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Operational difficulties in newly merged hospital wards

A case study at the Department of Plastic and Hand Surgery, Sahlgrenska University Hospital

Master of Science Thesis

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Abstract

This master thesis is based on a case study at a hospital department that came about as two specialized surgery departments were merged in fall 2009. During the merger, the setup of wards, where patients are taken care of before and after surgery, was fundamentally changed. After the merger, the wards have been struggling with adjusting to the new setup and operational difficulties have emerged at the wards. These operational difficulties can inhibit a smooth flow of patients throughout the hospital department as well as negatively impact the employee morale at the wards. Thus, these operational difficulties can threaten the performance of the hospital department's operations.

That being discussed, the purpose of this thesis is to provide an external view on operational difficulties experienced at the wards in the hospital department in question by studying operational difficulties and the causes of operational difficulties. There is not much literature directly aimed at the purpose of the thesis. Therefore, a theoretical framework was developed consisting of literature supporting the fulfillment of the thesis' purpose.

Empirical data was gathered at the studied hospital department in the form of interviews, observations and documentation. The method of mapping was applied to guide the data collection. A fundamental understanding of the hospital department's operations was gained by mapping the general patient's flow throughout the department which resulted in a description of the patient's flow. All along the mapping, issues experienced by employees as causing operational difficulties in the department were gathered. A summary of these issues was the foundation for analyzing causes for operational difficulties at the wards, specifically. Finally, causes of operational difficulties at the wards were identified by applying the theoretical framework on the summary of issues. The identified causes were categorized into three parts based on the theoretical framework; causes that can be traced back to the merger, causes related to the nature of hospital operations, and causes related to planning and control at the department. Some of these causes were already in place in one or both specialties before the merger while other causes are directly related to the merger. Furthermore, two or more of the identified causes are often acting together.

Key words: Operational difficulties, Merger, Healthcare, Wards, Planning and control, Patient's flow, Complexity of hospitals operations

Foreword

We would like to thank our supervisors at Sahlgrenska University Hospital, Inger Lönroth and Mattias Lidén, for the opportunity to write this thesis at the Department of Plastic and Hand Surgery, Sahlgrenska University Hospital, and for their guidance and support throughout the process. We would also like to thank Agneta Larsson our supervisor at Chalmers University of Technology for her supervision and advice.

We give special thanks to all the interviewees who willingly shared their knowledge and experience with us. This thesis would not have been possible without their valuable contributions. Lastly, we offer our regards to all of those who supported us in any respect during the completion of the thesis.

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1 Introduction

This chapter provides the background for the thesis work explaining why the chosen topic is of great interest along with an introduction of the studied case. In the first subchapter the thesis' purpose and the proposed research questions are presented. Furthermore, the scope and the disposition of the thesis are presented in subchapters two and three, respectively.

In western societies, e.g. western Europe and the US, retired citizens (> 65 years) are becoming a bigger proportion of the total population, and since older patients have generally a higher demand for healthcare services, total healthcare expenditures are expected to increase (Etzioni et al., 2003; Bains & Oxley, 2004). At the same time, due to the changed demographic profile, pensioners are becoming a larger part of the population which results in less revenue from taxes. Because of this demographic development there is more than ever a need for improving the efficiency of hospital operations to keep up with the expected service levels.

Hospital's main resources, i.e. the qualified healthcare personnel and the facilities, are very limited while the demand for hospital services is "seemingly" infinite. The main problem facing today's hospital managers is how to optimally use resources while at the same time provide top quality services, in as short time and at as low cost as possible (Rhyne and Jupp, 1988). Ensuring that hospital's limited resources are used optimally is a key issue. It should be noted that an optimal use of resources is not the same as achieving as high utilization rate of resources as possible because a high utilization rate does not ensure that the available resources fulfil the demand for service as much as possible. For example, a 98% utilization rate of operation theatres does not ensure that the patients with the most urgent need for treatment have been treated. Instead, an optimal use of resources requires a good understanding of the demand that needs to be fulfilled to ensure a correct prioritization in utilization of resources.

Planning and control theory deals with this reconciliation of the available resources and the demanded services, and literature provides guidance how to construct planning and control processes so that the limited amount of resources fulfils the demand as well as possible (Slack et al., 2010; Jonsson & Mattsson, 2009). Therefore, a well developed planning and control system can support an effective use of resources in a healthcare setting, and improving the planning and control system has proven to increase the efficiency of healthcare operations (Larsson and Johansson, 2007). Planning and control in a healthcare setting is challenged by the great variability in place when healthcare services are carried out, which is caused by different sources of variation as well as the existence of acute surgeries that cannot be planned ahead.

When studying hospitals and healthcare systems in general, it is important to understand their nature. Hospitals are a special type of service organizations and they differ from the traditional manufacturing organizations in many ways, as discussed in literature (De Vries et al., 1999). As for other service organizations, the hospital's "product", i.e. the service to patients, is intangible and it obviously cannot be stocked which makes hospitals a resource-oriented organization. Also, each patient's need for service is unique and the final need can seldom be defined beforehand since it depends among other things on the patient's health status and response to surgery. Furthermore, hospital operations are organizationally complex entities where employees belonging to various

groups with different educational backgrounds, values and perspectives need to interact and cooperate to provide patients the best possible service (Ben-Tovim et al., 2008; Glouberman et al., 2006). Glouberman and Mintzberg (2001) explain how hospitals are today divided into four disconnected worlds, i.e. the world of nurses, the world of the medical society, the world of administrative managers and the world of hospital trustees, that each has its own perspectives, organizing principles and activities. They argue that the complexity of hospitals is due to this division and that the barriers between those worlds need to be broken down by means of integration and coordination, to improve the efficiency of hospital operations.

This thesis is based on a case study done at the Department of Plastic and Hand Surgery (PHK), Sahlgrenska University Hospital, which came about when two specialties, the Department of Hand Surgery and the Department of Plastic Surgery, were merged in fall 2009. Literature discusses mergers and the impact that mergers have on all parts of the merged organizations. Mergers are complex events that represent difficult organizational change processes and uncertainty among employees of the involved organization, and which greatly affect the organizational culture of the involved organizations (Kavanagh and Ashkanasy, 2006; Marks, 1988, 1989). The most common difficulties during a merger are related to the cultural differences between the involved organizations and how to adjust those differences (Nadler et al., 2001; Fulop et al., 2005). In the case of PHK, most employees from both specialties have been impacted by the merger since they have had to adjust to a new work environment. Still, the merger introduced the most drastic change for health personnel, i.e. nurses and assistant nurses, since the setup of wards was fundamentally changed during the merger. Before the merger the Department of Hand Surgery and the Department of Plastic Surgery each had one ward taking care of all their patients, but after the merger, the merged PHK has three wards which are dedicated to inpatients, outpatients and children, respectively, but that are all serving patients from both specialties. The impact of a merger on the work environment of nurses, as well as nurses' experience of a merger is discussed in literature where issues such as increased workload, job insecurity, decreased motivation and reduced employee morale come up frequently (Cortvriend, 2004; Blythe et al., 2001). In the case of PHK, the wards have been struggling with adjusting to the new setup since it was implemented in 2010, and operational difficulties at the wards have emerged after the implementation. In addition to negatively impacting the atmosphere at the newly merged department, the operational difficulties at the wards can inhibit a smooth flow of patients through the department. Thus, these operational difficulties can threaten the performance of PHK's operations. A literature study showed that there is not much literature available discussing operational difficulties in reconstructed wards (after a merger) or the causes of such operational difficulties. Nonetheless, various literature can provide guidance in studying these operational difficulties at the wards and in finding what is possibly causing them.

1.1 Purpose and Research Questions

The purpose of the thesis is therefore to provide an external view on the operational difficulties experienced at the wards at the Department of Plastic and Hand Surgery (PHK) by studying operational difficulties and causes of operational difficulties. To ensure that the thesis work will fulfil the purpose, three research questions are proposed and by answering those three questions, the researchers aim to fulfil the purpose of the thesis. Thus, the three research questions are a roadmap for the thesis work.

To be able to understand and give an external view on operational difficulties in wards at a specific hospital department, one first needs to become familiar with the hospital department in question and to gain fundamental understanding of the department's operations, the different units it consists of, and the different roles and interactions in place. At a hospital department, the operation revolves around patients who flow throughout the department as they receive service. For that reason, mapping the patient flow throughout PHK will provide the required knowledge about PHK's operations. Therefore, the first research question (RQ1) is:

How is the general patient flow for non-acute patients at the Department of Plastic and Hand Surgery (PHK)?

It is important to gather issues that employees experience as inhibiting the department's service to patients since such knowledge serves as a fundamental basis for understanding operational difficulties at the hospital department in question. These identified issues can be related to any part of the department, i.e. they are not limited to the wards. Some of these issues are operational difficulties while other issues cause operational difficulties in the operations of the whole department. Therefore, the second research question (RQ2) is:

Which issues do employees experience as inhibiting the service to patients, at the Department of Plastic and Hand Surgery (PHK)?

This thesis is focused on operational difficulties and causes of operational difficulties at the department's wards, specifically, and therefore, the third and last research question (RQ3) is:

What is causing the operational difficulties at the wards at the Department of Plastic and Hand Surgery (PHK)?

1.2 The Scope

Firstly, the thesis is based on a case study at PHK so the results cannot be generalized for wards at any hospital department, although the results could be useful when studying similar situations in other hospital departments. Furthermore, the case study is limited to patients in need of elective surgeries, i.e. acute patients are excluded. Thirdly, the thesis is done in the healthcare sector that the researchers are unfamiliar with and the study is case-specific based on the situation in PHK so in some cases there is no other source for information than the interviews with employees and the observations at the department.

1.3 Thesis Outline

The structure of the thesis is outlined in eight main chapters. Following is a brief summary of each of them.

Chapter 1, **Introduction**, contains the background of the thesis as well as the purpose and research questions. Furthermore, the chapter presents the scope of the thesis.

Chapter 2, **Theoretical Framework**, presents the theoretical framework developed for this study to serve as a basis for the analysis of the empirical findings.

Chapter 3, **Methodology**, explains how the research was conducted, i.e. the research process, and presents the chosen data collection tools. The possible sources of errors and triangulation are also discussed in the chapter.

Chapter 4, **Empirical Setting**, is intended to provide a fundamental understanding of the studied hospital department, the Department of Hand and Plastic Surgery at Sahlgrenska University Hospital (PHK). Furthermore, the chapter contains a description of the implementation of the merger when PHK came about.

Chapter 5, **Empirical Findings,** presents the empirically collected data, i.e. the mapped patient's flow throughout PHK and a summary of issues inhibiting service to patients at PHK.

Chapter 6, **Analysis & Results**, entails an analysis of the empirical findings based on the theoretical framework where the focus is on studying operational difficulties and causes of operational difficulties at PHK's wards.

Chapter 7, **Discussions**, provides a discussion based on the analysis about the fulfillment of the thesis' purpose.

Chapter 8, **Conclusions**, presents the final conclusions drawn from the thesis work. Also, the possibility of generalizing these case-specific conclusions is discussed, as well as future research.

2 Theoretical Framework

There is not much literature directly aimed at the purpose of the thesis. Therefore, the theoretical framework presented here consists of a number of relevant topics that are required as guidance in answering the research questions and so in fulfilling the purpose of the thesis. Firstly, to provide a general understanding of the environment in question, literature was gathered related to the nature of hospital operations, specifically their complexity. The environment of the thesis is a production system producing services while most literature is about production systems producing products as in manufacturing organizations. Therefore, a subchapter is provided that explains some major differences between manufacturing organizations and hospitals. Understanding the patient's flow throughout an organization, for example a hospital, provides a holistic view of the structure and operations of that organization, which is a prerequisite for solving a problem within that organization. Therefore, the concept of patient's flow is discussed in the third subchapter. A chapter about planning and control is provided since the development and implementation of a planning and control system in a hospital has great impacts on the performance of that hospital. Furthermore, planning and control needs attention during mergers and the way planning and control is dealt with during and after the merger can impact the level of difficulties in merged units. Since the topic of planning and control can be an unfamiliar topic to healthcare employees this subchapter is more extensive than the others. The studied hospital department has relatively recently been merged. Therefore, literature discussing mergers and operational issues related to mergers is presented in the final subchapter, which is therefore more case specific than the preceding subchapters.

2.1 Complexity of Hospitals Operations

While most literature discusses complexity in healthcare systems in general, some literature is specifically directed at hospitals. In this subchapter, different literature discussing and explaining the complexity of hospital operations is presented to shed a light on why hospitals are organizationally complex entities.

Ham (2003) argues that hospitals are organizationally complex entities. Ben-Tovim et al. (2008) further discuss this complexity of hospital operations, and healthcare systems in general, and explain that hospitals are big organizations with a high number of employees, even several thousands, who work in various professional, functional and geographic groups. Professional groups consist of employees with the same educational background and even the same specialization. All employees of a specific hospital department belong to the same functional group. Employees working at the same location belong to the same geographic group. Ben-Tovim et al. (2008) explain how each group has an internal structure, usually a hierarchical one and that the professional background and governing views within the group, as well as the group's status within the hospital organization, influence how group members perform their tasks. Also, that each group performs work according to its own perspective to hold on to its autonomy. Therefore, there are many varying perspectives in place in one hospital making the hospital a complex entity. Furthermore, one employee does belong to more than one group, presenting more than one perspective. Glouberman et al. (2006) agree that healthcare systems are complex. According to them it is largely because healthcare systems require interaction between various groups of people with highly differentiated education, values and perspectives, whose progress and consequences are difficult to foresee. It is for example not possible to foresee all interactions between a patient and a service provider. Because of this complexity, changes in healthcare systems are difficult to predict. Ben-Tovim et al. (2008) further discuss what

makes hospitals organizationally complex and explain that while these groups of employees construct a sectional, hierarchical organization, the patients move horizontally across the organization (the hospital) receiving care from different groups, see Figure 1.

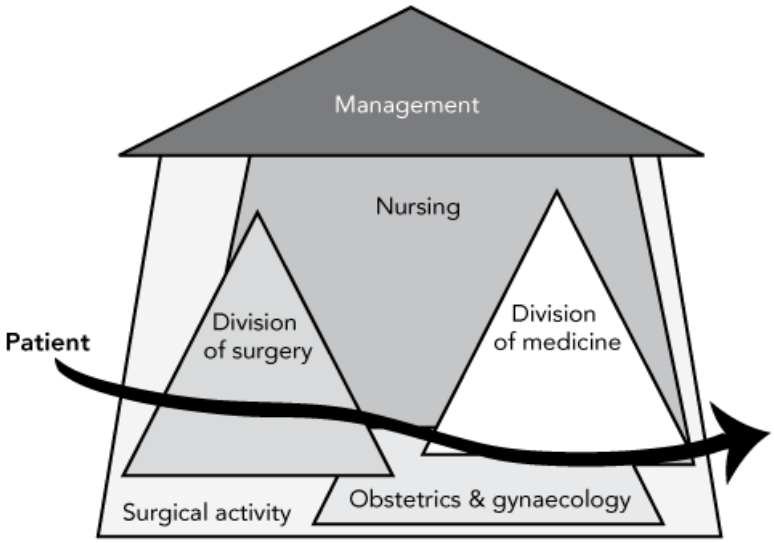

Figure 1: Patients moving horizontally across the sectional, hierarchical hospital organization (Ben-Tovim et al., 2008).

According to Van Aken et al. (1998) a hospital can be regarded as a virtual organization, i.e. an organization that presents a common façade towards the customer although it really consists of many independently operating businesses, such as the specialised departments at hospitals. De Vries et al. (1999) concur that hospitals are complex organizations, and using the concept of virtual organizations they present four organizational dilemmas implicating hospital operations. Firstly, the key position of medical specialists within a hospital can interfere with hospital management's possibilities and efforts to control the hospital production. Secondly, while the responsibility for each specific part of the hospital production process is well defined, the ownership and administration of the whole production process (e.g. when patients are being transferred between departments) is badly defined. Another organizational dilemma is that hospital management needs to consider two perspectives concurrently, i.e. the control of the execution of each process at patient level and the matching of demand and supply within the hospital's budget at an aggregate hospital level. Finally, although hospital departments are operated independently there is a need to coordinate activities across department boundaries which can be difficult.

Glouberman and Mintzberg (2001a) concur that healthcare systems, particularly hospitals, are complex. According to them, this complexity is due to the fact that the world of healthcare, such as hospital operations, is currently divided into four disconnected worlds; Cure, care, control and community, see Figure 2 and Figure 3. They further explain how each of these worlds has its own set of activities, organizing principles, perspectives and mindsets. More specifically, the world of cure is represented by the medical community, where doctors intervene intermittently when needed, and it is organized by the professional specialization chimneys of medical achievements that doctors aim at climbing. The world of care, represented by nurses, is centred on coordinating the various workflows in place at wards to facilitate the provision of a continuous care to patients. In the world of control, administrative managers try to manage the hospital despite of the commonly interfering power of

the medical society (doctors and nurses), and here the organizing principle is the administrative hierarchy of formal authority. Finally, the world of community is represented by the hospital's trustees (community representatives) who sit by a board from where they oversee the hospital's activities, see Figure 2.

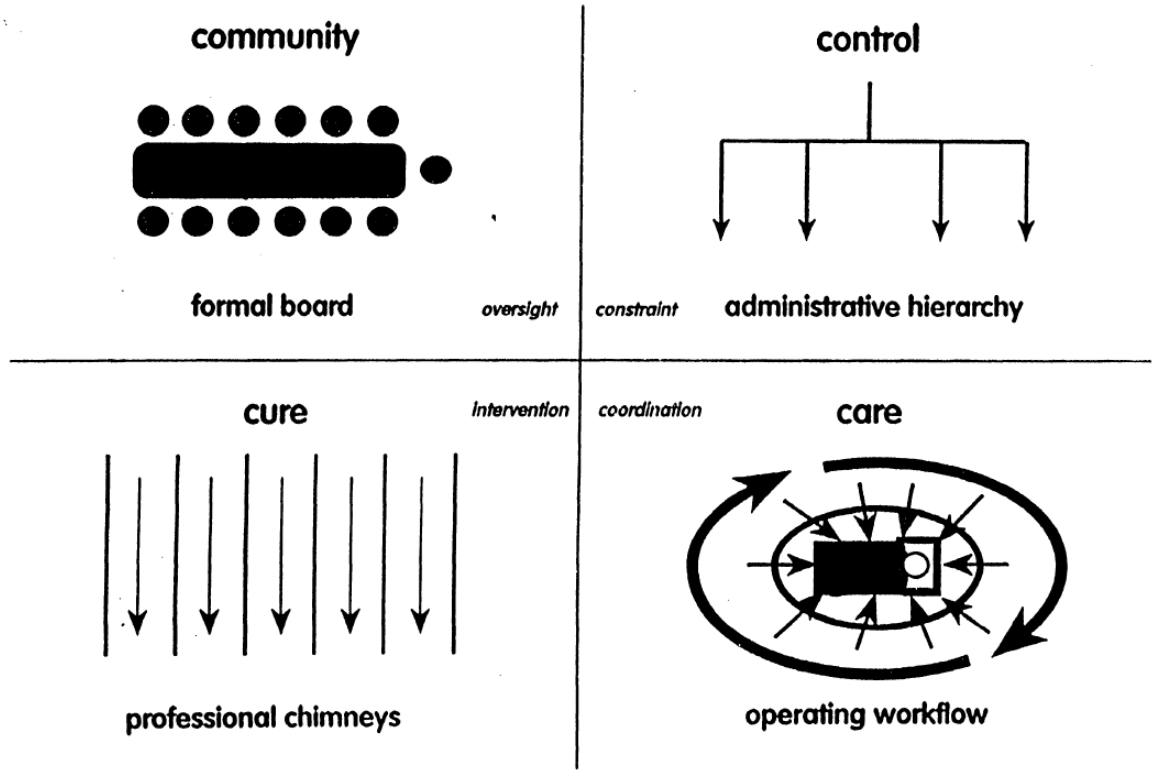

Figure 2: The organizing principles and key characteristics of each of the four worlds (Glouberman and Mintzberg, 2005).

The four worlds also differ in how much they behold to the hospital's hierarchy (out/in in Figure 3) where the world of care and control, respectively, are more beholden, and how directly connected to the hospital's operations (up/down in Figure 3) where the world of cure and care, respectively, are more involved, see Figure 3.

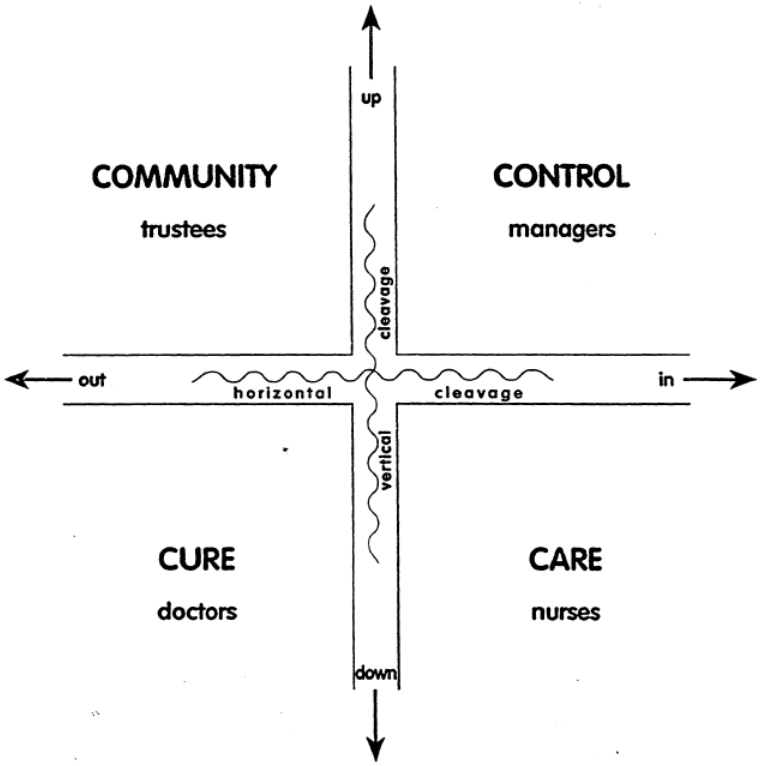

Figure 3: The Four Worlds of Hospitals (Glouberman and Mintzberg, 2005).

Therefore, Glouberman and Mintzberg (2001a) conclude that "the hospital ends up being not one organization but four, as each part structures itself in an independent way" (Glouberman and Mintzberg, 2001a, p.3) and that these distinction of worlds, renders the healthcare system unmanageable. And furthermore that to improve the service to patients and the efficiency of hospital operations, these barriers between the four worlds need to be broken down, and integration and coordination of patient service across the worlds need to be supported. But as long as the four worlds remain disconnected the level of complexity will remain and no fundamental improvements will take place.

2.2 Differences between Hospitals and Manufacturing Organizations

In this subchapter some differences between hospitals and manufacturing organizations identified in literature are presented.

Hospitals are a special type of service organization and De Vries et al. (1999) summarize the major differences between a hospital and the manufacturing environment. Firstly, patient services (including care and cure of patient) as other service products are intangible products that cannot be packed or stocked. Therefore, hospitals are resource-oriented service organizations. Another related difference discussed by De Vries et al. (1999) is that patient services are unique and that it is often unforeseen how the need for services will progress which makes it difficult to explicitly and objectively specify beforehand the "final product", unlike in most manufacturing companies. Also, because of the nature of hospital's commodity, hospital funding is not based on the hospital performance per se, like in general market environments, which reduces the external pressure on the hospital. (Vries, 1999) (Langabeer, 2008).

Another difference Vries and al. (1999) mention is that in hospitals, power is distributed among the highly differentiated work force (e.g. management, medical specialists, nursing staff, paramedics), as is also emphasized by Glouberman and Mintzberg (2005), and that among this differentiated work force there are varying ideas about relevant target measures for production performance, instead of the simple line of command structure in place in most manufacturing organizations. Hospitals differ from manufacturing organizations in that highly trained professionals (medical specialists) do not only request for services but also actively participate in delivering them. Vries et al. (1999) also discuss that the focus in manufacturing organizations is solely on the flow of materials since the material flow enables the production of the organization's goods. Conversely, in hospitals, the primary focus is on the flow of patients, and the flow of materials is only seen as a secondary support function to facilitate the flow of patients by providing the required material (e.g. bandages, hospital bed linen). Finally, Langabeer (2008) explains that while most manufacturing organizations have financially related goals most often focused on maximizing profits and satisfying stakeholders, hospital's missions are often vague and broadly defined, for example to improve society's health. Such abstract goals are unfocused and hard to measure, and therefore not suitable for providing a firm guidance for an organization. These abstract goals are especially unfeasible if the hospital management wants to direct employees' attention to a specific improvement, such as improving efficiencies or revenues.

2.3 Patient's Flow

In the beginning of this subchapter, the concept of patient's flow is described. Following is a discussion about the importance of a holistic approach when improving the efficiency of the patient's flow. Finally, the concept of integration is explained as well as the benefits of focusing on a more integrated care.

Prior researchers have pointed out the importance of a holistic understanding of the patient's flow to support all operational activities within a healthcare organization (Côté, 2000). According to Côté (2000) the patient's flow is a description of how the patient moves from unit to unit within the hospital, where each unit provides a specific part of services. All patient's flows include four common characteristics; an entrance (1) where the patient is initially diagnosed or where the patient is admitted to a healthcare facility, an exit (2) where the patient is discharged from a healthcare facility, a path connecting the entrance to the exit (3) including all the processes, activities, actors, input and output required for fulfilling the patient's need for service, and finally the random nature of healthcare elements (4) for example the varying patient's need and the varying surgery time. Figure 4 gives an example of a patient's flow, presenting how a patient flows through an outpatient clinic consisting of a moderate number of units and paths, which are required to describe effectively this healthcare service.

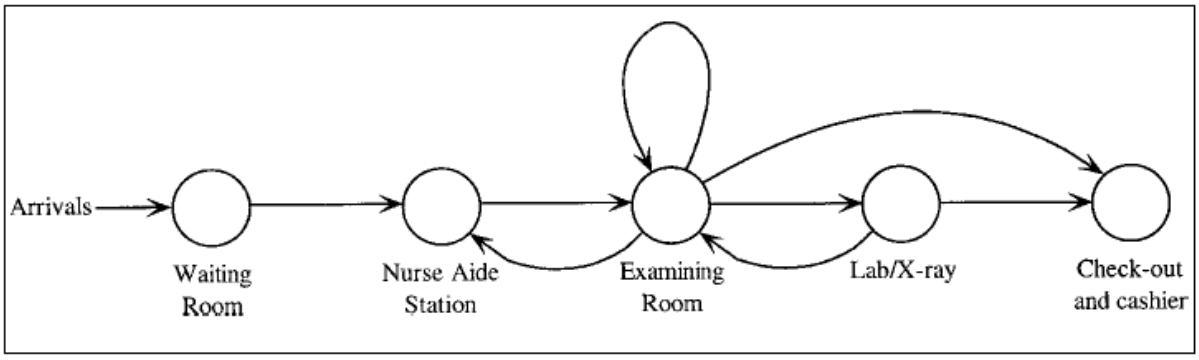

Figure 4: An example of a patient's flow (Côté, 2000).

Côté (2000) also argues that having a holistic understanding of the patient's flow is important when improving the efficiency of healthcare services. From a holistic approach, the patient's flow can be seen as a series of service transactions where healthcare personnel possess different responsibilities whilst cooperating to fulfil the patient's needs (Jensen et al., 2007). Jensen et al. (2007) also emphasize the importance of obtaining a holistic approach of the organization, i.e. each of its units, the processes within each unit, as well as all transfers between the units. They argue that when improving the patient's flow, the focus should be on improving flow within each of the units and the coordination between them.

Ben-Tovim et al. (2008) argue that there is none function following the patient as he/she moves within the hospital; the whole flow is only experienced by the patient. Also, that the employees have different views on the patient's flow since their different roles and responsibilities influence their perspectives. According to Glouberman et al. (2001b) and Wijngaarden (2006), integration of all the processes included in the patient care can lead to a seamless and coordinated care, adapted to the patient needs, and they also discuss how focusing on a more integrated care improves efficiency and effectiveness of the healthcare system. Furthermore, improving the level of integration can result in improved profitability, risk reduction, improved patient safety, and greater patient and employee satisfaction. They also point out that healthcare is today characterised by a high level of differentiation (e.g. between professionals, units and organisation) and a low level of integration, and that to reach the state of a more coordinated care, differentiation needs to be reduced or integration increased. According to Glouberman et al. (2001b), reducing differentiation is not a feasible choice; therefore an increase in the level of integration should be in focus.

2.4 Planning and Control Theory

This subchapter consists of four sections and the structure is the following. In the first section there is a general introduction to planning and control theory intended to provide a fundamental understanding of the concept of planning and control. In the next section a general framework for planning and control, originally developed for manufacturing organizations, is presented. This framework consists of four planning levels which are described in this section. In the third section, the need for planning and control in the healthcare sector is introduced, followed by a discussion about the relevance of using classical production planning and control methods and tools in a healthcare setting. In the last part of this section a framework specially adjusted for healthcare is presented and it is explained why such a framework was developed. Finally, in the last section, it is

presented how the existence of different types of variation causes variability in healthcare services and how this variability implicates planning.

2.4.1 General introduction to planning and control

Slack et al. (2010) explain how planning is about formalizing what is intended to happen at a certain time in the future. And furthermore, how such plans are often not implemented as originally intended due to unavoidable variations and changes in the planning environment, e.g. due to staff absence or changes in the customer needs. Jonsson and Mattsson (2009) concur that planning is about making decisions about future activities and events. Slack et al. (2010) also explain how control is the process of responding and coping with these common changes in original plans by making the adjustments needed to ensure that the original objectives that the initial plan was meant to support can still be achieved. Such an adjustment can for example be to move staff between departments to cope with staff absence. Therefore, the concepts of planning and control are much intertwined and generally used together.

Jonsson and Mattsson (2009) discuss how planning and control is aimed at achieving a balance between what needs to be delivered, i.e. the customer demand, and what can be produced or taken from stock. According to Slack et al. (2010) planning and control is the reconciliation between the products (including services) that available resources can potentially deliver and the products demanded by the company's customers. Thus, the purpose of planning and control is to connect the supply of resources and the demand of products to ensure that all processes are producing products and services as required by customers, in addition to be running effectively and efficiently (Slack et al., 2010). Similarly, Vollmann et al. (2005) state that the essential task of planning and control is to manage efficiently the company's different resources; material, employees, equipment, and to utilize those resources optimally to meet customer demand. Vollmann et al. (2005) believe that a well developed planning and control system is crucial for manufacturing companies to stay competitive. Jonsson and Mattsson (2009) also point out that a company's manufacturing planning and control system supports the company's success and competitiveness and should therefore be included in the company's corporate strategy.

2.4.2 Structure of a general framework for manufacturing planning and control

As already mentioned, planning is about making decisions that will impact the future. Such decisions can relate to activities or events in the near future, within hours or days, or in a more distant future, even more than one year ahead. Furthermore, the appropriate degree of detail of the information behind those decisions varies because it is more difficult to get precise information for decisions in the distant future, but also because having precise information behind a decision in the distant future is less valuable since many other factors apart from the decision made will impact the final result, see Figure 5. (Jonsson and Mattsson, 2009)

Figure 5: The relationship between planning horizon and degree of detail (Jonsson and Mattsson, 2009).

Jonsson and Mattsson (2009) present a model for manufacturing planning and control that has a hierarchical structure of four planning levels (this structure of four planning levels originates from the Association for Operations Management, APICS) where each planning level deals with decisions within a certain time horizon and with a certain degree of detail, see Table 1 and Figure 5. For this structure to function properly, planning at one level must be made within the limits of the planning level above. The highest planning level is called Sales and operations planning, where top management makes strategic decisions when making overall plans to match the company's production resources with the expected demand, in align with the company's goals. The next planning level is Master production scheduling where detailed delivery and production plans are developed based on the overall plans created in the Sales and operations planning. In many companies, Sales and operations planning and Master production scheduling are merged into one planning level. At the third planning level, Order planning, the plans from the higher levels are operationalized by making detailed plans (resulting in planned manufacturing and purchase orders) to ensure that all resources will be in place when needed. Finally, the lowest planning level is the Execution and control where the planning object is the activities needed to carry out the plans from the higher planning levels. (Jonsson and Mattsson, 2009)

Table 1: Characteristics of the four planning levels according to Jonsson and Mattsson (2009)

Planning level	Planning object	Planning horizon	Period length	Frequency of rescheduling
Sales and operations planning	Product group, product	1-2 years	Quarter/month	Quarterly/monthly
Master production scheduling	Product	0.5-1 year	Month/week	Monthly/weekly
Order planning	Produced item	1-6 months	Week/day	Weekly/daily
Execution and control	Activities	1-4 weeks	Day/hour	Daily

Slack et al. (2010) explain further that at the two lower planning levels it is not possible to make fundamental changes since the capacity is by that time quite fixed, but instead some adjustments are made to balance supply and demand of services in the best possible way and to cope with sudden circumstantial changes. They also explain how the emphasis on planning and control, respectively, shifts based on the time horizon of the planning level in question, where the emphasis is more on planning at the long-term level and on control at the short-term planning level, see Figure 6.

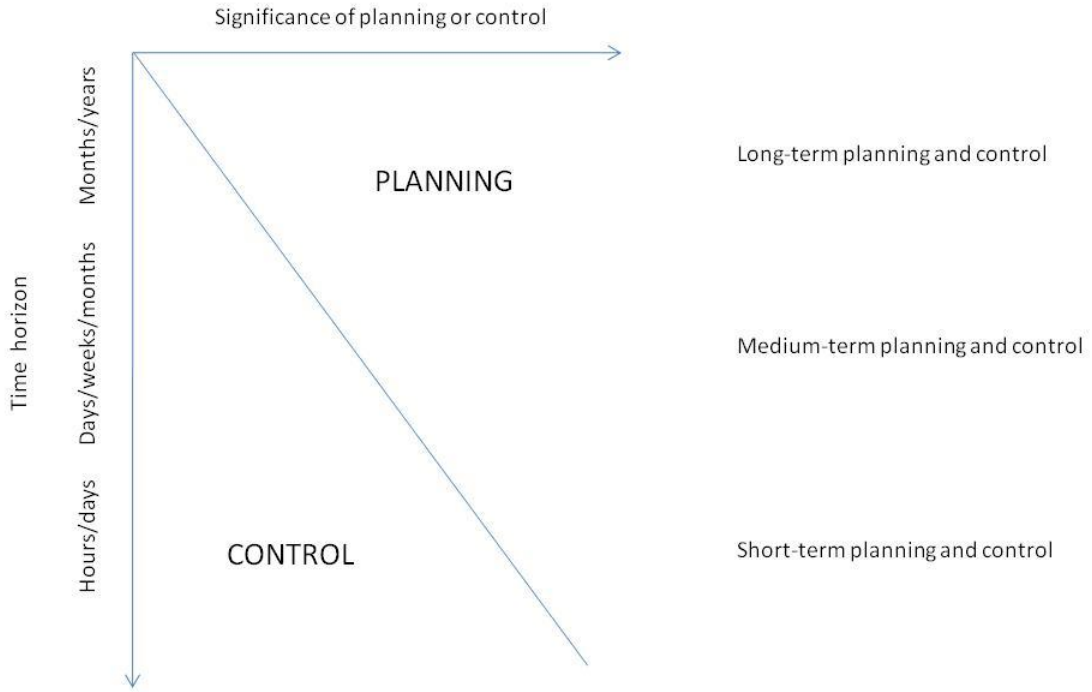

Figure 6: The prevalence of planning and control, respectively, depending on the time horizon (Slack et al., 2010).

Olhager and Wikner (2000) state that plenty of production planning and control methods and tools are available. Also, they agree with Jonsson and Mattsson (2003) that it depends on the planning environment, for example the nature of the demand or the manufacturing characteristics, which methods or tools are relevant to use. Therefore, Olhager and Wikner (2000) conclude that a good understanding of methods and tools, as well as the planning environment, is necessary to ensure that the chosen ones will provide the required planning and control. Jonsson and Mattsson (2009) concur about the importance of such an informed, situation-specific choice of methods.

2.4.3 Planning and control in a healthcare setting

Rhyne and Jupp (1988) state that the main problem facing today's hospital managers is how to optimally use resources while at the same time provide top quality services, in as short time and at as low cost as possible. It is therefore a need for matching the supply of healthcare services with the patient's demand for service. According to Slack et al. (2010) such matching is achieved through the planning and control processes where the limited amount of resources is managed to fulfil the demand as well as possible. Vissers et al. (2001, p.591) also argue that "the importance of production control for healthcare organizations is obvious". Larsson and Johansson (2007) argue that many aspects of the planning and control framework presented by Jonsson and Mattsson (2009) are applicable in a healthcare setting and they present a literature review over cases where the

application of production control principles have improved the efficiency of healthcare operations. They also argue that little attention has been paid to the planning and control system of healthcare organizations, and that most literature is aimed at relatively short-term planning, with a focus on reaching as high resource utilization as possible instead of concentrating on understanding the demand that needs to be fulfilled.

Furthermore, Larsson and Johansson (2007) explore "in what way a comprehensive design of the planning system may contribute to the effective use of resources" by performing a case study in a surgery clinic. Comparing the presented general framework for planning and control systems with the real planning system of a surgery clinic they conclude that the clinic's performance could improve by improving the current planning system. They conclude firstly that focusing more on the higher planning levels could reduce the need for "fighting fires", i.e. having to quickly respond and solve sudden problems. Secondly, that a more effective use of resources could be achieved by shifting focus from the available capacity to the patient demand and by letting the demand lead the allocation of resources. Thirdly, that introducing a more integrated planning system could facilitate the fulfilling of the patients' demand.

Slack et al. (2010) relate the presented, general framework of planning and control and a healthcare setting by exemplifying each of the planning level. At the highest planning level, overall plans are made for the hospital assuming a total amount of patients and personnel without specifying the type of patients or speciality of personnel. As the time horizon shortens, the planning becomes more detailed and disaggregated, for example the different types of demand are identified such as acute versus elective, and personnel is categorized. Finally, at the level of short-term planning and control the demand and personnel are totally disaggregated so individual patients are identified and scheduled for treatment. (Slack et al., 2010)

As Olhager and Wikner (2000) discuss, planning and control needs to be adjusted to the environment in question. In literature, it differs how much adjustment is said to be needed to apply the general structure for planning and control to a healthcare system. De Vries et al. (1999) study the possibility of applying classical production control theory to a healthcare setting and they state that numerous elements from classical production control theory can also be applied to healthcare but only to individual hospital departments, not the whole hospital operation. Vries et al. (1999) conclude that due to the specific characteristics of hospital services and the state of production control development in the healthcare industry, there is a need for developing a special framework dedicated to hospital production control. They elaborate and present design requirements which were then used by Vissers et al. (2001) to develop such a framework for production control in healthcare organizations, which is a hierarchical one with four planning levels, based on a general design framework for production control by Bertrand et al. (1990).

2.4.4 Implications of variation on planning and control

Slack et al. (2010) argue that uncertainty and variability implicates planning and control. Vries et al. (1999) state that there is a variability in place when a specific healthcare service is carried out, and they discuss three examples of sources of variation causing that variability; Interpractice variation, Interdoctor variation and Interpatient variation. Interpractice variation occurs within the speciality in different hospitals, i.e. the same speciality in different hospitals may have differing practices when fulfilling the same service. Interdoctor variation occurs within a speciality, i.e. doctors within the

same department may carry out the same surgery differently due to their different level of experience and knowledge. Finally, interpatient variation occurs at the level of a single specialist's practice, i.e. the eventual service carried out is impacted by the medical profile of the patient in question. The patient's condition, physically and mentally, may for example impact his/her needs. McLaughlin (1996) also discusses how the patient's profile and the doctor's level of expertise impact how the eventual service is carried out and that these impacts are sources of variation in the fulfilment of a certain service. McLaughlin (1996) emphasizes the need for accepting inherent variations in healthcare services and that variability should be managed more positively. Also, she argues that despite of efforts and some success in reducing variation, some variation will always be in place.

Patients arriving to a surgical hospital department can be divided into three categories; acute, semi-acute and elective patients, depending on the level of urgency of their demanded service. These different categories put a different level of implication on the planning and control processes. The elective patients are formally registered into the planning system of a hospital department and are therefore part of the department's planned activities. The acute patients pay an unplanned visit to the department, with an urgent complaint that needs to be dealt with as soon as possible. Semi-acute patients do have a condition that needs to be taken care of within a short time frame although not immediately. Neither acute nor semi-acute patients are included in the planned activities but instead call for acute actions that need to be carried out in coordination with the planned activities. In some cases, the same resources are used for all the patient categories, which can require a rearrangement in original plans to respond to acute patients. In other cases, specific resources, e.g. operation theatres, are reserved for the acute activities, so the planned activities are not interrupted. (Larsson, 2011)

2.5 Mergers in Healthcare

This subchapter contains general information about mergers to clarify the concept. Following is a general discussion of successful implementations of mergers and how they impact the organizations involved. Finally, the importance of organizational culture when implementing mergers in a healthcare setting is explained as well as the impacts of a merger on healthcare personnel.

2.5.1 Successful implementation factors during mergers

For many years, acquisitions and mergers have been an ongoing part of the operational strategy of many organizations, intended to achieve corporate diversity and growth (Cartwright and Cooper, 1992). Kavanagh and Ashkanasy (2006) define a merger as the combination of two or more organizations under the same administration. They also discuss the increased number of mergers over the past decades. The nature of mergers and the magnitude of merger related activities differ from other organizational changes because of the consequent large scale reorganization, rapid rate of occurrence and uncertainty (Marks 1988, 1989). Fulop et al. (2005) point out that a merger is a complex process without clear boundaries and Kavanagh and Ashkanasy (2006) agree that mergers are complex events that represent difficult organizational change processes. Moreover, they emphasize that mergers influence many parts of the involved organizations and therefore, there is a wide range of factors that can result in an unsuccessful merger.

The literature centres on some issues that need to be in focus during organizational changes such as a merger. Nadler et al. (2001) mention that the most common difficulties during a merger have to do

with “cultural differences”, which underlines the need for management to focus on human and cultural factors. Also, they argue that for an effective merger to take place, particularly those involving a change in the organizations’ culture, the top management team needs to be actively engaged and involved in the merging process. Kavanagh and Ashkanasy (2006) agree and state that understanding the functionality of the organization is the key to choosing the right approach to handle cultural change. Furthermore, Ashkanasy and Holmes (1995) and Cartwright and Cooper (1993) highlight the importance of involving all employees at all levels in the change process. The importance of an effective communication during the merger process between members at all levels of the organization is discussed by Kavanagh and Ashkanasy (2006). According to them, it should be a major priority to avoid that employees feel they are not involved in the merger process. During mergers, the importance of communication is often forgotten since the changes are often rapid.

2.5.2 Impacts of merger on healthcare organizations

In literature, both positive and negative organizational impacts of a merger are presented. Leroy and Ramananatsoa (1997) describe how a merger can result in new opportunities to provide shared learning and collaborations. On the other hand negative impacts mentioned in literature are diseconomies of scale, problems related to integrating personnel, services, systems, and working traditions (Fulop et al., 2005). In addition, Fulop et al. (2005) elaborate that it is unavoidable to face the negative effects of merger, but that they can be reduced by foreseeing certain issues and introducing preventive actions, for example to introduce staff meetings in the new organization to ensure that employees are informed about the ongoing changes.

The merging or combining of healthcare facilities, specifically, has become an important response to the economic pressure that hospitals are dealing with, mainly regarding management costs and improving efficiency through rationalization (Fulop et al., 2005). Mergers create a major change in organizations and introduce a large amount of uncertainty and greatly affect the organizational culture (Kavanagh and Ashkanasy, 2006). Schein (1993) gave the following definition for organizational culture: “A pattern of shared basic assumptions that the group learned as it solved its problems of external adaptation and internal integration, that has worked well enough to be considered valid and therefore, to be taught to new members as the correct way to perceive, think, and feel in relation to those problems” (Schein, 1993, p.373-374). He further describes how organizational culture evolves over time as the group does, and the group needs to deal with two critical challenges; integrating individuals into the organization, and to adapt effectively to the external environment affecting the group, in order to survive. As the group finds solutions to these challenges, they engage in a collective learning which creates a pattern of shared basic assumptions and beliefs, which is called “culture”. In healthcare, organizational culture is a crucial factor in understanding the capability of an organization to perform and compete (Davis et al., 2000). Davies et al. (2000) argue that some characteristics of an organizational culture influence the performance of a merger. These characteristics include attitudes towards innovation and risk; the way of communicating; and process performance and outcomes.

2.5.3 Impacts of merger on healthcare personnel

The literature also discusses the impact of mergers in healthcare on the employees (Idel et al. 2003; Cortvriend, 2004). Cortvriend (2004) studied nurses as individual workers and their experience of a merger. He argues that during a merger, nurses experienced different issues they had to deal with such as increased workload, decreased motivation and working traditions and that impacted the

employee morale at the work place. Blythe et al. (2001) also studied nurses' experience of a merger and identified numerous issues affecting them during and after a merger. They discussed especially the following issues; job insecurity affecting nurses' personal and professional life, low morale, reduced job satisfaction, and limited career opportunities. Furthermore, they mention that during a merger, the nurses' ability to control their work decreased which again affected their ability to work efficiently and maintain the standard of their work.

Blythe et al. (2001) present results from interviews with nurses in a newly merged organization. During the interviews, the nurses discuss that after the merger they were obliged to treat more or sicker patients although the amount of personnel had been reduced. Therefore, those nurses were worried about their abilities to maintain acceptable levels of patient care. Also, the nurses discussed their anxiety about their competence in their new roles although they had received some training and education since they felt that they needed more time to adjust to new roles. Finally, Blythe et al. (2001) discuss that nurses recognized that their managers were also adjusting to a new role in the organization and were therefore under a lot of pressure. The nurses were also aware that their managers had limited control over the activities related to the merger.

Blythe et al. (2001) also discuss the impact of a merger on teamwork, specifically. Their results were that after a merger, nurses had to adapt to a new organizational culture, with new procedures and new team members. Furthermore, when new nurses were introduced to a certain team of nurses in general, the workload of the other members increased although the new members were willing to adapt quickly. Moreover, the members of the changed team were unfamiliar with the individual strengths and behaviour of the each team member, which created uncertainty among the nursing team.

3 Methodology

In the following chapter, the methodology of the thesis work is presented. The first subchapter presents the research overview where the evolvement of the research process is described. In the second subchapter, the chosen research approach, a case study, is presented and explained. The next three subchapters are dedicated to three parts of the research process that need further explanations. Therefore, in the third subchapter, the methods used for collecting empirical data are introduced, the fourth subchapter describes how the theoretical framework was developed and in the fifth subchapter, the applied analytical procedure is described. Finally, in the sixth subchapter, there is a discussion of the possible sources of error in the thesis work and in the final subchapter, triangulation is presented to explain how the quality of empirical data was ensured.

3.1 Research Overview

The research approach of the thesis was a case study and the time frame of the thesis work was the beginning of February 2011 until the end of June 2011. The evolvement of the research process of the thesis work is presented in Figure 7. The research process was divided into five parts and following is a description of each part.

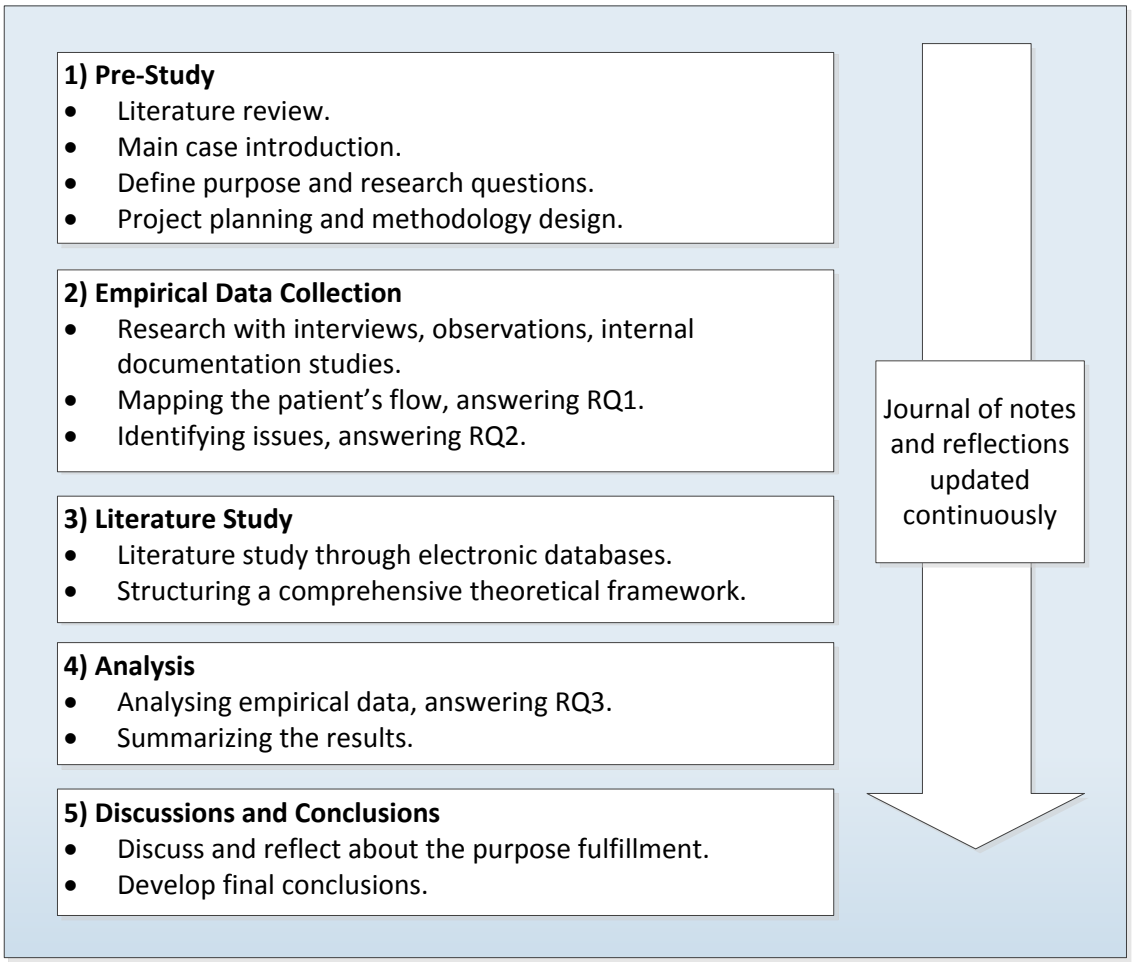

Figure 7: The evolvement of the research process.

In the first part of the thesis work, Pre-study, the researcher's focus was on a literature review and getting familiar with the case in question. During the Pre-Study, the purpose of the thesis and the

research questions were defined and the applied methodology was designed. Also, an initial project plan was made which was gradually updated as the thesis work developed.

In the second part, Empirical Data Collection, case-specific data was collected to obtain a necessary understanding of the empirical setting, i.e. the hospital department in question and each of the units it consists of as well as the general patient's flow through the hospital department, see Chapter 4 and Chapter 5.1. At the same time, issues that employees at the hospital department identified and discussed as inhibiting service to patients were gathered, see Chapter 5.2. Qualitative data collection methods were applied, i.e. interviews, observations and documentation, and the data collection was guided by using the method of mapping. Both the first and second research questions were answered in this second part of the research process. This part of the research process is further discussed in Chapter 3.3.

In the third part of the thesis work, Literature Study, a literature study was performed to establish a theoretical framework for the thesis, see Chapter 2. This part of the research process is further discussed in Chapter 3.4.

In the fourth part of the thesis work, Analysis, the empirical findings were analyzed based on the theoretical framework, see Chapter 6. The third research question was answered in this fourth part of the research process. Due to the nature of the thesis, there is one common chapter for analysis and results of the analysis. This part of the research process is further discussed in Chapter 3.5.

Finally, the fifth and last part of the thesis work, Discussions and Conclusions, where the empirical findings and the results from the analysis were evaluated. Here, it was discussed whether the purpose of the thesis work had been fulfilled, see Chapter 7. Also, the final conclusions were drawn, see Chapter 8.

3.2 Case Study

In this thesis work, a case study was chosen as a research approach. The idea of the thesis was initiated at the hospital department in question where operational difficulties at wards had been identified and discussed before the thesis work started. Since the purpose was to study operational difficulties at a specific hospital ward, a fundamental understanding of the department, both from a holistic perspective as well as specifics related to each unit, especially the wards, and the interaction between units, was a prerequisite for fulfilling the purpose. Yin (2009) argues that the case study approach is relevant when the research question aims at explaining present circumstances where there is a need for a broad and in-depth description of a social phenomenon. Denscombe (2007) explains how a case study helps to gain a holistic view as well as an understanding of circumstances and relationships between processes. Also, that a case study approach works best when "the researcher wants to investigate an issue in depth and provide an explanation that can cope with the complexity and subtlety of real life situation" (Denscombe, 2007, p.38) as is the case in the healthcare sector.

3.3 Empirical Data Collection

Three research methods were used for collecting data, i.e. interviews, observations and documentation. Initially, ten interviews were conducted and observations were carried out in the hospital environment, at wards and in meetings, as well as through observing an electronic planning

system, Operätt. In addition, documentation was used for data collection. In later phases, the information gathered during interviews and observations was confirmed in four follow-up interviews.

3.3.1 Interviews

According to Denscombe (2007), an interview differs from a casual conversation in that there is a structured common understanding between the two parties. Two types of interviews were performed in the thesis work, i.e. semi-structured interviews and un-structured interviews.

Cousin (2009) explains that interviews that are structured around a set of guiding questions to facilitate discussions are called semi-structured interviews. In those interviews, "the interviewer is expected to adapt, modify and add to the prepared questions if the flow of the interview talk suggests it" (Cousin, 2009, p.72). Before the semi-structured interviews, a questionnaire was prepared, which was then used during the interview to lead the discussion. During the interview, the researchers added or adjusted questions as required to ensure a common understanding between the researcher and interviewee as well as to get a deeper level of understanding. This type of an interview was appropriate for the majority of the initial interviews since it ensures that the needed information is gathered. In this type of interviews the direction of the conversation is guided which makes cross-checking possible.

Un-structured interviews were conducted where relevant. According to Burgess (1989), un-structured interviews are applied to facilitate unrestricted conversations. In the case of un-structured interviews, a questionnaire is not used to guide the interview but pre-selected discussion topics are instead decided. This interview structure is suitable when there is need for supporting open discussion and brainstorming among the interviewees. (Burgess, 1989)

Purpose of Interviews

The interviews are divided into two categories, initial data collection interviews and follow-up interviews, see Table 2. The interviews were the major data collection method. In all but one interview the interviewees were employees at the hospital department and that interviewee was a current "customer" of the department. During the initial interviews, different employees at the hospital department were interviewed and asked questions related to work methods and procedures, as well as their view on the merger. Moreover the interviewees' opinions and experiences related to operational difficulties in the department, and the wards specifically were gathered, as well as their improvement suggestions. While some questions were directly aimed at answering the second and third research questions, others were meant to increase the researcher's fundamental understanding of the hospital department, i.e. to answer the first research question. Finally, the interviews offered the researchers a chance to obtain a feeling for the mind-sets and attitudes of employees at the hospital department, especially their highly varying perspectives on the service to patients. To secure a correct understanding and interpretation of the information gathered during the initial interviews, follow-up interviews were conducted, via e-mail in some cases.

Execution of Interviews

Initially, ten interviews were conducted, thereof six semi-structured and four un-structured, see Table 2. The initial interviews were face-to-face, all but two conducted in Swedish, where one or two employees were interviewed at a time. All but two of the initial interviews were booked ahead so a certain time was reserved which was important for a successful interview when the interviewees work in a stressful environment. The interviews took from 45 minutes to one and a half hour. Later

on, four follow-up interviews were conducted; two of them via e-mail and two face-to-face in pre-booked meetings were one employee was interviewed at a time in an un-structured interview. Those interviews took 15 to 30 minutes. The questionnaires used in the semi-structured interviews are provided in Appendix A and so are the pre-selected discussion topics for the un-structured interviews.

The researchers conducted all interviews together, which increased the objectivity of the data gathered. The interviews were not dictated; instead the researchers wrote comments as well as new or adjusted questions on the questionnaire. Directly after each interview, the researchers processed the information gathered.

Table 2: An overview over conducted interviews

Inter-view (#)	Interviewee, role	Unit, if relevant	Type of interview		Nr. of interviewees	Language Swedish (Swe), English (Eng)	Re-served time	Follow up interview
			Semi - Str.	Un-Str.				
1	Plastic coordinators	Reception	X		2	Swe	X	
2	Chief of Health Personnel	Reception	X		1	Swe	X	
3	Hand Coordinators	Reception	X		2	Swe	X	
4	Chief of Administrative Personnel	Reception	X		1	Swe	X	
5	Section Chief, Plastic Surgery	Operation Theatre	X		1	Eng	X	
6	Section Chief, Hand Surgery	Operation Theatre	X		1	Eng	X	
7	Chief of Wards	Wards		X	1	Swe	X	
8	Section Leaders	Inpatient Ward, Children Ward		X	2	Swe		
9	Section Leaders	Outpatient Ward		X	1	Swe		
10	Customer			X	1	Eng	X	
11	Section Chief, Plastic Surgery	Operation Theatre			1	Eng		E-mail
12	Section Chief, Hand Surgery	Operation Theatre			1	Eng		E-mail
13	Surgeon, Plastic Surgery	Operation Theatre		X	1	Swe		Meeting
14	Chief of Administrative Personnel	Reception		X	1	Swe	X	Meeting

When organizing the interviewees for the initial interviews, a representative was chosen from each unit of the hospital department to provide a holistic vision of the hospital department and to

facilitate gathering of specifics related to each unit. In some cases, more than one representative was interviewed from the same unit to present different employee groups within that unit and to provide cross-checking of information. A decision was made to interview persons with high responsibility within each unit to aim for obtaining a holistic view for each unit.

3.3.2 Observations

In an observation, activities, processes, conditions and events are observed without a direct interference of the researcher. Observations can record whether people act differently to what they say or intend. Also, it can sometimes be easier to demonstrate a process by performing the activities rather than by verbally explaining them. (Walliman, 2005)

Observations were performed at the wards and around the operation theatres belonging to the studied hospital department. The purpose of the observations was to arrive at a deeper understanding of the reality and obtain a more comprehensive and thorough understanding of daily work procedures with a focus on the performed activities. During the thesis work, various meetings and presentations in the hospital department were attended related to the research topic, both regular and irregular meetings. The meetings allowed the researchers to experience the different perspectives concerning the studied topic and how the department functions in reality. Furthermore, throughout the data collection an electronic planning system, Operätt, was used to obtain an important feeling for the planning circumstances, for example the frequent changes in the system that complicate the planning of surgeries.

3.3.3 Documentation

Internal reports from the department were used for gathering general information related to the hospital department.

3.3.4 Method of mapping

According to Harrington (1991), mapping is applied to map flows within organizations with the aim of understanding processes within the organization and the relationships between those processes. Ben-Tovim (2008) agrees that the technique helps to discipline researcher's thinking and explains the importance of recording real processes instead of "ideal processes". He also states that mapping helps to identify poor coordination throughout the patient's flow between units, and to identify processes that should be removed to improve the organization. Finally, he mentions that the technique of mapping exhibits problems in a way so that they cannot be doubted and so that the attention is centred on solving the sources of the problem

In this thesis, mapping was mainly used to structure the data collection and to document the gathered information in a clear and accessible way. A fundamental understanding of the department was a prerequisite for analyzing and answering all the research questions and mapping was intended to facilitate the researchers to thoroughly understand how patients flow throughout the department as well as to illustrate and understand the department's processes and relations. While obtaining a coherent view of the patient flow, the researchers gained a necessary knowledge about the structure of the department, its different units and roles, and interaction between those different units and roles, which was an important input in the thesis work. All along the mapping, the mindset was on finding answers to the research questions through interviews, observations and documentation.

Also, throughout the mapping, some analysing was needed from the researchers' behalf in order to thoroughly and coherently understand the gathered information.

During mapping, the patient was the centre of attention where the patient was followed throughout the department, i.e. from the patient's first contact with the hospital department and until he/she was dismissed from the department's ward, fully treated. This included identifying all the performed activities required to fulfil the service to patients, the coordination between those activities, the units and roles responsible for each of those activities, the documentation of patient information and the distribution of the documented information as well as the time frame of each activity. The gathered information was used to describe the general patient flow for non-acute patients at PHK and thereby answering the first research question, see Chapter 5.1.

During mapping, issues were gathered through interviews with employees at the department aimed to answer the second research question. In some cases the issues were directly mentioned by interviewees but in other cases the issues were detected by the researchers based on interviewee's input. These issues all had in common that they were discussed in the interviews with employees as inhibiting service to patients; some of the issues were operational difficulties while other issues caused operational difficulties in the operations of the whole department. The issues were grouped into four categories supported by the interviews topics; daily work, scheduling of surgery, meetings and merger, see Table 5-11 in Chapter 5.2.

3.4 Literature Study

Through a literature study a new interpretation of old literature can be generated as well as a combination of new interpretation with the previous ones (Cooper, 1998). In the thesis work, the literature study involved collecting literature relevant to the topic of interest and describing relevant past studies. This was almost exclusively done through electronic databases by searching for articles, scientific reports and books.

Early on the researchers realized that there was not much literature directly aimed at the purpose of the thesis. Therefore, literature that was enlightening and supportive for fulfilling the purpose of the thesis was gathered and during the literature study, the researchers gradually built a theoretical framework for the thesis. Furthermore, as described in the research overview, the empirical data collection was performed before the literature study, and a part of the empirical findings was a summary of issues inhibiting the service to patients, see Chapter 5.2, and those issues guided the search for literature.

3.5 Analysis

In the analysis, the theoretical framework was applied on the empirical findings. The theoretical framework guided the analysis and so categorized the analysis. As mentioned before, one part of the empirical findings is a summary of issues, see Chapter 5.2, that all have in common that employees think they inhibit service to patients, and furthermore that these issues are operational difficulties or cause operational difficulties in some part of the department. This summary of issues was the empirical basis for the analysis. The purpose of the thesis work was limited to one unit within the department, i.e. the wards. Therefore, in the analysis, all the issues from the summary of issues were analyzed based on the theoretical framework to identify those specifically related to the operational difficulties at the wards. Thus, the aim of the analysis was to identify operational difficulties and

causes of operational difficulties at the wards. The analysis was therefore aimed at answering the third research question.

3.6 Sources of Error

An awareness of the different sources of error in the data collection process is of great importance, both related to interviews and observations. One such plausible source of error is objectivity. On the one hand, it is very important to be aware of the importance of personal objectivity, i.e. the researcher's objectivity when collecting data. This includes that the researcher avoids imposing private values and visions on the interviewees and personnel being observed, as well as during the analysis of data. Still, it is not reasonable to expect researchers to be completely objective when collecting data (Ethridge, 2004). On the other hand, the researchers may in some cases need to guide discussions during interviews to ensure getting the wanted knowledge, weather such guidance is conscious or not, still the researchers should be aware of limiting such impact (Ethridge, 2004). Having a semi-structured questionnaire to guide the interview helped the researchers to get the information wanted, without affecting the interviewee too much.

Another concern related to sources of error is that as more interviews were conducted, the researchers' understanding increased which may inevitably have impacted their questions and discussions during later interviews. The researchers were aware of this and aimed at keeping to the same level of detail during all the initial interviews. Another related concern is that the healthcare sector was to begin with foreign to the researchers which may have limited their understanding during the first interviews.

The working environment of most interviewees is very intense, but to avoid that working environment interfered with the interviewees' participation, all but two interviews were conducted in pre-booked meetings in quite rooms. All interviews but two were conducted in Swedish which is not the researchers' first language which could cause misunderstandings; still, this was not seen as impacting the thesis work.

The selection of interviewees may have affected the collected data. In this thesis work, most interviewees were managers at the hospital department. Due to this, managers' point of view dominated the gathered data. Still, it should be mentioned that in most cases the managers were actively involved in work procedures in their unit. Finally, where more than one person was interviewed concurrently it is possible that they affected each other's opinions. However, this can also have led to more innovative discussion and even cross-checking of information as the discussion prolonged.

3.7 Triangulation

Triangulation is about relying on more than one approach or source of information when investigating a research question. Triangulation enhances confidence in results by comparing or harmonizing findings. (Bryman et al., 2007)

The fundamental triangulation in this thesis work was secured by conducting interviews and observations as well as performing a literature study to ensure consistency and reliability of the gathered information. In addition, cross-checking of data was provided firstly by conducting semi-structured interviews with semi-standardized questions to be able to compare answers from

different interviews, secondly by interviewing more than one employee from the same unit and finally be conducting follow-up interviews where information from initial interviews was confirmed. Also, documentation provided the chance to cross-check the correctness of some data.

4 Empirical Setting

The following chapter will provide a fundamental view on the studied hospital department, i.e. the Department of Plastic and Hand Surgery (PHK) at Sahlgrenska University Hospital. The first subchapter provides an introduction of the department, including a description of each of the units that the department currently consists of. The second subchapter explains the implementation of the merger of two specialities, i.e. the Department of Hand Surgery and the Department of Plastic Surgery, into one department, i.e. the Department of Plastic and Hand Surgery (PHK).

4.1 The Department of Plastic and Hand Surgery (PHK) at Sahlgrenska

Sahlgrenska University Hospital (SU) serves a population of 700.000 inhabitants and provides furthermore highly specialized care for West Sweden where there are 1.7 million inhabitants. In collaboration with the Sahlgrenska Academy at the University of Gothenburg, SU provides an infrastructure facilitating teaching and research.

Two specialized surgery departments at SU, the Department of Hand Surgery and the Department of Plastic Surgery, were formally merged into one department, the Department of Plastic and Hand Surgery (PHK), in fall 2009. The new department provides care for all residents in Västra Götaland County in need of hand or plastic surgeries, and for some surgery types the department serves the whole Sweden. At PHK, a total of 4.300 patients were treated in 2010; 1.700 patients in need for hand surgery and 2.600 patients in need for plastic surgery. Both of the specialities treat both acute and elective patients. In 2010, 40% of hand patients were acute while acute plastic patients were only ca. 10% of the total of plastic patients. The proportion of outpatients is around 40% of the total amount of treated patients in the case of both specialities.

4.1.1 Current setup at PHK

Today, PHK consists of the following units: two receptions, six operation theatres and three wards. The two specialities still have separate receptions after the merger, but a common manager. Patients go to the receptions for a first visit to a doctor who evaluates the need for surgery. Patients also go to reception for re-visits after they have been dismissed from the wards. In each reception there is a surgery room where small surgeries can be performed. All handling of patient's referral (sv. remis), the administrative support around the first visit to doctor, the scheduling of surgeries, both for surgeries performed in operation theatres and the reception's surgery room, is done at the receptions. Acute hand surgery cases are delivered to the hand surgery reception where the patient receives immediate care. The receptions are open 07:30 to 16:00 all weekdays. One function at the receptions is relevant to mention, i.e. the operation coordinators, who are responsible for the scheduling of surgeries. There is a total of four operation coordinators working at PHK, occupying 3.5 positions, thereof two positions scheduling plastic surgeries and 1.5 position scheduling hand surgeries.

There are six operation theatres assigned to PHK, four allocated to plastic surgeries and two allocated to hand surgeries. The operation theatres are all located in the same corridor but the two specialities share the operation theatres to a small extent, i.e. each speciality almost only uses its allocated operation theatres. The hand surgery speciality has additionally an access to an operation theatre belonging to another department for acute cases but that access is limited.

The wards are specialized by the nature of the treated patients; an outpatient ward, an inpatient ward and a child ward. Each of the wards serves both patients that have undergone plastic surgery and patients that have undergone hand surgery. The child ward cares for all patients younger than eight years old. Nurses working at the wards have to be able to rotate between the different wards with the exception of the nurses specialized in attending children. Before undergoing a surgery, patients arrive to the outpatient ward, but after the surgery they are transported to the relevant ward, i.e. the inpatient or the outpatient ward. This does not apply for children under age of eight, who are taken care of at the child ward both before and after the surgery. All patients, except children under age of 16, come to the outpatient ward for a required nurse and anaesthesia check. Children under age of 16 undergo these checks at the child ward. The wards have different opening hours, the inpatient ward is always open and the child ward is only closed during weekends while the outpatient ward closes 21:30 all weekdays (16:00 on Fridays) and is closed during weekends. Therefore, children are moved to the inpatient ward during weekends. Re-visiting patients generally go to the receptions but during weekends the receptions are closed so these patients go to the inpatient ward.

4.2 Implementation of the Merger

The two specialities were formally merged into one department in fall 2009, but still in spring 2011, the department is not fully merged and problems due to the different ways of working and a division between groups of employees are experienced. Management in PHK has experienced that a successful merger is a complex task. Due to the merger the work environment has changed, including re-structured work procedures and processes, and the personnel has had to adjust to this new work environment. An internal group has been put together to facilitate the merger, e.g. tackling upcoming problems and adjusting work procedures.

Figure 8 describes the structural changes due to the merger. Before the merger, each specialty consisted of a reception, a number of operation theatres and a ward, as can be seen in the upper part of Figure 8. Already in beginning of 2009, a common manager was appointed for administrative personnel of both specialities. In May 2010, the wards were merged into a new setup, but new managers (sv. sektionsledare) for each of the newly designed wards were not appointed until fall 2010. In October 2010, one manager (sv. enhetschef) was ultimately appointed to PHK. Finally, from January 2011, health personnel, i.e. nurses and assistant nurses, in both receptions belong to one common manager. After the merger, PHK consists of two receptions, a number of operation theatres and three wards, see lower part of Figure 8.

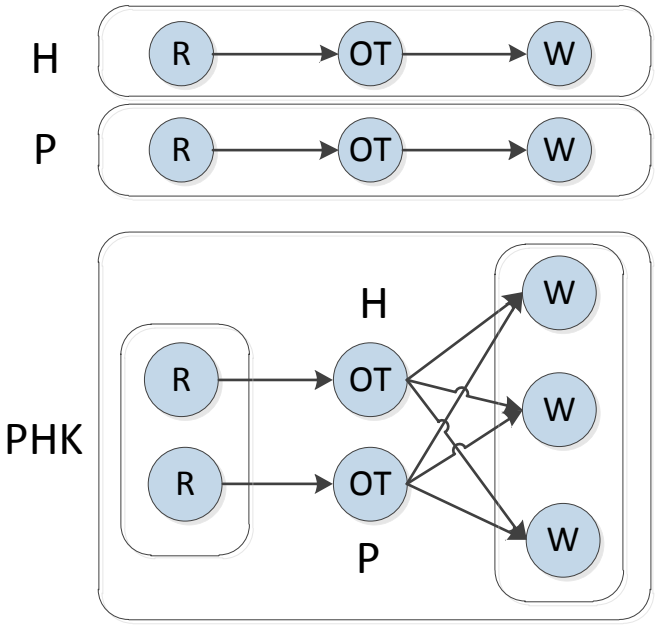

Figure 8: The setup before and after the merger.

Furthermore, the receptions and operation theatres of each specialty are still operated separately while they have common wards. The major structural change, impacting the operations of both specialities, has therefore been the changed setup of the wards. Before the merger, each specialty had one ward taking care of all patients but after the merger three specialized wards were designed, i.e. outpatient ward, inpatient ward and a child ward, each serving both specialties and employing personnel from both specialties. It is so that the nature of hand surgeries and plastic surgeries differs. While hand surgeries are limited to a specific body part, plastic surgeries are often a bigger interference, e.g. surgeries to treat pressure induced ulceration or breast surgeries. Also, plastic patients are in general sicker and older, and more resource demanding at the wards. Therefore, health personnel have had to learn to treat patients that have undergone different types of surgeries. Hence, the health personnel from the two specialties have had to adjust to new work environment with new colleagues and a different combination of patients, which has created operational difficulties in the wards.

5 Empirical Findings

In the following chapter, the empirical findings based on the empirical data collected through interviews and observations are presented. The chapter is divided into two extensive subchapters. In the first subchapter there is a description of the flow of patients which is based on the empirical data collected during interviews with personnel and observations in different units of the department. This description is intended to answer the first research question. In the second subchapter, a summary of issues inhibiting service to patients is provided based on interviews with personnel at the department. This summary is intended to answer the second research question. Below is a dictionary for healthcare-specific terms that will be used in the chapter, see Table 3.

Table 3: A dictionary for healthcare-specific terms

Term	Explanation
ASA level	The health status of patients is defined into five so-called ASA levels where a healthy person is defined as ASA1 but a dying person is defined as ASA5.
Elvis	A program used at PHK for registrating patients and keeping track of the patient's profile.
Evaluation doctor	A surgeon responsible for evaluating incoming referrals.
First visit doctor	A surgeon evaluating a patient's need for surgery during the patient's first visit.
Operätt	A program used at PHK for scheduling surgeries and providing an overview over future schedules.
Melior	A program used for managing patients journals.
Patient profile	All registered information related to a patient and the surgery the patient might undergo/undergoes.
Referral	A document presenting a request for treatment, i.e. surgery. The referral can be a standardized document or a letter. The referral can be sent by the patient or a healthcare unit on the patient's behalf.
Health Guarantee	Laws imposed by the Swedish government in 2002, limiting patients' waiting time for a first visit and a surgery.

5.1 Description of the Patient's Flow throughout PHK

In this chapter the patient's flow throughout the Department of Plastic and Hand Surgery (PHK) is described. The description is rather extensive but it was considered beneficial for PHK to provide a detailed description of the patient's flow.

The patient's flow includes both the physical flow of patients and the required information flow, i.e. all the main activities that these two flows consist of. The physical flow of patients includes the physical movement of the patient in the healthcare system. The information flow includes information concerning e.g. patients' medical history and treatment records which are passed in the patient flow. Each activity in the patient flow either belongs to the physical flow, the information flow or both.

Figure 9 presents the main activities which are required to fulfil the patient's needs as the patient travels throughout PHK. The activities are presented in a chronological order; from Activity I to V. In Figure 9, each of these main activities is further broken down into sub-activities. The following

sections provide descriptions of all those sub-activities. When there are differences between the two specialities it is indicated by H and P, for Hand Surgery and Plastic Surgery, respectively.

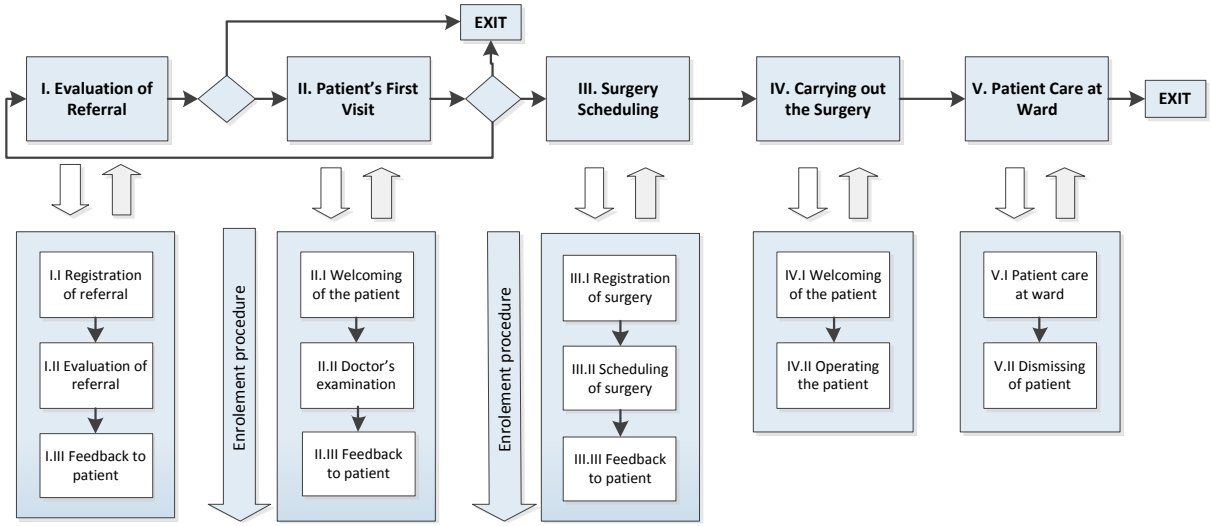

Figure 9: The patient's flow throughout PHK.

5.1.1 Evaluation of Referral (I)

In this section a description of the first main activity, Evaluation of Referral, is provided which includes three sub-activities; Registration of referral, Evaluation of referral and Feedback to patient (see Figure 10).

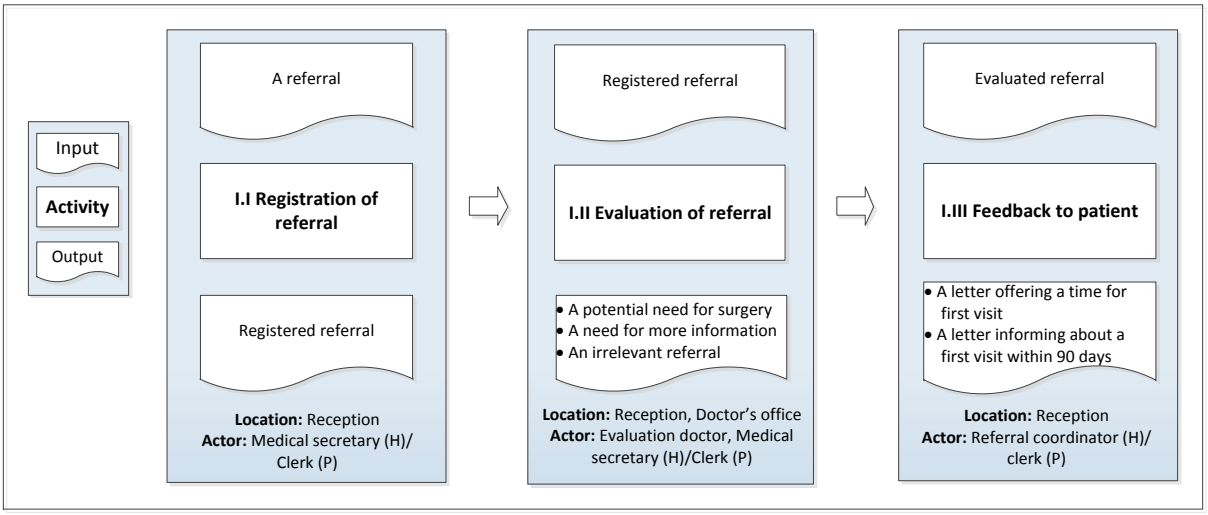

Figure 10: The sub-activities of the first main activity, Evaluation of Referral.

I.I Registration of referral (sv. remis)

Initially a patient, or a healthcare unit on the patient's behalf, sends a referral to the relevant reception. At the reception, a medical secretary (sv. läkarsekreterare) [H]/clerk (sv. kanslist) [P] makes an initial profile for the potential patient in Elvis by registering information from the referral into Elvis. He/she also stamps a format on the referral that is later used by the evaluation doctor, and finally puts the referral in a box belonging to the relevant evaluation doctor. All this is done within one day from the referral delivery.

I.II Evaluation of referral

The respective evaluation doctor evaluates the referral and puts it into one of three categories based on the result of the evaluation; Potential need for surgery, Need for more information before evaluating the need for surgery and Irrelevant referral (when the patient should be treated by another specialty or doesn't need treatment). The setup for evaluation doctors differs between the two specialties. In P, there is one surgeon responsible for evaluating referrals, which is done continuously. In H, there are two surgeons responsible for evaluating referrals, which is done at fixed times every week. According to the Health Guarantee, a referral should be evaluated within three days from its delivery to the reception. Today, this requirement is not always fulfilled. In H, most referrals are evaluated within five days but in P longer time can pass before the referral is evaluated. The consequence of this is a longer waiting period for evaluated referrals from P.

The evaluation doctor informs about the evaluation result by filling in the stamped format on the initial referral. If the result is that there is a potential need for surgery, various surgery-related information such as the urgency of the first visit, a preferred surgeon and the type of surgery is also filled in. The prioritization of urgency for first visit is divided into the three following categories; "FF", "F" and "0" and they stand for first visit within one week, one month, and within the Health Guarantee's limitation, respectively. Irrespective of the evaluation result, a letter explaining the result is sent to the patient or the healthcare unit from where the referral was sent. In P, the evaluation doctor dictates the evaluation result, irrespective of the result. In H, the evaluation result is dictated if the referral is returned (because more information is needed before evaluation or because the referral is irrelevant). When dictating the evaluation doctor can also request more information or introduce information such as information needed to update the patient profile in Elvis. In P, there are available standardized letters for most evaluation results but the evaluation doctors dictate customized letters when needed. In H, the evaluation doctors dictate letters denying referrals since there are no standardized letters available for that. The medical secretary function (sv. läkarsekreterare) is responsible for following up whatever is dictated, including sending letters and re-sending referrals when they are rejected. The medical secretary does also scan the referral and attach it in Melior. The patient profile in Elvis is updated according to the evaluation result by the medical secretary [H] /clerk (sv. kanslist) [P].

I.III Feedback to patient

As mentioned above, a letter explaining the evaluation result is sent to the potential patient or the healthcare unit from where the referral was sent, irrespective of the evaluation result. If the evaluation doctor sees a potential need for surgery, the referral coordinator (sv. remis koordinatör) [H]/clerk (sv. kanslist) [P] finds a time for the patient's first visit to a doctor, among other things based on the urgency of the first visit from the evaluation doctor. The referral coordinators try to send only one letter to the patient confirming that the referral has been evaluated and offering a time for first visit. If it is not possible to book first visit immediately then a letter is sent to patient confirming that the referral has been evaluated and that he/she will get a call to first visit within 90 days. A health declaration document which the patient should fill in before coming to first visit is sent along with the first visit offer.

If the evaluation doctor needs more information before evaluating the referral or if the referral is evaluated as irrelevant, the referral is sent back to the individual/healthcare unit in question, along with an explanatory letter. According to the Health Guarantee, a patient in potential need of surgery

should get an answer (along with a first visit time if there is potential need for surgery) within seven days from the delivery of a referral. Also, according to the Health Guarantee, the first visit should be within 90 days from the delivery of a referral.

5.1.2 Patient's First Visit (II)

In this section a description of the second main activity, Patient's First Visit, is provided which includes three sub-activities; Welcoming of the patient, Doctor's examination and Feedback to patient (see Figure 11). One more sub-activity belongs to this main activity, i.e. Enrolment procedure (sv. inskrivningsprocess). This sub-activity consists of three different check-ups that need to be performed on the patient before he undergoes a surgery. The three check-ups are not necessarily performed at the same time. It depends on the health status of the patient and the surgery type how close to the surgery each check-up is performed, where the time range is from the first visit to the doctor and until the day of surgery. This sub-activity is therefore not put in a chronological order with the other sub-activities; see more later on in this section.

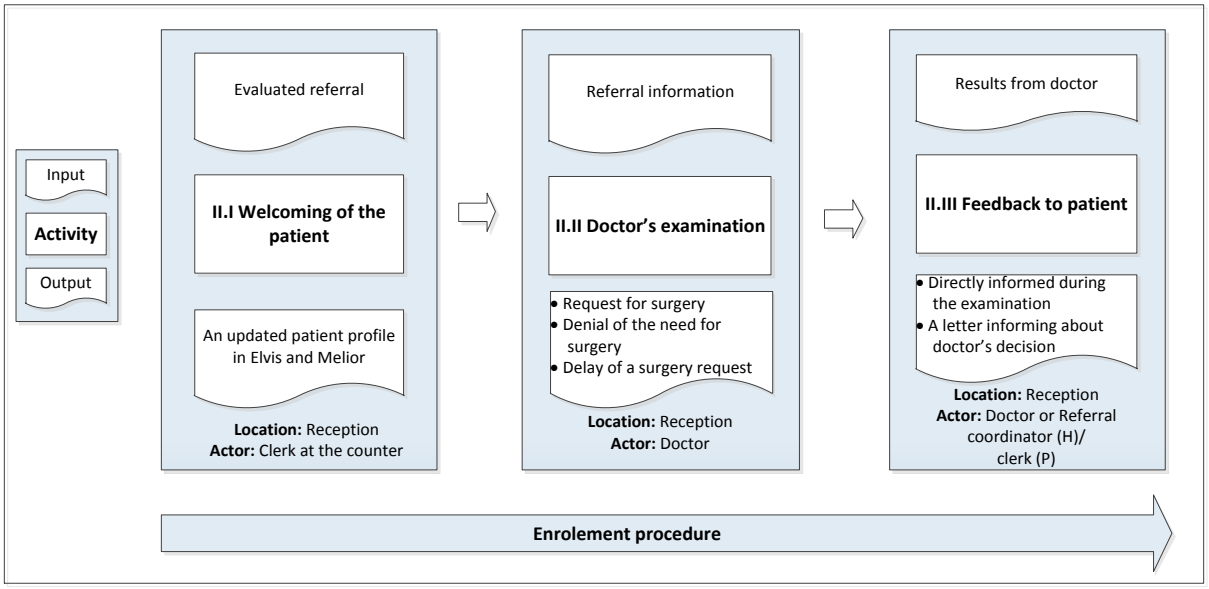

Figure 11: The sub-activities of the second main activity, Patient's First Visit.

II.I Welcoming of the patient

A patient arrives to the reception for a first visit with a doctor. At the reception, the patient's presence is confirmed in Elvis and Melior by the clerk at the counter (sv. kanslist) and thereby is the patient profile updated. Also, the clerk at the counter ensures that the patient has a valid health declaration, and if not, provides the patient with a new health declaration format to fill in before meeting the doctor.

II.II Doctor's examination

During the first visit, the doctor medically evaluates the patient's need and possibility of surgery, and also assesses the need for more information, e.g. x-ray. During the first visit the doctor ensures that the patient has a valid health declaration and performs a basic health check entailing at least an examination of lungs, heart and blood pressure. In general, the first visit can result in three options; Request for surgery, Denial of the need for surgery or Delay of surgery request which is in cases where more information is needed before a surgery decision is made. The doctor also has to consider if the surgery can be done in the reception's surgery room where small surgeries which take around

one hour can be performed and the patient can go home directly afterwards. It should be mentioned that those small surgeries are planned ahead, not performed during the first visit. At the hand reception, there are circa six such operations per day. At the plastic reception, there is circa ten such operations per day.

Irrespective of the result that the doctor reaches in the patient's first visit, he dictates the result and other relevant information. The dictations can for example include surgery codes or information about the patient's health to update the patient profile in Elvis, an outline of a letter where more information about the patient is requested or an outline of a letter explaining why the patient needs to re-send a referral after fulfilling certain limitations (e.g. stop smoking, loose x kilos). The medical secretary (sv. läkarsekreterare) acts on all the dictated ordinations.

It differs between the two specialties what the doctor does if a surgery is requested. While the doctor in P dictates the result, the doctor in H dictates the result but also fills in a specific operation request document (in paper). Because of this difference, surgery request is presented in a different manner to the operation coordinators. In H, the doctors put the operation request document directly in the operation coordinators post box. But in P, the medical secretary acts on the doctor's dictation, updates the patient profile in Elvis accordingly and then prints out the patient profile and gives it to the operation coordinators.

II.III Feedback to patient

In some cases, the doctor's result of the first visit is to deny the need for surgery or to delay the request for surgery since more information is needed or patient needs to fulfil certain limitations (e.g. stop smoking) before the surgery request is considered. In those cases, the patient is directly informed about this during the first visit or a letter is sent to the patients if the doctor wants to consult with others before informing the patient. Such letters are dictated by the doctor. If the doctor's result is that there is a need for surgery the patient is informed directly during the first visit or in a letter, dictated by the doctor. Those patients always receive at least one letter informing about the surgery slot provided for them, see further in next main activity, Surgery Scheduling.

The enrolment procedure

All patients need to undertake a certain check-ups before undergoing a surgery which belong to the so-called enrolment procedure (sv. inskrivningsprocess). The enrolment procedure consists of three check-ups, i.e. a doctor check, nurse check and an anaesthesia check, see Figure 12. The doctor check is performed during the patient's first visit as mentioned in the sub-activity Examination of patient, and it consists of a basic health check entailing at least an examination of lungs, heart and blood pressure. The nurse check is performed by a nurse at the outpatient ward, with the exception of patients under age of 16 who go to the child ward instead. The anaesthesia check is performed by an anaesthetist, either during a meeting with the patient or through reading the patient's journal. How long before the surgery the nurse and anaesthesia checks are carried out, respectively, depends on the health status of the patient and it differs between the specialties. The health status of patients is defined into five levels, ASA1 to ASA5, see Dictionary in Table 3.

ASA1 or ASA2 patients in H and ASA1 patients in P, who are also older than 16 years, go directly from the first visit with doctor to the outpatient ward where the required nurse check is performed before the patient can go home. If these patients need an aesthesia during the surgery, an anaesthetist will read the patient's journal no later than two weeks before the surgery to judge the patient's ability

and needs for the anaesthesia see Figure 12. In P, ASA2, ASA3 and ASA4 patients, and all patients under 16 years old, go directly from the first visit to the outpatient ward where the required nurse check is performed but before going home they should also meet an anaesthetist who performs the anaesthesia check of the enrolment procedure. In H, ASA3 and ASA4 patients, patients under 16 years old, obese patients and patients older than 75 years old, go home directly after the first visit but are called back for the nurse check at the outpatient ward and the meeting with the anaesthetist 2-4 weeks before the surgery.

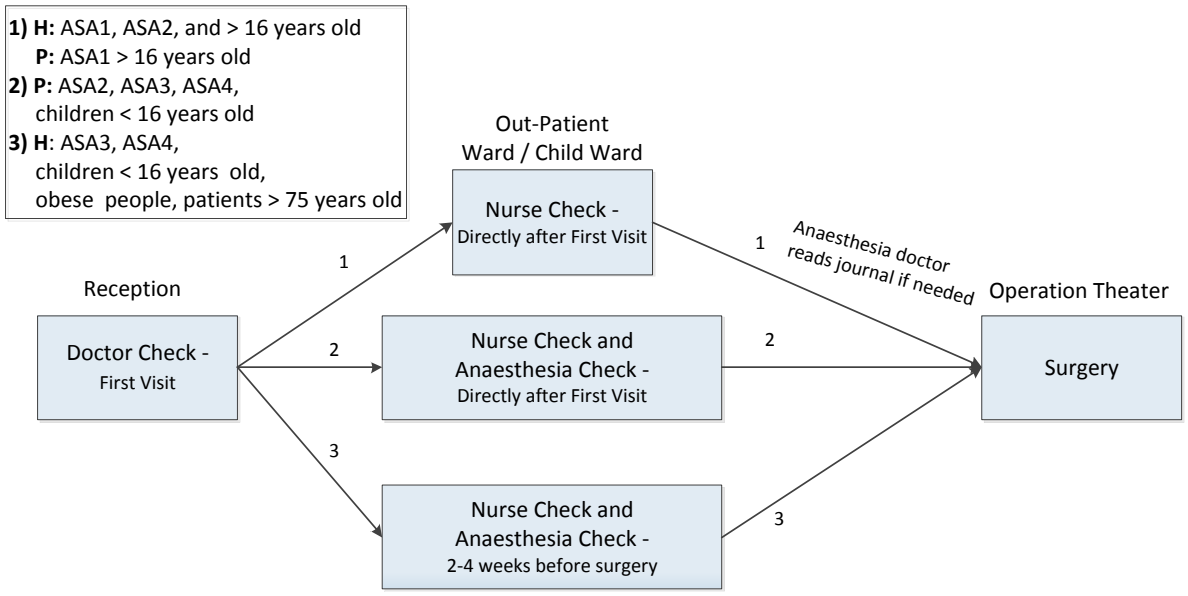

Figure 12: The enrolment procedure.

The health declaration and the result of the enrolment check are only valid for six months. Thus, patients with low priority that need to wait for long time to get into surgery might in some cases need to provide a renewed health declaration and undergo the enrolment procedure again. The operation coordinators need to be aware of this since it is their responsibility to book such checks. All the information gathered during the enrolment procedure is documented in Melior.

5.1.3 Surgery Scheduling (III)

In this subchapter a description of the third main activity, Surgery Scheduling, is provided which includes three sub-activities; Registration of surgery, Scheduling of surgery and Feedback to patient (see Figure 13).

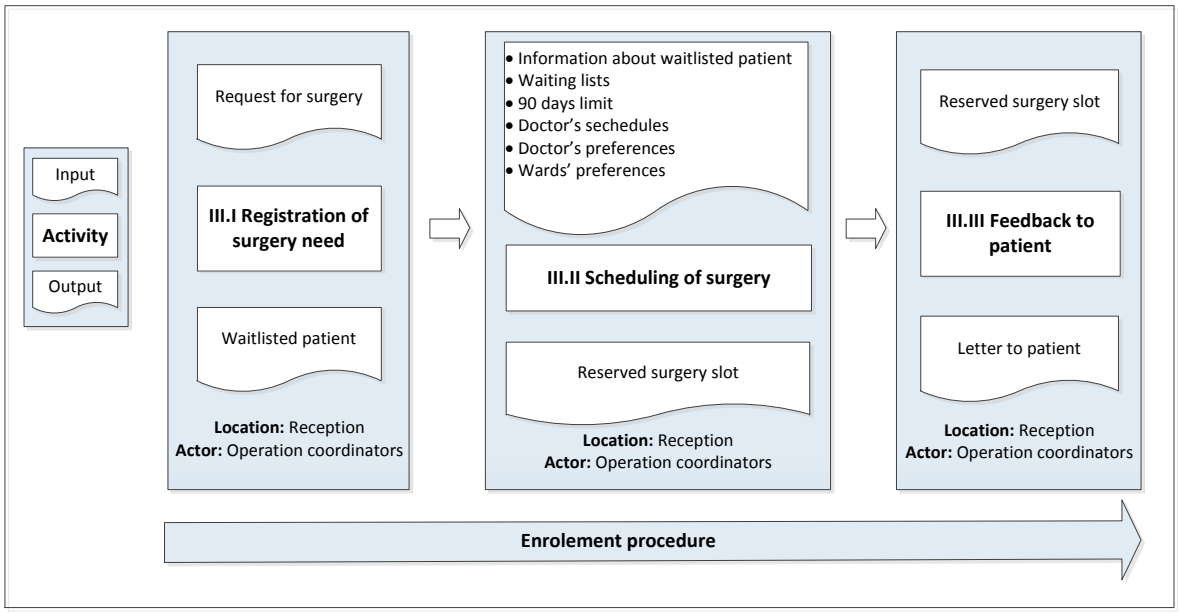

Figure 13: The sub-activities of the third main activity, Surgery Scheduling.

III.I Registration of surgery need

When the operation coordinators receive the request for surgery and the relevant surgery information, they register the patient in Operätt so that the patient becomes waitlisted. Since Operätt is linked to Elvis, patient information from the patient profile in Elvis can be seen in Operätt.

III.II Scheduling of surgery

The operation coordinators are responsible for scheduling the operation theatres. During the scheduling, the operation coordinators need to coordinate various input data and take into account various issues; the availability of operation theatres, waiting lists, information about waitlisted patients (patient profile, surgery time, surgery information), the Health Guarantee's 90 days maximum waiting time, doctor's schedules, doctor's preferences and wards' preferences. Based on this input data, a surgery slot can in some cases be booked immediately, while in other cases the patient is waitlisted until there is a chance to get a surgery slot. As mentioned in Chapter II.II, the operation coordinators are responsible for booking enrolment procedure checks in Elvis [H]/Operätt [P] when a surgery slot has been booked. This is when the surgery is in more than six months and for those patients who need to return for nurse and anaesthesia checks 2-4 weeks before surgery. If a request for surgery is made during the first visit, the patient should get a surgery slot within 90 days from the first visit, according to the Health Guarantee.

III.III Feedback to patient

When a surgery slot has been reserved for the patient, the operation coordinator prints out information related to the surgery from Operätt, and sends to the patient as a letter. The information include the time of surgery and if needed relevant checks are booked, e.g. if the health declaration is expired. In some cases, the patient needs to take some anti-biotic half an hour before the surgery and those that are booked in surgery first in the morning have to be told to take that medicine before coming to surgery. This information is included in the letter.

5.1.4 Carrying out the Surgery (IV)

In this section a description of the fourth main activity, Carrying out the Surgery, is provided, which includes two sub-activities; Welcoming of the patient and Operating the patient (see Figure 14).

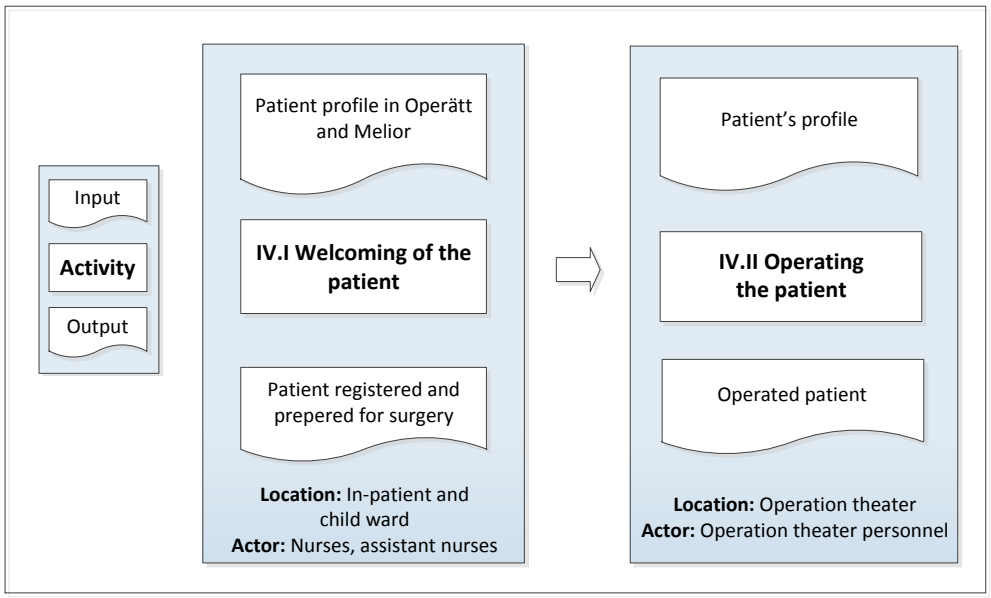

Figure 14: The sub-activities of the fourth main activity, Carrying out the Surgery.

IV.I Welcoming of the patient

Before the surgery, the patient arrives to the outpatient ward, even if the patient is an inpatient. This applies to all patients over the age of eight; those younger go to the child ward. At the outpatient ward the patient's arrival is confirmed in Elvis and the health personnel, i.e. nurses and assistant nurses, prepare the patient for surgery, based on information in the patient profile in Operätt and Melior. In some cases, the patient undergoes some checks on the day of surgery. The health personnel coordinate these checks, i.e. in cases when a patient needs to meet more than one doctor. Finally, some health personnel, or a special transporter if needed, transport the patient to the operation theatre.

IV.II Operating the patient

Before the surgery, some preparation is needed, which is taken care of by the operation theatre personnel. Then the assigned surgeons operate the patient. Depending on the type and success of surgery, the time the patient gets in the operation theatre after the surgery varies. If the patient has been anesthetized, he/she is given time to wake up.

After the surgery, the surgeon dictates how the surgery went and information about the required treatment at ward. The medical secretary then writes this up into Melior as a top priority, where health personnel can find this information. After the surgery, the surgeon does preferably follow the patient to the ward where the surgeon discusses with health personnel about the patient's needs and further treatment. If they cannot, they will drop by at the ward in the end of the day or at least call the ward to discuss what is needed to do. In H, the surgeon does also fill in a post surgery document (sv. Postop ordinationer) which includes e.g. the patient's needs for care, revisits and rehab.

5.1.5 Patient Care at Ward (V)

In this section a description of the fifth and last main activity, Patient Care at Ward, is provided which includes two sub-activities; Patient care at ward and Dismissing of patient (see Figure 15).

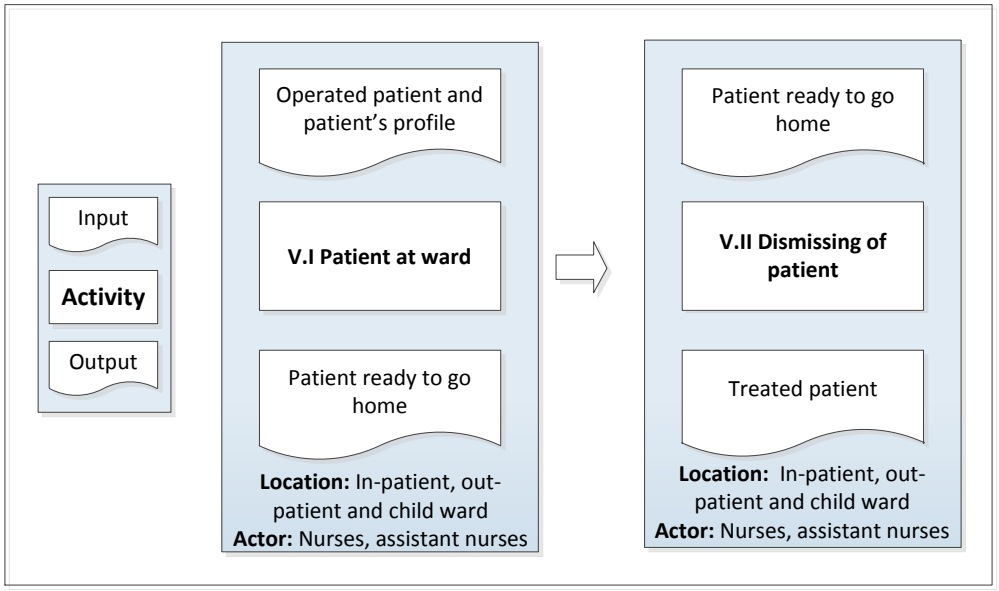

Figure 15: The sub-activities of the last main activity, Patient Care at Ward.

V.I Patient at ward

Finally, the patient is transported from the operation theatre to the relevant ward; inpatient ward, outpatient ward or child ward (all children under age of 16). At the ward, the patient is welcomed by health personnel who then take care of the patient as needed. The health personnel gathers information about the patient's needs through interaction with doctors as well as by collecting information from the operation document [H] and information from Melior [H and P]. The health personnel continuously evaluate the patient's status and need for care.

V.II Dismissing of patient

When the patient is ready to go home he/she is dismissed. In many cases, there is a need for supervision or assistance to the patient after he/she is dismissed from the ward, so the patient re-visits the ward. In some cases, re-visits are planned and booked at the ward before the patient is dismissed. In other cases, the patient's re-visit is not planned beforehand, and in those cases the patient goes to the reception.

5.2 Summary of Issues Inhibiting Service to Patients at PHK

In this subchapter, issues that employees express as inhibiting service to patients are presented. As explained before, these issues were gathered during interviews with a number of employees at PHK. The issues were in some cases directly mentioned by interviewees but in other cases they were detected by researchers during the interviews, based on interviewee's input. Some of the issues are operational difficulties while other issues cause operational difficulties in PHK. During the gathering of issues the researchers aimed for objectivity. Here, it should be mentioned that some of these issues may have been in place already before the merger, in one or both specialties.

A number of topics were used as guidance throughout the interviews, see questionnaires in Appendix A. To support an objective presentation of the issues, they are presented here based on these topics; Daily Work, Scheduling of Surgeries, Meetings and the Merger. This subchapter consists of four sections where each section is dedicated to one of these topics and presents the related issues. The issues are presented in tables where a description of the issue is provided as well as

whether the issue was mentioned directly by employees or detected by the researchers during the interviews. In Table 4, the interviews are numbered and the job titles of the respective interviewees are provided.

5.2.1 Daily Work

In this section, seven issues related to daily work at the department are presented, see Table 5-6. These are issues that reduce the performance of the department by unnecessarily complicating the employee's daily work. Many of these issues were already in place before the merger.

5.2.2 Scheduling of Surgeries

In this section, four issues related to the scheduling of surgeries are presented, see Table 7-8. There is one function within the department, i.e. the operation coordinator, which is responsible for scheduling of surgeries, see further about scheduling of surgeries in Chapter 5.1.3.

5.2.3 Meetings

In this section, two issues related to meeting culture at the department are presented, see Table 9. Since the merger, there have been weekly meetings at the department where the operation coordinators, ward representatives and doctor representatives discuss the surgery schedule for the next two weeks, particularly whether the schedules are possible to implement.

5.2.4 The Merger

In this section, seven issues directly related to the merger are presented, see Table 10-11. Basic information regarding the merger is presented in Chapter 4.2.

Table 4: Numbers given to interviews to use in Tables 5-11 as well as the respective interviewees.

Nr. Of Interview	Title (English)	Title (Swedish)
1	Hand Surgery - Operation coordinators	Handkirurgi – Operationskoordinatör
2	Plastic Surgery – Operation coordinators	Plastikkirurgi - Operationskoordinatör
3	Reception - Health Chief	Mottagning – Vårdsenhetschef
4	Reception - Admin Chief	Mottagning – Enhetschef
5	Plastic Surgery - Doctor representative	Plastikkirurgi - Sektionschef
6	Hand Surgery - Doctor representative	Handkirurgi – Sektionschef
7	Chief of wards	Vårdenhetschef
8	Ward representative	Vårdavdelning – Sektionsledare
9	Detected by researchers through the interviews	

Table 5: Issues related to Daily Work

DAILY WORK				Mentioned by interviewees (○) / Detected by researchers (●)								
Nr.	Issue	Issue Description		1	2	3	4	5	6	7	8	9
1	Lack of gathered patient and surgery information	*Main description:* Patient and surgery information is recorded in three programs, i.e. Elvis (for registrations of patients), Operätt (for scheduling surgeries) and Melior (for managing patient journals).										
		A	Recording information in journals is time consuming for personnel. Journals are in general not detailed enough.			○						
		B	The coverage and quality of information dictated by doctors varies.					○				
		C	Some information gets lost because administrative personnel are not allowed to record information in journal.			○						
		D	Melior is not linked to Operätt or Elvis so there is no direct transference of information between those programs which can cause double documentation.			○						
		E	There is a risk that information gets lost as the patient flows throughout the department.		○	●						
2	Long lead time from doctor dictation until medical secretary processes the dictation.	Up to three weeks can pass from doctor dictating a request for surgery until a medical secretary processes the dictation. The wait listing of a patient is thereby delayed.			○							
3	Short term view on incoming patients at wards.	A	An overview over patients, newcomers and already enrolled, as well as patients dropping by for nurse check and anaesthesia check and training is only gathered one day ahead. So, there is not a holistic view over the wards' workload sooner than one day beforehand.								●	
		B	Information about scheduled surgeries only gathered one day ahead from Operätt (related to gathering information about incoming patients) and Melior (related to patient's needs after surgery) .					○		●	●	
4	Lack of flexibility in adjusting health personnel.	There is almost no flexibility to adjust personnel on duty to work load and therefore it is difficult to act on peaks or changes on short notice.								●	○	

Table 6: Issues related to Daily Work, continued

DAILY WORK Cont.			Mentioned by interviewees (○) / Detected by researchers (●)								
Nr.	Issue	Issue Description	1	2	3	4	5	6	7	8	9
5	Lack of awareness of balancing patients coming for enrolment procedure and outpatients.	The outpatient ward treats outpatients but also takes care of part of the enrolment procedure. An awareness of these different needs for service at the outpatient ward is necessary when scheduling surgeries and enrolment checks to ensure a balanced work load.								○	
6	Lack of awareness related to revisiting patients.	There is a lack of processes, structured communication and sufficient information flow when it comes to revisiting patients, especially those who just “pop up”.			●				●		
7	Lack of holistic view on the patient flow.	Each employee works at a certain unit of the department and has its own perception on the patient's flow. There is a lack of cross-functional view of the patient's flow through the department									●

Table 7: Issues related to Scheduling of Surgeries

SCHEDULING OF SURGERIES				Mentioned by interviewees (○) / Detected by researchers (●)								
Nr.	Issue	Issue Description		1	2	3	4	5	6	7	8	9
8	The availability of doctor schedules impacts the scheduling of surgeries.	*Main description:* Doctors schedules are a necessary input when scheduling surgeries. Therefore, the time horizon of doctor schedules limits the time horizon for scheduling of surgeries.										
		A	Doctor schedules are provided in batches of six weeks which complicates the scheduling of surgeries.	●								
		B	The available doctor schedules have too short time horizon.	○	○							
		C	There is a lack of awareness of the importance of a reliable doctor schedule and how short notice changes in doctor schedules cause problems in scheduling.		○							
9	The operation coordinator function needs to be studied.	A	There is a lack of defined job descriptions, including work procedures, processes and the scope of responsibility. Due to this, operation coordinators do not always know what is expected of them.		○							
		B	Operation coordinators need more feedback on their work to know if they are on the right track or not.		○							
		C	Communication and information flow between operation coordinators and doctors/wards regarding doctors'/wards' preferences is not structured enough. Due to this, there is a risk that important preferences are not included or respected as they should in the scheduling of surgeries.		○	○						
		D	Guidelines are needed to guide the scheduling of surgeries, such as what to consider when scheduling and how to prioritize contradicting preferences. Because of this lack of guidelines, operation coordinators currently make decisions that should be made in higher level of the organization, such as how to prioritize contradicting preferences.	○	○	●						
		E	There is not a common view and understanding on the role and responsibility of operation coordinators.		○	●						
		F	The localisation of operation coordinators in the organization setup is questioned.			○						

Table 8: Issues related to Scheduling of Surgeries, continued

SCHEDULING OF SURGERIES Cont.				Mentioned by interviewees (○) / Detected by researchers (●)								
Nr.	Issue	Issue Description		1	2	3	4	5	6	7	8	9
10	Uncertainty related to the estimated surgery time in Operätt.	A	Doctors overestimate surgery time which can cause lower utilization of operation theatres than is possible.		○							
		B	The accuracy of Operätt's estimates is unknown.	●	●							
		C	Interpretation of the estimated surgery time is different, i.e. what it consists of and how accurate it is.									●
11	Ward time is not considered enough when scheduling surgeries.	The length of surgery and the ward time (load) required is not always proportional, i.e. a patient that is having a short surgery can require a high work (frequent assistance and long stay at ward) load from the ward.										●

Table 9: Issues related to Meetings

MEETINGS				Mentioned by interviewees (○) / Detected by researchers (●)								
Nr.	Issue	Issue Description		1	2	3	4	5	6	7	8	9
12	Dissatisfaction with the weekly planning meetings (sv. Operation råd).	A	At the weekly planning meetings the surgery schedule for next 2-3 weeks is reviewed to ensure that it can be realized. On such short notice it is difficult for operation coordinators to change the presented schedule if needed since surgery times have already been confirmed with patients. Since it is too late to change the schedules there is no point in attending the meetings and they mainly cause frustration.	○	○	○		○			○	
		Main description: There is a lack of structure and procedures around the weekly planning meetings.										
		B	The goal of the weekly planning meetings is unclear.	○	○						○	
		C	It is unclear who leads the meeting.	●	●						●	
13	Lack of common understanding of decision making at meetings.	There is a lack of common understanding and formal reporting of decisions made at meetings.				○						

Table 10: Issues related to the Merger

THE MERGER				Mentioned by interviewees (○) / Detected by researchers (●)								
Nr.	Issue		Issue Description	1	2	3	4	5	6	7	8	9
14	Pessimistic attitudes towards the merger.	A	Insecurity and dissatisfaction among the health personnel at wards related to their changed work environment due to the merger. Personnel are afraid of the unknown and confused how the merger will impact their work. The absence level of health personnel has increased from 3-4% before the merger to 11-13% after the merger.	○		○	○	○	○		○	
		B	Certain cultural differences need to be acknowledged, understood and adjusted.						○			●
		C	There is a lack of awareness and understanding among personnel that the merger is permanent, not a temporary situation.				○					
15	Job descriptions for health personnel need to be updated.		Job descriptions for health personnel have not been updated since the merger, despite of the changed work environment.								○	
16	Lack of training and education for health personnel.		There has not been much training and education for personnel at wards and operation theatres although their work environment changed after the merger, e.g. due to new patient types and treatments. At wards, the hand personnel had the chance to observe their plastic colleagues, but not the other way around.	○					○		○	
17	Drawbacks related to rotation of health personnel between wards.	A	After the merger, health personnel has to be able to work in all three wards except the child health personnel. That is, the personnel do not have fixed positions but instead are working in different wards as is suitable. Due to this, they have to adjust to new situations with new routines and processes.								○	●
		B	The high level of specialisation needed in some cases is not supported by having rotating personnel.						○			

Table 11: Issues related to the Merger, continued

THE MERGER Cont.				Mentioned by interviewees (○) / Detected by researchers (●)								
Nr.	Issue		Issue Description	1	2	3	4	5	6	7	8	9
18	Lack of awareness and acceptance of the newly required coordination between operation coordinators.		Due to the new setup, particularly the common wards, the operation coordinators from the two specialities need to cooperate and coordinate their scheduling up to a certain level. This newly emerged need has not been formally acknowledged or dealt with, neither by management nor employees.	●	●							
19	Dissatisfaction with the process around Tetra patients.	A	There is a limited availability of Tetra doctors which forces batching of Tetra patients limiting the scheduling of other heavy patients.		○			○				
		B	Tetra patients are "unconsciously" prioritized.									●
		C	PHK loses money per each Tetra patient.					○				
20	The utilization of operation theatres is insufficient.	A	The personnel has different motivations on the number of surgeries done, i.e. paid for number of surgeries done or X hours/week.					○				
		B	Lunch break slots recently introduced in Operätt limit the flexibility of scheduling surgeries.					○				
		C	Change-over time between surgeries is unnecessarily long due to a lack of knowledge and training about tools and machines in the operation theatre.						○			
		D	One of the operation theatres belonging to H after the merger has a limited usability, e.g. cannot be used for surgeries on children. Due to this, specialists are sometimes doing surgeries that could be done by residents.	○					○			
		E	Acute and sub-acute hand surgeries are done in an operation theatre belonging to the neuro surgery department. Neuro surgeries (on brain) are prioritized over sub-acute operations which can cause longer waiting time for hand surgeries.						○			

6 Analysis and Results

The empirical findings presented in Chapter 5, with focus on the summary of identified issues presented in Chapter 5.2, are analyzed based on the theoretical framework presented in Chapter 2 to identify the issues that are specifically related to the operational difficulties at the wards. The aim of the analysis is to gain an understanding of the operational difficulties and causes of operational difficulties experienced in PHK's wards after the merger. Therefore, the analysis is intended to answer the third research question of the thesis.

The analysis is divided into three parts based on the theoretical framework in Chapter 2. The first subchapter, The Merger, goes with Chapter 2.5, the second subchapter, Complexity of Hospital Operations & the Patient's Flow, goes with Chapters 2.1 and 2.3 and finally the third subchapter, Planning and Control, goes with Chapter 2.4. In Table 12, the issues from the summary of issues that are referred to and discussed in the analysis are presented and they are related to the relevant chapter from the theoretical framework. In each of the following subchapters there is a table presenting the issues referred to in that subchapter (see Table 13-15). Finally, the fourth subchapter provides a summary of the analysis' results.

Table 12: The theory applied on the issues referred to in the analysis.

Issue #	Theoretical Chapters			
	3.1 Complexity	3.3. Patient's Flow	3.4 Planning and Control	3.5 The Merger
4			X	
5			X	
6			X	
7	X	X		
8			X	
9a	X		X	
9b	X		X	
9c			X	
9d			X	
9e	X		X	
11			X	
12			X	X
14a				X
14b				X
15				X
16				X
17				X
18				X
19				X

6.1 The Merger

It is known that mergers cause operational difficulties and the following discussion is focused on two subjects related to this. The first section, Culture, is about the cultural differences between organizations and how difficult it can be to adjust the organizational cultures of merged organizations. In the second section, Employee involvement, the impact of a merger on employees is further explained, as well as how the negative side effects can be minimized by involving employees. In Table 13, the issues discussed in this subchapter are presented.

Table 13: Issues further discussed in subchapter 6.1

#	Issue
14a	Insecurity and dissatisfaction among the health personnel at wards related to their changed work environment due to the merger. Personnel are afraid of the unknown and confused how the merger will impact their work. The absence level of health personnel has increased from 3-4% before the merger to 11-13% after the merger.
14b	Certain cultural differences need to be acknowledged, understood and adjusted.
15	Job descriptions for health personnel need to be updated.
16	Lack of training and education for health personnel.
17	Drawbacks related to rotation of health personnel between wards.
18	Lack of awareness and acceptance of the newly required coordination between operation coordinators.
19	Dissatisfaction with the process around Tetra patients.

Culture

Each organization develops gradually an organizational culture. Mergers entail great changes in the involved organizations and therefore impact the organizational culture of each organization being merged (Kavanagh and Ashkanasy, 2006). Many of the difficulties related to mergers are due to cultural differences between the merged organizations (Nadler, 2001). In the case of PHK, two specialties were merged, each presenting their own organizational culture that needed to be adjusted to gradually reach a common organizational culture for the new department, PHK. A prerequisite for such adjustment is the acknowledgement and understanding of the cultural differences between the two specialties, see Issue #14b. One example at PHK related to cultural differences impacting the daily work of employees is the rotation of health personnel, which was established after the merger. After the merger, health personnel has to be able to work in all three wards except the health personnel specialized in childcare. That is, health personnel do not have fixed positions but instead are moving between the wards as suitable. Due to these regular changes of work environment the employees have to adjust to new situations with new routines and processes, see Issue #17. It is known that a group of people that work together will gradually evolve an organizational culture (Schein, 1993) and when new members join the group the older members need to introduce and integrate them into the existing organizational culture. A system where health personnel rotates between the three wards, limits the development of organizational culture in each ward due to the highly varying group working together in each ward. Under these circumstances, gradual improvements and adjustments in work procedures and processes at each ward are not supported. This goes for both the individual development of employees and the cooperation among employees. This can also lead to unclear responsibility of routines, processes and patients.

Additionally, some employees may experience insecurity and feel like they lack competence since they have to be able to work in different positions.

Employee involvement,

Mergers cause high degree of uncertainty, which can lead to insecurity and dissatisfaction among personnel in the merged department (Marks, 1988, 1999; Kavanagh and Ashkanasy, 2006). At PHK, insecurity and dissatisfaction has been experienced among the personnel, which is partly due to changes in the organizational culture. The wards, specifically, have experienced increased workload and difficulties related to changed work conditions since they want to maintain the quality of their service. Also, employees mention that they were unsure about the impact of the merger on their work which made them insecure, see Issue #14a. During the implementation of a merger, including the preparation time and the adjustment period after the merger, it is important that employees at all levels are involved (Ashkanasy and Holmes, 1995; Cartwright and Cooper, 1993). In the case of PHK, employees are involved in the merger up to a certain extent. If sufficient involvement is ensured, employees are informed about the reasons behind the merger, which actions need to be taken for the merger to succeed, as well as how the merger will impact their work environment (Ashkanasy and Holmes, 1995). Such involvement can therefore mitigate the uncertainty connected to these times of changes. Furthermore, related to the importance of involving all employees, is the need for supporting employees in adjusting to their new work environment after the merger. Such support was lacking in the merger of PHK. Firstly, despite the drastic changes in the ward setup causing changes in the work environment for health personnel, very limited training and education was provided to health personnel to facilitate them to adjust to the new setup, see Issue #16. A fundamental change was that before the merger health personnel were specialized in treating either plastic or hand patients, but after the merger all health personnel needed to treat both plastic and hand patients. As mentioned in Chapter 4.2, the nature of hand and plastic surgeries is different and the patients' need for care at the wards differs quite a lot. Secondly, job descriptions for health personnel have not been updated since the merger and furthermore, there is a lack of awareness of the need for updating job descriptions. Updated job descriptions would have facilitated nurses to adjust to their new work environment by providing guidelines and support, see Issue #15.

Effective communication and information flow during the implementation of a merger is a crucial facilitator of involving all employees (Kavanagh and Ashkanasy, 2006). The operation coordinators have not been involved enough in the merger and their changed role and need for cooperation has not been communicated from management. After the merger, the operation coordinators from the two specialties need to coordinate when scheduling resource-demanding surgeries to ensure that certain limitations are respected, see Issue #18, #19. Due to the fact that both specialities have certain surgery types that result in extra resource-demanding patients, uneven load has been experienced at the inpatient ward. Currently, hand surgeries that involve resource-demanding patients, Tetra patients, are prioritized over all other surgeries, except acute ones, since they are scheduled in batches based on the availability of the required doctors. Coordination is needed among the operation coordinators of each speciality to handle this in the best possible way.

6.2 The Complexity of Hospitals Operations & the Patient's Flow

There are various groups co-existing within PHK. The professional background, roles and responsibilities of the members of each group constitute the group's perspectives about the department's operations, the operations of each unit, as well as specific functions (Ben-Tovim et al., 2008; Glouberman and Mintzberg, 2001a). Therefore, numerous perspectives, sometime conflicting, are in place. Groups have perspectives related to their own roles and responsibilities, as well as related to other groups' roles and responsibilities. Examples of groups in place at the PHK are professional groups consisting of surgeons, health personnel and administrative personnel, respectively. Other professional groups do also exist, for example the group of hand surgeons working at PHK and the group of plastic surgeons working at PHK. All employees working at the PHK belong to one functional group. Also, all employees working at each unit of PHK, e.g. all health personnel, belong to the same functional group. Finally, an example of a geographical group is the group consisting of all employees at the child ward. In Table 14, the issues discussed in this subchapter are presented.

Table 14 - Issues further discussed in subchapter 6.2

#	Issue
7	Lack of holistic view on the patient flow.
9e	There is not a common view and understanding on the role and responsibility of operation coordinators.

An example of conflicting perspectives in place at PHK, are the different perspectives of surgeons and health personnel related to the amount of treated Tetra patients. The Tetra patients require a specialized team during the surgery so the involved surgeons find it beneficial to perform a number of Tetra surgeries at the same occasion to optimize the use of the specialized team. However, the Tetra patients are very resource-demanding after the surgery when they are treated at the inpatient ward. Therefore, the health personnel prefer to distribute the Tetra surgeries to ensure that they can handle the related workload. Due to these different perspectives in place at PHK regarding the Tetra patients, there are different opinions about how the Tetra patients should be scheduled. Another example of the different perspectives among employees of an organization can be seen in the summary of issues in Chapter 5.2. The employees have different views and opinions on what they consider an issue and what they mention as an issue related to the discussion topics. Although the same topics were used as guidance throughout the interviews, the interviewees expressed different issues that inhibit service to patients, see Tables 3-6. Furthermore, there are different perspectives in place between functional groups, i.e. between employees in different units. An example of this can be seen in Table 7-8 where all the issues related to "Scheduling of Surgeries" are brought up and where all issues are mentioned by employees of only one unit, although the topic was discussed in all interviews. The final example of different perspectives in PHK are the different perspectives and expectations towards the operation coordinator function which were observed during interviews, see Issue #9e.

These examples above can be supported with a holistic, cross-functional view on the department's operations. In PHK, there is a lack of a holistic view of the patient flow among the employees, see Issue #7. To ensure that patient's need for service is fulfilled as efficiently as possible, a holistic view on the patient's flow is needed (Côte, 2000; Jensen et al., 2007; Ben-Tovim et al., 2008). That view

needs to be cross-functional, and all employees need to have a common view. Such a view can be achieved by encouraging employees to consider how they contribute to the service to patients and the requirements that their job puts on other units of the department. For example, if operation coordinators book too many surgeries for one week that are resource-demanding in the wards, the wards will have problems to provide sufficient care to all patients. Such a common view would also prevent highly varying expectations towards one function, such as is the case for the operation coordinators.

6.3 Planning and Control

The structure of this chapter is the following. In the first section, PHK's planning and control is located in the general structure of planning and control. The subsequent section presents how some of the operational difficulties at the wards can be related to the current planning and control activities at PHK. In the following sections, this is explained further, analysing how informed higher planning levels are about the wards' operations and how it can be ensured that the wards' capacity limitations are properly considered in scheduling. In Table 15, the issues discussed in this subchapter are presented.

Table 15: Issues further discussed in subchapter 6.3

#	Issue
4	Lack of flexibility in adjusting health personnel.
5	Lack of awareness of balancing patients coming for enrolment procedure and outpatients.
6	Lack of awareness related to revisiting patients.
8	The availability of doctor schedules impacts the scheduling of surgeries.
9a	There is a lack of defined job descriptions, including work procedures, processes and the scope of responsibility for the operation coordinators. Due to this, operation coordinators do not always know what is expected of them.
9b	Operation coordinators need more feedback on their work to know if they are on the right track or not.
9c	Communication and information flow between operation coordinators and doctors/wards regarding doctors'/wards' preferences is not structured enough. Due to this, there is a risk that important preferences are not included or respected as they should in the scheduling of surgeries.
9d	Guidelines are needed to guide the scheduling of surgeries, such as what to consider when scheduling and how to prioritize contradicting preferences. Because of this lack of guidelines, operation coordinators currently make decisions that should be made in higher level of the organization, such as how to prioritize contradicting preferences.
11	Ward time is not considered enough when scheduling surgeries.
12	Dissatisfaction with the weekly planning meetings (sv. Operation råd).

Jonsson and Mattsson (2009) present a general planning and control structure that consists of a number of hierarchical planning levels. In this thesis, the main focus is on the lower planning levels of the general planning and control structure. Much attention is given to the function of operation coordinators who are responsible for the scheduling of surgeries, which resembles the Order Planning level of the general structure (Slack et al., 2010). The planning horizon when scheduling surgeries is generally 1-3 months, depending on the type of surgeries and the available input. Due to unavoidable variations and changes in the environment of scheduling, for example cancellations of

surgeries and acute need for service, schedules are often not implemented as initially planned. Therefore, the operation coordinators often need to act on upcoming situations and adjust schedules accordingly. The time horizon of adjusting the schedules can be within a day, but up to several weeks. These frequent changes in schedules put certain demands on the wards and operation theatres since they need to respond to changed schedules on short notice. This need for responding to short notice resembles the lowest planning level of the general structure, i.e. Execution and Control.

Higher planning levels, i.e. scheduling or even higher levels, are responsible for making plans so that the workload at wards is reasonable. Hence, managers at wards should only need to do small adjustments disposing the personnel on call to handle the workload but no major changes in personnel should be required. A reasonable workload at the wards can only be ensured if wards' capacity limitations are considered in the process of scheduling surgeries. Therefore, higher planning levels need to ensure that the wards' capacity limitations are known and considered in scheduling. Furthermore, to guarantee that they provide the best possible guidance, higher planning levels need to possess a holistic view over the wards' operations and to understand the nature of the wards' work environment. Developing such a holistic view is especially important in the case of PHK, where the setup of wards drastically changed during the merger, impacting the wards' operations. Currently, there is a lack of awareness related to the wards' operations and the wards' capacity limitations are not considered in scheduling. Some of the operational difficulties at the wards are related to this.

The importance of understanding the nature of wards' operations

At PHK, a holistic view over the different services provided by the wards is lacking. Furthermore, the additional load on wards caused by these services is generally un-acknowledged. The load at the three wards at PHK is largely related to the service to patients before and after scheduled surgeries, i.e. the preparation of the patient on the day of surgery and the caretaking of the patient after the surgery. That service can therefore be referred to as the "basic service" of PHK's wards. However, other services are also provided at the wards, for example related to re-visiting patients and nurse checks, thus causing an additional load on the wards. In some cases, these services can be scheduled but in other cases, the need for them arises without a notice. At PHK, there is a lack of awareness of the different origins of load in the ward, and the load caused by other services than the "basic services" is often un-acknowledged. Two examples of services causing un-acknowledged load on the wards at PHK are presented here. The first example is the nurse and anaesthesia checks that are provided at the outpatient ward. After the merger, all patients go to the outpatient ward for nurse and anaesthesia checks, except children under age of 16 who undergo these checks at the child ward. Needless to say, these checks are an additional load on the health personnel at the wards. In most cases, the patient is sent directly from the first visit with the doctor to the nurse and anaesthesia checks but the outpatient ward is not informed about those patients beforehand, i.e. they pop up at the ward. In few cases, these checks are scheduled by the operation coordinators at the same time as they book a surgery slot, so wards can be informed beforehand about incoming patients arriving for check-ups. Currently, when scheduling those checks, the operation coordinators do not consider that they are an additional load on the respective wards. So, an awareness that these checks cause additional load on health personnel is lacking, and this load directly adds to the already in place load caused by "basic services", see Issue #5. The other example is related to re-visiting

patients. At PHK, patients generally go to the reception for re-visits, except when the reception is closed then they go to the inpatient ward. But currently, the re-visiting patients sometimes appear at the inpatient ward when the reception is open, see Issue #6. These unexpected patients are of course an unexpected, extra load on the health personnel. The procedures around re-visiting patients need to be enforced and communicated and more awareness of their impact on the inpatient ward is required. If higher planning levels are not aware of the different origins of load, particularly load caused by other services than the "basic services", they will have a skewed image of what is a reasonable load in the wards. For example, knowing that there are ten nurses/assisting nurses on call at the outpatient ward, higher planning levels assume that there are ten nurses/assisting nurses taking care of the "basic service" at the outpatient ward. But in reality there are only eight nurses/assisting nurses attending to patients in need of "basic services" because two nurses/assisting nurses are fully occupied in serving patients arriving for nurse and anaesthesia checks. Moreover, an awareness of the interpatient variation is required to understand the work environment at the wards. It is so that even if a presented schedule is fixed, the subsequent care required from the ward can be difficult to predict (Vries et al., 1999). The pre-surgery health status of a patient and how the patient responds to the surgery can for example impact how resource demanding the patient will be in the ward. Therefore, there is variation in how much resources are needed from wards for the same surgery type, both related to the length of ward time and how much the health personnel need to attend to the patient.

As mentioned before, managers at the wards need to adjust the division of tasks among health personnel to the surgery schedules and to the frequent short notice changes in the surgery schedules. Due to the interpatient variation, there is also a need for adjusting to the potential changes in each patient's need for service. Furthermore, since the load related to other services than the "basic services" is not accounted for in the surgery schedules, the ward managers need to adjust the personnel's tasks to handle this additional load. Therefore, the managers need to have opportunities to adjust their personnel to respond to the load. The wards' current opportunities for such adjusting of health personnel are limited to the disposition of tasks between health personnel within each ward, the exchange of health personnel between wards, and sending patients home earlier if possible. Today, these opportunities are not always enough to make it possible for the wards to deal with the load put on them, see Issue #4. Still this is not because the adjustment opportunities are too limited but because there is too much load put on the wards because the wards are not considered in scheduling of surgeries, see further in next section.

Furthermore, there is not a direct correlation between how resource demanding a surgery is at the operation theatre and at the ward, respectively. That is, the time required at the operation theatre for performing a surgery is not directly correlated to the following need for care at a ward, i.e. a short surgery may require a relatively long stay at the ward or very frequent assistance during the time at the ward, see Issue #11. This further supports the importance of considering the wards when scheduling surgeries, explicitly.

The wards' capacity limitations are not considered in scheduling of surgeries

The major planning activity at PHK is the scheduling of surgeries. Currently, the main focus in the process of scheduling surgeries is on fulfilling PHK's overall goal of a certain number of surgeries that should be performed per week. While doing this, the operation coordinators need to consider and coordinate various inputs that impose limitations on meeting this goal. The availability of resources is

a major limitation in the process of scheduling at PHK. Therefore, it is important that all those resources are taken into account in the scheduling of surgeries. The limiting resources at PHK are the operation theatres' facilities, the surgeons and the wards, including both the health personnel at wards and the wards' facilities. The limiting availability of operation theatres receives the most attention in the operation coordinators' daily work, and their aim is for as high utilization of operation theatres as possible. The limited availability of surgeons is also acknowledged since the operation coordinators regularly receive doctor's schedules which are a key input in the scheduling, see Issue #8. In addition, there are in place stable relations between the operation coordinators and the surgeons where the surgeons communicate their preferences to the operation coordinators. The limited availability of wards' personnel and facilities, on the other hand, is not formally acknowledged and only considered to a limited extent in scheduling. Furthermore, the operation coordinators' communication with the health personnel is not as "advanced" as with the surgeons.

How to guide the operation coordinators in the process of scheduling surgeries?

In the process of scheduling surgeries, the operation coordinators are guided by written job descriptions, guidelines from higher planning levels and communication with other employees at PHK. Currently, the operation coordinators seem to be uncertain about their role and responsibilities, as they explain that they do not always know how they should perform their tasks, what is expected of them and when they are performing well. This uncertainty among the operation coordinators can be traced to insufficient job descriptions and guidelines, and to a lack of structured communication.

In job descriptions, work procedures and processes related to the operation coordinators' daily work are defined and so is the scope of their responsibility, i.e. which tasks and emerging problems the operation coordinators are responsible for. Based on the interviews, the current job descriptions are insufficient, see Issue #9a, and operation coordinators are lacking feedback on their performance, see Issue #9b. To ensure that scheduling is performed in coherence with higher level plans and decisions, the higher planning level needs to provide the operation coordinators certain guidelines for their work. Jonsson and Mattson (2009) discuss how important it is that decisions made on a certain planning are within plans made at higher planning levels. Currently, the operation coordinators are sometimes forced to make strategic decisions that should be taken at higher planning levels and be provided to operation coordinators as guidelines for their work, see Issue #9d. In some cases, these guidelines may be lacking because the related strategic decisions haven't been made at higher planning levels, but in other cases poor communication between planning levels can be blamed. Such guidelines should for example clarify which limitations to consider in scheduling, the prioritization of different surgery types and the handling of contradicting preferences within the department. The guidelines related to the prioritization of different surgery types would for example clarify the target for each type of surgery and which surgery types are PHK's specialties. An example of a situation where operation coordinators would need guidelines for handling contradicting preferences is the following; health personnel and doctors have different opinions about when to operate major versus minor surgeries. While doctors prefer to perform heavy surgeries in the morning to ensure that extra time is available if needed, health personnel prefers that smaller surgeries, generally on outpatients, are performed in the morning to ensure that those outpatients can be sent home in the end of the day. Guidelines regarding which surgeries to schedule in morning slots should be provided.

How can it be ensured that wards are considered in scheduling of surgeries?

By means of guidelines, higher planning levels need to communicate to operation coordinators that wards are to be considered in scheduling. Furthermore, guidelines explaining the wards' capacity limitations and how these limitations should be treated need to be developed and communicated to the operation coordinators, see Issue #9c. Therefore, management needs to have a dialogue with ward representatives regarding the load that wards can be expected to handle, for example how many resource-demanding patients the inpatient ward can handle simultaneously. Then, management can develop guidelines regarding capacity limitations of the wards which then become a fundamental input in the scheduling ensuring that the perspective of wards is considered. It is important that higher planning levels have a holistic view of the wards' operations and an understanding of the wards' work environment to be able to develop reasonable and realistic guidelines. In addition to these guidelines, the ward representatives and the operation coordinators need to communicate on a daily basis to discuss specific issues impacting scheduling and wards' preferences. Today, health personnel and the operation coordinators certainly interact and discuss upcoming issues, but nevertheless, there is a lack of structured communication and information flow between them. At PHK, an attempt to support structured communication between the operation coordinators and the representatives of wards has been made in the form of weekly meetings. Those meetings have encouraged communication between the operation coordinators and the ward representatives up to a certain extent but could be used in a more constructive way.

The weekly meetings

On a more general level, these weekly meetings have been held since the merger where representatives from wards and surgeons and sometimes from operation theatre meet the operation coordinators to review the schedule of next two upcoming weeks to discuss if it is manageable. The structure of these meetings is unclear, i.e. who is leading it, what are the goals of it and how emerging problems or outcomes should be followed up, see Issue #12. Therefore, employees have lost the motivation to attend and actively participate in these meetings. Also, the employee's find it pointless to discuss the schedules within such short time frame since surgeries have already been confirmed with the patients. Nevertheless, those meetings may be valuable since they can fulfil a need for adjustment of schedules with short notice, for example due to absence of employees. Still, these weekly meetings have some positive influence on the department's operations. Firstly, by going through future schedules regularly, the health personnel are more aware of them. Secondly, by discussing the schedules with representatives of wards and surgeons, the operation coordinators are more aware of how schedules impact other parts of the department. Finally, since employees from different units of the department are gathered on a regular basis at the weekly meetings, the meetings support an interaction between the employees of different units and so provide a chance for employees to understand the basics and perspectives of other units. To fully utilize these meetings, it would be preferable to also look at schedules further ahead, e.g. 1-2 months ahead. Then the members of the meeting would have a chance to discuss and evaluate the feasibility of the presented schedules, and afterwards the operation coordinators would have the chance to change schedules as needed and other members of the meeting would be more informed about future schedules and subsequent load.

6.4 Summary of Results

In the analysis, the identified causes of operational difficulties at PHK's wards after the merger are presented. Some of the causes can be traced back to the merger, other are related to the nature of hospital operations, and the planning and control structure at PHK does also cause operational difficulties. Following is a summary of the identified causes.

The merger impacted the operations in the department, especially at the wards. Before the merger, each specialty had an organizational culture including working traditions, atmosphere and communication patterns. The researchers have identified a lack of acknowledgement and understanding of cultural differences at PHK which has led to problems with adapting the two specialties to one organizational culture. Another identified cause is the lack of involvement of all employees in the merger process. There is a need from management behalf to secure an effective involvement of all employees, as well as to support the employees in adjusting to their new work environment after the merger. Limited training and education has been provided, there has been a lack of structured and effective communication among employees and management and job descriptions have not been updated since the merger. All of this has caused uncertainty and dissatisfaction among employees during the merger process.

Some of the causes have to do with the nature of the hospital's operations and are related to the complexity of hospitals and the patient's flow. The researchers argue that there is a lack of a holistic, cross-functional, common view among the employees on PHK's operations. Also, there are different perspectives in place depending on employees' roles and responsibilities that are sometimes conflicting. Therefore, the employees have different views and opinions on the department operations and how they contribute to the service to patients. These different perspectives need to be understood and coordinated, especially related to the wards' operations.

Furthermore, some of the causes can be related to the planning and control structure at PHK. First, the researchers argue that there is a lack of a holistic view from higher planning levels on the wards' operations and the different origins of the load in the wards, as well as an understanding of the nature of the wards' work environment. Moreover, that there is a lack of considering the wards' capacity limitations in the process of scheduling, i.e. the limited availability of wards' personnel and facilities needs to be formally acknowledged. Another identified cause is related to the lack of guidelines for the operation coordinators where strategic decisions taken at higher planning levels are clarified and provided to the operation coordinators to guide their work. By providing the operation coordinators such guidelines their role and responsibilities will be clearer and the guidelines can ensure that the perspective of the wards is considered in scheduling. Finally, the researchers argue that the structure of the weekly meetings is unclear and that there is a need for more structured communication and information flow among the participating representatives.

7 Discussion

This chapter consists of two subchapters, the first subchapter is about the fulfilment of the proposed research questions and the second subchapter is about the fulfilment of the purpose.

7.1 Fulfilment of Research Questions

Mapping the general patient flow throughout the department was intended to provide the researchers with a fundamental understanding of PHK's operations. During the process of mapping the researchers interviewed employees and gradually built up the necessary understanding and knowledge about PHK's operations. Mapping the patient's flow was experienced by the researchers as a structured way for doing this. Furthermore, PHK is a newly merged department and there is a lack of a holistic view over the flow of patients throughout the department. The mapped patient's flow provides the department an overview over its operations. It should be mentioned that the description of the patient flow is mostly based on the interviews with employees and much less on observations.

When analysing operational difficulties in a specific department it is important to gather what employees see as issues causing operational difficulties since the employees are the ones experiencing the difficulties. The summary of issues inhibiting the service to patients was made based on interviews with employees. This summary was a good foundation for analyzing the causes of operational difficulties at wards. Furthermore, the summary gives PHK's management an overview over the issues that employees see as inhibiting the service to patients.

As an answer to the third research question, numerous causes of operational difficulties at the wards were identified, presented and discussed, see Chapter 6. These causes are supported by the theoretical framework of the thesis, there may be additional causes in place but those are not within the scope of the thesis.

7.2 Fulfilment of Purpose

It is interesting to study the origin of the causes of operational difficulties at the wards. As to be expected some only came into existence as the two specialties were merged into one department but others were already in place at one or both specialties before the merger, irrespective whether they resulted in operational difficulties or not. In some cases, those causes had originally caused operational difficulties at one or both specialties, but employees had gradually adjusted and developed their work traditions to mitigate the operational difficulties. After the merger, the impact of those causes may have emerged again. In other cases, those causes might not have caused difficulties in each specialty's operations before the merger but in a larger department, after the merger, they caused operational difficulties. It would be valuable to review how each specialty tackled operational difficulties before the merger.

Throughout the thesis work the researchers have observed that a more structured and active communication and information flow within PHK would be beneficial for the department‘s operations. Firstly, if employees would have been more involved during the merger, certain operational difficulties could have been prevented. It is recommended that more efforts are put into supporting communication between employees from the different specialties since that will speed up the adjustment. Irrespective of the merger, more information flow and guidance is required from

management to the employees at PHK's different units. More communication between management and the different units is also required to ensure that the management understands each unit's work environment. Moreover, it is important to support employees in communicating their opinions and perspectives, as well as what they experience as problems. Problems will not be prevented from reoccurring except if there is an awareness of their existence. Today, there is a need for enforcing the reporting and follow-up of problems experienced by employees and discussed during meetings. Finally, new ways to support more communication between employees at different units should be sought out for.

PHK's employees are qualified healthcare personnel that possess different perspectives based on their educational background, experience and position within the department, and these perspectives shape their view on the department's operations, each of its units and even each function within the units. A common view on the department's operations, units and functions is very important to ensure that everybody is working towards the same goal and to ensure that employees have a realistic understanding of the work environment and tasks of their colleagues. A common view will also make employees more aware of the impact that their job has on other units and functions at the department. At PHK, there is a lack of a common view, and employees' misunderstanding or lack of understanding of the role and responsibility of other units and functions is currently causing problems. It is a problem in itself how differently employees perceive the department's operations and how different views they have on the current operational difficulties. All efforts aimed at increasing the communication and information flow within the department should help in reaching a common view among employees on the department's operations.

Despite the dissatisfaction among employees with the weekly meetings the researchers believe that something can be gained from those meetings. Currently, the weekly meetings offer an opportunity to discuss and adjust to short notice changes in schedules but they also gather representatives from different units which encourages communication between employees of different units. The researchers argue that the weekly meetings are an overlooked forum for structured communication and discussion within the department, and for developing a common view across the department. To make the best use of the weekly meetings the structure needs to be improved; especially the goal and leader of the meetings needs to be clarified. Also, it needs to be defined how emerging problems and discussions should be followed up. Nevertheless, the researchers agree with employees that it would be valuable to review schedules further ahead, e.g. 1-2 months, when there is still a chance to evaluate the feasibility of the schedules and to make changes when required.

A fundamental cause of the wards' operational difficulties is that the wards are not considered in scheduling of surgeries despite the direct impact that the scheduling has on the workload at wards. All parts of the department that are directly impacted by the scheduling should be included in scheduling. This can be further supported by calling attention to the fact that there is not a direct correlation between the time it takes to perform a surgery in the operation theatre and the subsequent time and effort required to care of the patient the relevant ward, i.e. a short surgery can require long stay or frequent assistance from health personnel at the ward. In a manufacturing context this resembles a situation where there is a production line that consists of three workstations but whose plans only consider two of the workstations. If the third workstation that for example takes care of packing the product is not included there is a great risk that products will stock up because the workstation cannot handle the load, or that the workstation is idle because the other

workstations do not keep up with it. Still it should be mentioned that although it seems strange that the wards are not considered, this is not unique but very common in healthcare organizations, where the limited availability of operation theatres and surgeons normally receives the most attention. Nevertheless, the fact that the wards are not considered in scheduling at PHK is causing problems at the wards.

Higher planning levels need to pay more attention to wards' operations. Due to the greatly changed setup of wards after the merger, higher planning levels need to develop a holistic view on the wards' operations and the nature of their work environment. For example, an awareness of the different services causing load at the wards needs to be developed as well as an informed view on the wards' capacity limitations and what should be considered a reasonable workload at wards. The wards should be considered in scheduling as well as in planning on higher levels to ensure that the workload at wards is reasonable. Higher planning levels need to decide how to consider wards in scheduling and then provide clear guidance to operation coordinators, firstly that wards should be considered and secondly in what way the wards should be considered. To guarantee the quality of such guidance it is crucial that a holistic view has been developed of the wards 'operations. Additionally, communication between operation coordinators and wards, similar to the communication between operation coordinators and surgeons, should be supported and motivated.

The workload at the wards is highly dependent on how the operation coordinators carry out the scheduling of surgeries. After the merger, hand and plastic patients are taken care of at the same wards. As a result, the hand operation coordinators and the plastic operation coordinators are scheduling surgeries for patients who are taken care of at the same wards. Despite of this, the hand operation coordinators and plastic operation coordinators have not initiated much cooperation or coordination among themselves. Hence, there are two functions impacting the workload on the wards, but those two functions do not coordinate their work. This resembles having two managers that both give tasks without considering which tasks the other manager has already handed out. However, when recognizing that the operation coordinators are not guided to consider wards in the scheduling of surgeries, it should not be a surprise that the operation coordinators are not preoccupied with coordinating their work due to a changed setup at wards. Thus, along with ensuring that wards are considered in the scheduling of surgeries, management needs to motivate and support the hand operation coordinators and the plastic operation coordinators to collaborate.

The two specialties were merged for economic reasons to rationalize their operations, and the researchers question whether the full effect of the rationalization will be reached if all units of the two specialties aren't merged. Till now, the operations of the two specialties have only been merged to a certain extent and since the merged specialties do not overlap professionally some separation in the specialty's operations will always be in place, for example there will always be separate surgeons. Therefore, it is likely that it will not be possible to fully merge the two specialties in terms of daily work, and not even in terms of facilities. The researchers wonder if PHK's employees will ever experience that they are working for PHK rather than for Hand Surgery and Plastic Surgery, respectively, due to this. As an answer to that the researchers emphasize that the most important part when implementing a merger is the development of a common culture among the employees of the involved organizations, rather than the merging of facilities. So, by supporting the development of a common culture, management at PHK can reach the intended rationalization of the merger.

The operational difficulties studied in the thesis can impact the service provided to patients but studying the difficulties' actual impact is not within the scope of this project. It would be very interesting to compare the impact on service to patients at each specialty's ward before the merger, if any, and the impact on service to patients at PHK's wards. The two specialties were merged for rationalization of their operations but as discussed in Chapter 1, the first priority should always be the service to patients. Thus, if the service at wards has become much worse after the merger, the merger can be questioned, but more importantly, an effort should be put in reducing the current operational difficulties to improve the service to patients.

The operational difficulties at the wards can threaten the efficiency of PHK's operations. It is not within the scope of this project to evaluate if that is the case today, but even if the operational difficulties do no impact the performance today, they might in the future. Therefore, great attention should be given to the causes of operational difficulties and how they can be eliminated. The researchers argue that the operational difficulties are largely due to the fact that great attention is given to having as high utilization rate of operation theatres. But as discussed in Chapter 1, such utilization is not the same as good service to patients which should always be top priority.

8 Conclusions

It is concluded that there are numerous causes of operational difficulties in place at the wards. Some of the identified causes of these operational difficulties are directly related to the merger where a new setup of wards was introduced. Other identified causes of the operational difficulties today were already in place in the wards of one or both specialties before the merger, irrespective of whether they resulted in operational difficulties at that time. The identified causes of operational difficulties are categorized into three parts; causes that can be traced back to the merger, causes that are related to the nature of hospital operations, and causes related to planning and control at PHK. Furthermore, the causes belonging to different categories are often intertwined and acting together.

First are the main identified causes of operational difficulties related to the merger. During and after the merger, there has been a lack of an understanding and an acknowledgement of the cultural differences between the two specialties which has inhibited the development of a common organizational culture at PHK. Furthermore, all employees should have been involved to a greater extent in the merger process with more structured and active communication to facilitate their adjustment to the new work environment. Also, the health personnel could have been supported in adjusting to their new work environment through training and education.

Secondly, the main identified cause of operational difficulties related to the nature of hospital operations is the lack of a holistic view and common understanding among PHK's employees on the department's operations in general. Such a view and understanding are of great importance in the hospital environment where there are many employee groups possessing different perspectives that need to interact and cooperate to fulfil the patient's need for service. The empirical findings of the thesis, i.e. the description of the patient's flow at PHK and the summary of issues inhibiting the service to patients, can be used by PHK to reach closer to a holistic, common view of their operations.

Thirdly, numerous causes of operational difficulties were identified related to the current planning and control at PHK. Higher planning levels are lacking a holistic view on the wards' operations, for example related to the awareness of the different origins of workload in wards. Furthermore, there is a lack of an understanding of the wards' work environment after the merger, both among higher planning levels and PHK's employees in general. Another major cause is that the wards' capacity limitations are not considered in the process of scheduling surgeries despite the direct impact that the scheduling has on the workload at wards. Related to this is that the operation coordinators who are responsible for scheduling of hand surgeries and plastic surgeries, respectively, are still separate functions that do not coordinate although they are scheduling surgeries for patients that will be taken care of at the same wards after surgery. Moreover, the operation coordinators are today lacking clear guidelines from higher planning levels and are therefore making strategic decisions that should be taken at higher levels.

This thesis is the first step for PHK towards understanding the operational difficulties at the wards as it provides an overview over operational difficulties and causes of operational difficulties at the wards. An awareness of the causes of the operational difficulties and the identification of those is the first step towards a better work environment at PHK wards. It should be mentioned that there are already tools in place to come to terms with dealing with some of the operational difficulties, i.e. the weekly meetings, but the weekly meetings are today an overlooked forum. The results of the thesis

provide an external view for PHK and a number of causes for the operational difficulties at the wards have been identified so the researchers argue that the purpose of the thesis has been fulfilled. The conclusions can be generalized to a certain extent for other healthcare organizations experiencing operational difficulties since the results of this thesis can provide ideas of possible causes of those operational difficulties.

Regarding further research related to this specific case, evaluating and prioritizing the different causes as well as understanding the value of reducing or eliminating each cause is unexplored. More statistical support would be beneficial for a further study of the identified causes. Furthermore, when the value of each cause has been understood, various improvement tools and methods can be applied to eliminate some causes or reduce their impact, e.g. Lean Manufacturing and Six Sigma. On a general note, it would be interesting to study whether wards are in general considered in planning and control at hospitals, and if so how.

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Appendix

Appendix A – Questionnaires and discussion topics for interviews

The following questionnaires were used as guidelines throughout the semi-structured interviews. Furthermore, there are discussion topics used as guidance in the un-structured interviews.

Questionnaire for the Operation Coordinators – Semi-Structured Interview

Interview with Plastic Coordinators 2011/02/03
Interview with Hand Coordinators 2011/02/17

Bemanning/Labour force

- Hur många?
- Job tider?

Patient flöde

- Kan ni berätta hur en patient "flöder" igenom verksamheten?
- Hur mottager ni input data för planering? Electroniskt, pappir, telefon,...
- Varifrån kommer input data (från akut avdelning, gp, ...)?
- Output från ni? Skickar ni post till patienter?
- När bekräftas operations tid till patienter?

Planering

- Vilket input data använder ni under planering?
    - Doctor's schedules
    - Operation tid
        - Vad inkluderas? Just tid i operation sal, eller också tid på vården? Turn-over time?
        - Hvem estimerar?
        - Hur ofta uppdaterat?
        - Får ni feedback hvis dom ändras?
        - Hur exact känns estimerat tid?
    - Finns det klara reglor ni använder, eller mer kännsla?
    - Tror ni att det skulle finnas fler reglor?
- Hur långsigtigt kan schemat värа?
- Hur mycket flexibilitet finns/behövs?

Daily work

- Vilka programmer jobber ni med? (t.ex. Operrätt)

Kommunikation

- Har ni några regelbundna möten?
- Med vem kommunicerar ni och i vilka sammanhang?

Sammanslagningen

- Vilken kännsla har ni angående sammanslagningen?
- Har jeres job ändrat alls?

Problems

- Vilka är jeres huvud problemer?
    - Har ni föreslag hurdan dom kan fixas?
    - För ni chans att berätta om problemer, på strukturerat set?
- Får ni information från operation salor eller vård om deres problem?
- Får ni feedback angåande jeres job?
- Tror ni att ni kunne göra något till att fixa den ojämna belastning på vårder?

Questionnaire for the Health Chief - Semi-Structured Interview

Interview with the Health Chief 2011/02/15

Bemanning/Labour force

- Vilka typer av jobb finns där i mottagningen? Vilka jobb tillhör mottagningen?
    - Finns det användbara (!) jobb beskrivningar för alla jobb?
- Hur många jobbar totalt i mottagningen?
- Job tider?

Chef på mottagningen

- Hur länge har hon jobbat där?
- Ansvarighet? (en. Responsibilities) Finns det klar jobb beskrivning för dit jobb?

Koordinatorer

- Länken mellan dig och koordinatorerna
- Jobbar koordinaterna på olika sett i hand och plastik?
- Är det bara koordinatorerna som jobbar med planering av operationer, eller flere på mottagningen? T.ex. du?
    - Tror du att det skulle finnas fler regler för koordinatorerna?
- Hur kan man förbättra deras jobb?

Daily work

- Vilka patienter är behandlad på mottagningens operation sal?
    - Vem bestämmer om en patient är behandlat in denna operation sal? Finns det regler?
- Hur jobbar ni med akuta tillfälle?
    - Problem?
- Vilka program används på mottagningen? Vem använder och varför?
- Input data
    - Vilken information samlar ni ihop från patienter som behövs senare?
    - Tror du att någon viktig information tappas på väg genom verksamheten?
    - Repetitive work?

Patient Flöte

- Hur är dit perspektiv på patient flödet igenom mottagningen?
    - Information flöde, tappas mycket information på vägen?

- Olika beroende av patient typ?!
    - akuta, semi-akuta, planerad
    - behandlad i mottagningens operation sal eller i ”vanlig” operation sal
- Hur är det med kommunikation med patienter?
    - När?
    - Vem?
    - Vilken information? Samma information samlat två/flere gånger?
- Är det din känsla att plastik och hand jobbar på olika set?
    - På vilket set?
- Är personal på mottagningen medveten om den ojämna belastningen på vården?
- Tror ni att ni kan göra något till att fixa den ojämna belastningen på vårdavdelningarna?
    - Till exempel angående samling av data/information från patienter eller läkare som skulle kunna hjälpa senare i flödet.

<u>Sammanslagningen</u>

- Har dit jobb ändrat alls?
- Har det ändras på dom två mottagningar?
- Skulle du säga att dom två mottagningar har inpassat (en. Adjusted) sig till varandra?
- Vilken känsla har du angående sammanslagningen?

<u>Kommunikation</u>

- Mellan dig och andra chefar
- Mellan olika jobber/funktioner inom mottagningen
- Mellan mottagning och andra delar av verksamheten
- Hierarchy
- Besluttsfattande (en. decision making)
- Makt (en. power)
- Får ni feedback angående dina jobb?

<u>Problems</u>

- Vilka är *mottagningens* huvud problem?
    - Hur kan dom fixas?
    - Finns det chans att berätta om problemen, på strukturerat set?
    - Finns det chans att förbättra processen till att förhindra upprepning av samma problem

- Får ni information från operationssalar eller vård om *deres problem*?
- Tror ni att ni kunna göra något till att fixa den ojämna belastningen på vårdar?

Questionnaire for the Admin Chief - Semi-Structured Interview

Interview with the Admin Chief 2011/02/18

Bemanning/Labour force

- Hur många?
- Vilka jobber?
    - Vilken roll har dom remis koordinatörerna? Hur lätt/svårt är det att planera nybesöker?
- Job tider?

Patient flöde

- Kan du berätta hur en patient "flöder" igenom mottagningen från dit perspektiv
    - Information samling
        - Kan förbättras?
        - Tappas någon information på väg genom verksamheten?
    - Hur är det med dokumentation (elekroniskts, pappir, telefon, ...)
    - Hur mycket och när har ni kommunikation med patient?
    - Input/Output

Daily work

- Hur jobbar dom på olika set i hand och plastik respektivt?
- Vilka programmer jobber ni med? (t.ex. Operrätt)

Kommunikation

- Har ni några regelbundna möten?

Sammanslagningen

- Vilken kännsla har ni angåande sammanslagningen?
- Har ni påvärkas av sammanslagningen?
- Har jeres job ändrat alls?

Problems

- Vilka är jeres huvud problemer?
- Får ni information från operation salor eller vård om deres problem?
- Får ni feedback angåande jeres job?
- Tror ni att ni kunne göra något till att fixa den ojämna belastning på vårder?

Questionnaire for the Doctor Representatives - Semi-Structured Interview

Interview with Doctor Representative from Plastic Surgery 2011/02/24
Interview with Doctor Representative from Hand Surgery 2011/02/25

Labour force

- How many doctors are employed?
- How specialized are the doctors? E.g. in relation operation planning and whether doctors can replace one another when needed.
- Working hours?

Patient Flow

- How are the procedures when evaluating remis for potential patients?

    - Who?
    - How long time allowed from receiving remis until doctor finishes the remis evaluation?
    - Input
    - Documentation
        - Which programs?
        - Registration of decision?
        - Paper, fax, electronic, ...
    - Output
        - How is the prioritization levels of first visit patients?
- Procedures related to first visit
    - Who?
    - How long time allowed from receiving remis until first visit?
    - Input?
    - Documentation
        - In which program?
        - Paper, fax, electronic, ...
    - Output
        - How is prioritization of operation needs?
- Operation scheduling
    - What is included in the automatically estimated (based on doctor and operation code) operation time in Operätt?
        - Your opinion about this estimated time?
    - HAND: What is your opinion about the added time (by operation coordinators)
    - Level of accuracy?
    - How would you prefer to deal with this?
- Pre-Operation activities
    - What is included?
    - Who is responsible?
    - Who performs?
    - What information is used and from where (what program) do you get it?
- The Operation
    - Actors?
    - Utilization of operation rooms?
    - What information is used and from where (what program) do you get it?
- Post-Operation activities
    - What is included?
    - Who is responsible?
    - Who performs?

<u>The merger</u>

- What is your feeling about the merger?
- Has your job changed after the merger?

<u>Problems</u>

- What are your main problems?

Improvement possibilities

- Do you see any improvement possibilities related to the patient flow?
- How are the doctors schedules updated?
    - At fixed intervals or continously?
    - In your opinion, how long-term can the doctors schedules be?
- Do you have any suggestions how the uneven load at the wards could be leveled out/fixed?
- Do you see any clear signs of double work that could be eliminated?
    - e.g. related to documentation

Discussion topics during interview with the Chief of Wards – Unstructured Interview

Interview with Chief of Wards 2011/02/28

Personal

- Hur många jobbar totalt på avdelningarna?
- Träning/utbildning för personal innan/efter sammanslagningen?
- Hur specialiserade är sjuksköterskorna?
- Rotation av sjuksköterskor
    - Pros/cons
    - Har sjuksköterskorna preferenser? Som kan tillfredsställas?
- Akuta hand patienter på avd 41, vem tar hand om dom?
- Ökat personal absens!
    - 3-4% till 11-13%
    - Olika orsaker
- På vilket set, om något, är mottagning av patienter från hand och plastik olikt?
    - Inskrivnings processer på avd 36
    - Mottagning av patient på vård innan operation
    - Efter operation
- Försöker ni ha balans mellan hand/plastik patienter och hand/plastik personal?

Planering på vården

- Vad planerar du?
- Hur långsiktigt?
- Olik planering mellan avdelningar?
- Vilken input använder du?
    - Operätt?
    - Kännsla?
- Har ni översikt för nästa månad/två veckor?
- Hur mycket flexibilitet finns för personal anpassning?
- Vård, WHO – WHAT - WHERE
    - Inpatients
    - Outpatients
    - Tunga patienter/Tetra patienter

- Träningspatienter
- Återkommande patienter
- Akuta patienter

Planering av jobb på avdelningen?

- Hur vet ni hur många patienter är på väg?
- Hur vet ni omfång av patienter varje dag?
  - Finns det någon översikt?
    - Varifrån kommer den? Något program?
- Dröm situationen? Bör definieras!
- Bemanning (frånvara?)
- Utnyttjning av sängar på vårds?
- Begränsande faktor; personnel eller sänger?
- Finns det statistik till att stödja dig när du inte kan handla flere patienter?

Sammanslagningen

- Har dit jobb ändrat alls?
- Hur har det ändras på avdelningarna?
  - Specialiserade sjuksköterskor
- Vilken känsla har du angående sammanslagningen?

Kommunikation

- Mellan avdelningen och andra delar av verksamheten
- Hierarchy
- Beslutsfattande (en. decision making) / Makt (en. power)

Problems

- Vilka är *mottagningens* huvud problemen?
  - Finns det chans att berätta om problemen, på strukturerat set?
  - Finns det chans att förbättra processen till att förhindra upprepning av samma problem

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Discussion topics during interview with the Section Leaders at Wards – Unstructured Interview

Interview with Section Leaders at Wards 2011/03/03

Sektionsledare på vård

- Hur länge har du jobbat där?
- Ansvarighet? (en. Responsibilities) Finns det klar jobb beskrivning för dit jobb?
-

Bemanning

- Hur många jobbar totalt på denna avdelning?
- Vilka typer av jobb finns där?
  - Finns det användbara (!) jobb beskrivningar för alla jobb?
  - Hand sjuksköterskor VS Plastic sjuksköterskor

        - Jobbar alla sjuksköterskor med alla patienter?
        - Specialisering?
- Jobb tider?
        - Hur mycket flexibilitet finns det i bemanningen?

Patient Flöte

- Hur är patient flödet på vården?
    - Varifrån får ni information angående patienten? Vilket program används?
    - Uppdatera patient information i programmen?
        - Vilken information?
        - Vem tar hand om det?
    - Aktiviteter
        - Vem tar hand om vilken aktivitet?
- Mottagning av patient på vård innan operation, WHO – WHAT - WHERE
    - Inpatients
    - Outpatients
- Mottagning av patient på vård efter operation, WHO – WHAT - WHERE
- Vård, WHO – WHAT - WHERE
    - Inpatients
    - Outpatients
    - Tunga patienter/Tetra patienter
    - Träningspatienter
    - Återkommande patienter
    - Akuta patienter

Planering av jobb på avdelningen?

- Hur vet ni hur många patienter är på väg?
- Hur vet ni omfång av patienter varje dag?
    - Finns det någon översikt?
        - Varifrån kommer den? Något program?
        - Skulle ni kunna göra en översikt för varje dag.
- Dröm situationen? Bör definieras!
- Bemanning (frånvara?)
- Utnyttjning av sängar på vårds?
- Begränsande faktor; personnel eller sänger?
- Finns det statistik till att stödja dig när du inte kan handla flere patienter?

Sammanslagningen

- Har dit jobb ändrat alls?
- Hur har det ändras på avdelningarna?
    - Specialiserade sjuksköterskor
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