the statement whether the decision is shared between caregivers and patients and/or family companions. This indicates patients and/or family companions ‘somehow disagree’ to ‘somehow agree’ with this statement.

Since negotiation is limited between caregivers and patients and/or family companions, the decision is not always considered to be made together. Patients and/or family companions declare they receive an advice from the caregiver. However, they do not have a lot of options to choose between. Therefore, the caregiver’s advice is often the treatment option which is followed. Patients and/or family companions mention they did not get the possibility to discuss extensively with the caregiver about the best treatment option to choose. Especially family companions mentioned that caregivers did not always take the time to discuss the options for aftercare. Some patients and/or family companions did agree with the caregiver and understood revalidation is a logical follow up after a hip fracture. However, the caregiver most often had the decisive voice in the decision and therefore patients and/or family companions did not always consider the final decision to be a shared decision.

9. **Arrangement of follow-up**
The survey of patients and/or family companions scores a 4.0 out of 6 as a mean on the statement whether a follow-up was arranged. This indicates patients and/or family companions ‘somehow agree’ with this statement.

Patients and/or family companions declared that caregivers arranged the practical necessities to transfer the patient to their home or the residential care organization. However, there is no follow-up arranged. The hospital does not receive feedback from the patients after hospitalization unless complications make it necessary for the patient to visit the hospital again. Patients and/or family companions initially answered this question by stating they disagree with the statement. However, the researcher asked whether practical necessities were arranged. Therefore, the score for this question changed. The results to this question should be interpreted in a different and less positive way as the mean indicates.

**Responsible caregiver to provide conditions**
As mentioned, not all nine conditions are provided to patients and/or family companions to facilitate shared-decision-making. There are several caregivers who take part in the decision-making process of aftercare. Even though the caregivers have their own responsibility for screening the patient and providing the information to finally make the decision of aftercare, no caregiver is assigned responsible for the conversation with the patient and/or family companion.
The physiotherapist is the first caregiver who screens the patient and gives the advice for aftercare. A follow up is from the social worker who asks the preference of the patient and/or family companion for the residential care home. The nurse and surgeon daily check the patient and inform the patient about the recovery process. However, there is no one directly responsible for informing the patient and/or family companion. This can be a possible explanation why certain conditions are missed.

For the surgery quasi-flow, the number of caregivers spoken to was dispersed between one and three. Most participants spoke to two caregivers. Overall, patients and/or family companions most often spoke about aftercare with the physiotherapist and the social worker. There were no extensive differences between the caregivers spoken to by either the patients or family companions.

**Patient and/or family companion**
The patient population under investigation in this research is characterized by their age, co-morbidity and cognition problems. Therefore, it can be important to provide the conditions to both, patients and/or family companions. For the quasi-flow of the surgery department, the focus is on the patient. The family companion is included in the decision for aftercare. However, caregivers state that it is the patient who is provided care and therefore also the patient who takes the decision. For the quasi-flow of the surgery department, there were more patients (69%) included in the research than family companions since the cognition of the patient often did not necessarily result in a difficulty for making medical decisions.

**Caregivers preference for degree of participation**
The caregivers’ preference for the degree of patient and/or family companion participation will be discussed.

**Educational differences between caregiver and patient**
The educational differences between caregivers and patients do seem to play a role in the caregivers’ preference for the degree of participation of patients and/or family companions. Caregivers give their advice for the most suitable trajectory of aftercare. This advice is based on medical knowledge and experience. Furthermore, the advice is based on certain criteria and standards. If patients and/or family companions do not agree with this advice, they can decide not to follow the advice. However, caregivers do try to convince patients and/or family companions who do not agree with the information given by the caregivers.

**Patients’ characteristics and medical condition**
The patients’ characteristics and medical condition do influence the caregivers’ preference for the degree of participation of patients and/or family companions. In case the patients’ cognitive condition does not complicate the decision-making process, the patient is included in making the choice for
aftercare. The patient is the point of departure if the patient is in the position to make a medical decision. The family is informed about the decision but not always directly involved in the decision-making process. However, the patients’ medical condition and especially cognitional functions can form a reason why the caregivers focus on the family companions instead of the patient by incorporating them in the decision-making process.

The age of the patient does not directly impact the autonomy provided by caregivers. Caregivers state that elderly patients have the same treatment options and role in the decision-making process as less elderly patients. However, the age of the patient does have an influence on the co-morbidity and cognitive condition of the patient and therefore the age has an indirect effect on the level of autonomy.

**Patient preference for degree of participation**
The patient preference for the degree of participation is affected by several aspects.

**Availability of multiple treatment options**
Theories states that the desired level of autonomy increases when the number of available treatment options increases (Guadagnoli & Ward (1998). In this case, there are broadly three treatment options for aftercare: revalidation at home, revalidation at a rehabilitation department of the residential care home or living in a residential care home. Caregivers state that 95% of the patients will revalidate in a rehabilitation department of the residential care home. Due to the limited number of treatment options, the autonomy level is limited.

The final decision was for 100% of the patients of the surgery quasi-flow the revalidation at a rehabilitation department in a residential care home.

**Personal characteristics of the patient**
Broadly there were three groups of patients: patients who agreed with the advice from the caregiver since caregivers were the experts and knew what is best for them, patients who disagreed with the advice from caregivers but still accepted the advice because they did not have any other option and patients who disagreed with the advice from caregivers and could not accept the advice. The personal characteristics of the patient were of influence on the desired level of autonomy level and the role they played in the decision-making process for aftercare. Previous experiences of the patient with revalidation or experiences of family and/or friends also played a role. Sometimes patients and/or family companions were known with revalidation and therefore less confused by the advice given by caregivers.
Socio-demographic variables: age, generation and religion
The age of patients indirectly influences the desired and actual level of autonomy. The complexity of the medical condition of patients and especially the cognitive problems lead to a lower ability to participate in the decision-making process. Furthermore, the age, generation and religiousness of patients potentially influenced the desired level of autonomy. The patients between the age of 70 and 100 have lived in a time in which patient autonomy was not of relevance as it is now. The mentality of ‘The doctor decides for me’ is most commonly known for this patient population. Furthermore, the religion of the patient played a role in the desired level of autonomy. Most of the patients mentioned the importance of their religion in making medical choices. The research took place in a hospital located in the Bible Belt and therefore most participants in the research were religious. The concept of autonomy in making medical decisions is affected by the religiousness of the participant in the way that they prefer to have a greater autonomy in case of making radical choices. However, the consequences of the choice for aftercare are limited and therefore the religiousness is most likely only of influence on the desired level of autonomy but not the actual level of autonomy.

Medical expertise of caregivers
The medical expertise of caregivers played an important role for the desired and actual level of autonomy of patients. Most patients agreed and accepted the advice from the caregivers due to the trust in the expertise of caregivers.

‘Well yeah, I have accepted it, they are more competent than me. I mean they have had hundreds of examples before me.’
(Patient surgery department)

Family companion preference for degree of participation
Even though patients in the quasi-flow of the surgery department dealt with less co-morbidity and cognitive problems than patients in the quasi-flow of the geriatric department, the family companion did play an important role in the decision-making process of aftercare for this patient population. Therefore, the role of the family companion and their preference for the degree of participation will be discussed.

Personal characteristics
Overall the desired level of autonomy among family companions in the quasi-flow of the surgery department was 2.80 out of 5 which indicates a ‘low’ to ‘neutral’ level of desired autonomy. However, the standard deviation is quite large which indicates the variability in family companions’ preference for the degree of participation is quite high. Furthermore, family companions differed in their personal characteristics such as taking lead and asking for more information. Among family companions of one
patient, there were also differences in personal characteristics. Often one family companion took the lead in discussing with caregivers about the decision for aftercare.

_Socio-demographic variables: age, generation and religion_

The family companions often were the partner and/or the children of the patient. The partner is in the age and generation of the patient. Therefore, the same reasoning holds for the elderly family companion as for the elderly patient. The age and generation might have been of influence on the desired level of autonomy. However, the research was most often conducted by the children of the patient since they were the first contact person of the hospital, they had spoken to caregivers and played a more important role in the decision-making process. Therefore, the influence of the age and generation was limited. However, the religion of the patient and/or family companion was often discussed during the research.

_Medical expertise of caregivers_

The desired level of autonomy of family companions is quite low. The desired level of autonomy is influenced by the trust of family companions in the expertise of caregivers.

_I will leave it for the experts, they have more expertise over it than I have._

(Family companion of surgery department)

However, family companions did want to be informed about the advice and involved in the decision-making process.

_External influences_

During the research, it became clear that there are some external influences which affect the actual level of autonomy of patients and/or family companions. These influences are outside the control of either caregivers, patients and/or family companions. The three most relevant influences will be discussed: requirements of treatment options, social environment of patients and the capacity of residential care homes.

_Requirements of treatment options_

There are general requirements for patients who want to revalidate at home or revalidate at a rehabilitation department in the residential care home. These requirements have to be met to be able to make the decision for a particular treatment option. To revalidate at home, the patient needs to be able to independently perform daily activities such as coming out of bed and walking to the bathroom and door. The social environment of the patient is of high influence on the decision whether a patient can revalidate at home. The social environment will be discussed as the second external influence. To revalidate at a rehabilitation department in the residential care home, the patient needs to be able to
learn, train and follow instructions. Revalidation goals need to be formulated to indicate whether revalidation will be effective. Furthermore, the expectation should be that revalidation will take between three weeks and six months. The final aim of revalidation is that the patient will be able to go home after this time. The requirements for the treatment options especially influence the advice from the physiotherapist. The physiotherapist has the responsibility to formulate the revalidation goals and indicate whether the patient is able to either revalidate at home or in the rehabilitation department. In case the requirements are not met, the physiotherapist is limited in the advice options. Furthermore, the requirements limit the autonomy level of patients and/or family companions since these requirements are quite decisive for the final decision. However, caregivers do give sometimes their benefits of the doubt to patients who are expected to recover soon and thus might be able to revalidate at a rehabilitation department.

**Social environment of patients**
The social environment plays an important role in the decision for aftercare. Especially the choice whether patients are able to go home is influenced by the social environment. A supportive and involved family will increase the likelihood a patient can revalidate at home. Furthermore, the way of living is of influence. If a patient, for example, lives alone in a big house with a lot of staircases, then the possibility to revalidate at home is decreased. The social worker is the one responsible to analyze the situation of the patient and thereby control the feasibility of the advice from the other caregivers.

**Capacity residential care homes**
The capacity of residential care homes has an important influence on the number of choices for caregivers, patients and/or family companions and therefore the level of autonomy. The capacity of residential care homes is especially of influence for patients who will live in a residential care home after hospitalization. The social worker mentions that it is almost impossible to arrange a place in the residential care home which was the first preference of patients and/or family companions. For patients who will revalidate in a rehabilitation department of the residential care home, the capacity of organizations is more adequate but still limited. Patients and/or family companions have limited choice in the place where to revalidate which lowers the autonomy level.

‘Yes, you would want that you could do more for the patient for where they prefer to revalidate, but the option is often not there to revalidate close to home and that makes the choice therefore limited’

(Social worker Surgery department)

Patients and/or family companions prefer that the patient will revalidate in a residential care home close to home. However, the capacity of residential care homes is not always sufficient wherefore the social worker has to suggest another residential care home for revalidation.
**Conclusion**

Overall, the desired and actual level of autonomy of patients and/or family companions in the surgery quasi-flow is low to moderate. Caregivers have an advising role and indicate that the patient has the last choice for the decision of aftercare. However, caregivers do not provide all the nine conditions to encourage patients to participate in the decision-making process. The advice from caregivers is given as a statement to patients and/or family companions instead of an advice which can be negotiated and discussed to come to a shared decision. Furthermore, the autonomy level of patients and/or family companions is limited by several external influences such as the requirements of treatment options, social environment of patients and the capacity of care homes.

Overall, the caregivers have the decisive role in the decision which trajectory has to be followed but are limited in this role due to requirements for the several treatment options. Patients and/or family companions have the decisive role in the decision where the trajectory will be followed but are limited in this role due to the capacity of residential care homes.

Caregivers considered revalidation as a logical step after hospitalization. Some patients and/or family companions agreed with this consideration, others did not. Furthermore, no caregiver is assigned responsible for the conversation about aftercare with the patient and/or family companion. From the observations, it became clear that caregivers do negotiate about the most suitable aftercare treatment. However, the negotiation and considerations of caregivers are not communicated to the patient and/or family companion. Overall, patients and/or family companions are not informed extensively or encouraged to participate in the decision-making process.

After all, the preference of the patient and/or family companion do correspond to the final decision taken for aftercare. Most patients agreed and preferred to revalidate at a rehabilitation department (85%). Since all the patients went to revalidate in a rehabilitation department, 85% of the patients and/or family companions agreed with the final decision made. However, whether this also was considered to be a shared decision is questionable by the low score for the actual level of autonomy.

### 4.1.3 Relationship structure and autonomy level

The autonomy level of patients and/or family companions and the structure of the surgery quasi-flow are now analyzed. However, this thesis focuses on the relationship between the structure and the autonomy level. Therefore, this section will combine the previous two analyses and give an answer on how the structure of the quasi-flow of the surgery department supported the autonomy level of elderly patients and/or family companions.
In the theory section, three theoretical expectations were formulated for the relationship between value-adding-process and solution shop quasi-flow structures and the autonomy level of patients and/or family companions. These theoretical expectations were:

1. The quasi-flow structure leads to a higher level of autonomy of elderly patients and family companions than the functional departments, but a lower level of autonomy than the flow structure. This is because the structure of a quasi-flow scores moderate values on the three parameters of De Sitter (1994;1997);

2. The autonomy level of elderly patients and family companions is lower in a solution shop than in the value-adding-process, in case the quasi-flow structure results in problems in the coordination and collaboration between caregivers and there is no supervisor who integrates the multidisciplinary information;

3. The autonomy level of elderly patients and family companions is higher in a solution shop than in the value-adding-process, in case the quasi-flow structure does not result in problems in the coordination and collaboration between caregivers and there is a supervisor who integrates the multidisciplinary information. The leeway to deviate from standards might be higher in the solution shop than the value-adding-process which results in a higher level of autonomy.

To analyze whether the theoretical expectations hold, three aspects will be analyzed: the level of required coordination, the level of collaboration and the type of quasi-flow. With information about these aspects and the analyses of the autonomy level and the structure by the three parameters of De Sitter, the quasi-flow can be analyzed for its potential to support patients’ and family companions’ autonomy.

**Level of required coordination**

The level of required coordination affects the possibilities of disturbances and the regulatory potential of caregivers which furthermore have an influence on the autonomy level of patients and/or family companions. Overall, the level of required coordination is high in the quasi-flow structure of the surgery department since caregivers from different specialisms work together and formulate a multidisciplinary advice to the patient. However, the structure does provide some support to lower the level of required coordination.

**Daily multidisciplinary meeting**

An important meeting to lower the level of required coordination is the daily multidisciplinary meeting between caregivers involved in formulating the advice for aftercare. On a daily basis, the caregivers come physically together to discuss all the patients with a hip fracture in the quasi-flow of the surgery department. In this meeting, the situation of the patient is discussed and the advice for
aftercare is developed. The physiotherapist, social worker, surgery nurse, assistant-surgeon and sometimes geriatrician are present. Every caregiver gives information from their own specialism. The information of the separate caregivers is combined in one advice to the patient.

In case a caregiver cannot be present in the multidisciplinary meeting, the caregiver gives their information to the other caregivers and asks later which advice was formulated. The registration of the patient help the caregivers to be updated on the trajectory and recovery of the patient.

The surgeon is not present at the multidisciplinary meeting. Even though the surgeon is the supervisor of the care trajectory of the patient, the surgeon is unable to be available everyday. However, the assistant-surgeon is present in the multidisciplinary meeting. When the surgeons visit the patient, they are informed by the nurses about the advice for aftercare for the patient. However, the surgeon does not play a role in the formulation of the advice.

Recently, the multidisciplinary meeting itself is restructured by caregivers to make sure that all relevant questions are discussed for every patient.

Caregivers acknowledge that the multidisciplinary meeting is an efficient solution to the required level of coordination. If the meeting would not be there, the coordination would ask a lot of time from caregivers.

Meetings
On a yearly basis, the structure of the surgery quasi-flow is analyzed by all relevant caregivers and management of the departments. The quasi-flow structure is investigated for bottlenecks and disturbances. By the start of the surgery quasi-flow structure, this meeting took place more regularly. It has been a while since the quasi-flow structure is developed and caregivers are more familiar to work in this structure. Therefore, the level of required coordination for the regulation of the structure is decreased.

Supervisor
For the surgery quasi-flow, the surgeon is the supervisor of the patient. Therefore, the surgeon has the responsibility for the care trajectory of the patient. However, the geriatrician is the second-supervisor and therefore supports the surgeon. Since the surgery quasi-flow structure is developed the geriatrician is the second-supervisor. Caregivers state that the incorporation of the geriatrician has many positive effects on the medical condition of patients and thus the quality of care. The expertise of the geriatrician is of high value since surgeons need to consult many specialists to get the same integral overview of the patients’ medical condition.
'A surgeon will easily consult many specialists to get insight into some medical aspects of the patient, while the geriatrician can do that all in once.'
(Surgeon)

Even though the surgeon is the supervisor of the care trajectory, the surgeon does not play a role in the formulation of the advice for aftercare. The social worker is the case manager for the choice of aftercare. The social worker is responsible to combine the advice from several caregivers and test the practical feasibility of this advice for the patients’ social situation.

**Between departments**
The geriatric and surgery departments play an important role in both quasi-flow structures. The required coordination between these departments is extensive. The expertise of both departments is important to combine in the quasi-flow structures. Both quasi-flows start at the emergency department and depending on the vulnerability of the patient, either the geriatric or the surgery quasi-flow structure will be followed. The supervision of the surgeon has to be transported to the geriatrician in case the patient is vulnerable. Due to the high required coordination between these departments, there have to be agreements to increase the collaboration and decrease the required level of coordination. Furthermore, the culture and working method of a surgery department are almost incomparable to the culture and working method of a geriatric department.

‘They are strongly convinced that you should act calm and slow (geriatric) and we are more like hup hup hup (surgery)’
(Physiotherapist)

Several exchange activities between the two departments as a preparation for the setup of the quasi-flows led to a higher collaboration level and a lower required coordination level.

**Level of collaboration for multidisciplinary care**
The quasi-flow structure is set-up as a reaction to the increased need for multidisciplinary care. The general hospital under investigation received a certificate for being a Senior Friendly Hospital. One of the criteria is the multidisciplinary care and collaboration between caregivers for geriatric patients. Furthermore, the IGZ indicators changed in 2014 wherefore it became compulsory that every patient above the age of 70 was under the (second-)supervision of a geriatrician. Due to these social and economic changes, the hospital felt the need to focus on multidisciplinary care and therefore created the quasi-flow structure.

**Relevant caregivers and their role**
For the decision of aftercare in the surgery quasi-flow structure, there are several relevant caregivers: assistant-surgeon, physiotherapist, social worker, surgery nurses and the geriatrician. These caregivers
have to work together and integrate their multidisciplinary information to formulate an advice for the patient and/or family companion. The assistant-surgeon has the expertise of the hip fracture and chirurgic complications. The physiotherapist analyses the patients’ recovery and formulates potential revalidation goals. The social worker investigates the social situation of the patient and the practical feasibility of the multidisciplinary advice given by other caregivers. Furthermore, the social worker has the oversight of the capacity of residential care homes and arranges the placement of patients. The nurses support the physiotherapist and are responsible for the daily care of the patient. The geriatrician is in consult in case the patient is dealing with co-morbidity or cognitional problems.

**View on collaboration**
Caregivers describe the level of collaboration to be high and do not see any problems. Due to the daily contact in the multidisciplinary meeting, the caregivers are always updated and work closely together. However, the supervisor care of the surgery department mentions that caregivers collaborate but do still focus on their own specialism. A possible reason is the low continuity of the caregivers assigned to the quasi-flow. Lately, there have been some changes in the assigned caregivers wherefore the caregivers had to get used to new team partners in the quasi-flow. The new caregivers also had to get used to working in a quasi-flow.

*The aim is to improve the quality of care for this patient population. Uhm but at the moment we are trying to improve the quality of care from our own specialism islands.*
(Supervisor care of surgery department)

**Point of departure**
Theory describes that the collaboration between specialists in a functional department structure might be disturbed when specialist depart from their own specialism instead of the patient’s medical condition (Christis, 2011; Liberati & Scaratti, 2016). In the quasi-flow of the surgery department, the specialists are focused on their own specialisms, perform a task for their own specialism and provide information for the advice for aftercare for their own specialism. In meetings, caregivers are asked to provide information for their specialism which is then integrated into one multidisciplinary advice. Furthermore, the protocols and information about the hip fractures are still developed per specialisms instead of for the complete quasi-flow.

Overall, caregivers of the surgery quasi-flow considered the hip fracture to be the main reason for hospitalization and therefore the focus of attention.

*The main focus is the hip fracture and after that indeed, your first focus goes to the hip fracture and besides that, you have to make sure that everything around it functions.*
(Physiotherapist)
Of the cycle of care

Collaboration for multidisciplinary care does not stop by the boundaries of the hospital. The cycle of care for patients with a hip fracture is extended by the aftercare provided by other care organization. The level of collaboration between care organizations can be of influence on the autonomy level of patients. If caregivers have knowledge of the care delivered in care organizations, better information can be provided to the patient. With the creation of the quasi-flow the hospital started a more intense collaboration with the care organizations.

Type of quasi-flow: value-adding-process or solution shop

By the theory of disruptive innovation of Christensen et al. (2009) two business models were described which should be separated in the structure of the general hospital: value-adding-processes and solution shops. With the creation of flows, these business models can be separated. The creation of the quasi-flow structures will be analyzed for the types of quasi-flows that are developed. The theoretical expectation developed for the relationship between value-adding-process and solution shop quasi-flow structures and the autonomy level of patients and/or family companions includes the technology and the type of quasi-flows. Therefore, it is of relevance to indicate whether the quasi-flows under investigations are either value-adding-process or solution shop quasi-flows.

Empirical/precision or intuitive medicine

A fracture is by Christensen et al. (2009) defined to be a precision medicine. The medical condition is precisely diagnosed and a standardized process is followed for treatment by the surgery.

'*If the hip is broken, then another hip needs to be placed or it needs to be fixed.'*

(Surgeon)

The fracture itself is a precision medicine. However, a hip fracture for non-vulnerable patients above the age of 70 is possibly better defined to be an empirical or precision medicine. The medical condition of the patient can be complicated due to the age and therefore possible co-morbidity and cognitive condition of the patient. In this thesis, the focus is on the decision for aftercare. For the decision of aftercare, the focus is not only on the hip fracture but also the social condition and the general medical condition of the patient. The co-morbidity and cognitive condition complicate the standardized treatment of a hip fracture.

Routine-based or trial-and-error process

The hip fracture is diagnosed and treated by a standardized process. The decision for aftercare in the surgery quasi-flow also follows a standardized and rule-based process. There are several requirements for the different treatment options which caregivers have to take into account for the advice they give and the final decision which is made. The option of revalidation in a rehabilitation department of the
residential care home is for 95% the final decision taken. However, the co-morbidity and cognitive condition of the patient can to a certain extent complicate the choice for aftercare.

Requirements of specialists
In the quasi-flow structure of the surgery department several caregivers stemming from different specialisms are included. However, a closer look shows that these caregivers are specialized in their specialism but not necessarily further specialized for hip fracture patients. Besides the surgeon who has a specialization in trauma patients, no specialist has a specific specialization for the patients with a hip fracture. Furthermore, a limited number of specialisms are included in the surgery quasi-flow structure.

Conclusion
To analyze the three theoretical expectations, information is needed about the geriatric quasi-flow structure. Therefore, the geriatric quasi-flow will be analyzed before the final conclusion of the three theoretical expectations can be made. In the next section, the quasi-flow of the geriatric department takes a central role.
4.2 Solution shop quasi-flow of geriatric department

This section focuses on the quasi-flow structure of the geriatric department. Two analyses are performed in this section. First, the quasi-flow structure of the geriatric department will be analyzed. Second, the quasi-flow structure of the geriatric department will be analyzed in comparison to the quasi-flow structure of the surgery department. Differences and similarities between both quasi-flows are addressed. Section 4.1.1 will analyze the structure of the geriatric quasi-flow itself and in contrast to the surgery quasi-flow. Section 4.1.2 will analyze the autonomy level of patients and/or family companions of the geriatric quasi-flow itself and in contrast to the surgery quasi-flow. Section 4.1.3 will finally analyze the relationship between the structure and the autonomy level of patients and/or family companions for the geriatric quasi-flow itself and in contrast to the surgery quasi-flow. The analysis of the quasi-flow of the surgery department provides the basis for the analysis of the quasi-flow of the geriatric department.

First, a short conclusion will be given of the analysis of the value-adding-process quasi-flow of the geriatric department. The structure of the geriatric department is defined to be a solution shop quasi-flow. A trial-and-error process is designed in which the intuition and expertise of caregivers play an important role in the decision-making process. The medical condition of the patient population in the geriatric quasi-flow is characterized by co-morbidity and cognitive problems. The process is therefore less standardized and the focus on multidisciplinary care is enhanced. The cycle time of the geriatric quasi-flow is higher due to the medical condition of the patient and the less frequent coordination between caregivers. The autonomy level of patients and family companions is low to moderate. Caregivers do not provide all the nine conditions to encourage patients and family companions to participate in the decision-making process. The caregivers in the geriatric quasi-flow focus on the family companions instead of the patient for the decision-making process. More family meetings take place due to the complex medical condition of patients. The required coordination between caregivers in the geriatric quasi-flow is lowered by the supervision of the geriatrician.

4.2.1 Structure

The structure of the quasi-flow will be analyzed and discussed to give insights into the structure itself and the consequences for the performance of the organization. Furthermore, the structure of the geriatric quasi-flow will be compared to the structure of the surgery quasi-flow.

Combination flow and functional departments

The quasi-flow of the geriatric department involves caregivers who have responsibilities in both the flow for hip fracture patients and functional department(s). The following caregivers are responsible for patients with a hip fracture and other patients of the geriatric department: geriatrician, assistant-geriatrician and geriatric nurses. The following caregivers are responsible for patients with a hip
fracture and other patients of either the surgery department or other departments: surgeon, orthopedist, assistant-surgeon, physiotherapist, social worker, occupational therapist, elocutionist and dietician.

The geriatrician is responsible for hip fracture patients in both quasi-flows and other geriatric patients throughout the hospital. The geriatric nurses are responsible for all patients in the geriatric department. The physiotherapist is responsible for the geriatric hip fracture patients and all other surgery patients. The surgeon is responsible for all patients of the surgery department and chirurgic patients of the geriatric department. The social worker is responsible for oncology, dialyze, pulmonary and geriatric patients. The occupational therapist, elocutionist and dietician are responsible for all patients in the hospital but do have a specific relationship with the geriatric department.

Caregivers are thus coupled to not only hip fracture patients but also other patients in the general hospital. Caregivers are either specifically assigned to the patient population of hip fractures or the geriatric department. The functional departments are thus kept intact and therefore the structure is defined to be a quasi-flow in this research.

The quasi-flow structure of the geriatric department is set-up on April 16th this year. Furthermore, it is the first quasi-flow structure of the geriatric department. The streamlined process and protocols of the quasi-flow structure of the surgery department are applied to the quasi-flow structure of the geriatric department.

‘Uhm hip fracture quasi-flow (geriatrics), it is not there. We make use of the uhm hip fracture quasi-flow (surgery)’
(Supervisor care Geriatrics)

In the documents the geriatric department is described as specialized and generalized. Specialized in treating and taking care of complex and care intensive vulnerable elderly patient. Generalized because patients with a variety of medical conditions are treated in one department. The target population of the geriatric department is elderly patients irrespective of medical condition. The focus is on the patient population instead of the specialism. The description indicates thin the geriatric department is focused on a patient population with intuitive medical conditions. Therefore, intuitive medicine is separated from empirical/precision medicine in the hospital. However, the geriatric department includes several medical conditions in one department, which indicates that caregivers in the quasi-flow of the hip fractures are still responsible for patients with a variety of diseases.
Possibility to make a flow

The caregivers of the geriatric quasi-flow were also asked whether the creation of a flow is a possible future structure for the general hospital. Caregivers gave the same arguments why a flow structure is practically infeasible. Therefore, only the subthemes are discussed in which caregivers gave extra reasons or explanations in addition to the caregivers of the surgery quasi-flow. Especially the view of the geriatrician is included in this section.

Expectation flow has negative consequences for quality of care

The geriatrician was especially against the creation of flows due to the simplified view on patients’ medical condition.

‘Because thinking in flows is actually a simplification of the human dynamics and health... so therefore we cannot think in our head of I will serve only one patient category in a flow. Because health and human being is more than a simple medical condition.’

(Geriatrician)

After some discussion, it became clear that the geriatrician is in favor of creating thematic care processes which are actually the same as flows. However, the statement of the researcher that the creation of flows is accompanied by the breakdown of functional departments lead for most caregivers to resistance.

Expectation flow has positive consequences for quality of care

The geriatrician does see positive consequences of the creation of flows for the quality of care. By the focus on a medical condition, caregivers become more professional and experienced for the medical condition and can therefore better anticipate on possible complications. The geriatrician mentions that caregivers need experience with both, the medical condition itself but also the structure in which they operate to become professional, make the right choices and formulate the best advice for the patient.

Education/specialism/personal development

The geriatrician is in favor of specialization and sub-specialization. However, according to the geriatrician you should not overspecialize caregivers since they should be able to treat multiple medical conditions. The task description of especially the geriatrician is focused on diagnosing and treating a wide variety of medical conditions.

‘Yes, that is very difficult in the healthcare sector right, because if we work then we have to be able to do everything. So, I cannot say I will focus on one aspect or one diagnose group for the coming years because that will make you on the long term incompetent for the broad setup of the occupation.’

(Geriatrician)
Volume of patients
In the previous years, the geriatric department grew from 112 to 419 clinical hospitalizations a year. Due to the aging of people, the geriatric department expects to grow in the coming years. Due to this growing number of patients, the geriatrician expects more specialization among geriatrician in the future. However, the patient population of hip fractures is at the moment too small to already create a flow.

‘If we only become bigger... the generalist thinking will automatically disappear and then you will get sub-specializations’
(Geriatrician)

Parameter values
The parameter values of the quasi-flow of the geriatric department are comparable to the parameter values of the quasi-flow of the surgery department. However, not all parameter values can be described extensively since the quasi-flow structure is developed only some months ago. Therefore, caregivers still have to find their way of working in this new structure.

Functional concentration – variability of patients
The level of functional concentration and therefore the variability of patients is high since caregivers are related to the flow structure, the geriatric department and some even to other departments of the general hospital. Furthermore, the geriatric department serves geriatric patients but also internal medicine patients. However, with the creation of the quasi-flow for hip fracture patients, caregivers are specifically assigned to the hip fracture patient population and therefore get more specialized in treating this medical condition. Furthermore, the chance a caregiver will be responsible to treat a variety of patients is decreased since caregivers are assigned to specific patient populations or departments.

Separation operational and regulatory tasks – integration
The quasi-flow structure of the geriatric department is a separate path in the original quasi-flow of the surgery department. Both quasi-flows are seen together and therefore the meetings are organized together. Since the quasi-flow of the geriatric department is quite new, there is no information yet about the regulatory tasks caregivers will have and whether they changed with the development of the quasi-flow. However, caregivers are included by the set-up of the quasi-flow and meetings about the analyses of the current way of working. Therefore, it is expected that the separation of operational and regulatory tasks is decreased with the creation of the geriatric quasi-flow for hip fracture patients.
Specialization in operational tasks – oversight of the process
Caregivers in the quasi-flow of the geriatric department have the same oversight of the process as caregivers in the quasi-flow of the surgery department. By the patient registration of all caregivers, the other caregivers can read about the previous steps taken and the future steps that will be taken. However, this does not necessarily mean that caregivers can intervene in other steps taken. With the creation of the quasi-flow, caregivers do collaborate with different specialisms more intensively and the oversight of the process is formulated in a document. Therefore, the quasi-flow structure does lead to a better oversight of the process than separate functional departments. The insight into the relations and coordination between departments might be increased with the creation of quasi-flows.

Consequences
The consequences of the quasi-flow structure design and therefore the values of the parameters will be discussed.

Quality of care
The development of the surgery quasi-flow led to an increase in the quality of care in contrast to the functional departments according to caregivers. However, a separate quasi-flow for the vulnerable elderly patients with a hip fracture is set up. The reason for this choice was the increased need for multidisciplinary care for this patient population. The quasi-flow structure of the surgery department could not provide the care required by vulnerable patients. The quasi-flow of the geriatric department should provide the care that these patients deserve. Furthermore, the vulnerable patients potentially disturbed the standardized process of the quasi-flow of the surgery department. The quasi-flow structure of the surgery department is standardized and does not automatically involve all specialisms which could be of relevance for elderly vulnerable patients. Therefore, the number of consults by other specialisms was high for the surgery quasi-flow. With the creation of the new flow, the multidisciplinary care is supported by the structure and therefore the number of consults and also unnecessary consults will be decreased.

‘The problem is that we on the surgery department consult everyone for the vulnerable patient and that person does one small part of the care delivered. And uhm that is often too much, too much care and too many unnecessary consults which could have been done by one specialist. So the aim is to decrease the number of consults for geriatric patients and to optimize the care for patients there where is best for them and that is by the geriatrician … it is cost saving but also qualitatively better for the patient.’

(Surgeon)

With the development of the quasi-flow structure of the geriatric department the hospital aims to increase the quality of care of both the vulnerable and non-vulnerable patients. The vulnerable patients receive multidisciplinary care which is integrated by one specialist namely the geriatrician. The
process of the non-vulnerable patients is no longer disturbed by vulnerable patients wherefore the quasi-flow structure of the surgery department can be further optimized for the specific patient population. The hospital aims to create flows based on the complexity level of the medical condition of the patient and therefore separates value-adding-process activities from solution shop activities.

The documents and caregivers address an important disturbance which is of influence on the performance of the current geriatric quasi-flow structure. The increase in the demand for care for elderly patients has led to an increased work pressure for caregivers. Documents state that with the current personal capacity it is impossible to meet the agreements made between caregivers in the quasi-flow structure. The personal capacity should be increased to deliver a high quality of care.

Waiting and cycle time

The cycle time for the quasi-flow of the geriatric department is relevant but seems to play a less important role than for the surgery quasi-flow. The focus of caregivers of the geriatric quasi-flow seemed to be less on the cycle time than for caregivers of the surgery quasi-flow.

Documents state that due to the increase in the demand for care the overall waiting time of the geriatric department increased. However, a hip fracture asks for immediate hospitalization and therefore there is no waiting time. However, in a meeting it became clear that the waiting time for the transfer from the emergency department to the geriatric department can at the moment be quite long for several reasons.

The time between operation and the research was six and a half days for the geriatric quasi-flow. This indicates that patients and/or family companions on average after six and a half days made the decision for aftercare. The number of days is two and a half days more for the geriatric quasi-flow than for the surgery quasi-flow. It was expected that the number of days for the geriatric quasi-flow would exceed the number of days of the surgery quasi-flow. The complexity of the medical condition of vulnerable elderly patients asks potentially for a longer observation. Furthermore, if the patient has a delirium or complication, the patient cannot be transferred to a residential care home. Therefore, the process is stagnated by the medical condition of the patient. However, another reason for the longer time between surgery and the choice of aftercare could be the structure of the quasi-flow. In the surgery quasi-flow the physiotherapist and social worker visit the patient on the first day after surgery. However, in the quasi-flow of the geriatric department this agreement is not followed. This has to do with the complexity of the medical condition of the patient but also with the simple fact that caregivers are new in this quasi-flow structure and did not yet make these agreements. Furthermore, the multidisciplinary meeting of caregivers takes place everyday for the surgery quasi-flow while it takes place twice a week in a longer version for the geriatric quasi-flow. Therefore, the advice from
Caregivers is not formulated everyday but twice a week wherefore patients and/or family companions might have to wait some days on this advice. Another reason for an extended cycle time which holds for both quasi-flows are the weekends and the official holidays during which the caregivers do not formulate or communicate an advice and patients are not transferred to the residential care homes.

**Conclusion**

The structure of the hip fracture patients of the geriatric department is defined to be a quasi-flow. Caregivers are assigned to the hip fracture patients in the flow but also to other patients in the hospital. The streamlined process of the surgery quasi-flow is applied to the geriatric hip fracture patients. It is the first streamlined process for the geriatric department.

The quasi-flow structure is analyzed by the four parameters of De Sitter (1994;1997). The functional concentration of caregiver’s tasks is moderate to high. However, with the creation of the quasi-flow the specialization of caregivers increased and therefore the possible variability in medical conditions served decreased. Furthermore, it is expected that the separation of operational and regulatory tasks is decreased with the creation of the geriatric quasi-flow for hip fracture patients. With the creation of the quasi-flow, caregivers do collaborate with different specialisms more intensively and the oversight of the process is formulated in a document. Therefore, the quasi-flow structure does lead to a better oversight of the process than separate functional departments.

The quality of care for vulnerable and non-vulnerable patients is increased with the creation of the geriatric quasi-flow. Vulnerable patients receive the care they require and deserve. Furthermore, vulnerable patients no longer disturb the standardized process of non-vulnerable patients in the quasi-flow of the surgery department. The cycle time of the trajectory is by 62.5% longer for the geriatric quasi-flow than for the surgery quasi-flow. The complex medical condition and certain structural differences between both structures are potential reasons why the cycle time for geriatric patients is longer than for surgery patients.

An overview of the geriatric quasi-flow and the responsibilities of caregivers can be found in Appendix XII. An overview of the trajectory of the patient before surgery can be found in Appendix I.

**4.2.2 Autonomy level**

In this section, the autonomy level of patients and/or family companions will be discussed. Overall, the patients and/or family companions of the quasi-flow of the geriatric department had a moderate to low value for the desired level of autonomy. The mean for the API was 2.81 out of 5. If we interpret the data for the questions of the API separately, it can be concluded that patients and/or family companions do not necessarily want to participate in making medical decisions, especially not when
the patient is hospitalized. However, they do want to agree with the final decision made and participate in making everyday medical decisions. The actual level of autonomy in making the decision for aftercare was moderate. The mean for the SDM-Q-9 was 3.50 out of 6. This mean is affected by low and high values for whether caregivers provided the separate conditions for shared decision making. A lower value is given for whether caregiver asked in which way the patient and/or family companion wanted to be involved in making the decision and for whether the caregiver explained the advantages and disadvantages of the several treatment options. However, a higher value is given for the statements: ‘My caregiver asked me which treatment option I prefer’ and ‘My caregiver and I reached an agreement on how to proceed’. The mean score on the API and SDM-Q-9 do not extensively differ for the participants of the geriatric quasi-flow and the participants of the surgery quasi-flow.

**The degree of patient participation**

The degree of patient and/or family companion participation in making the decision for aftercare is roughly the same for the quasi-flow of the geriatric department as for the quasi-flow of the surgery department. Caregivers state they have an advising role and the patient and/or family companion makes the final decision. Caregivers are limited in their options for the advice for the aftercare trajectory to be followed. Standard criteria guide the advice for the trajectories to be followed. Patients are limited in their choice where the trajectory will be followed by the capacity of care organizations.

For the patient population of the quasi-flow of the geriatric department, the medical conditions are more complicated than the quasi-flow of the surgery department. Therefore, the choice for aftercare is less straightforward. The complexity of the patients’ medical condition has two effects. First, the patient is less able to participate in making the final decision. Therefore, the caregivers cannot always give the patient the option to make the final decision. The patient does not have the decisive voice if their cognition is low. Therefore, family companions play a more important role for this patient population. Second, the choice for aftercare is more complicated and thus has to be discussed and explained more severely to patients and/or family companions. In the geriatric department, the patient and/or family companion are more often formally informed about the advice from caregivers.

**Key conditions for participation**

The quasi-flow structure of the geriatric department will be analyzed on the nine conditions provided by the caregiver which encourage the patient and/or family companion to participate in their own healthcare trajectory (Ende et al., 1989).

Overall, the actual level of autonomy in making the decision for aftercare did not differ extensively between the two groups of aftercare. The mean of the SDM-Q-9 was 3.75 for participants of the quasi-flow of the geriatric department and 3.50 for participants of the quasi-flow of the surgery department.
Between patients in both quasi-flows there was no difference in the actual level of autonomy. However, family companions in the quasi-flow of the geriatric department (3.87 out of 6) had a higher level of actual level autonomy than family companions in the quasi-flow of the surgery department (3.19 out of 6).

1. Disclosure that a decision needs to be made
The survey of patients and/or family companions scores a 3.75 out of 6 as a mean on the statement whether caregivers disclosed that a decision had to be made. This indicates patients and/or family companions ‘somehow disagree’ to ‘somehow agree’ with this statement. This score is nearly the same as the score for the quasi-flow of the surgery department.

As for the quasi-flow of the surgery department, the caregivers in the quasi-flow of the geriatric department often do not explicitly disclose to the patient and/or family companion that a decision should be made. For patients and/or family companions in the geriatric quasi-flow it was often logical that the patient could not directly return to their home situation due to the complexity of the medical condition. Therefore, there was among family companions less confusion about the aftercare process. Family companions of the patient population of the quasi-flow of the geriatric department are often familiar with the medical condition of the patient and have already experience with the medical trajectory of the patient.

2. Formulation of equality of partners
The survey of patients and/or family companions scores a 2.38 out of 6 as a mean on the statement whether the equality of partners was explicitly formulated. This indicates patients and/or family companions ‘disagree’ to ‘somehow disagree’ with this statement. This score is nearly the same as the score for the quasi-flow of the surgery department.

Caregivers did not ask the patients and/or family companions in which way they would prefer to participate in making the decision for aftercare. Therefore, the equality of partners is not formulated.

3. Presentation of treatment options
The survey of patients and/or family companions scores a 3.88 out of 6 as a mean on the statement whether the different treatment options were presented. This indicates patients and/or family companions ‘somehow disagree’ to ‘somehow agree’ with this statement. This score is higher than the score of the quasi-flow of the surgery department.

The geriatrician explicitly stated that the different treatment options are displayed to patients and/or family companions. The reason why certain treatment options do not fit the medical condition of the
patient is explained according to the geriatrician. The social worker of the geriatric department also states that the residential care homes and the differences between residential care homes are explained. However, according to patients and/or family companions the treatment options are not always presented. Most often the caregivers gave their advice but did not explain the other treatment options extensively.

'We did not have much choice, but okay they did uhm propose some things’
(Family companion Geriatrics)

4. **Informing on the benefits and risks of the options**
The survey of patients and/or family companions scores a 3.5 out of 6 as a mean on the statement whether the caregivers informed the patient and/or family companion on the benefits and risks of the treatment options. This indicates patients and/or family companions ‘somehow disagree’ to ‘somehow agree’ with this statement. This score is higher than the score for the quasi-flow of the surgery department.
The geriatrician was the only caregiver who explicitly stated that the benefits and risks of treatment options are discussed with patients. Participants of the geriatric quasi-flow give a relatively high score for this statement in comparison to the participants of the surgery quasi-flow. The complexity of the medical condition potentially results in a necessity for a better explanation of the several treatment options. The process of the geriatric medical care is less standardized and therefore caregivers might have a more open view to the several treatment options.

5. **Investigation of patient’s understanding and expectation**
The survey of patients and/or family companions scores a 4.00 out of 6 as a mean on the statement whether caregivers helped to understand the information given. This indicates patients and/or family companions ‘somehow agree’ with this statement.

In the geriatric department, the information given by caregivers is explained to patients and/or family companions. However, some patients and/or family companions did declare they would appreciate to receive more information.

6. **Identification of both parties’ preferences**
The survey of patients and/or family companions scores a 4.38 out of 6 as a mean on the statement whether the caregiver asked for the patients’ and/or family companions’ preference of the treatment options. This indicates patients and/or family companions ‘somehow agree’ to ‘agree’ with this statement. This score is higher than the score for the quasi-flow of the surgery department.
The geriatrician states that within the boundaries of the treatment options, the autonomy level of patients and/or family companions is discussed by asking their preference for the treatment option.

‘Within a restricted range, you do try to stimulate the autonomy level of patients and family companions’

(Geriatrician)

Social work declares that they ask the first, second and sometimes third preference for which care organization patients prefer to revalidate. However, patients and/or family companions sometimes mentioned that social work did not ask their preference but instead said which residential care homes have a place for revalidation. This is possibly a consequence of the low capacity of care organizations. However, it does affect the patients’ and family companions’ experienced level of autonomy.

7. Negotiation
The survey of patients and/or family companions scores a 3.75 out of 6 as a mean on the statement whether the decision for aftercare was negotiated. This indicates patients and/or family companions ‘somehow disagree’ to ‘somehow agree’ with this statement. This score is higher than the score for the quasi-flow of the surgery department.

The level of negotiation is by patients and/or family companions defined to be higher in the quasi-flow of the geriatric department than the quasi-flow of the surgery department. For complex cases, a more formal meeting with the family is desired to discuss the treatment options and explain advices given by caregivers.

‘Very occasionally you do have a family meeting, by complex cases’

(Supervisor care of geriatric department)

However, not every patient in the geriatric department is discussed in a family meeting and therefore the level of negotiation is not always as desired for patients and/or family companion. The level of negotiation is expected to be affected by the low number of treatment options and the criteria which has to be met for the treatment options.

8. Reaching a shared decision
The survey of patients and/or family companions scores a 3.75 out of 6 as a mean on the statement whether the decision is shared between caregivers and patients and/or family companions. This indicates patients and/or family companions ‘somehow disagree’ to ‘somehow agree’ with this statement.
Even though negotiation between caregivers and patients and/or family companions is more extensive in the quasi-flow of the geriatric department than the surgery department, this does not necessarily lead to a decision which is made together. Patients and/or family companions did not always consider the final decision to be a shared decision.

9. **Arrangement of follow-up**

The survey of patients and/or family companions scores a 4.38 out of 6 as a mean on the statement whether a follow-up was arranged. This indicates patients and/or family companions ‘somehow agree’ to ‘agree’ with this statement.

The geriatric patients and/or family companions score a high value for the statement whether caregivers and patient and/or family companion made an agreement on how to proceed. The practical necessities were arranged. However, the patient and/or family companion were not always aware of what they could expect of the period after hospitalization and were thus not informed about the next steps to be followed. Furthermore, the hospital does not receive any feedback of the patients after hospitalization.

**Responsible caregiver to provide conditions**

As for the surgery quasi-flow, the geriatric quasi-flow did not appoint a caregiver responsible to discuss the aftercare trajectory with the patient. The geriatrician does play a more important role for the patient population in this quasi-flow structure. The geriatrician integrates the information of the different caregivers. However, the geriatrician is often not the one who transfers the information back to the patient. In the quasi-flow of the geriatric department the physiotherapist gives their advice to the nurse. Next, it is expected from the nurse to ask and discuss the preference of the patient and/or family companion for the treatment option of aftercare before the multidisciplinary meeting takes place. In the multidisciplinary meeting the advice from caregivers is formulated and a caregiver is assigned responsible to discuss with the patient and/or family companion about the advice for aftercare. The caregiver who is most close to the particular patient and/or family companion is assigned responsible. In this way, for every patient it can be a different caregiver who is responsible to discuss the advice for aftercare. Furthermore, there is no set time for the conversation between caregivers and patients and/or family companions.

‘Yes, once when you see them so to speak then it will be discussed. There is no fixed moment for it that we will say okay tomorrow you should come and we will discuss about uhm possible revalidation, no.’

(Supervisor care of geriatric department)

Therefore, the nine conditions can more easily be missed by caregivers.
For the geriatric quasi-flow the number of caregivers spoken to was for 87.5% of the patients and/or family companions only one caregiver. One patient spoke to four caregivers. For the geriatric quasi-flow 25% of the participants spoke to the geriatrician. Even though only a quarter of the participants in the geriatric quasi-flow spoke to the geriatrician, it is a higher percentage than for the participants in the surgery quasi-flow of which only 7% spoke to the geriatrician. This indicates that the geriatrician does not play an important role in communicating the integrated multidisciplinary advice from caregivers to patients and/or family companions. The other way around, participants in the surgery quasi-flow (31%) spoke more often to the surgeon than participants of the geriatric quasi-flow (0%). Most participants of the geriatric quasi-flow spoke to the social worker and nurse. There were no extensive differences between the caregivers spoken to by either patients or family companions.

Patient and/or family companion
The patient population for the quasi-flow of the geriatric department deals with severe co-morbidity and cognitional problems. Therefore, patients were not always able to state their preferences for the aftercare trajectory and discuss with caregivers about treatment options. In this situation, the family companion played a more important role in making the decision than was often the case in the quasi-flow of the surgery department. The geriatric department has the aim to incorporate family companions in the multidisciplinary care for patients.

‘We think it is important to incorporate family companions by our work’
(Document of geriatric department)

Caregivers preference for degree of participation
The caregivers’ preference for the degree of patient and/or family companion participation will be discussed.

Educational differences between caregiver and patient
Caregivers give advice to the patient for the best trajectory to be followed. Even though, the geriatrician states that patients and/or family companions sometimes choose for a less suitable treatment option.

‘Sometimes people do choose for a less suitable revalidation option’
(Geriatrician)

In the end, the patient and/or family companion can make the decision not to follow the advice from caregivers. However, caregivers are convinced they know what the most suitable treatment option is for the patient and therefore caregivers do try to convince patients and/or family companions of their advice.
Patients’ characteristics and medical condition
The medical condition and patient characteristics of the population of the geriatric department lead to a lower patient autonomy. Caregivers in the quasi-flow of the geriatric department are more focused on family companions than in the quasi-flow structure of the surgery department. The social worker of the geriatric department states that she always includes the family companions to inform them about and incorporate them in the decision-making process. The social worker of the surgery department only calls and informs the family companion in case the medical condition of the patient asks for it.

‘I actually always call the contact person except when someone says themselves that they will discuss it themselves with the family. But I always call to say I have discussed this.’
(Social worker geriatric)

The age of the patient does not directly impact the autonomy provided by the caregiver. Caregivers state that elderly patients have the same treatment options and role in the decision-making process as less elderly patients. However, the age of the patient does indirectly have an influence on the co-morbidity and cognitive condition of the patient and therefore the level of autonomy.

Patient preference for degree of participation
The patient preference for the degree of participation is affected by several aspects. The patient preference for the degree of participation overall had a lower effect on the actual level of autonomy in the geriatric quasi-flow than in the surgery quasi-flow. The patient was included and the preferences were taken into account, but overall the family companion played a more important role. There are only three patients of the quasi-flow of the geriatric department included in the research. Therefore, the arguments for the influence of the patient preference for degree of participation is difficult to make. However, through the research of family companions, information about the patient was sometimes gathered.

Overall, patients of the quasi-flow of the geriatric department (3.00 out of 5) had a higher desired level of autonomy than patients of the quasi-flow of the surgery department (2.17 out of 5). The actual level of autonomy in making the choice for aftercare was comparable between the two patient groups.

Availability of multiple treatment options
For the patients in the quasi-flow of the geriatric department the same treatment options for aftercare are available: revalidation at home, revalidation at a rehabilitation department of the residential care home or living in a residential care home. However, the characteristics of the patient population have an influence on the treatment options who are most likely chosen. For patients in the quasi-flow structure of the geriatric department, the option of revalidation at home is often not of discussion. Furthermore, within the revalidation at a rehabilitation department there is the option for a residential
care home who provides extra care for the cognition of the patient or not. This option is there for patients in the quasi-flow of the surgery department as well. However, due to the complexity of the medical conditions in the quasi-flow of the geriatric department, the option for revalidation at a rehabilitation department who provides extra care for cognition is commonly more chosen.

“Our patient category is often the patient category with really so many uhm restrictions that actually always revalidation is the main advice. And uhm the patient, and that is almost inherent to the problematic situation, has reduced insight over what is reasonable and uhm most issues are discussed with the family companion, but in practice I think the patient actually does not have a choice.’

(Geriatrician)

The final decision made was for 75% of the participants of the geriatric quasi-flow revalidation at a rehabilitation department in a residential care home. One patient went to revalidate at home and one patient went to live in a residential care home.

Personal characteristics of the patient
The variety of patients in the quasi-flow of the geriatric department was broad. However, most patients were not in the ability anymore to take part in the decision-making process for aftercare. Nonetheless, there were also patients who were direct in their preferences and participated in the discussion with caregivers either directly themselves or indirectly via the family companions. An example is a patient who was supposed to revalidate in a rehabilitation department. However, he convinced caregivers of his fast recovery and several personal reasons why it is better for him to go home. Caregivers discussed these reasons and in the end, they were convinced that for this patient it would be better if he would go home which is extraordinary for patients in the quasi-flow of the geriatric department. This decision was influenced by the personal characteristics of the patient such as his perseverance and somehow opinionated view.

Socio-demographic variables: age, generation and religion
The age, generation and religion of patients in the quasi-flow of the geriatric department influenced the desired and actual level of autonomy in the same way as the patients in the quasi-flow of the surgery department.

Medical expertise of caregivers
Patients accepted the advice from caregivers due to the trust in the medical expertise of the caregivers.

Family companion preference for degree of participation
The family companion commonly played an important role in the decision-making process of aftercare for the patients in the geriatric quasi-flow. Therefore, the role of the family companion is discussed.
Overall, family companions of the quasi-flow of the geriatric department had a comparable desired level of autonomy as family companions of the quasi-flow of the surgery department. However, the actual level of autonomy of making the decision of aftercare did differ between the two groups of family companions. Family companions of the quasi-flow of the geriatric department (3.87 out of 6) had a higher actual level of autonomy of making the decision of aftercare than family companions of the quasi-flow of the surgery department (3.19 out of 6).

**Personal characteristics**

Overall the desired level of autonomy among family companions in the quasi-flow of the geriatric department was 2.46 out of 5 which indicates a ‘low’ to ‘neutral’ level of desired autonomy. The desired level of autonomy of family companions did not differ extensively between the two quasi-flows. However, the standard deviation of the API for the geriatric department is lower which indicates less variability in the desired level of autonomy of family companions. Family companions differed in their personal characteristics such as taking lead and asking for more information. Furthermore, among one patient there were commonly multiple family companions. Most often one family companion took the lead in the decision-making process and this family companion was often the most organized and perseverant one.

**Socio-demographic variables: age, generation and religion**

The same reasoning holds for the socio-demographic variables of family companions of the quasi-flow of the geriatric department as for the family companions of the surgery department. However, for the geriatric department, there were only children of the patient as family companions included in the research. Therefore, the age and generation probably did not affect the desired and actual level of autonomy of family companions in the geriatric quasi-flow. The religion of family companions might play a role in the desired level of autonomy in making general medical decisions.

**Medical expertise of caregivers**

Family companions in the quasi-flow of the geriatric department in general had trust in the medical expertise of the caregivers. Therefore, the caregivers’ advice was considered to be important in the decision-making process.

‘Not that we uhm as family companion take over uhm yes the decisions and the care, that uhm… no is not the aim, no.’

*(Family companion Geriatrics)*

**External influences**

The external influences on the decision for aftercare for patients and/or family companions in the quasi-flow of the geriatric department will be discussed.
Requirements of treatment options
The requirements of the treatment options are the same for patients of the quasi-flow of the geriatric department as for patients of the quasi-flow of the surgery department. However, patients in the quasi-flow of the geriatric department often dealt with cognitive problems. In case a patient has dementia or a delirium, the patient is not able to learn, train or follow instructions. Therefore, the requirements of revalidation in the rehabilitation department are in this case not met. However, there can be made a distinction between two types of rehabilitation departments in the residential care homes. Patients with dementia or a delirium can revalidate in a rehabilitation center with extra observation for cognition. However, patients can only start the revalidation when they do not require freedom-restricting facilities. Patients in the quasi-flow structure of the geriatric department (37,5%) more commonly already lived in a residential care home than patients in the quasi-flow structure of the geriatric department (7,7%). After hospitalization, these patients go back to the residential care home in case this organization can provide a revalidation program. Therefore, these patients often did have to a make a decision.

Social environment of patients
As for patients in the quasi-flow of the surgery department, the social environment of patients in the quasi-flow of the geriatric department played an important role in the decision-making process. The number of patients who will revalidate at home in this patient population might be lower than the patient population of the quasi-flow of the surgery department. However, the social environment plays an important role for the revalidation option. Patients will revalidate with the aim to prepare the patient to live home after revalidation. The social environment can decrease the chance the patient will be able to go home after revalidation.

Capacity residential care homes
The capacity of residential care homes also forms a limitation for the autonomy level of patients and/or family companions in the geriatric quasi-flow. For 50% of the patients and/or family companions in the geriatric quasi-flow the first preference residential care home had a place for revalidation. The other 50% had to go with another option.

The social worker mentions that before she visits the patient and/or family companion she is aware of the capacity of the residential care homes. In this first conversation, it is therefore possible to immediately discuss the residential care homes who have a place for the patient to either live or revalidate. In case the first preference of the patient is a revalidation home without sufficient capacity for revalidation in a short term, the patient is placed on the waiting list. Whenever there is a place for the patient, the patient can be transferred to the first preference. However, the moving of patients with dementia or a delirium is not preferred.
‘I already know where there is place so I will start the conversation with what is your first preference, fine, then you will be on the waiting list there’

(Social worker geriatric department)

Patients and/or family companions commonly stated that their autonomy level was reduced by the capacity of residential care homes.

‘Because of the space and the short term, that was actually the solution, so yeah. We did not have much choice.’

(Family companion geriatric department)

**Conclusion**

Overall, the desired and actual level of autonomy of patients and/or family companions in the geriatric quasi-flow is low to moderate. The autonomy level is broadly the same for both quasi-flows. However, family companions play a more important role for this patient population due to the complex medical condition of patients characterized by co-morbidity and cognitional problems. Due to the complex medical condition of patients, the caregivers more often explicitly explain and elaborate on the decision for aftercare. Therefore, more family meetings take place in this quasi-flow structure. The actual level of autonomy of family companions was higher in the quasi-flow of the geriatric department than in the quasi-flow of the surgery department. Indicating that family companions in the geriatric quasi-flow are better included by caregivers in the decision-making process for aftercare.

Overall, the preference of the patient and/or family companion corresponds to the final decision taken for aftercare. Most patients agreed and preferred to revalidate at a rehabilitation department (62%). One patient did not agree with the final decision chosen. He or she preferred to go home but the final decision was to revalidate in a rehabilitation department. The rest of the patients and/or family companions agreed with the final decision chosen. However, a remark must be made that most often patients and/or family companions did not feel any other option than to accept and agree with the advice from caregivers.

**4.2.3 Relationship structure and autonomy level**

The autonomy level of patients and/or family companions and the structure of the surgery quasi-flow are now analyzed. However, this thesis focuses on the relationship between the structure and the autonomy level. Therefore, this section will combine the previous two analyses and give an answer on how the structure of the quasi-flow of the geriatric department supported the autonomy level of elderly patients and/or family companions.
As mentioned there are three theoretical expectations formulated for the relationship between value-adding-process and solution shop quasi-flow structures and autonomy level of patients and/or family companions. Information about the level of required coordination, the level of collaboration and the type of quasi-flow, are necessary to analyze the theoretical expectations. Therefore, these concepts are analyzed before a conclusion can be provided about the relationship between autonomy and structure in both the geriatric and surgery quasi-flow.

**Level of required coordination**
For the quasi-flow of the geriatric department the level of required coordination is high due to the complexity level of the medical condition of the patient and the multidisciplinary approach of caregivers. The level of required coordination will be discussed.

**Two-weekly multidisciplinary meeting**
As for the surgery quasi-flow, the geriatric quasi-flow has a multidisciplinary meeting between caregivers included in making the choice for aftercare. Two times a week caregivers come physically together to discuss all the patients of the geriatric department. In this meeting, the patients with a hip fracture are therefore also discussed. In this meeting the geriatrician, assistant-geriatrician, physiotherapist, social worker, geriatric nurse, dietician, occupational therapist and elocutionist are present. In the multidisciplinary meeting of the geriatric quasi-flow more specialisms are included than in the multidisciplinary meeting of the surgery quasi-flow.

Before the geriatric quasi-flow structure for hip fracture patients was developed, the multidisciplinary meeting took place once a week. As a reaction to the increased need for multidisciplinary care, this meeting take place twice a week. However, in the surgery quasi-flow this meeting takes place on a daily basis. The geriatrician explains that this meeting takes place twice a week since caregivers in the geriatric quasi-flow structure are familiar with geriatric patients and therefore require less coordination. The two-weekly multidisciplinary meeting is primarily focused on the decision for aftercare. Other caregivers explain that the multidisciplinary meeting for the surgery quasi-flow is short and frequent, and for the geriatric department extensive but less frequent. The multidisciplinary meeting for the surgery quasi-flow takes approximately ten minutes a day, while in the multidisciplinary meeting of the geriatric quasi-flow caregivers discuss all the geriatric patients for one and a half hour. The number of patients in the geriatric quasi-flow is smaller than the number of patients in the surgery quasi-flow. This was a final reason for some caregivers why the multidisciplinary meeting only takes place twice a week instead of on a daily basis.

**Meetings**
On a yearly basis, the structure of the quasi-flow is analyzed by all relevant caregivers and management. The caregivers included in the geriatric quasi-flow are asked to participate in the
meetings of the surgery quasi-flow. However, there is no agreement made yet about potential extra meetings for only the caregivers of the geriatric quasi-flow.

**Supervisor**

For the geriatric quasi-flow the geriatrician is the supervisor of the patient. The geriatrician is responsible for the trajectory of the patient. The surgeon is the second-supervisor and therefore supports the geriatrician with knowledge about surgical complications and choices. The geriatrician integrates the information of all caregivers in one multidisciplinary advice. Furthermore, the geriatrician is an internist and has knowledge about several specialisms of the human body. Therefore, the number of consults by external specialists is decreased by the incorporation of the geriatrician. Furthermore, the geriatrician is expert on cognitional problems such as dementia and delirium. Patients in the geriatric quasi-flow often deal with these cognitional problems.

**Level of collaboration for multidisciplinary care**

The level of collaboration for multidisciplinary care is analyzed within the geriatric quasi-flow. The reason to set-up the geriatric quasi-flow was the increased demand for multidisciplinary geriatric care.

**Relevant caregivers and their role**

For the geriatric quasi-flow the same caregivers are responsible to formulate the advice for aftercare as in the surgery quasi-flow. However, the assistant-surgeon plays a less important role and the geriatrician plays a more important role in comparison to the surgery quasi-flow. The geriatrician is not only providing advice but is also focused on integrating the multidisciplinary advice and lowering the possibility of complications for vulnerable patients.

“That are all different specialisms and if you perform separate consults together on one patient, you will have a high chance that the quality of care is under pressure since everyone is an expert of his or her own specialism but the integration of these different specialisms is not secured by anyone and that is what we see as geriatrician as our tasks’

(Geriatrician)

The geriatric documents explicitly state that they have the aim to incorporate the family companion as an important player in the multidisciplinary care.

“The family companion is an equivalent partner of professional caregivers in the healthcare trajectory’

(Documents geriatric department)
View on collaboration
The view on the collaboration between caregivers for the geriatric quasi-flow is positive. The collaboration between caregivers is intensive, especially due to the two-weekly multidisciplinary meetings. No problems are mentioned by caregivers for the level of collaboration.

Point of departure
In the quasi-flow of the geriatric department, the functional departments are kept in existence. Caregivers depart from their functional specialism for the tasks they perform and the information they give for the multidisciplinary advice for aftercare. Therefore, it can be questioned whether the collaboration between caregivers can be defined as intensive and strong as caregivers mention.

In contrast to caregivers of the surgery quasi-flow, caregivers of the geriatric quasi-flow define the patient population as geriatric patients with a hip fracture. It is no longer the hip fracture that is the focus but the geriatric medical condition.

‘Indeed, the patient is seen more as a geriatric patient with a hip fracture then someone just with a hip fracture.’
(Supervisor care of geriatric department)

Type of quasi-flow: value-adding-process or solution shop
The surgery quasi-flow is analyzed to be a value-adding-process. Even though the geriatric quasi-flow treats the same medical condition, a hip fracture, the structure and patient population can potentially indicate that the geriatric quasi-flow is another type of quasi-flow.

Empirical/precision or intuitive medicine
The geriatric department provides highly complex and undeterminable geriatric care for the elderly patient population. The main difference in the patient population of the surgery quasi-flow and the geriatric quasi-flow is the cognitive condition of the patient. Patients in the geriatric quasi-flow are either diagnosed with cognitive problems or are not yet diagnosed with cognitive problems but do have the symptoms. Patients are dealing with severe co-morbidity which affects the trajectory taken by caregivers. Furthermore, patients often already lived in a residential care home or faced problems with living at home. Overall, the patients face several medical problems wherefore they are no longer able to independently take care of themselves. The age limit of 70 years is not the only criterion on which patients are selected for the geriatric quasi-flow. Patients are screened by the Comprehensive Geriatric Assessment which focuses on five factors of the medical condition of the patient: somatic, psychiatric, cognitive, social and functional factors.

For this patient population, the surgery for the hip fracture is not a standard choice. The medical condition of the patient can indicate that surgery might no longer be the desirable solution. The focus of the trajectory is then no longer on providing cure but care. Furthermore, it is difficult to determine
beforehand whether the patient would be able to revalidate after hospitalization. Therefore, the medicine within the geriatric quasi-flow can be defined to be intuitive. Choices in the healthcare trajectory depend on the intuition of the expert and the combination of several symptoms and treatment options. The revalidation trajectory might be more extensive since patients might require extra observation or care for their medical condition. Furthermore, the focus on the cognition of the patient is of importance in the revalidation process.

**Routine-based or trial-and-error process**
The focus of the treatment cycle in the geriatric quasi-flow is not solely on the hip fracture but more importantly on the overall medical condition of the patient. The patients’ medical condition is analyzed comprehensively to get a broad insight into potential medical problems.

Due to the co-morbidity and the complexity of the medical condition of the patient, the diagnosis and treatment process is less standardized than in the surgery quasi-flow. Steps in the process are not easily followed in a standardized way and depend on the recovery of the patient. Therefore, hospitalization often takes longer and caregivers do not follow a standardized process. The standards used for the decision of aftercare are broadly the same for both quasi-flows. However, specialists do use their own standards and expertise to formulate the final decision for aftercare. Therefore, there can occur some differences in the decidedness and the role of the standards in the final decision made.

**Requirements of specialists**
In the quasi-flow structure of the geriatric department, most caregivers have a specialization in geriatric medicine. The geriatrician plays a more important role in the quasi-flow structure of the geriatric department than the surgery department. Nurses and physiotherapist followed an extra education in geriatrics and therefore are potentially better specialized for the geriatric patient population than the caregivers in the surgery quasi-flow. Furthermore, extra specialists are included in this quasi-flow structure who are not included in the surgery quasi-flow structure. The extra specialists are the dietician, occupational therapist and elocutionist. These specialists are assigned to the geriatric department and therefore also the quasi-flow structure of hip fracture patients.

Furthermore, the multidisciplinary meetings are differently structured for the geriatric quasi-flow than for the surgery quasi-flow. The meetings are less frequent but of longer duration. In these meetings, the patients are extensively discussed and the complete medical condition of the patient is analyzed. Furthermore, more specialisms are included in this meeting.
Documents of the geriatric department state that the expertise level of nurses is of high importance. The expectation is there that the demand for care will increase due to the aging population and the demand for complex care will increase due to the co-morbidity in this patient population. Therefore, the geriatric department strives to construct a team of 100% nurses with HBO-education and geriatric specialization. The expertise of caregivers is according to the department of high influence on the quality of care.

**Conclusion**

The level of autonomy, structural design and several indicators for the relationship between the quasi-flow structure and autonomy level, are analyzed. Therefore, the three theoretical expectations for the relationship between the quasi-flow structure and the autonomy level of patients and/or family companions, can now be analyzed. The analysis is focused on both quasi-flows, the geriatric and surgery quasi-flow.

The first theoretical expectation indicated that the quasi-flow structure would lead to a moderate level of autonomy of elderly patients and/or family companions due to moderate values on the three parameters of De Sitter (1994;1997). In the analysis, it was argued that the values for the parameters of functional concentration and separation of operational and regulatory tasks are lowered with the introduction of the quasi-flow structure. The value for the specialization in operational tasks is not lowered with the introduction of the quasi-flow structure. This results in the following consequences. The variability and number of relationships in the structure are lowered. The oversight of the process is limited but the quasi-flow structure does have a positive effect on the oversight of the process in contrast to a structure of functional departments. With this analysis, it can be argued that the values on the parameters potentially result in moderate values for essential variables which are lower than a functional department structure but higher than a flow structure. The autonomy level of patients is as explained in the theory section a goal of the organization which can be affected by the values for the essential variables in several ways. Due to moderate values on the parameters, the essential variables are more likely achieved in quasi-flow structures than functional department structures. Therefore, the first theoretical expectation holds. The level of autonomy of elderly patients and/or family companions is higher in a quasi-flow structure than in a structure of functional departments but lower than in a flow structure.

For the second and third theoretical expectations, the quasi-flow structures must be further analyzed and compared. Therefore, a conclusion is given of the type of quasi-flow, the level of required coordination and the level of collaboration for both quasi-flows. First, the type of quasi-flow must be determined. To conclude, the surgery quasi-flow structure can be seen as a value-adding-process due to the routine-based standardized process followed in this quasi-flow. Several requirements for the
different treatment options directed caregivers in a standardized advice for aftercare. Furthermore, caregivers are specialized in their specialism but not necessarily for hip fracture patients. This indicates that the level of required expertise is moderate. The geriatric quasi-flow structure can be better defined as a solution shop since choices in this quasi-flow can no longer be standardized but depend on the intuition of the expert and the recovery process of the patient. The complex medical condition of the patient result in a limited possibility to define the trajectory to be followed beforehand in a standardized manner. Furthermore, the expertise level of caregivers is of high importance for the quality of care within the quasi-flow.

Second, the level of required coordination must be analyzed. In the surgery quasi-flow the required level of coordinated is high since multidisciplinary care of caregivers stemming from different departments is provided. However, the structure provides several aspects to support this coordination. The daily multidisciplinary meetings play an important role for the efficiency of the coordination between caregivers. Furthermore, the geriatrician is an important second-supervisor. The expertise of the geriatrician results in a decrease of complications for patients and a decrease in the number of consults of specialists which further leads to a decrease of the required level of coordination. In the geriatric quasi-flow the required level of coordination is comparable to the surgery quasi-flow. However, the multidisciplinary meeting of the geriatric quasi-flow does not take place on a daily basis but a two-weekly basis. Furthermore, the geriatrician is not the second-supervisor but the head-supervisor and therefore plays a more important role.

Third, the level of collaboration must be analyzed. In the surgery quasi-flow the caregivers are convinced that the level of collaboration is high. However, the supervisor care of the surgery department mentions that caregivers do not as intensively collaborate as desired. She mentions that caregivers are focused on their own specialism island. Caregivers perform a task for their own specialism and provide information for the advice for aftercare for their own specialism. The maintenance of the functional departments can possibly lead to a lower level of collaboration with the quasi-flow structure. In the geriatric quasi-flow the caregivers are also convinced that the level of collaboration is high. The geriatrician plays a more important role in the integration of multidisciplinary information. Furthermore, the quasi-flow has the aim to incorporate family companions in the multidisciplinary care. Even though it seems that the collaboration between caregivers is intensive, especially due to the multidisciplinary meeting, the caregivers do departure from their own specialism. Caregivers are focused on their own specialisms, perform a task for their own specialism and provide information for the advice for aftercare for their own specialism.

The second and third theoretical expectations can now be analyzed. The second theoretical expectation indicated that the level of autonomy of elderly patients and/or family companions is lower in a
solution shop in contrast to a value-adding-process in case the quasi-flow structure results in problems in the coordination and collaboration between caregivers. Based on the analysis performed, it seems that the level of required coordination is decreased and the level of collaboration is increased with the introduction of the quasi-flow structure. However, the level of required coordination and collaboration is decreased with the maintenance of the functional departments. The structure therefore potentially disturbs the autonomy level of patients and family companions. The reasoning behind this theoretical expectation is that the value-adding-process can be better standardized and therefore requires less coordination and collaboration than the solution shop. The disturbances of the functional departments would have a lower effect on a standardized value-adding-process than a complex solution shop. This reasoning was supported in the empirical analysis. Caregivers in the value-adding-process could more easily make agreements wherefore the required coordination was lowered. However, caregivers did not make an agreement about which caregiver is responsible for the communication with the patient and family companion about the aftercare. Therefore, patients and family companions were not extensively informed through caregivers. A further reasoning behind the theoretical expectation is that a supervisor is needed to integrate the multidisciplinary information and therefore increase the level of collaboration and decrease the level of required coordination. The geriatrician played an important role in the geriatric quasi-flow and decreased for example the number of consults. The surgeon played a less important role in the surgery quasi-flow. The level of required coordination and collaboration is therefore lowered through a supervisor in the geriatric quasi-flow but not in the surgery quasi-flow. The low collaboration and coordination between caregivers would have a greater impact on the undeterminable and complex solution shop than the standardized value-adding-process. However, in this case, there was no significant difference in the level of autonomy between both quasi-flow structures. Both flows had problems with the level of coordination and collaboration. However, the existence of the geriatrician potentially lowered the required coordination and increased the collaboration in the solution shop wherefore this process was not more negatively affected through the quasi-flow structure. Therefore, the reasoning of the theoretical expectation is not illustrated in the empirical research.

The third theoretical expectation indicated that the level of autonomy of patients and/or family companions might be higher in a solution shop than in a value-adding-process in case the quasi-flow structure is supported with high collaboration between caregivers and a supervisor who integrates the multidisciplinary information and coordinates between caregivers which results in an overall desired level of collaboration and coordination. The collaboration in both quasi-flows is argued to be moderate to high. Furthermore, the geriatric quasi-flow has a dedicated, integral, geriatric supervisors. The last assumption of this theoretical expectation is the possible difference in the extent to which caregivers can deviate from standards. The leeway to deviate from standards might be higher in a complex solution shop than a standardized value-adding-process. The number of treatment options would be
larger in the solution shop than the value-adding-process. However, in the investigated case the number of treatment options were broadly the same for both quasi-flows. Therefore, the assumptions of the theoretical expectation are only partly accepted. According to the theoretical expectation this could result in a higher level of autonomy in the geriatric quasi-flow than in the surgery quasi-flow. However, statistical analyses show that the level of desired and actual autonomy of patients and/or family companions do not significantly differ between both quasi-flow structures. The mean for the API and SDM-Q-9 are comparable for the two patient groups. However, descriptive statistical analysis shows that the actual level of autonomy of family companions in the geriatric quasi-flow (3.87) is higher than in the surgery quasi-flow (3.19). Therefore, this theoretical expectation is partly accepted.
4.3 Similarities and differences of the quasi-flow structures and autonomy levels

In the section 4.1 and 4.2 an overview is given of the results and analysis of the autonomy level, structure and the relationship between structure and autonomy level for both quasi-flow structures. In section 4.2 the geriatric quasi-flow and the surgery quasi-flow are compared in their differences and similarities. Potential reasons are mentioned and consequences are discussed. In table five, six and overviews are given of the analysis.

<table>
<thead>
<tr>
<th>Parameter values</th>
<th>Surgery QF</th>
<th>Geriatric QF</th>
<th>Similarities</th>
<th>Differences</th>
<th>Reasons</th>
</tr>
</thead>
<tbody>
<tr>
<td>1: fc</td>
<td>Moderate. Lowered with QF</td>
<td>Moderate. Lowered with QF</td>
<td>No extensive difference. Same structure, other caregivers</td>
<td>Fc is lowered with extra specialization of caregivers. However, caregivers still provide care for patients with variety of medical conditions</td>
<td></td>
</tr>
<tr>
<td>2: separation</td>
<td>Low. Lowered with QF</td>
<td>Low. Lowered with QF</td>
<td>No extensive difference. Same structure, other caregivers</td>
<td>Operational and regulatory tasks seem to be more integrated</td>
<td></td>
</tr>
<tr>
<td>3: specialization</td>
<td>Moderate to high.</td>
<td>Moderate to high.</td>
<td>No extensive difference. Same structure, other caregivers</td>
<td>- Specialization is not lowered with QF. Focus on own specialization and therefore sub-task</td>
<td></td>
</tr>
</tbody>
</table>

| Variability      | Moderate. Lowered with QF | Moderate. Lowered with QF | No extensive difference. Same structure, other caregivers | Variability of patients is moderate due to a moderate level of functional concentration | |
| # of relations   | Moderate. Lowered with QF | Moderate. Lowered with QF | No extensive difference. Same structure, other caregivers | The number of relations is moderate due to a low level of separation and a moderate to high level of specialization | |
| Oversight        | Low. Limitedly increased with QF | Low. Limitedly increased with QF | No extensive difference. Same structure, other caregivers | - The oversight of the process is low. The moderate to high level of specialization does not increase the oversight of the process. However, the level of collaboration and the explicitity of the quasi-flow structure might have a positive effect on the oversight of caregivers. - Geriatric quasi-flow is relatively new and therefore values of parameters are mere theoretical expectations | |
| Quality of care  | Moderate. Increased with QF | Moderate. Increased with QF | Overall, quality of care increased with QF | Quality of care is increased with separation of different complexity processes, specialization of caregivers and focus on multidisciplinary care | Cycle time for geriatric quasi-flow is higher due to medical condition of patient and less frequent coordination between caregivers |
| Cycle time       | 4 days | 6.5 days | Cycle time higher for geriatric QF | |

Table 5: Overview of the results and analysis of the geriatric and surgery quasi-flow – Structure

The structure for both departments is argued to be a quasi-flow. A flow structure is designed over the traditional functional departments. There are no extensive differences in the parameter values of both quasi-flow structures. Caregivers in the quasi-flow structure are either assigned to the quasi-flow or to the department. The functional concentration is lowered with the development of the quasi-flows. With the creation of the quasi-flows, caregivers specialized in the hip fracture patients. However, caregivers still provide care for patients with a variety of medical conditions since caregivers are also assigned to patients with other medical conditions. The operational and regulatory tasks seem to be more integrated with the creation of the quasi-flows. Caregivers are included for and given the responsibility to perform several regulatory tasks. The specialization in operational tasks is not lowered with the creation of quasi-flow structures. The focus of caregivers is on their own specialization and therefore they perform sub-tasks. The quality of care is supported with the creation of flows due to the separation of different complexity processes, the specialization of caregivers and the focus on multidisciplinary care. Caregivers furthermore mention that the quality of care could be further
increased by the creation of flows. The cycle time for the value-adding-process quasi-flow is shorter than for the solution shop quasi-flow. The complexity of the medical condition is of high influence on the cycle time. However, another possible reason for an increased cycle time in the solution shop quasi-flow, is the less frequent coordination between caregivers.

<table>
<thead>
<tr>
<th>AUTONOMY</th>
<th>Surgery QF</th>
<th>Geriatric QF</th>
<th>Similarities</th>
<th>Differences</th>
<th>Reasons</th>
</tr>
</thead>
<tbody>
<tr>
<td>API</td>
<td>Moderate to low (2.67)</td>
<td>Moderate to low (2.81)</td>
<td>Family companions have same score</td>
<td>Patients have higher score in geriatric quasi-flow</td>
<td>Overall low API due to the age and generation of patients, personal characteristics, trust in caregivers’ expertise,</td>
</tr>
<tr>
<td>SDM-Q-9</td>
<td>Moderate (3.75)</td>
<td>Moderate (3.50)</td>
<td>Patients have same score</td>
<td>Family companions have higher score in geriatric quasi-flow</td>
<td>Overall low SDM due to the number of treatment options, necessity to revalidate, communication techniques caregivers and the expectation that revalidation is the logical step after hospitalization.</td>
</tr>
<tr>
<td>Degree of participation</td>
<td>Low for which trajectory. Moderate for which residential care home.</td>
<td>Low for which trajectory. Moderate for which residential care home.</td>
<td>- Caregivers give advice for trajectory as a statement instead of a shared decision</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 6: Overview of the results and analysis of the geriatric and surgery quasi-flow – Autonomy

The autonomy level of patients and family companions is in both quasi-flows low to moderate. Patients of the value-adding-process quasi-flow have a higher desired autonomy level. Family companions of the solution shop quasi-flow have a higher desired autonomy level. The actual level of autonomy is limited through the number of treatment options, the necessity to revalidate, the communication techniques of caregivers and the expectation of caregivers that revalidation is a logical step after hospitalization. The actual level of autonomy is slightly higher for the solution shop quasi-flow than for the value-adding-process quasi-flow. Overall, in the solution shop quasi-flow more family meetings take place due to the complexity of the medical condition of the patient. Furthermore, the participants spoke to fewer caregivers in the solution shop quasi-flow which can indicate that the nine conditions for shared decision making are better secured. For both quasi-flows, the degree of participation is low. The degree of participation in the decision-making process for the trajectory to be followed is defined to be between ‘Paternalism’ and ‘Professional-as-agent’. Caregivers give their advice as a statement instead of a shared decision. The degree of participation in the decision-making process for where the trajectory will be followed is defined to be between ‘Professional-as-agent’ and ‘Shared-decision-making’. Patients and family companions seem to have more influence and control in the decision in which residential care home the revalidation will be followed. However, the degree of participation is limited through the capacity of residential care homes.
The surgery quasi-flow is defined to be a value-adding-process due to the standardized routine-based process followed in this quasi-flow. The patient population is non-vulnerable elderly patients with a lower level of co-morbidity and cognitional problems as in the geriatric quasi-flow. The decision-making process in the surgery department is supported by standards and rules. However, the geriatric quasi-flow is defined to be a solution shop due to the trial-and-error process followed in this quasi-flow. The medical conditions of the patient population in this quasi-flow ask for a less standardized and more knowledge-intensive process based on intuition and experience of caregivers. In the geriatric quasi-flow, more experts are included than in the surgery quasi-flow. The required coordination in both quasi-flows is lowered through the multidisciplinary meetings. In the value-adding-process quasi-flow the multidisciplinary meetings take place on a daily basis while in the solution shop quasi-flow the multidisciplinary meetings only take place twice a week. The number of consults is decreased in the solution shop quasi-flow due to the supervision of the geriatrician. Overall, with the introduction of both quasi-flows the required coordination is lowered. Furthermore, with the development of the solution shop quasi-flow, the required coordination is further lowered due to the separation of activities on complexity levels and the inclusion of experts in this quasi-flow. The collaboration between caregivers is intensified with the creation of the quasi-flow structures. Caregivers describe that the collaboration in both quasi-flows is high. However, caregivers perform short-cycle tasks for their own specialism and provide information for the decision of aftercare for their own specialism. Therefore, the standards of the functional departments might overrule the standards of the quasi-flow structure.
Some extra statistical tests are performed to statistically analyze potential differences and similarities between the patients and/or family companions of the geriatric quasi-flow and of the surgery quasi-flow.

The desired and actual level of autonomy does not significantly differ between the two quasi-flows. If we look at the mean of the scales, we can conclude that the desired level of autonomy is lower for the geriatric quasi-flow than the surgery quasi-flow. The actual level of autonomy is higher for the geriatric quasi-flow than the surgery quasi-flow. However, the differences in the mean of both scales are minimal and therefore not significant.

Theory suggests that the preference for the degree of participation of patients and family companions is of influence on the actual level of autonomy (Elwyn, 2000; Thompson, 2007). However, statistical tests show that for the case under investigation this is not necessarily the case. The correlation between the API and the SDM for the geriatric quasi-flow is -.532. This means there is a moderate negative relationship between the API and the SDM. Meaning, a higher desired level of autonomy resulted in a lower actual level of autonomy. This could indicate that participants of the geriatric quasi-flow with a higher API expected to have more autonomy in the actual situation and therefore scored lower on the SDM. The correlation between the API and the SDM for the surgery quasi-flow is .241. This means there is a weak to moderate positive relationship between the API and the SDM. Meaning, a higher desired level of autonomy resulted in a higher actual level of autonomy.

However, the Pearson-correlation shows a non-significant result. This indicates that the desired level of autonomy and the actual level of autonomy was in this case not of significant influence on each other. The significance value is affected through the sample size and is therefore in this case expected to be non-significant. Therefore, the interpretation of the correlation is still of value.
5. Conclusion and reflection

In this chapter, an overall conclusion will be given to provide insight into the relationship between the structure of general hospitals and the autonomy level of patients and family companions. The chapter is divided into three sections. In section 5.1 a conclusion is given through answering the central research question. In section 5.2 a reflection on the research and outcomes is given. Theoretical and practical implications are discussed. In section 5.3 managerial recommendations are given for the general hospital under investigation in this research.

5.1 Conclusion

This thesis focused on the relationship between value-adding-process and solution shop quasi-flow structures and the autonomy level of elderly patients and family companions. The central research question was:

*What is the relationship between value-adding-process and solution shop quasi-flow structures of general hospitals and the autonomy level of elderly patients and family companions?*

The aim of this research was to answer this question through both, a theoretical exploration and an empirical research through conducting a comparative case study. Therefore, the objective of this thesis was two-fold: first to provide a theoretical exploration concerning the quality of care through providing insight into the relationship of value-adding-process and solution shop quasi-flow structures and the autonomy level of patients and family companions in general hospitals and second, to empirically analyze this theoretical exploration through conducting a comparative case study.

The theoretical exploration gave insight into the relationship between value-adding-process and solution shop quasi-flow structures in general hospitals and the autonomy level of elderly patients and family companions. The autonomy level of elderly patients and family companions, the structure of quasi-flows and the relationship between both concepts are theoretically analyzed.

In current literature, the autonomy level of patients receives increased attention. Theorists acknowledge that it is the patient who defines value in healthcare medicine. To increase the value creation in medicine, the definition of value should be known. Therefore, the patient should participate in the decision-making process. However, the autonomy level of patients is affected among other things by the patient’s preference for the degree of participation and the conditions provided by caregivers to encourage patients in shared-decision-making. This research included elderly patients with a hip fracture. However, patients often dealt with co-morbidity and cognitional problems. Therefore, the family companion played an important role in the decision-making process.
In this thesis, three structural designs of the general hospital were identified: functional departments, flows and quasi-flows. Current literature describes the need to transform the general hospital structure from functional departments to flow structures. The flow structures should divide medical process types on their complexity level which results in a simplified structure and therefore increased the quality of care and valuable outcomes for patients. However, the practical execution of this theoretical prescription results in the creation of quasi-flows. The structure of quasi-flows is understudied in current literature. In this thesis, a definition is developed for the often used structure in general hospitals nowadays. A quasi-flow is defined to be a structure in which a process is designed over the functional departments whereby caregivers stemming from different specialisms are grouped together in a flow but keep their relationship with the functional department.

The consequences of a quasi-flow structure on the performance of the organization are unknown in current literature and practice. Literature available about functional department and flow structures is in this thesis combined to develop theoretical expectations for the potential relationship between the quasi-flow structure and the autonomy level of elderly patients and family companions. The following three theoretical expectations were constructed:

1. The quasi-flow structure leads to a higher level of autonomy of elderly patients and family companions than the functional departments, but a lower level of autonomy than the flow structure. This is because the structure of a quasi-flow scores moderate values on the three parameters of De Sitter (1994;1997);

2. The autonomy level of elderly patients and family companions is lower in a solution shop than in the value-adding-process, in case the quasi-flow structure results in problems in the coordination and collaboration between caregivers and there is no supervisor who integrates the multidisciplinary information;

3. The autonomy level of elderly patients and family companions is higher in a solution shop than in the value-adding-process, in case the quasi-flow structure does not result in problems in the coordination and collaboration between caregivers and there is a supervisor who integrates the multidisciplinary information. The leeway to deviate from standards might be higher in the solution shop than the value-adding-process which results in a higher level of autonomy.

The empirical research partly illustrates the theoretical expectations.

The reasoning of the first theoretical expectation is illustrated by the empirical research. The case study indicated that with the creation of quasi-flow structures the parameter values of De Sitter (1994;1997) are lowered in comparison to the structure of functional departments. However, it is also
analyzed that the parameter values do not have the low values which could have been attained with the creation of a flow structure. The functional departments increase the values of the parameters wherefore the quasi-flow structure has a moderate support for the level of autonomy of elderly patients and family companions. The first parameter is the functional concentration. With the creation of quasi-flows, the functional concentration is lowered through the specialization of caregivers in a certain complexity process type or medical condition. However, caregivers keep their relationship to the functional departments and are therefore still responsible for a variety of patients. The variability of patients is decreased with the creation of quasi-flows due to the specialization of caregivers. However, it could potentially further be decreased with the creation of flows. The second parameter is the separation of operational and regulatory tasks. With the creation of the quasi-flow, the operational and regulatory tasks are more integrated. The number of relations is possibly decreased with the creation of quasi-flows. The caregivers do not have a relationship to every caregiver due to their specialization. However, the number of relations could further be reduced with the creation of a flow. The third parameter is the specialization in operational tasks. This parameter is not necessarily decreased with the creation of a quasi-flow. Caregivers perform the same sub-cycle task in the quasi-flow structure as performed in a functional department. Caregivers are responsible for their specialism in the quasi-flow. Several reasons can be given why caregivers’ tasks are not enriched with the creation of quasi-flows such as the education of caregivers, the initial focus on specialisms and the lowered collaboration due to the preservation of functional departments. The oversight of the processes is not increased in the quasi-flow structure due to level of specialization in operational tasks. However, with the creation of flows, caregivers are more updated about the trajectory a patient follows within the general hospital since this trajectory is visibly explained and documented. Furthermore, the level of collaboration is increased with the creation of quasi-flows and therefore caregivers are better informed of other caregivers’ tasks and the communication between caregivers is facilitated. Therefore, the oversight of the process can still be increased with the creation of quasi-flows. Furthermore, in the case under investigation, the general hospital intensified the relationship with care organizations over the complete cycle of care since the introduction of the quasi-flow structures. It seems that the hospital slowly and incrementally shifts from a mindset focused on specialisms and departments to a mindset focused on the flow and complete cycle of care.

The reasoning of the second theoretical expectation partly differs from the findings in the empirical research. The reasoning behind this theoretical expectation is that the value-adding-process can be better standardized and therefore requires less coordination and collaboration than the solution shop. In this research, this reasoning was supported. In the geriatric quasi-flow, the medical conditions were complex and patients could therefore not always be approached in a standardized manner. Caregivers in the value-adding-process quasi-flow could more easily make agreements on the standardized trajectory to be followed. Therefore, the process of the quasi-flow was more standardized and
caregivers’ responsibilities and tasks were clearly described. However, the responsibility of the
caregiver who communicates with the patient and family companion about aftercare was not specified.
The reasoning behind the theoretical expectation is that if the coordination and collaboration between
caregivers are low or moderate, patients and family companions will be approached through several
caregivers who might give inconsistent advices. Therefore, the autonomy level of the patient would be
decreased. In this research, this reasoning was also supported. The nine conditions to encourage
patients and family companions to participate in the decision-making process were not always
provided. There was no caregiver assigned responsible for the communication about aftercare with
patients and family companions in both quasi-flows. During the analysis, this was seen as a potential
reason why the autonomy level of patients and family companions was low. A further reasoning
behind the theoretical expectation is that if the coordination and collaboration between caregivers are
low and there is no supervisor who integrates the multidisciplinary information, the autonomy level of
the patient will be decreased. The patient will not correctly be informed about and included in the
decision-making process. In this research, this reasoning was supported for both quasi-flow structures.
The geriatrician played an important role in the integration of the information about aftercare.
However, this advice was not communicated to the patient and family companion. Therefore, the level
of collaboration and coordination in the geriatric quasi-flow did not lead to a correct communication to
patients and family companions. However, in the theoretical expectation a distinction is made between
the value-adding-process quasi-flow and the solution shop quasi-flow. The low collaboration and
coordination between caregivers would have a greater impact on the undeterminable and complex
solution shop than the standardized value-adding-process. However, in this case, there was no
significant difference in the level of autonomy between both quasi-flow structures. Furthermore, the
actual level of autonomy for family companions in the geriatric quasi-flow was higher than in the
surgery quasi-flow. Both flows had problems in the level of coordination and collaboration. However,
the existence of the geriatrician potentially lowered the required coordination and increased the
collaboration in the solution shop wherefore this process was not more negatively affected by the
quasi-flow. Therefore, the reasoning of the second theoretical expectation is not illustrated by this
empirical research. Therefore, the quasi-flow structure in the geriatric department was relatively new
and the first quasi-flow structure for this functional department. Therefore, in the future, this
theoretical expectation can still be supported if the quasi-flow structure further develops and multiple
quasi-flow structures are created for the functional department. The required coordination will
increase and the level of collaboration might decrease in case multiple quasi-flow structures are
created. The structure will be complicated instead of simplified with the creation of multiple quasi-
flows.

The reasoning of the third theoretical expectation is partly illustrated by the empirical study. The
collaboration between caregivers is intensified in the quasi-flow structure in contrast to a functional
department structure. However, the functional departments still play an important role in the quasi-flow structure which hinders the collaboration between caregivers. Caregivers are focused on their specialism instead of the quasi-flow structure. Therefore, the collaboration in the quasi-flow structure is potentially lower than in a flow structure. In the geriatric quasi-flow structure the geriatrician integrates the multidisciplinary information and coordinates between caregivers to lower the level of required coordination and support the level of collaboration. However, the geriatrician does not play a role in the communication with the patient and family companion. The last assumption for this theoretical expectation is the possible extent caregivers can deviate from standards. The theoretical expectation suggests that the leeway to deviate from standards might be higher in the complex solution shop than in the standardized value-adding-process. The solution shop is dependent on the individual patients’ medical condition and reactions on treatment options. While the value-adding-process is standardized and therefore independent of the individual patients’ medical condition. The number of treatment options would therefore potentially be higher in the solution shop quasi-flow than in the value-adding-process quasi-flow. However, in the case under investigation, this was not necessarily the case. For the surgery quasi-flow the treatment options were: revalidation at home, revalidation in a residential care home or in a minority of cases living in a residential care home. For the geriatric quasi-flow the treatment options were: revalidation in a residential care home, living in a residential care home or in a minority of cases revalidation at home. For both quasi-flow structures, the treatment option revalidation in a residential care home was by far the most chosen option. Therefore, the assumptions of the theoretical expectation are only partly met. The theoretical expectation would be partly supported if the level of autonomy of elderly patients and family companions was higher for the geriatric quasi-flow than for the surgery quasi-flow. However, statistical analysis demonstrates that the actual level of autonomy does not significantly differ between the population of the geriatric and surgery quasi-flow. Nevertheless, a descriptive statistical analysis shows that the actual level of autonomy of family companions in the geriatric quasi-flow (3.87) is higher than in the surgery quasi-flow (3.19). Therefore, this theoretical expectation is partly accepted.

By the analyses of these theoretical expectations, this thesis provided insight into the relationship between value-adding-process and solution shop quasi-flow structures and the autonomy level of elderly patients and family companions.

5.2 Reflection
In this section, a reflection is given on the results, theoretical contribution and practical effects of the thesis. A reflection on the methodology is already given in sections 3.6 Quality of the research and 3.7 Limitations. The quality and limitations of the methodological research were discussed in these sections. Therefore, this section solely focuses on the theoretical and practical implications. Possible limitations and recommendations for further research are provided throughout this section.
5.2.1 Theoretical implications

With this thesis, a first theoretical exploration of the quasi-flow structure is provided. The current literature of especially De Sitter (1994;1997) and Christensen et al. (2009) is consulted to describe the practical quasi-flow structure of general hospitals nowadays. Furthermore, a distinction I made in value-adding-process and solution shop quasi-flows. Surprisingly, the literature available to quasi-flow structures was limited. This thesis could be a first start to theoretically think about quasi-flow structures and potential consequences of this structural design. The outcomes of this empirical research could potentially contribute to or even start theoretical discussions.

The current literature describes two structures for general hospitals: functional departments and flows (Armony et al., 2015; Bodt, 1995; Christensen et al., 2009; Hall et al., 2013; Kreindler, 2018; Liberati & Scaratti, 2016; Porter & Teisberg, 2006). However, this thesis described that in practice hospitals design their structure with a hybrid form of these two structures: the quasi-flow structure. This thesis developed a definition for the practical quasi-flow structure. Insights of current literature (Christensen et al., 2009; De Sitter, 1994;1997) are combined to describe the potential design and effects of this practical often occurring structure in general hospitals nowadays. Current literature describes ‘ideal’ structures, while in practice often hybrid structures evolve. Therefore, literature could focus on these hybrid structures to give practitioners insight into the practical structures used and potential consequences of hybrid instead of ‘ideal’ structures.

This thesis describes the genesis of the quasi-flow structure to be a result of the impractical feasibility of the disruptive character of flow structures nowadays and the unawareness of practitioners for the differences between flow and quasi-flow structures. The current literature does not describe how a flow structure could practically be developed in today’s healthcare system. The theories of Christensen et al. (2009) and Porter & Teisbergh (2006) generally describes the need for the creation of flows and possible requirements to develop these flows. However, individual care organizations will not maximally benefit from these theories for the actual development of flow structures. Individual general hospitals are at the moment dealing with a pressure to change the structural design of the organization without knowing which steps to take to actually create a flow structure. This leads to the creation of quasi-flow structures. The structure of quasi-flows is understudied through current literature and therefore the design and consequences are unknown. With the creation of multiple quasi-flows, the structure of the general hospital can be complicated instead of simplified. Current literature should provide more attention to the consequences of the design of quasi-flow structures and provide practical insight into the design of flow structures in today’s healthcare system.

The theory of Christensen et al. (2009) advocates for the design of value-adding-process flows and solution shop flows. However, in practice, it seems that caregivers and management consider a flow
structure to be a standardized streamlined process in which caregivers are collaborating to provide care for a medical condition. Therefore, the option to create a flow for a solution shop process is often not acknowledged in practice. This thesis gave a first insight into the difference of creating a value-adding-process flow and a solution shop flow. Current literature could build on the reasoning and be more explicit in whether and how flow structures can be developed for especially more intuitive medical conditions. Furthermore, potential differences in the creation and consequences of value-adding-process flows and solution shop flows could be addressed.

With this thesis, insight is given into the design and effects of the quasi-flow structure on the performance of the organization. The hybrid structure is analyzed for its potential to support autonomy level for patients which is considered to be an essential condition for patients’ value creation. Ideas about structural change and value creation for patients are currently of high importance in literature and practice (Porter & Teisbergh, 2006). However, direct relationships between the structure and the value creation for patients were limitedly described through literature. This thesis proposed some thoughts and theoretical expectations on how a structure can facilitate the value creation process of patients.

Furthermore, this research focused on elderly patients. Due to the aging population, it is expected that the demand for care will increase for the elderly patient population. Current literature increasingly prescribes the necessity of the design of so-called ‘Age-Friendly Hospitals’ (Chiou & Chen, 2009; Fulmer et al., 2018). The ideas around the concept of ‘Age-Friendly Hospitals’ could be combined with ideas for the creation of flows. In this thesis, it was argued that especially elderly patients are affected by the design of the general hospital. The flow structure could potentially lead to a better structure for especially elderly patients. Current literature should combine the expectation of the increase in the demand for care for elderly patients and the need for the creation of flows. Insights of this important patient population can be integrated into design ideas for general hospitals.

Besides the focus on the structural design of general hospitals, this thesis focused on the autonomy level of elderly patients and family companions. Current literature acknowledges the increased focus on patient autonomy and participation (Cook et al., 2015; Dent & Pahor, 2015; Thompson, 2007; Renedo et al., 2015). However, current literature gives conflicting results about whether patient participation is desirable and which potential negative consequences can occur (Mead & Bower, 2000; Holmstrom & Roing, 2010; Penny & Wellard, 2007; Thompson, 2007). This thesis advocates for the focus on patient autonomy and describes patient autonomy to be an essential condition for value creation in healthcare.
Furthermore, elderly patients and family companions are often neglected in theory of and research to patient autonomy (Garvenlik et al, 2016; Murray et al., 2006). Even though the medical condition of this patient population can form an obstacle for patient participation, this thesis advocates for the autonomy level of elderly patients. Furthermore, the inclusion of family companions is for this patient population an essential requirement. However, the role of family companions in the medical decision-making process is often neglected through current literature. In future research and theoretical literature, the role of family companions could be addressed for especially patient populations such as elderly, children, disabled and chronically ill patients.

5.2.2 Practical implications
The theoretical implications have their effect on the practical situation in the healthcare sector. Care organizations, designers, medical practitioners, patients, the society and the healthcare system at large benefit from theoretical insights. The practical implications of a better insight into the relationship between value-adding-process and solution shop quasi-flow structures and the autonomy level of elderly patients and family companions will be addressed.

The most prominent stakeholders of the topic of this thesis are the patient and family companion. The increase in the value creation within healthcare for elderly patients and family companions is the overall aim of the creation of flows. The autonomy level of elderly patients and family companions is the essential condition to support the value creation. It is, in the end, the patient who will benefit from a better understanding of the relationship between structure and the value creation for patients.

This thesis gave insight into the genesis of quasi-flow structures and therefore the practical situation of general hospitals. Potential positive and negative consequences of quasi-flow structures are indicated. Therefore, insight is given into whether the quasi-flow structure is a practical solution to redesign the structure of the general hospital. General hospitals and especially designers of general hospitals are currently dealing with the pressure to design flow structures. However, they do not have a toolbox for the actual creation of these flow structures. The designers of general hospitals aim to increase the value creation of patients with the creation of flows. However, designers might not be aware of the differences between quasi-flow and flow structures. Furthermore, for the creation of flows, a disruptive change of an individual organization should be supported with a disruptive innovation in the healthcare sector at large. Through the incremental character of the change and the lack of insight into how a quasi-flow differs from a flow structure, quasi-flows are developed without knowing what the consequences of this structure are. Theory should therefore not only address the needs for the creation of flows but also provide a practical toolbox for the actual creation of flows and inform practitioners about potential consequences of the design of quasi-flows. In this way, practitioners are helped with the creation of flow structures and therefore with the creation of value for patients.
Furthermore, this thesis addressed the differences in solution shop quasi-flows and value-adding-process quasi-flows. Designers of the hospital should incorporate the different complexity levels of processes in the design of flows. Literature can support practitioners by providing insight into the differences in these flows and potential design ideas for the creation of these flows.

Furthermore, the healthcare sector should feel the need for a disruptive innovation. The possible consequences of incremental instead of disruptive innovations should be addressed. By providing insight into positive but also negative consequences of quasi-flow structures the healthcare sector can be informed about the need for a disruptive innovation.

This thesis focused on the structure and autonomy level of elderly patients and family companions. Insight is given to designers of the general hospital of the necessity to incorporate this important elderly patient population in the design of the structure of the hospital. The elderly patient population is expected to grow and therefore take an even more important role in the healthcare sector.

Furthermore, caregivers can benefit from the creation of flows. Even though all the caregivers replied with resistance to the creation of flows, this thesis indicated that the quality of work will increase with the creation of flows. The level of absenteeism and personnel turnover will decrease due to lower stress conditions. The opportunities to be involved, learn and develop for caregivers are supported in the flow structure.

5.3 Managerial recommendations for the case
The empirical research is performed through a comparative case study in a general hospital. The aim of the thesis was two-fold: a theoretical exploration and an empirical research. The focus of the thesis is on the theoretical exploration. Even though the diagnosis of the structure and autonomy level in this particular general hospital is not the main focus of the thesis, some managerial recommendations for the case under investigation can be formulated. Furthermore, through isomorphic learning, these managerial recommendations could possibly be consulted in other similar cases (Symon & Cassell, 2012).

The first recommendations will focus on the autonomy level of elderly patients and family companions.

First, it would be beneficial if caregivers become aware of the desired and actual autonomy level of elderly patients and family companions in both quasi-flows. The situation, knowledge and expectations of patients and family companions should be reintroduced to caregivers. Caregivers mentioned that the final decision for aftercare is made by the patient and the role of caregivers is
limited to advising the patient and family companion in making this decision. However, patients and family companions stated that it was often the caregiver who made the final decision. Patients and family companions were minimally informed and involved in the decision-making process. Caregivers’ view on the decision-making process does not fully correspond to the view of patients and family companions.

Second, caregivers should become aware of their own communication towards the patient and family companion and possibly correct their communication with the nine conditions of Ende et al. (1989). Caregivers could focus more extensively on informing and explaining considerations to patients and family companions. The number of treatment options for aftercare is affected and limited by, for example, the necessity to revalidate, the medical and social situation of patients, and external influences such as the capacity of residential care homes. Therefore, it was often seen through caregivers as logical that the final decision for aftercare was revalidation at a residential care home which at that moment had enough capacity for an extra patient. Some patients and family companions understood this logical step after hospitalization and did not require any more information. However, there were also patients and family companions who simply wanted more information. The autonomy level can be increased with some corrections in the communication between caregivers, patients and family companions. Patients and family companions mentioned they were minimally informed about the considerations for the choice of aftercare and sometimes even confused about the next steps in the care trajectory. In the observation of the multidisciplinary meeting, it became clear that caregivers discuss the individual situation of the patient and consider the treatment options. However, the information and considerations are not communicated to the patient and family companion. The nine conditions of Ende et al. (1989) could form the basis of the conversation between caregivers, patients and family companions.

Third, the caregivers’ point of view on autonomy of especially elderly patients should receive more attention. Caregivers are skeptical about the autonomy level of elderly patients and family companions. However, autonomy and participating in the decision-making process can take several forms depending on the medical condition of the patient, the number of treatment options and the medical expertise of patients and family companions. In this case, it would be beneficial to inform patients and family companions of the considerations made by caregivers, the benefits and risks of the treatment options and consequences of the final decision taken. Providing autonomy to patients does not directly mean giving the full power to the patient. Especially in this patient population, the focus should be on supporting shared-decision-making.

Fourth, in the current quasi-flows structure, caregivers are not assigned responsible for the conversation with the patient and family companion about aftercare. Caregivers gave conflicting
answers on the question which caregiver is responsible to discuss the trajectory of aftercare. Therefore, caregivers might not feel the responsibility to inform patients and family companions extensively about the decision that should be made. Caregivers might inform the patient and family companion only through providing the information gathered for the specialism of the caregiver. Therefore, the overall purpose and trajectory of aftercare are minimally explained to patients and family companions. Furthermore, caregivers do not know what is discussed with the patient and family companion by other caregivers. The conditions to inform and encourage patients and family companions to participate in the decision-making process can therefore easily be missed.

Fifth, leaflets and digital information about the aftercare process can support the communication of the caregivers with the patients and family companions. In the documents of the hospital, it is stated that leaflets are available about the hospitalization trajectory, the aftercare after hospitalization and the other care organizations in the cycle of care. However, during the research, it became clear that these leaflets are at the moment not used to inform patients and family companions. The patient population under investigation could especially benefit extensively and even repeatedly from being informed about the aftercare process. The patients’ medical condition is often characterized with cognitional problems such as dementia or a delirium. Therefore, patients were often confused and nervous about the aftercare process. A simple leaflet or digital information on a tablet can potentially decrease the confusion of patients and family companions. The hospital could in collaboration with care organizations in the region, generate a short information movie about the aftercare process. The process of aftercare can be explained and the different residential care homes can be introduced in this movie.

Furthermore, some recommendations are given for the structural design of the quasi-flows of the surgery and geriatric department.

First, the general hospital is on the right path with their first attempts in the creation of flows. The necessity for a structural change and the creation of flows is acknowledged. The hospital has the aim to increase the quality of care and therefore the value creation of patients with the development of flows. However, the general hospital considers the quasi-flow structures to be a flow structure. The hospital should become aware of the differences between quasi-flow structures and flow structures and possible unforeseen consequences due to the creation of quasi-flows. The creation of several quasi-flows can create a more complex structure while the actual aim of the creation of these quasi-flows was the simplification of the structure.

Second, the hospital aims to separate value-adding-process activities from solution shop activities. With the development of the geriatric functional department, this separation started. The medical
conditions treated in the geriatric department are overall intuitive medical conditions. While the medical conditions in the surgery department are empirical or precision medical conditions. The hospital acknowledged that the elderly vulnerable hip fracture patients in the surgery quasi-flow were treated in a value-adding-process which was unsuitable for this patient population. Therefore, an extra quasi-flow structure is developed within the geriatric department. The purpose of creating flows is the separation of value-adding-process and solution shop activities. However, whenever flows are created on process type, the flows can be further created on medical condition. With the creation of the geriatric functional department, several solution shop are separated from value-adding-process activities. However, the hospital should become aware that the creation of a flow also entails the specialization in medical conditions. The quasi-flow structure of the geriatric and surgery department is called a hip fracture flow. However, caregivers are not necessarily assigned to the quasi-flow for hip fracture patients but to either the surgery or geriatric department. Therefore, the functional concentration in this quasi-flow is high. To benefit from the full potential of flow structures, the hospital should keep in mind that flow structures are created to focus on a specific medical condition. Therefore, the hospital should take care of assigning caregivers to departments instead of (quasi)-flows.

Third, the process and procedures developed for the surgery quasi-flow are taken over by the geriatric quasi-flow. However, the complexity level of the process between both quasi-flow structures differs extensively. The surgery quasi-flow is defined to be a value-adding-process quasi-flow, while the geriatric quasi-flow is defined to be a solution shop quasi-flow. Therefore, the surgery quasi-flow cannot be identical to the geriatric quasi-flow. The surgery quasi-flow can, for example, be better standardized than the geriatric quasi-flow and the geriatric quasi-flow has to implement extra procedures for vulnerable patients. Management and caregivers can come together to discuss possible adaptations which should be implemented in the current surgery quasi-flow to make the structure, process and procedure suitable for the complexity level in the geriatric quasi-flows. Insights of caregivers of both, the surgery and the geriatric department can be gathered. Caregivers of the surgery department are familiar with potential bottlenecks in the current structure for vulnerable elderly patients. Caregivers of the geriatric department are familiar with vulnerable elderly patients and potential solutions for these bottlenecks. Furthermore, with the information gathered an oversight of the quasi-flow structures can be developed to give caregivers more insight into the structure and responsibilities. At the moment, there is no document developed yet which visibly describes the quasi-flow structures all at once.

Fourth, to optimize the introduction of the quasi-flow structure of the geriatric department it would be beneficial to plan extra meetings with the caregivers of the geriatric quasi-flow besides the yearly meetings which are already scheduled. The agreements and procedures can be discussed and ideas can
be exchanged. During the research, it became clear that not all caregivers are informed about the quasi-flow structure. Investing time in some meetings will lower the daily required coordination between caregivers and therefore optimize the process. Furthermore, caregivers should be aware of the multidisciplinary care that is provided in the quasi-flow. Some meetings can benefit the mentality of caregivers to focusing on the quasi-flow structure instead of their own specialism.

Fifth, the multidisciplinary meeting between caregivers of the geriatric quasi-flow structure is planned twice a week. However, the cycle time of patients’ hospitalization was seemed to be affected by the infrequent planning of this multidisciplinary meeting. An analysis could be performed to whether more frequent multidisciplinary meetings for only the hip fracture patients of the department would benefit the cycle time and quality of care.

Sixth, the supervisor care of the surgery department has the responsibility for both quasi-flow structures of hip fracture patients. However, during the research, it became clear that the supervisor care of the surgery department is skeptical about the responsibility she is given and actually does not understand why a supervisor is needed for a quasi-flow since highly educated specialist are involved in this structure. However, the literature and this thesis advocate for the presence of an internist for the multidisciplinary care and a guardian over the process. Therefore, it is questionable whether the responsibility for both quasi-flows is given to the right person.
References


Appendices

Appendix I: An overview of the structure before surgery

An overview of the structure before surgery for patients with a hip fracture is given below. Depending on age, vulnerability and bed capacity, patients are treated in different quasi-flow structures in the hospital.
Appendix II: Numbers of patients above the age of 70 with a hip fracture in 2017

The figure below gives an overview of the number of patients with a hip fracture above the age of 70 in 2017. The total number of patients in 2017 were 449 which results in an average of 1.23 patients a day. The average number of days for hospitalization is 7.2.

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<th>Number of patients</th>
<th>Average number of days for hospitalization</th>
</tr>
</thead>
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<td>199299038</td>
<td>108</td>
<td>7.1</td>
</tr>
<tr>
<td>199299043</td>
<td>2</td>
<td>12.6</td>
</tr>
<tr>
<td>199299044</td>
<td>127</td>
<td>7.5</td>
</tr>
<tr>
<td>199299053</td>
<td>2</td>
<td>8.6</td>
</tr>
<tr>
<td>199299054</td>
<td>38</td>
<td>7.8</td>
</tr>
<tr>
<td>199299070</td>
<td>1</td>
<td>5.7</td>
</tr>
<tr>
<td>199299114</td>
<td>47</td>
<td>8.6</td>
</tr>
<tr>
<td>199299115</td>
<td>24</td>
<td>7.7</td>
</tr>
<tr>
<td>199299119</td>
<td>7</td>
<td>6.0</td>
</tr>
<tr>
<td>199299120</td>
<td>3</td>
<td>6.3</td>
</tr>
<tr>
<td>199299125</td>
<td>3</td>
<td>5.6</td>
</tr>
</tbody>
</table>

Total number of patients in 2017: 449

Average number of patients a day in 2017: 1.23
Appendix III: Translation of surveys

Initial English Version of the API and SDM-Q-9

Autonomy preference index (Ende et al., 1989):
1. The important medical decisions should be made by your caregiver, not by you
2. You should go along with your caregiver's advice even if you disagree with it
3. When hospitalized, you should not be making decisions about your own care
4. You should feel free to make decisions about everyday medical problems
5. If you are sick, as your illness become worse you want your caregiver to take greater control
6. You should decide how frequently you need a check-up

Translated by the forward-backward method (Sousa & Rojjanasrirat, 2010).

9-item shared decision making questionnaire (Kriston et al., 2010):
1. My caregiver made clear that a decision needs to be made
2. My caregiver wanted to know exactly how I want to be involved in making the decision
3. My caregiver told me that there are different options for treating my medical condition
4. My caregiver precisely explained the advantages and disadvantages of the treatment options
5. My caregiver helped me understand all the information
6. My caregiver asked me which treatment option I prefer
7. My caregiver and I thoroughly weighed the different treatment options
8. My caregiver and I selected a treatment option together
9. My caregiver and I reached an agreement on how to proceed

Translated by an official validation by a preference research (Rodenburg-Van den Bussche et al., 2015).

Forward-backward translation for the API survey

The four steps of the forward-backward translation method are:

Step 1: translation of original instrument into target language (forward-translation)
- Two translators, both Dutch
- One translator is knowledgeable about health terminology and context area of construct of instrument
- Other translator must be knowledgeable about cultural and linguistic nuances

Step 2: comparison of two translated versions of the instrument
- Third person to compare between both translations and compare the translations separately to the first version

Step 3: blind back-translation
- Two translators, both English
- One translator is knowledgeable about health terminology and context area of construct of instrument
- Other translator must be knowledgeable about cultural and linguistic nuances

**Step 4: comparison of two back-translated versions of the instrument**
- Third person to compare between both back-translations and compare the back-translations separately to the original instrument (Sousa & Rojjanasrirat, 2010).

This method is applied for the autonomy preference index (API). The procedure is given below.

**FROM ENGLISH TO DUTCH: FORWARD**

A third translator compared both translations first in similarities and dissimilarities. These are colored red. Furthermore, the third translator analyzed the translations with the initial English version. Similarities and dissimilarities are colored blue. The third translator decided which translation is the best translation based on both analysis. This resulted in the final Dutch translation.

**Step 1: translation of original instrument into target language (forward-translation)**

<table>
<thead>
<tr>
<th>Dutch translation one</th>
<th>(compared with Dutch translation two)</th>
<th>Executed by a Dutch translator with a high English proficiency (C1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Belangrijke medische beslissingen moeten door uw dokter gemaakt worden, niet door u</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. U moet mee gaan in het advies van uw doctor zelfs als u het er niet mee eens bent</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Wanneer u bent opgenomen in het ziekenhuis, moet u geen beslissingen over uw eigen zorg nemen</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. U moet zich vrij voelen om beslissingen te nemen over dagelijkse medische problemen</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Als u ziek bent, en uw aandoening verslechterd dan wilt u dat uw dokter meer controle neemt.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. U moet beslissen hoe frequent u een controle nodig heeft</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dutch translation two</th>
<th>(compared with initial English version)</th>
<th>Executed by a Dutch translator with medical knowledge and moderate English proficiency (B2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Belangrijke medische beslissingen moeten genomen worden door uw dokter, niet door u</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. U volgt het dokters’ advies zelfs als u het er niet mee eens</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. In geval u opgenomen bent, neem je geen beslissingen over uw eigen zorg</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. U moet zich vrij voelen om beslissingen te nemen over dagelijkse medische problemen</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Als u ziek bent, en de ziekte toeneemt dan wilt u dat de dokter meer controle gaat uitoefenen</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. U moet beslissen hoe vaak u een check-up nodig heeft</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Step 2: comparison of two translated versions of the instrument**

<table>
<thead>
<tr>
<th>Dutch translation one</th>
<th>(compared with initial English version)</th>
<th>Executed by a Dutch translator with an advanced English proficiency (C1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Belangrijke medische beslissingen moeten door uw dokter gemaakt worden, niet door u</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. U moet mee gaan in het advies van uw doctor zelfs als u het er niet mee eens bent</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
3. Wanneer u bent opgenomen in het ziekenhuis, moet u geen beslissingen over uw eigen zorg nemen
4. U moet zich vrij voelen om beslissingen te nemen over dagelijkse medische problemen
5. Als u ziek bent, en uw aandoening verslechterd dan wilt u dat uw dokter meer controle neemt.
6. U moet beslissen hoe frequent u een controle nodig heeft

**Dutch translation two**

*(compared with initial English version)*

*Executed by a Dutch translator with medical knowledge and moderate English proficiency (B2)*

1. Belangrijke medische beslissingen moeten genomen worden door uw dokter, niet door u
2. U volgt het dokters' advies zelfs als u het er niet mee eens
3. In geval u opgenomen bent, neem je geen beslissingen over uw eigen zorg
4. U moet zich vrij voelen om beslissingen te nemen over dagelijkse medische problemen
5. Als u ziek bent, en de ziekte toeneemt dan wilt u dat de dokter meer controle gaat uitoefenen
6. U moet beslissen hoe vaak u een check-up nodig heeft

**Final Dutch translation**

1. Belangrijke medische beslissingen moeten genomen worden door uw dokter, niet door u
2. U volgt het dokters' advies zelfs als u het er niet mee eens
3. In geval u opgenomen bent, moet u geen beslissingen over uw eigen zorg nemen
4. U moet zich vrij voelen om beslissingen te nemen over dagelijkse medische problemen
5. Als u ziek bent, en de ziekte verslechterd dan wilt u dat de dokter meer controle neemt
6. U moet beslissen hoe frequent u een controle nodig heeft

**FROM DUTCH TO ENGLISH: BACKWARD**

A third translator compared both translations first in similarities and dissimilarities. These are colored red. Furthermore, the third translator compared the translations to the initial English version. The conclusion can be made that translations differ only slightly to the initial English version. However, the Dutch version is adapted the specific situation of this thesis. The doctor is, for example, changed in caregiver and based on some experiences after the first surveys with patients and family companions, some adaptations to the language use are made.

**Step 3: blind back-translation**

**English translation one**

*(compared with English translation two)*

*Executed by a Dutch translator with native English proficiency (C2)*

1. Important medical decisions should be taken by your doctor, not by yourself
2. You should take the advice of your doctor, even if you do not agree
3. When you are hospitalized, you should not make decisions about your own care
4. You should feel free to make decisions about daily medical issues
5. When you are ill and your condition gets worse, you want your doctor to take more control
6. You should decide about the frequency of your check ups
**English translation two**
(compared with English translation one)
Executed by a Dutch translator with advanced English proficiency (C1)

1. Important medical decisions should be taken by your doctor, not by you
2. You should follow the doctor’s advice, even if you do not agree with it
3. When hospitalized, you should not take decisions about your own care
4. You should feel free to take decisions about daily medical issues
5. If you are sick and your condition gets worse, you want your doctor to take greater control
6. You should decide how frequently you need a check-up

**Step 4: comparison of two back-translated versions of the instrument**

**English translation one**
(compared with initial English version)
Executed by a Dutch translator with native English proficiency (C2)

1. Important medical decisions should be taken by your doctor, not by yourself
2. You should take the advice of your doctor, even if you do not agree
3. When you are hospitalized, you should not make decisions about your own care
4. You should feel free to make decisions about daily medical issues
5. When you are ill and your condition gets worse, you want your doctor to take more control
6. You should decide about the frequency of your check ups

**English translation two**
(compared with initial English version)
Executed by a Dutch translator with advanced English proficiency (C1)

1. Important medical decisions should be taken by your doctor, not by you
2. You should follow the doctor’s advice, even if you do not agree with it
3. When hospitalized, you should not take decisions about your own care
4. You should feel free to take decisions about daily medical issues
5. If you are sick and your condition gets worse, you want your doctor to take greater control
6. You should decide how frequently you need a check-up

**Final Dutch translation of the API survey**

1. Belangrijke medische beslissingen moeten genomen worden door uw zorgverlener en niet door u
2. U volgt het advies van uw zorgverlener zelfs als u het er niet mee eens bent
3. In geval u opgenomen bent, moet u geen beslissingen over uw eigen zorg maken
4. U moet zich vrij voelen om beslissingen te nemen over dagelijkse medische problemen
5. Naarmate uw medische aandoening verslechterd, wenst u dat uw zorgverlener meer controle neemt
6. U moet beslissen hoe frequent u op controle dient te komen
Dutch translation of SDM-Q-9

For the translation of the SDM-Q-9, a validated Dutch translation is used. A previously performed research translated the original English survey to Dutch (Rodenburg-Van den Bussche et al., 2015).

1. Mijn zorgverlener heeft mij duidelijk gemaakt dat er een beslissing genomen moest worden
2. Mijn zorgverlener wilde precies van mij weten hoe ik betrokken wou worden in het maken van de beslissing
3. Mijn zorgverlener heeft mij verteld dat er verschillende behandelmogelijkheden zijn voor mijn medische aandoening
4. Mijn zorgverlener heeft mij de voor- en nadelen van de behandelmogelijkheden precies uitgelegd
5. Mijn zorgverlener heeft mij geholpen om alle informatie te begrijpen
6. Mijn zorgverlener heeft mij gevraagd welke behandelmogelijkheid mijn voorkeur had
7. Mijn zorgverlener en ik hebben de verschillende behandelmogelijkheden grondig afgewogen
8. Mijn zorgverlener en ik hebben samen een behandelmogelijkheid uitgekozen
9. Mijn zorgverlener en ik hebben een afspraak gemaakt over het verdere vervolg
Appendix IV: Final surveys to the autonomy level of patients and family companions

**Survey for patients**

<table>
<thead>
<tr>
<th>Code</th>
<th>Patiënt/mantelzorg</th>
<th>Afdeling</th>
<th>Geriatrie/chirurgie</th>
</tr>
</thead>
</table>

**VRAGENLIJST NAAR DE BETROKKENHEID VAN PATIËNTEN**

Bedankt voor uw deelname aan het onderzoek. Er worden eerst stellingen aan u voorgelegd over uw gewenste mate van betrokkenheid bij het maken van medische beslissingen in het algemeen. Daarna worden er stellingen aan u voorgelegd over uw gewenste mate van betrokkenheid bij het maken van beslissingen voor de huidige ziekenhuis opname omtrent de nazorg/revalidatie. Uiteindelijk worden er nog enkele algemene vragen gesteld.

---

**Stellingen over de gewenste mate van betrokkenheid in het algemeen bij het maken van medische beslissingen**

<table>
<thead>
<tr>
<th>Stelling</th>
<th>Option 1</th>
<th>Option 2</th>
<th>Option 3</th>
<th>Option 4</th>
<th>Option 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Belangrijke medische beslissingen moeten genomen worden door uw zorgverlener en niet door u</td>
<td>Helemaal oneens</td>
<td>Oneens</td>
<td>Neutraal</td>
<td>Eens</td>
<td>Helemaal eens</td>
</tr>
<tr>
<td>2. U volgt het advies van uw zorgverlener zelfs als u het er niet mee eens bent</td>
<td>Helemaal oneens</td>
<td>Oneens</td>
<td>Neutraal</td>
<td>Eens</td>
<td>Helemaal eens</td>
</tr>
<tr>
<td>3. In geval u opgenomen bent in het ziekenhuis, moet u geen beslissingen over uw eigen zorg maken</td>
<td>Helemaal oneens</td>
<td>Oneens</td>
<td>Neutraal</td>
<td>Eens</td>
<td>Helemaal eens</td>
</tr>
<tr>
<td>4. U moet zich vrij voelen om beslissingen te nemen over dagelijkse medische problemen</td>
<td>Helemaal oneens</td>
<td>Oneens</td>
<td>Neutraal</td>
<td>Eens</td>
<td>Helemaal eens</td>
</tr>
<tr>
<td>5. Naarmate uw medische aandoening verslechterd, wenst u dat uw zorgverlener meer controle neemt</td>
<td>Helemaal oneens</td>
<td>Oneens</td>
<td>Neutraal</td>
<td>Eens</td>
<td>Helemaal eens</td>
</tr>
<tr>
<td>6. U moet beslissen hoe vaak u op controle dient te komen</td>
<td>Helemaal oneens</td>
<td>Oneens</td>
<td>Neutraal</td>
<td>Eens</td>
<td>Helemaal eens</td>
</tr>
<tr>
<td></td>
<td>Mijn zorgverlener heeft mij duidelijk gemaakt dat er een beslissing genomen moest worden</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>------------------------------------------------------------------</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Helemaal oneens</td>
<td>Oneens</td>
<td>Enigszins oneens</td>
<td>Enigszins eens</td>
<td>Eens</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Mijn zorgverlener wilde precies van mij weten hoe ik betrokken wou worden in het maken van de beslissing</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Helemaal oneens</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Mijn zorgverlener heeft mij verteld dat er verschillende behandelmogelijkheden zijn voor mijn medische aandoening</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Helemaal oneens</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Mijn zorgverlener heeft mij de voor- en nadelen van de behandelmogelijkheden precies uitgelegd</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Helemaal oneens</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Mijn zorgverlener heeft mij geholpen om alle informatie te begrijpen</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Helemaal oneens</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Mijn zorgverlener heeft mij gevraagd welke behandelmogelijkheid mijn voorkeur had</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Helemaal oneens</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Mijn zorgverlener en ik hebben de verschillende behandelmogelijkheden grondig afgewogen</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Helemaal oneens</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Mijn zorgverlener en ik hebben samen een behandelmogelijkheid uitgekozen</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Helemaal oneens</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Mijn zorgverlener en ik hebben een afspraak gemaakt over het verdere vervolg</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Helemaal oneens</td>
</tr>
</tbody>
</table>
## Overige vragen

<table>
<thead>
<tr>
<th>Welke zorgverlener(s) heeft u gesproken voor het maken van de keuze voor nazorg/revalidatie?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chirurg/orthopeed</td>
</tr>
<tr>
<td>Assistent-arts</td>
</tr>
<tr>
<td>Geriater</td>
</tr>
<tr>
<td>Fysiotherapeut</td>
</tr>
<tr>
<td>Maatschappelijk hulpverlener</td>
</tr>
<tr>
<td>Verpleegkundige</td>
</tr>
<tr>
<td>Overige, namelijk:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Wat was de rol van de mantelzorger ten aanzien van de patiënt bij het maken van de keuze voor nazorg/revalidatie?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Geen mantelzorger</td>
</tr>
<tr>
<td>Geen rol voor aanwezige mantelzorger</td>
</tr>
<tr>
<td>Verklarend (Mantelzorger ondersteunde de communicatie tussen patiënt en zorgverlener. Mantelzorger speelde geen rol in het maken van de uiteindelijke beslissing)</td>
</tr>
<tr>
<td>Ondersteunend (Mantelzorger ondersteunde de communicatie tussen patiënt en zorgverlener. Mantelzorger speelde wel een rol in het maken van de uiteindelijke beslissing)</td>
</tr>
<tr>
<td>Doorslaggevend (Er was geen communicatie tussen patiënt en zorgverlener. Mantelzorger heeft de verantwoordelijkheid voor het maken van de keuze op zich genomen)</td>
</tr>
<tr>
<td>Anders, namelijk:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Wat is uw leeftijd?</th>
</tr>
</thead>
<tbody>
<tr>
<td>_ jaar</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Wat is uw geslacht?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Man</td>
</tr>
<tr>
<td>Vrouw</td>
</tr>
</tbody>
</table>

**Bedankt voor uw deelname aan het onderzoek**
VRAGENLIJST NAAR DE BETROKKENHEID VAN MANTELZORGERS
Bedankt voor uw deelname aan het onderzoek. Er worden eerst stellingen aan u voorgelegd over uw gewenste mate van betrokkenheid bij het maken van medische beslissingen in het algemeen. Daarna worden er stellingen aan u voorgelegd over uw gewenste mate van betrokkenheid bij het maken van beslissingen voor de huidige ziekenhuis opname omtrent de nazorg/revalidatie. Uiteindelijk worden er nog enkele algemene vragen gesteld.

Beoordeel de stellingen in uw rol als mantelzorger.

**Stellingen over de gewenste mate van betrokkenheid in het algemeen bij het maken van medische beslissingen**

<table>
<thead>
<tr>
<th>Stelling</th>
<th>Helemaal oneens</th>
<th>Oneens</th>
<th>Neutraal</th>
<th>Eens</th>
<th>Helemaal eens</th>
</tr>
</thead>
<tbody>
<tr>
<td>7. Belangrijke medische beslissingen moeten genomen worden door de zorgverlener en niet door u (als mantelzorger)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. U volgt het advies van de zorgverlener zelfs als u het er niet mee eens bent</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. In geval de patiënt is opgenomen in het ziekenhuis, moet u geen beslissingen over de zorg van de patiënt maken</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. U moet zich vrij voelen om beslissingen te nemen over dagelijkse medische problemen van de patiënt</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. Naarmate de medische aandoening van de patiënt verslechterd, wenst u dat de zorgverlener meer controle neemt</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. U moet beslissen hoe vaak de patiënt op controle dient te komen</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Stellingen over de gewenste mate van betrokkenheid voor de huidige ziekenhuisopname bij het maken van beslissingen omtrent nazorg/revalidatie

Let op: voor de volgende stellingen zijn er andere antwoordmogelijkheden

<table>
<thead>
<tr>
<th>Stelling</th>
<th>Helemaal oneens</th>
<th>Oneens</th>
<th>Enigszins oneens</th>
<th>Enigszins eens</th>
<th>Eens</th>
<th>Helemaal eens</th>
</tr>
</thead>
<tbody>
<tr>
<td>10. Mijn zorgverlener heeft mij duidelijk gemaakt dat er een beslissing genomen moest worden</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. Mijn zorgverlener wilde precies van mij weten hoe ik betrokken wou worden in het maken van de beslissing</td>
<td></td>
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<tr>
<td>12. Mijn zorgverlener heeft mij verteld dat er verschillende behandelmogelijkheden zijn voor de medische aandoening van de patiënt</td>
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<td>13. Mijn zorgverlener heeft mij de voor – en nadelen van de behandelmogelijkheden precies uitgelegd</td>
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<td>14. Mijn zorgverlener heeft mij geholpen om alle informatie te begrijpen</td>
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<td>15. Mijn zorgverlener heeft mij gevraagd welke behandelmogelijkheid mijn voorkeur had</td>
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<td>16. Mijn zorgverlener en ik hebben de verschillende behandelmogelijkheden grondig afgewogen</td>
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<td>17. Mijn zorgverlener en ik hebben samen een behandelmogelijkheid uitgekozen</td>
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<td>18. Mijn zorgverlener en ik hebben een afspraak gemaakt over het verdere vervolg</td>
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</tbody>
</table>
**Overige vragen**

<table>
<thead>
<tr>
<th>Welke zorgverlener(s) heeft u gesproken voor het maken van de keuze voor nazorg/revalidatie?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chirurg/orthopeed</td>
</tr>
<tr>
<td>Assistent-arts</td>
</tr>
<tr>
<td>Geriater</td>
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<tr>
<td>Fysiotherapeut</td>
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<tr>
<td>Maatschappelijk hulpverlener</td>
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<td>Verpleegkundige</td>
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<tr>
<td>Overige, namelijk:</td>
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</tbody>
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<table>
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<tr>
<th>Wat was de rol van de mantelzorger ten aanzien van de patiënt bij het maken van de keuze voor nazorg/revalidatie?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Geen mantelzorger</td>
</tr>
<tr>
<td>Geen rol voor aanwezige mantelzorger</td>
</tr>
<tr>
<td>Verklarend</td>
</tr>
</tbody>
</table>
(Mantelzorger ondersteunde de communicatie tussen patiënt en zorgverlener. Mantelzorger speelde geen rol in het maken van de uiteindelijke beslissing) |
| Ondersteunend |
(Mantelzorger ondersteunde de communicatie tussen patiënt en zorgverlener. Mantelzorger speelde wel een rol in het maken van de uiteindelijke beslissing) |
| Doorslaggevend |
(Er was geen communicatie tussen patiënt en zorgverlener. Mantelzorger heeft de verantwoordelijkheid voor het maken van de keuze op zich genomen) |
| Anders, namelijk: |

*Bedankt voor uw deelname aan het onderzoek*
Appendix V: Interview questions for patients and family companions

The following questions were used for the open-ended semi-structured interview with family companions:

**Autonomie behoeftes**

1. In hoeverre wenst u betrokken te worden bij het maken van medische keuzes in het algemeen?

**Daadwerkelijke autonomie**

2. In hoeverre waren de patiënt en u in de huidige casus betrokken bij het maken van medische keuzes?
   - Indien betrokken, hoe zou u de verhouding van inbreng door zorgverlener en patiënt/mantelzorger typen?
     - Zorgverlener heeft door slaggevende rol door zijn/haar medische kennis, patiënt/mantelzorger ontvangt alleen informatie
     - Zorgverlener maakt de uiteindelijke keuze maar neemt de wensen van de patiënt/mantelzorger in acht
     - Zorgverlener en patiënt/mantelzorger maken samen de keuze
     - Patiënt/mantelzorger heeft door slaggevende rol, medische kennis is overgedragen van zorgverlener naar patiënt/mantelzorger

3. Op welke manier hebben zorgverleners de patiënt en u betrokken bij het maken van medische keuzes?
   Mogelijke voorbeelden: geven van informatie, keuze opties voor leggen, en/of expliciet uitspreken dat u de keuze maakt, voor- en nadelen bespreken
   - Zo niet, op welke manier hadden zorgverleners u meer kunnen betrekken?

4. In hoeverre zijn de volgende factoren naar uw idee van invloed op de mate van gewenste betrokkenheid?
   - De ernst van de aandoening
   - Het aantal mogelijke opties voor behandeling
   - Persoonlijke eigenschappen van de patiënt
   - Relatie patiënt en zorgverlener
   - Sociaal-demografische kenmerken van de patiënt zoals leeftijd
   - Persoonlijke eigenschappen van mantelzorger
   - Uw eigen medische kennis over de conditie van de patiënt

5. Wat was de rol van u als mantelzorger bij het maken van de beslissing?
   Heeft de patiënt aangegeven in welke mate hij/zij u betrokken wenst te zien bij het maken van de beslissing?

**Structuur**

6. U heeft met verschillende zorgverleners gesproken (chirurgen, geriater, fysiotherapeut, maatschappelijk werker, verpleegkundigen), heeft u het idee dat zorgverleners met elkaar samenwerken?

7. Heeft u het idee dat zorgverleners vanuit hun specialisme vertrekken of vanuit de situatie van de patiënt?

8. In hoeverre heeft u het idee dat zorgverleners op de hoogte zijn van de persoonlijke situatie van de patiënt?
   Ligt de nadruk op de medische gegevens of op de persoonlijke situatie van de patiënt?
   Hebben zorgverleners uw persoonlijk wensen/situatie in acht genomen?
Appendix VI: Documents

The following internal documents are analyzed to get insight into the structure of the geriatric and surgery department.

Department Surgery:
- Heupfractuur (Chirurgie – trauma) (versie 1)
- Zorgpad heupfractuur (multizorg) (versie 2)
- Productiebeschrijving fysiotherapie zorgpad heupfractuur (versie 1)
- Samenwerken heupfracturen trauma chirurgie orthopedie (versie 1)
- Bijlage memo ouderen patiënten zorgpad heupfractuur

Department Geriatrics:
- Notitie ouderengeneeskunde specialistisch en generalistisch
- Ouderengeneeskunde in (Naam) versie 11 definitief
- Bijlage memo ouderen patiënten zorgpad heupfractuur
Appendix VII: Interview questions for caregivers

Introduction for all interviews

- Onderzoek naar de invloed van organisatiestructuur op autonomie van patiënten
- Verandering die eigenlijk per 1 april doorgevoerd zou worden waarbij kwetsbare oudere patiënten van de chirurgie afdeling worden ‘overgeplaatst’ naar de geriatrie afdeling
- Een quasi-flow structuur wordt in het onderzoek gedefinieerd als een structuur waarin het proces ontworpen wordt over functionele afdelingen waarbij zorgverleners met verschillende specialisme gegroepeerd worden maar ook de relatie met de functionele afdeling behouden
- Het autonomie niveau wordt in het onderzoek gedefinieerd als de participatie en betrokkenheid van patiënten en mantelzorgers binnen het zorgtraject waarbij ‘shared decision making’ tussent patiënt, mantelzorger en zorgverlener een centrale rol inneemt.
- Het autonomie niveau wordt getoetst bij het keuzemoment voor revalidatie en mogelijk extra voorzieningen voor terugkeer naar de thuissituatie. Voor dit keuzemoment verschilt de structuur van de quasi-flow van de Chirurgie afdeling en de Geriatrie afdeling.
- Bij patiënten worden vragenlijsten en interviews afgenomen naar de mate van betrokkenheid/autonomie
- Bij zorgverleners die betrokken zijn bij het keuzemoment van revalidatie worden interviews afgenomen om inzicht te krijgen in de structuur van de flows en de manier waarop autonomie wordt ondersteund vanuit zorgverleners
- Het interview wordt anoniem verwerkt
- Indien u achteraf wenst dat het interview of bepaalde antwoorden toch niet worden verwerkt in het onderzoek dan is dit mogelijk

Bedankt voor uw deelname
Interview questions for supervisor care surgery department

**STRUCTUUR**

1. In hoeverre is er binnen de chirurgie een specifiek zorgpad/flow/multidisciplinair team opgezet voor de heupfractuur patiënten?

2. In hoeverre is een multidisciplinaire aanpak gewenst voor het diagnosticeren en behandelen van oudere patiënten met een heupfractuur?
   - In hoeverre is er daadwerkelijk sprake van multidisciplinaire samenwerking?
   - Op welke manier is er binnen de nieuwe structuur meer sprake van multidisciplinaire zorg om in te spelen op de comorbiditeit van de patiënt?

3. **Waarom is er volgens u gekozen om de structuur voor de kwetsbare oudere patiënten met een heupfractuur te veranderen?**
   - Welke specialisme veranderen door de structurele veranderingen? Op welke manier is er binnen de nieuwe structuur meer sprake van multidisciplinaire zorg om in te spelen op de comorbiditeit van de patiënt?
   - Vanuit wie is het idee gekomen om de structuur aan te passen? (zorgverleners of management)

4. **Wat is het verschil in de patiëntengroep qua problematiek die naar chirurgie gaan en degene die naar geriatrie gaan?**

5. **Denkt u dat de nieuwe structuur een verbetering van de kwaliteit van zorg kan opleveren?**

6. **Denkt u dat de nieuwe structuur tot een efficiëntere inzet van zorgverleners kan leiden?**
   Daarmee bedoel ik dat zorgverleners beter op de juiste plek worden gezet gezien hun expertise

7. **In hoeverre zijn de functionele afdelingen belemmerend of juist ondersteunend voor de optimalisatie van het zorgpad?**
   - Belemmerend: functioneren vanuit specialisme en verstoring van multidisciplinaire zorg
   - Ondersteunend: kennisbehoud en uitwisseling met andere zorgverleners

   **Zou u voorstellen om de functionele afdelingen te verwijderen uit de structuur en over te gaan op een volledige flow structuur?**
   Zo ja, waarom?
   Zo nee, waarom niet?

**AUTONOMIE**

1. Welke specialisme zijn er betrokken bij het maken van de keuze voor revalidatie en nazorg? Welke specialisten spreken ook daadwerkelijk de patiënt/mantelzorger voor het maken van deze beslissing?

2. Welke rol spelen mantelzorgers in deze populatie bij het maken van besluiten?
   - Is de mantelzorger aanwezig bij deze gesprekken?

3. Op welke manier worden patiënt en mantelzorger vervolgens betrokken bij het maken van de medische beslissing?

4. Op welke manier kan de verhouding tussen patiënt, mantelzorger en zorgverlener doorgaans worden getypeerd?
- Wordt de beslissing uiteindelijk gezamenlijk gemaakt of heeft een partij een doorslaggevende rol?
- Zijn hier duidelijke verschillen in voor patiënten/mantelzorgers? Waardoor komt dit?

  o Zorgverlener heeft doorslaggevende rol door zijn/haar medische kennis, patiënt/mantelzorger ontvangt alleen informatie
  o Zorgverlener maakt de uiteindelijke keuze maar neemt de wensen van de patiënt/mantelzorger in acht
  o Zorgverlener en patiënt/mantelzorger maken samen de keuze
  o Patiënt/mantelzorger heeft doorslaggevende rol, medische kennis is overgedragen van zorgverlener naar patiënt/mantelzorger

Interview questions for supervisor care geriatric department

STRUCTUUR

1. Waarom is er volgens u gekozen om de structuur voor de kwetsbare oudere patiënten met een heupfractuur te veranderen?
   - Welke specialisme veranderen door de structurele veranderingen? Op welke manier is er binnen de nieuwe structuur meer sprake van multidisciplinaire zorg om in te spelen op de comorbiditeit van de patiënt?
   - Vanuit wie is het idee gekomen om de structuur aan te passen? (zorgverleners of management)
   - Welke veranderingen worden er doorgevoerd in de quasi-flow structuur van geriatrie t.o.v. chirurgie? MDO moment, meer specialismen, langere tijden, andere standaarden?
   - Is de bezetting van de verpleegkundigen anders dan op de afdeling chirurgie?

2. In hoeverre is er binnen de geriatrie een specifiek zorgpad/flow/multidisciplinair team opgezet voor de heupfractuur patiënten?

3. In hoeverre is een multidisciplinaire aanpak gewenst voor het diagnosticeren en behandelen van oudere patiënten met een heupfractuur?
   - Vertrekken specialisten vanuit hun specialisme/eilandje of vanuit de gehele flow?
   - Op welke manier is er binnen de nieuwe structuur meer sprake van multidisciplinaire zorg om in te spelen op de comorbiditeit van de patiënt?
   - Welke specialisme zijn er allemaal betrokken in het zorgpad?
     MDO-overleg: ook ergotherapie, logopedie en diëtist?
     In hoeverre zijn deze specialismes speciaal aangesteld voor de flow heupfractuur patiënten?
     Waarom is ervoor gekozen om de fysiotherapeuten van chirurgie te gebruiken bij geriatrie? Is het plan er wel om uiteindelijk de fysiotherapeuten met een geriatrische aantekening in te zetten voor heupfractuur patiënten?

4. Wat is het verschil in de patiëntenpopulatie qua problematiek die naar chirurgie gaan en degene die naar geriatrie gaan?

5. Denkt u dat de nieuwe structuur een verbetering van de kwaliteit van zorg kan opleveren?

6. Denkt u dat de nieuwe structuur tot een efficiëntere inzet van zorgverleners kan leiden? Daarmee bedoel ik dat zorgverleners beter op de juiste plek worden gezet gezien hun expertise

7. In hoeverre zijn de functionele afdelingen belemmerend of juist ondersteunend voor de optimalisatie van het zorgpad?
Belemmerend: functioneren vanuit specialisme en verstoring van multidisciplinaire zorg
Ondersteunend: kennisbehoud en uitwisseling met andere zorgverleners

- Zou u voorstellen om de functionele afdelingen te verwijderen uit de structuur en over te gaan op een volledige flow structuur?
  Zo ja, waarom?
  Zo nee, waarom niet?

AUTONOMIE

1. Welke specialisme zijn er betrokken bij het maken van de keuze voor revalidatie en nazorg?
   - Welke specialisten spreken ook daadwerkelijk de patiënt/mantelzorger voor het maken van deze beslissing?

2. Welke rol spelen mantelzorgers in deze populatie bij het maken van besluiten?
   - Is de mantelzorger aanwezig bij deze gesprekken?

3. Op welke manier worden patiënt en mantelzorger vervolgens betrokken bij het maken van de medische beslissing?
   - Wat kunnen beperkende factoren zijn voor de mate van autonomie bij de keuze van revalidatie voor patiënten en mantelzorgers?

4. Op welke manier kan de verhouding tussen patiënt, mantelzorger en zorgverlener doorgaans worden getypeerd?
   - Wordt de beslissing uiteindelijk gezamenlijk gemaakt of heeft een partij een doorslaggevende rol?
   - Zijn hier duidelijke verschillen in voor patiënten/mantelzorgers? Waardoor komt dit?
     - Zorgverlener heeft doorslaggevende rol door zijn/haar medische kennis, patiënt/mantelzorger ontvingt alleen informatie
     - Zorgverlener maakt de uiteindelijke keuze maar neemt de wensen van de patiënt/mantelzorger in acht
     - Zorgverlener en patiënt/mantelzorger maken samen de keuze
     - Patiënt/mantelzorger heeft doorslaggevende rol, medische kennis is overgedragen van zorgverlener naar patiënt/mantelzorger

Interview questions for surgeon

STRUCTUUR

Algemeen

1. Op welke manier bent u betrokken bij zowel de flow structuur als de functionele afdeling?
   Welke werkzaamheden voert u uit ten behoeve van de flow structuur en welke werkzaamheden ten behoeve van de functionele afdeling?
   - In hoeverre varieert de patiëntenpopulatie in medische aandoeningen die u zorg verleent?

Disruptive innovation:

2. In hoeverre is een multidisciplinaire aanpak gewenst voor het diagnosticeren en behandelen van oudere patiënten met een heupfractuur?
- In hoeverre is er daadwerkelijk sprake van multidisciplinaire samenwerking?
- Op welke manier is er binnen de nieuwe structuur meer sprake van multidisciplinaire zorg om in te spelen op de comorbiditeit van de patiënt?

3. In welke mate moet u afstemmen met andere zorgverleners?
   Wordt deze afstemming vergroot of verminderd door de structurele verandering?
- Hoe verloopt deze afstemming?
- Zorgt de afstemming voor verstoring? Extra tijd?
- Stel het 12 uur momentje zou er niet zijn, zou dat ervoor zorgen dat het langer duurt of dat afstemming moeilijker is?

4. In hoeverre heeft u overzicht over het zorgtraject voor de patiënt binnen het ziekenhuis?
   Van binnenkomst/diagnose tot vertrek/nazorg

5. Is het mogelijk om via een gestandaardiseerd proces de heupfractuur patiënten te behandelen? Of speelt intuïtie en ervaring van de zorgverlener een dermate rol?

   Worden keuzes gemaakt op basis van standardisatie (VAP) of speelt eerdere ervaring en de intuïtie van zorgverleners een belangrijkere rol (SS)?

   Is er een verschil hierin bij patiënten die kwetsbaar zijn en patiënten die niet kwetsbaar zijn?

**Verandering**

1. Waarom is er volgens u gekozen om de structuur voor de kwetsbare patiënten met een heupfractuur te veranderen?

2. Wat zijn de voordelen en/of nadelen van de structurele verandering voor uw specifieke taak binnen het zorgtraject van de patiënt?
   Op welke manier denkt u dat uw rol binnen de andere flow structuur op een andere manier wordt vervuld?
   - Geriater t.o.v. chirurg
   - Fysio t.o.v. fysio
   - Maatschappelijk werker t.o.v. maatschappelijk werker

3. Wat is het verschil in de patiëntenpopulatie qua problematiek die naar chirurgie gaan en degene die naar geriatrie gaan?

4. Denkt u dat de nieuwe structuur een verbetering van de kwaliteit van zorg kan opleveren?

5. Denkt u dat de nieuwe structuur tot een efficiëntere inzet van zorgverleners kan leiden?
   Daarmee bedoel ik dat zorgverleners beter op de juiste plek worden gezet gezien hun expertise

6. In hoeverre zijn de functionele afdelingen belemmerend of juist ondersteunend voor de optimalisatie van het zorgpad?
   - Belemmerend: functioneren vanuit specialisme en verstoring van multidisciplinaire zorg
   - Ondersteunend: kennisbehoud en uitwisseling met andere zorgverleners

- Zou u voorstellen om de functionele afdelingen te verwijderen uit de structuur en over te gaan op een volledige flow structuur?
   Zo ja, waarom?
   Zo nee, waarom niet?

**AUTONOMY**
Algemene vragen:
1. Welke rol speelt u bij het maken van de beslissing voor de revalidatie/nazorg van patiënten?
2. Gaat u in gesprek met de patiënt over deze keuze?

Specifieke vragen:
1. Op welke manier worden patiënt en mantelzorger vervolgens betrokken bij het maken van de medische beslissing?
2. In hoeverre wordt er getoetst in welke mate patiënten en mantelzorgers betrokken willen worden in het maken van medische beslissingen?
   - Wordt er expliciet vermeld dat de patiënt en mantelzorger samen met de zorgverlener de keuze maken?
3. Op welke manier kan de verhouding tussen patiënt, mantelzorger en zorgverlener doorgaans worden getypeerd?
   - Zijn hier duidelijke verschillen in voor patiënten/mantelzorgers? Waardoor komt dit?
   - Zorgverlener heeft doorslaggevende rol door zijn/haar medische kennis, patiënt/mantelzorger ontvangt alleen informatie
   - Zorgverlener maakt de uiteindelijke keuze maar neemt de wensen van de patiënt/mantelzorger in acht
   - Zorgverlener en patiënt/mantelzorger maken samen de keuze
   - Patiënt/mantelzorger heeft doorslaggevende rol, medische kennis is overgedragen van zorgverlener naar patiënt/mantelzorger
4. Welke factoren spelen een rol in de mate waarin autonomie wordt verleend aan de patiënt/mantelzorger?
   - Leeftijd van patiënt
   - Medische aandoening
   - Aantal verschillende behandelingsmogelijkheden
   - Aanwezigheid mantelzorger
   - Educatie en sociale verschillen tussen patiënt en zorgverlener

Interview questions for geriatrician

AUTONOMY

Algemene vragen:
1. Welke rol speelt u bij het maken van de beslissing voor de revalidatie/nazorg van patiënten?
2. Welke verschillende opties zijn er voor revalidatie en nazorg?
3. Welke specialisme zijn er betrokken bij het maken van de keuze voor revalidatie en nazorg?
   - Welke specialisten spreken ook daadwerkelijk de patiënt/mantelzorger voor het maken van deze beslissing?
   - Op welke manier communiceren specialisme samen over deze keuze om zo multidisciplinaire zorg te verlenen?
4. Welke dag na de operatie worden deze gesprekken over het algemeen gevoerd met de patiënt/mantelzorger?

Specifieke vragen:

1. Op welke manier worden patiënt en mantelzorger vervolgens betrokken bij het maken van de medische beslissing?
   - Op welke manier wordt informatie verschaft? (Via zorgverleners, folders, …)
   - Tijdens de gesprekken?

2. In hoeverre wordt er getoetst in welke mate patiënten en mantelzorgers betrokken willen worden in het maken van medische beslissingen?
   - Wordt er expliciet vermeld dat de patiënt en mantelzorger samen met de zorgverlener de keuze maken?

3. Op welke manier kan de verhouding tussen patiënt, mantelzorger en zorgverlener doorgaans worden getypeerd?
   - Wordt de beslissing uiteindelijk gezamenlijk gemaakt of heeft een partij een doorslaggevende rol?
   - Zijn hier duidelijke verschillen in voor patiënten/mantelzorgers? Waardoor komt dit?
     - Zorgverlener heeft doorslaggevende rol door zijn/haar medische kennis, patiënt/mantelzorger ontvangt alleen informatie
     - Zorgverlener maakt de uiteindelijke keuze maar neemt de wensen van de patiënt/mantelzorger in acht
     - Zorgverlener en patiënt/mantelzorger maken samen de keuze
     - Patiënt/mantelzorger heeft doorslaggevende rol, medische kennis is overgedragen van zorgverlener naar patiënt/mantelzorger

4. Welke factoren spelen een rol in de mate waarin autonomie wordt verleend aan de patiënt/mantelzorger?
   - Leeftijd van patiënt
   - Medische aandoening
   - Aantal verschillende behandelingsmogelijkheden
   - Aanwezigheid mantelzorger
   - Educatie en sociale verschillen tussen patiënt en zorgverlener

5. Op welke manier speelt de aard van de ziekte (chronisch, meerdere ziektes) een rol in de uiteindelijke keuze voor revalidatie/nazorg?

6. Welke rol spelen mantelzorgers in deze populatie bij het maken van besluiten?

STRUCTUUR

Algemeen

1. Op welke manier bent u betrokken bij zowel de flow structuur als de functionele afdeling?
   Welke werkzaamheden voert u uit ten behoeve van de flow structuur en welke werkzaamheden ten behoeve van de functionele afdeling?

2. Wat zijn de voordelen en/of nadelen van de structurele verandering voor uw specifieke taak binnen het zorgtraject van de patiënt?
   Op welke manier denkt u dat uw rol binnen de andere flow structuur op een andere manier wordt vervuld?
   Geriater t.o.v. chirurg
   Fysio t.o.v. fysio
   Maatschappelijk werker t.o.v. maatschappelijk werker
Disruptive innovation:
3. In hoeverre is een multidisciplinaire aanpak gewenst voor het diagnosticeren en behandelen van oudere patiënten met een heupfractuur?
   - In hoeverre is er daadwerkelijk sprake van multidisciplinaire samenwerking?

4. In hoeverre is de keuze voor revalidatie voor oudere patiënten met een heupfractuur gestandaardiseerd?
   Worden keuzes voor revalidatie gemaakt op basis van standaardisatie (VAP) of speelt eerdere ervaring en de intuïtie van zorgverleners een belangrijkere rol (SS)?
   - Worden oorzaken voor de heupfractuur in acht genomen bij het maken van de keuze voor revalidatie? (Sommige vallen misschien vanwege de zwakke situatie en andere ziektes zoals dementie? Dan zijn er andere oorzaken)

Efficient use of caregivers
5. Verschilt de mate van complexiteit in de verschillende taken die u uitvoert?

Parameters de Sitter

Functionele concentratie (Zie eerdere vraag over rol in flow en functionele afdeling)
6. In hoeverre varieert de patiëntenzetel in medische aandoeningen die u zorg verleent?
   Is de variëteit van de patiëntenzetel die u zorg verleent verminderd of vermeerderd door het ontwerp van de quasi-flow structuren?

Mate van scheiding van operationele en regulerende taken
7. In hoeverre heeft u de capaciteit vanuit de structuur of uw baanomschrijving, om naast operationele taken ook regulerende taken uit te voeren?
   Het ingrijpen bij lokale verstoringen, stellen en aanpassen van doelen, veranderen van de structuur
   - In hoeverre bent u afhankelijk van management of ondersteunende partijen?

Mate van specialisatie
8. In hoeverre heeft u overzicht over het zorgtraject voor de patiënt binnen het ziekenhuis?
   Van binnenkomst/diagnose tot vertrek/nazorg

9. In welke mate moet u afstemmen met andere zorgverleners?
   Wordt deze afstemming vergroot of vermindert door de structurele verandering?
   - Hoe verloopt deze afstemming?
   - Is de afdeling Geriatrie ook vertegenwoordigd in het 12 uur momentje voor de afdeling Chirurgie?

Afsluitend

10. In hoeverre zijn de functionele afdelingen belemmerend of juist ondersteunend voor de optimalisatie van het zorgpad?
    Belemmerend: functioneren vanuit specialisme en verstoring van multidisciplinaire zorg
    Ondersteunend: kennisbehoud en uitwisseling met andere zorgverleners
    - Zou u voorstellen om de functionele afdelingen te verwijderen uit de structuur en over te gaan op een volledige flow structuur?
      Zo ja, waarom?
      Zo nee, waarom niet?
Interview questions for physiotherapist

AUTONOMY

Algemene vragen:
1. Welke rol speelt u bij het maken van de beslissing voor de revalidatie/nazorg van patiënten?
2. Welke verschillende opties zijn er voor revalidatie en nazorg?
3. Welke specialisme zijn er betrokken bij het maken van de keuze voor revalidatie en nazorg?
   - Welke specialisten spreken ook daadwerkelijk de patiënt/mantelzorger voor het maken van deze beslissing?
   - Op welke manier communiceren specialisme samen over deze keuze om zo multidisciplinaire zorg te verlenen?
4. Welke dag na de operatie worden deze gesprekken over het algemeen gevoerd met de patiënt/mantelzorger?

Specifieke vragen:
5. Op welke manier worden patiënt en mantelzorger vervolgens betrokken bij het maken van de medische beslissing?
   - Op welke manier wordt informatie verschaft? (Via zorgverleners, folders, …)
   - Tijdens de gesprekken?
6. In hoeverre wordt er getoetst in welke mate patiënten en mantelzorgers betrokken willen worden in het maken van medische beslissingen?
   - Wordt er expliciet vermeld dat de patiënt en mantelzorger samen met de zorgverlener de keuze maken?
7. Op welke manier kan de verhouding tussen patiënt, mantelzorger en zorgverlener doorgaans worden getypeerd?
   - Wordt de beslissing uiteindelijk gezamenlijk gemaakt of heeft een partij een doorslaggevende rol?
   - Zijn hier duidelijke verschillen in voor patiënten/mantelzorgers? Waardoor komt dit?
   
   o Zorgverlener heeft doorslaggevende rol door zijn/haar medische kennis, patiënt/mantelzorger ontvangt alleen informatie
   o Zorgverlener maakt de uiteindelijke keuze maar neemt de wensen van de patiënt/mantelzorger in acht
   o Zorgverlener en patiënt/mantelzorger maken samen de keuze
   o Patiënt/mantelzorger heeft doorslaggevende rol, medische kennis is overgedragen van zorgverlener naar patiënt/mantelzorger
8. Welke factoren spelen een rol in de mate waarin autonomie wordt verleend aan de patiënt/mantelzorger?
   - Leeftijd van patiënt
   - Medische aandoening
   - Aantal verschillende behandelmogelijkheden
   - Aanwezigheid mantelzorger
   - Educatie en sociale verschillen tussen patiënt en zorgverlener
9. Op welke manier speelt de aard van de ziekte (chronisch, meerdere ziektes) een rol in de uiteindelijke keuze voor revalidatie/nazorg?
10. Welke rol spelen mantelzorgers in deze populatie bij het maken van besluiten?
**STRUCTUUR**

**Algemeen**
1. Op welke manier bent u betrokken bij zowel de flow structuur als de functionele afdeling? Welke werkzaamheden voert u uit ten behoeve van de flow structuur en welke werkzaamheden ten behoeve van de functionele afdeling?

2. Wat zijn de voordelen en/of nadelen van de structurele verandering voor uw specifieke taak binnen het zorgtraject van de patiënt? Op welke manier denkt u dat uw rol binnen de andere flow structuur op een andere manier wordt vervuld?

   Geriater t.o.v. chirurg
   Fysio t.o.v. fysio
   Maatschappelijk werker t.o.v. maatschappelijk werker

**Disruptive innovation:**
3. In hoeverre is een multidisciplinaire aanpak gewenst voor het diagnosticeren en behandelen van oudere patiënten met een heupfractuur?
   - In hoeverre is er daadwerkelijk sprake van multidisciplinaire samenwerking?

4. In hoeverre is de keuze voor revalidatie voor oudere patiënten met een heupfractuur gestandaardiseerd?
   - Worden keuzes voor revalidatie gemaakt op basis van standaardisatie (VAP) of speelt eerdere ervaring en de intuïtie van zorgverleners een belangrijkere rol (SS)?
   - Worden oorzaken voor de heupfractuur in acht genomen bij het maken van de keuze voor revalidatie? (Sommige vallen misschien vanwege de zwakke situatie en andere ziektes zoals dementie? Dan zijn er andere oorzaken)

**Parameters de Sitter**

*Functionele concentratie (Zie eerdere vraag over rol in flow en functionele afdeling)*
5. In hoeverre varieert de patiëntenpopulatie in medische aandoeningen die u zorg verleent?
   - Is de variëteit van de patiëntenpopulatie die u zorg verleent verminderd of vermeerderd door het ontwerp van de quasi-flow structuren?

*Mate van scheiding van operationele en regulerende taken*
6. In hoeverre heeft u de capaciteit vanuit de structuur of uw baanomschrijving, om naast operationele taken ook regulerende taken uit te voeren?
   - Het ingrijpen bij locale verstoringen, stellen en aanpassen van doelen, veranderen van de structuur
   - In hoeverre bent u afhankelijk van management of ondersteunende partijen?

*Mate van specialisatie*
7. In hoeverre heeft u overzicht over het zorgtraject voor de patiënt binnen het ziekenhuis?
   - Van binnenkomst/diagnose tot vertrek/nazorg

8. In welke mate moet u afstemmen met andere zorgverleners?
   - Wordt deze afstemming vergroot of verminderd door de structurele verandering?
   - Hoe verloopt deze afstemming?
   - Is de afdeling Geriatrie ook vertegenwoordigd in het 12 uur momentje voor de afdeling Chirurgie?

**Afsluitend**
9. In hoeverre zijn de functionele afdelingen belemmerend of juist ondersteunend voor de optimalisatie van het zorgpad?
Belemmerend: functioneren vanuit specialisme en verstoring van multidisciplinaire zorg
Ondersteunend: kennisbehoud en uitwisseling met andere zorgverleners
- Zou u voorstellen om de functionele afdelingen te verwijderen uit de structuur en over te gaan op een volledige flow structuur?
   Zo ja, waarom?
   Zo nee, waarom niet?

Interview questions for social workers

AUTONOMY

Algemene vragen:
1. Welke rol speelt u bij het maken van de beslissing voor de revalidatie/nazorg van patiënten?
2. Welke specialisme zijn er betrokken bij het maken van de keuze voor revalidatie en nazorg?
   - Welke specialisten spreken ook daadwerkelijk de patiënt/mantelzorger voor het maken van deze beslissing? Is de mantelzorger aanwezig bij deze gesprekken?
   - Op welke manier communiceren specialisme samen over deze keuze om zo multidisciplinaire zorg te verlenen?
3. Welke dag na de operatie worden deze gesprekken (door de mantelzorgers) over het algemeen gevoerd met de patiënt/mantelzorger?

Specifieke vragen:
4. Op welke manier worden patiënt en mantelzorger vervolgens betrokken bij het maken van de medische beslissing?
5. In hoeverre wordt er getoetst in welke mate patiënten en mantelzorgers betrokken willen worden in het maken van medische beslissingen?
   - Wordt er expliciet vermeld dat de patiënt en mantelzorger samen met de zorgverlener de keuze maken?
6. Op welke manier kan de verhouding tussen patiënt, mantelzorger en zorgverlener doorgaans worden getypeerd?
   - Wordt de beslissing uiteindelijk gezamenlijk gemaakt of heeft een partij een doorslaggevende rol?
   - Zijn hier duidelijke verschillen in voor patiënten/mantelzorgers? Waardoor komt dit?
     - Zorgverlener heeft doorslaggevende rol door zijn/haar medische kennis, patiënt/mantelzorger ontvangt alleen informatie
     - Zorgverlener maakt de uiteindelijke keuze maar neemt de wensen van de patiënt/mantelzorger in acht
     - Zorgverlener en patiënt/mantelzorger maken samen de keuze
     - Patiënt/mantelzorger heeft doorslaggevende rol, medische kennis is overgedragen van zorgverlener naar patiënt/mantelzorger
7. Welke factoren spelen een rol in de mate waarin autonomie wordt verleend aan de patiënt/mantelzorger?
   - Wordt een jongere patiënt meer autonomie verleend dan een oudere patiënt?
   - Leeftijd van patiënt
   - Medische aandoening
   - Aantal verschillende behandeling mogelijkenheden
   - Aanwezigheid mantelzorger
   - Educatie en sociale verschillen tussen patiënt en zorgverlener
8. Welke rol spelen mantelzorgers in deze populatie bij het maken van besluiten?

9. Wat gebeurd er als er geen plek is? (langer in het ziekenhuis, andere optie, bijv eerder naar huis sturen?)
   In hoeverre blijft de keuzevrijheid over?

10. Wat gebeurd er als de patiënt het oneens is met het advies van de zorgverleners?

11. Ik heb gehoord dat ze 1 x nee mogen zeggen bij een plekje dat wordt aangewezen, klopt dit?

**STRUCTUUR**

**Algemeen**

1. Op welke manier bent u betrokken bij zowel de flow structuur als de functionele afdeling?
   Welke werkzaamheden voert u uit ten behoeve van de flow structuur en welke werkzaamheden ten behoeve van de functionele afdeling?
   - In hoeverre varieert de patiëntenpopulatie in medische aandoeningen die u zorg verleent?
   Is de variëteit van de patiëntenpopulatie die u zorg verleent verminderd of vermeerderd door het ontwerp van de quasi-flow structuren?

2. Wat zijn de voordelen en/of nadelen van de structurele verandering voor uw specifieke taak binnen het zorgtraject van de patiënt?
   Op welke manier denkt u dat uw rol binnen de andere flow structuur op een andere manier wordt vervuld?
   Geriater t.o.v. chirurg
   Fysio t.o.v. fysio
   Maatschappelijk werker t.o.v. maatschappelijk werker

3. Wat is het verschil in de patiënten qua problematiek die naar chirurgie gaan en degene die naar geriatrie gaan?

**Disruptive innovation:**

4. In hoeverre is een multidisciplinaire aanpak gewenst voor het diagnosticeren en behandelen van oudere patiënten met een heupfractuur?
   - In hoeverre is er daadwerkelijk sprake van multidisciplinaire samenwerking?

5. In hoeverre is de keuze voor revalidatie voor oudere patiënten met een heupfractuur gestandaardiseerd?
   Worden keuzes voor revalidatie gemaakt op basis van standaardisatie (VAP) of speelt eerdere ervaring en de intuïtie van zorgverleners een belangrijkere rol (SS)?
   - Worden oorzaken voor de heupfractuur in acht genomen bij het maken van de keuze voor revalidatie? (Sommige vallen misschijf vanwege de zwakke situatie en andere ziektes zoals dementie? Dan zijn er andere oorzaken)

6. Is het mogelijk om via een gestandaardiseerd proces en bepaalde standaarden een keuze te maken welke optie het beste past? Of moet die keuze ook gemaakt worden op ervaring en intuïtie?
   - Is er een verschil hierin bij patienten die kwetsbaar zijn en patienten die niet kwetsbaar zijn?

7. Op welke manier houden jullie rekening met de patiënt indien die kwetsbaar is. Worden er dan andere standaarden toegepast of

*Parameters de Sitter*
Mate van scheiding van operationele en regulerende taken

8. In hoeverre heeft u de capaciteit vanuit de structuur of uw baanomschrijving, om naast operationele taken ook regulerende taken uit te voeren?
Het ingrijpen bij lokale verstoringen, stellen en aanpassen van doel, veranderen van de structuur
- In hoeverre bent u afhankelijk van management of ondersteunende partijen?

Mate van specialisatie

9. In hoeverre heeft u overzicht over het zorgtraject voor de patiënt binnen het ziekenhuis?
Van binnenkomst/diagnose tot vertrek/nazorg
- En revalidatiecentra?

10. In welke mate moet u afstemmen met andere zorgverleners?
Wordt deze afstemming vergroot of verminderd door de structurele verandering?
- Hoe verloopt deze afstemming?
- Zorgt de afstemming voor verstoring? Extra tijd?
- Stel het 12 uur momentje zou er niet zijn, zou dat ervoor zorgen dat het langer duurt of dat afstemming moeilijker is?

Afsluitend

11. In hoeverre zijn de functionele afdelingen belemmerend of juist ondersteunend voor de optimalisatie van het zorgpad?
   Belemmerend: functioneren vanuit specialisme en verstoring van multidisciplinaire zorg
   Ondersteunend: kennisbehoud en uitwisseling met andere zorgverleners
- Zou u voorstellen om de functionele afdelingen te verwijderen uit de structuur en over te gaan op een volledige flow structuur?
  Zo ja, waarom?
  Zo nee, waarom niet?

- Denkt u dat een flow structuur mogelijk de kwaliteit van de zorg kan verbeteren?
  Zo ja, waarom?
Appendix VIII: Observations

- **Meeting flow hip fracture Geriatrics**
  March 28th
  Attendance of all departments in quasi-flow structure surgery and geriatrics except physiotherapy

- **Two times weekly meeting flow hip fracture quasi-flow Geriatrics for discussing patients regarding care after surgery**

- **Daily meeting flow hip fracture quasi-flow Surgery for discussing patients regarding care after surgery**
### Appendix IX: Initial and modified template

<table>
<thead>
<tr>
<th>Initial template</th>
<th>Final template</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Autonomy</strong></td>
<td><strong>Autonomy</strong></td>
</tr>
<tr>
<td>1. The degree of patient participation</td>
<td>1. The degree of patient participation</td>
</tr>
<tr>
<td>- Paternalism</td>
<td>- Paternalism</td>
</tr>
<tr>
<td>- Professional-as-agent</td>
<td>- Professional-as-agent</td>
</tr>
<tr>
<td>- Shared-decision-making</td>
<td>- Shared-decision-making</td>
</tr>
<tr>
<td>- Informed decision-making</td>
<td>- Informed decision-making</td>
</tr>
<tr>
<td>2. Key conditions for participation</td>
<td>2. Key conditions for participation</td>
</tr>
<tr>
<td>- Disclosure that a decision needs to be made</td>
<td>- Disclosure that a decision needs to be made</td>
</tr>
<tr>
<td>- Formulation of equality of partners</td>
<td>- Formulation of equality of partners</td>
</tr>
<tr>
<td>- Presentation of treatment options</td>
<td>- Presentation of treatment options</td>
</tr>
<tr>
<td>- Informing on the benefits and risks of the options</td>
<td>- Informing on the benefits and risks of the options</td>
</tr>
<tr>
<td>- Investigation of patient’s understanding and expectations</td>
<td>- Investigation of patient’s understanding and expectations</td>
</tr>
<tr>
<td>- Identification of both parties’ preferences</td>
<td>- Identification of both parties’ preferences</td>
</tr>
<tr>
<td>- Negotiation</td>
<td>- Negotiation</td>
</tr>
<tr>
<td>- Reaching a shared decision</td>
<td>- Reaching a shared decision</td>
</tr>
<tr>
<td>- Arrangement of follow-up</td>
<td>- Arrangement of follow-up</td>
</tr>
<tr>
<td>- Responsible caregiver to provide conditions</td>
<td>- Responsible caregiver to provide conditions</td>
</tr>
<tr>
<td>- Patient and family companion</td>
<td>- Patient and family companion</td>
</tr>
<tr>
<td>3. Caregivers preference for degree of participation</td>
<td>3. Caregivers preference for degree of participation</td>
</tr>
<tr>
<td>- Educational and social differences between caregiver and patient</td>
<td>- Educational differences between caregiver and patient</td>
</tr>
<tr>
<td>4. Patient preference for degree of participation</td>
<td>4. Patient preference for degree of participation</td>
</tr>
<tr>
<td>- Medical condition</td>
<td>- Medical condition</td>
</tr>
<tr>
<td>- Availability of multiple treatment options</td>
<td>- Availability of multiple treatment options</td>
</tr>
<tr>
<td>- Personal characteristics of the patient</td>
<td>- Personal characteristics of the patient</td>
</tr>
<tr>
<td>- Relationship patient and caregiver</td>
<td>- Relationship patient and caregiver</td>
</tr>
<tr>
<td>- Socio-demographic variables such as age</td>
<td>- Socio-demographic variables: age, generation and religion</td>
</tr>
<tr>
<td>5. Family companion preference for degree of participation</td>
<td>5. Family companion preference for degree of participation</td>
</tr>
<tr>
<td>- Personal characteristics</td>
<td>- Personal characteristics</td>
</tr>
<tr>
<td>- Medical knowledge</td>
<td>- Medical knowledge</td>
</tr>
<tr>
<td>- Requirements of treatment options</td>
<td>- Requirements of treatment options</td>
</tr>
<tr>
<td>- Social environment of patients</td>
<td>- Social environment of patients</td>
</tr>
<tr>
<td>Structure</td>
<td>Capacity residential care homes</td>
</tr>
<tr>
<td>-----------</td>
<td>---------------------------------</td>
</tr>
<tr>
<td>1. Combination flow and functional departments</td>
<td>1. Combination flow and functional departments</td>
</tr>
<tr>
<td>2. Parameter values</td>
<td>- Possibility to make a flow</td>
</tr>
<tr>
<td>- Functional concentration</td>
<td>- Resistance</td>
</tr>
<tr>
<td>- Separation operational and regulatory tasks</td>
<td>- Expectation flow has negative consequences for quality of care</td>
</tr>
<tr>
<td>- Specialization in operational tasks</td>
<td>- Expectation flow has positive consequences for quality of care</td>
</tr>
<tr>
<td>3. Consequences</td>
<td>- Requirements to make flow/solutions</td>
</tr>
<tr>
<td>- The number of relationships between caregivers</td>
<td>- Desired variability of patients</td>
</tr>
<tr>
<td>- Variability of patients</td>
<td>- Education/specialism/personal development</td>
</tr>
<tr>
<td>- Oversight of the process</td>
<td>- Volume of patients</td>
</tr>
<tr>
<td>- Integration of operational and regulatory tasks</td>
<td>2. Parameter values</td>
</tr>
<tr>
<td>3. Consequences</td>
<td>- Functional concentration – variability of patients</td>
</tr>
<tr>
<td>- Quality of care</td>
<td>- Separation operational and regulatory tasks – integration</td>
</tr>
<tr>
<td>- Waiting and cycle time</td>
<td>- Specialization in operational tasks – oversight of the process</td>
</tr>
<tr>
<td>Relationship structure and autonomy</td>
<td>- Over hospital trajectory</td>
</tr>
<tr>
<td>1. Level of required coordination</td>
<td>- Of the cycle of care</td>
</tr>
<tr>
<td>2. Level of collaboration for multidisciplinary care</td>
<td>3. Consequences</td>
</tr>
<tr>
<td>3. Type of quasi-flow: VAP or SS</td>
<td>- Quality of care</td>
</tr>
<tr>
<td>Relationship structure and autonomy</td>
<td>- Waiting and cycle time</td>
</tr>
<tr>
<td>1. Level of required coordination</td>
<td>2. Level of collaboration for multidisciplinary care</td>
</tr>
<tr>
<td>- Daily/2-weekly multidisciplinary meeting</td>
<td>- Relevant caregivers and their role</td>
</tr>
<tr>
<td>- Meetings</td>
<td>- View on collaboration</td>
</tr>
<tr>
<td>- Supervisor</td>
<td>- Point of departure</td>
</tr>
<tr>
<td>3. Type of quasi-flow: VAP or SS</td>
<td>- Of the cycle of care</td>
</tr>
<tr>
<td>- Empirical/precision or intuitive medicine</td>
<td>3. Type of quasi-flow: VAP or SS</td>
</tr>
<tr>
<td>- Routine-based or trial-and-error process</td>
<td>- Requirements of specialists</td>
</tr>
</tbody>
</table>
Appendix X: Document to increase the response of family companions

Beste familie/mantelzorger(s),

Naar aanleiding van een onderzoek bij patiënten met een heupfractuur en familie/mantelzorgers is meneer/mevrouw benaderd. Het onderzoek richt zich op de mate van autonomie bij patiënten en familie/mantelzorgers bij het maken van de keuze voor nazorg in de vorm van revalidatie, verpleeghuis of terugkeer naar huis.


Het onderzoek wordt uitgevoerd voor een afstudeeropdracht van een masterstudie aan de Radboud Universiteit te Nijmegen.

Deelname aan het onderzoek is vrijwillig en gegevens worden anoniem verwerkt.

Om het onderzoek bij familie/mantelzorgers te vergoten, heb ik deze brief bij meneer/mevrouw achtergelaten. Graag zou ik u op deze manier willen uitnodigen voor deelname aan het onderzoek.

Meneer/mevrouw heeft de vragen beantwoord. Graag zou ik het onderzoek ook af willen nemen bij de familie/mantelzorger.

Meneer/mevrouw heeft de vragen niet kunnen beantwoorden gezien de medische conditie van de patiënt. Graag zou ik het onderzoek af willen nemen bij de familie/mantelzorger.

Indien u interesse heeft om deel te nemen aan het onderzoek kunt u met mij contact opnemen.

Telefoon: 06-83943199 (sms of WhatsApp is ook prima)
E-mail: Gerdsenk@name hospital.nl

Het onderzoek kan zowel tijdens als buiten het bezoekuur plaatsvinden. We kunnen een dag en tijdstip afspreken wanneer u in het ziekenhuis aanwezig bent of we kunnen het onderzoek telefonisch laten plaatsvinden (uiteraard op mijn kosten).

Alvast bedankt,

Met vriendelijke groet,

Kim Gerdsen
Externe onderzoeker/ Stagiair Ziekenhuis (name hospital)
Appendix XI: Informed consent

Beste patiënt en/of mantelzorger,


In het onderzoek worden er een aantal stellingen aan u voorgelegd. In totaal zijn er vijftien stellingen. Er wordt aan u gevraagd om aan te geven in hoeverre u het eens of oneens bent met deze stellingen. De eerste zes stellingen gaan over de mate waarin u doorgaans betrokken wenst te worden in het maken van medische keuzes. Een voorbeeldstelling is: belangrijke medische beslissingen moeten genomen worden door uw dokter en niet door u. De volgende negen stellingen gaan over de daadwerkelijke betrokkenheid bij de huidige ziekenhuisopname. Een voorbeeldstelling is: mijn zorgverlener heeft mij de voor- en nadelen van de behandelingsmogelijkheden precies uitgelegd. Verder worden er vier overige vragen gesteld over onder andere uw demografische kenmerken. Het onderzoek kan worden uitgebreid met een interview indien u daarvoor open staat. In het interview worden verdiepingsvragen gesteld en is er ruimte voor een persoonlijke toelichting. Een voorbeeldvraag is: op welke manier hebben zorgverleners u betrokken bij het maken van de medische keuze?


Het onderzoek garandeert dat:
- Uw anonimiteit wordt gewaarborgd en uw persoonlijke gegevens niet met derden worden gedeeld;
- Het onderzoek op vrijwillige basis wordt uitgevoerd. U kunt op elk moment besluiten om toch niet meer deel aan het onderzoek te nemen.

Met het tekenen van deze toestemningsverklaring verklaart u dat:
- U instemt met deelname aan het onderzoek;
- U toestemming geeft voor de verwerking van uw geanonimiseerde informatie uitsluitend voor het onderzoek;
- U toestemming geeft voor het bewaren van uw geanonimiseerde informatie voor zeven jaar in het archief van de Radboud Universiteit te Nijmegen.

Hantekening deelnemer(s): Datum: __/__/__

Ik verklaar hierbij dat ik deze deelnemer voldoende mondeling en schriftelijk heb geïnformeerd over het onderzoek.

Handtekening onderzoeker: Datum: __/__/__
Appendix XII: Oversight structure and caregivers

Surgery quasi-flow:

Quasi-flow structure Surgery non-vulnerable patients with hip fracture and age above 70

Patient is tested and diagnosed with hip fracture and non-vulnerability at ED

Surgery by surgeon or orthopedist

Hospitalization Surgery department

Nurses, doctor assistants and surgeons take care and control medical condition of patient

Consult by physiotherapist to indicate rehabilitation goals

Consult by social worker to discuss rehabilitation center

Daily MDO in which advice of specialists is discussed

Day 0

Home ≤ 5%
Rehabilitation center ≤ 95%
Residential home care ≤ 0%

Day 2-4 or ...

Trauma surgeon
Responsible caregiver of patients with hip fracture
Responsible for trauma patients

Arts assistants Surgeon
Responsible for trauma patients

Orthopaedist
Responsible for orthopaedist patients and hip fracture patients

Geriatrician
Second responsible caregiver of patients with hip fracture
Responsible for trauma patients and geriatric department patients

Physiotherapist
Responsible for all patients of surgery department and hip fracture patients geriatric department

Social worker
Responsible for surgery, gynecology and pediatric patients

Nurses
Responsible for all patients of surgery department. No specialization

Attendance of MDO about aftercare
Red = no attendance
Orange = depends on situation patient
Green = attendance
Geriatric quasi-flow:

Quasi-flow structure Geriatrics vulnerable patients with hip fracture and age above 70

Patient is tested and diagnosed with hip fracture and vulnerability at ED

Surgery by surgeon or orthopaedist

Nurse indicates preference of patient and family companion regarding aftercare

Hospitalization surgery department

Consult by physiotherapist to indicate revalidation goals

Consult by social worker to discuss rehabilitation center

Two-weekly MDO in which advice of specialists is discussed

Geriatrician
Responsible caregiver of patients with hip fracture.
Specific responsible for hip fracture patients at geriatric department and trauma department.
Besides, responsible for geriatric department patients.

Arts assistants geriatrician
Responsible for geriatric patients.

Trauma surgeon
Second responsible caregiver of patients with hip fracture.
Responsible for trauma patients.

Orthopaedist
Responsible for orthopaedist patients and hip fracture patients.

Physiotherapist
Responsible for all patients of surgery department and hip fracture patients geriatric department.

Social worker
Responsible for oncology, dialysis, pulmonary and geriatric patients.

Geriatric nurses
Responsible for all patients of geriatric department.
Specialization in geriatric patients.

Occupational therapist
Responsible for several patients.

Elocutionist
Responsible for several patients.

Dietician
Responsible for several patients.

Attendance of MDO about aftercare:
Red = no attendance
Green = attendance.

Geriatric quasi-flow:

Geriatric quasi-flow:

Geriatric quasi-flow:

Geriatric quasi-flow:
Appendix XIII: Qualitative analysis interviews
Appendix XIX: Quantitative analysis surveys
Appendix XX: Memo’s surveys
Appendix XXI: Notes observations
Appendix XXII: Interview transcripts