Middle management involvement in handling variable patient flows

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Abstract

Purpose

To explore the involvement of middle management in forming strategies to manage variable acute patient flows at a hospital.

Design/methodology/approach

Empirical evidence from a university hospital was gathered via interviews, internal documents, observation and participation in meetings. The role of middle management in the development of strategies was analyzed using literature on middle management involvement.

Findings

In managing variable acute patient flows, middle management adopt a number of roles and behavioral characteristics that have been previously described in research. The role of facilitator is the most prominent, with middle managers prioritizing individual goals and strategies for the clinical departments that they manage before their collective responsibility for hospital performance. Unclear responsibilities and mandates within the organization, together with a lack of hospital-wide strategies concerning how the acute patient flow should be managed, are contributing factors to this behavior.

Research limitations/implications

The research is based on an explorative, single case study methodology. Future research assessing the extent of different middle management roles in healthcare, in which more empirical data and quantitative analysis is conducted, is encouraged.

Practical implications

There is a need for top management to establish long-term goals to enhance middle management roles when developing strategies for managing variable patient flows.

Originality/value

Middle management involvement in developing strategies for managing variable patient flows is a novel topic of research. The interface and division of tasks between top and middle management is crucial for successful strategies in managing variable patient flows.

1 Introduction

Effectively managing variability in patient flows is a major healthcare challenge in many Western countries. The individual patient may have different diseases, severity levels and responses to therapy, which introduces much variability to healthcare processes (Litvak and Long, 2000). As a result of this variability, management struggle for instance with bed shortages and overcrowded emergency departments (Proudlove et al., 2003; Physician Hospital Care Committee, 2006; Aronsson et al., 2011).

The organization of a hospital is normally a complex configuration of highly specialized clinical departments, through which patient flows are to be managed. These patient flows, i.e. the administrative and clinical processes at different functional specialties through which each patient is guided and managed depending on his/her individual needs, becomes especially crucial to manage for acute patients. Their treatment needs cannot be foreseen or delayed, and it is therefore particularly important, and challenging, for healthcare providers to manage variations in this type of patient flow.

Challenges of integration and collaboration linked to the management of a patient flow such as the acute one are typically compounded by multiple professions seeking to assert control over their own professional practice (Ramanujam and Rousseau, 2006) and the

medical responsibilities that doctors have for their patients. The legitimacy of clinicians to define illness, diagnose patients and decide between appropriate treatments, together with the functional organization of hospitals, makes the role of middle management important when developing strategies for managing the variable acute patient flow.

Traditionally, the role of middle management has been to translate strategies defined by top management into actions at operating levels in a relatively straightforward manner (Floyd and Wooldridge, 1994). However, in recent decades, researchers have identified middle managers as an essential cornerstone of the entire strategy formation process (Floyd and Wooldridge 1992, 1994; Pettigrew et al., 1992; Pappas et al., 2004; Currie and Procter, 2005). Middle management is seen to play a key role in the relationship between the organization and its environment – i.e. middle management becomes crucial for the creation and renewal of strategies (Wooldridge et al., 2008).

Despite its importance, research on the role of middle management in a healthcare context has been sparse (Currie and Procter, 2005). In addition, healthcare managers claim that the inherent variability discussed above means that they cannot control their service production or predict patient inflow (Jarret, 1998; Vissers et al., 2001). However, variability can be handled by working smarter, through strategies such as capacity management systems (Proudlove et al., 2003, Adan et al., 2009, Vissers et al., 2012), standardized patient processes for homogenous sub-groups of patients (Olsson and Aronsson, 2015) and matching capacity to demand (Walley et al., 2006). Villa et al. (2014) points to the fact that the lack of coordination between different pipelines and production units is critical for understanding problems with the handling of variability in patient flows. In these efforts, middle management becomes vital when developing strategies for managing variability in patient flows. Accordingly, the purpose of this study is to:

> *Explore the involvement of middle management in forming strategies to manage a variable acute patient flow at a hospital.*

As an empirical basis for the research, a single case study at a Swedish university hospital has been conducted, which focuses on how middle management handle the acute patient flow that originates from patients arriving at the emergency department and thereafter are admitted to a ward at the hospital. Although all patient flows may render variability to handle due to individual patient needs, the acute patient flow is particularly challenging from a variability perspective, and the role of middle management is therefore considered crucial for this flow at the case hospital. In particular the department chiefs at the hospital plays a major role and in this study they are therefore the unit of analysis and represent middle management in this research.

More specifically, the paper's research question is to investigate what role these department chiefs have in managing the variability of the acute patient flow at the hospital. In the case study, this flow includes the administrative as well as clinical processes ranging from the emergency department to different specialized clinical departments at the hospital.

In terms of theoretical contribution, much is known about variable patient flows and the challenges related to managing these. However, more in-depth research is needed on the

role of middle management in forming the necessary strategies [1]. Therefore, this paper applies a theoretical framework that describes four middle management roles in strategy formation, as a means to further explore their role in managing a variable acute patient flow.

The paper continues by outlining the case study methodology applied in the research. Thereafter, an overview of previous research on the role of middle management in healthcare is provided, followed by the empirical data section. The subsequent analysis addresses the role of middle management in handling the variability in the acute patient flow. The final section summarizes the findings and provides some suggestions for further research.

2 Methodology

This explorative research is based on a case study at a Swedish university hospital. It is a well-known, relatively large hospital with a good reputation in terms of performance. In a comparison of the university hospitals in Sweden, which assessed medical quality, financial performance, customer satisfaction, waiting time and hygiene, the university hospital was ranked number one for several years. With multiple clinical departments representing a variety of patient groups and treatments, the patient flows are often complex, which provides rich information content (Flyvbjerg, 2006). The fact that the case organization is a university hospital further adds to the complexity of managing patient flows, due to the occasionally conflicting interests of managing teaching and research commitments, for instance, when scheduling personnel. The results are therefore more applicable to other university hospitals, though not delimited to these.

The acute patient flow that originates from patients visiting the emergency department is the focus of this study. The clinical departments are also involved with other types of patient flows, such as elective patients. These other patients are not the focus of this study, though in some cases they influence the acute patient flow and are therefore discussed. The reason for this division is that the responsibility for the acute patient flow is a shared responsibility among all clinical departments at the hospital, whereas the other patients are a specific responsibility for each department. This study focuses on how shared responsibility is handled when the interaction between top and middle management is expected to be high.

The designation of middle managers as the department chiefs in this study follows the definition of middle managers offered by Smith (1997), as those managers that are directly involved in planning and coordinating the production of services, in this case managing variability in the acute patient flow. The department chiefs are highly involved in the operations of the clinical department, both clinical and non-clinical, and have overall responsibility for the operations performed under their management. The clinical departments often consist of both inpatient and outpatient wards, each of which are managed by a ward chief. The department chiefs are thus centrally located in the

[1] Another paper by the authors (XXXX), based on the same empirical study, explores the question of *what* strategies have been applied in managing variability in acute patient flows, whereas this paper focuses on the question of *how* to manage variability, particularly the role of middle management in these processes.

organization, which emphasizes their importance in facilitating communication both up and down the managerial hierarchies (Pappas et al., 2004).

Aside from the involvement of the department chiefs, the hierarchical levels above and below the department chiefs are also encompassed in the study. There are actors at the top and middle management levels that operate outside/alongside the hierarchical levels, and which have the potential to influence management of the variable acute patient flow. These have therefore also been included in the study.

The step-by-step process of gathering information and analyzing the collected data is depicted in Figure 1.

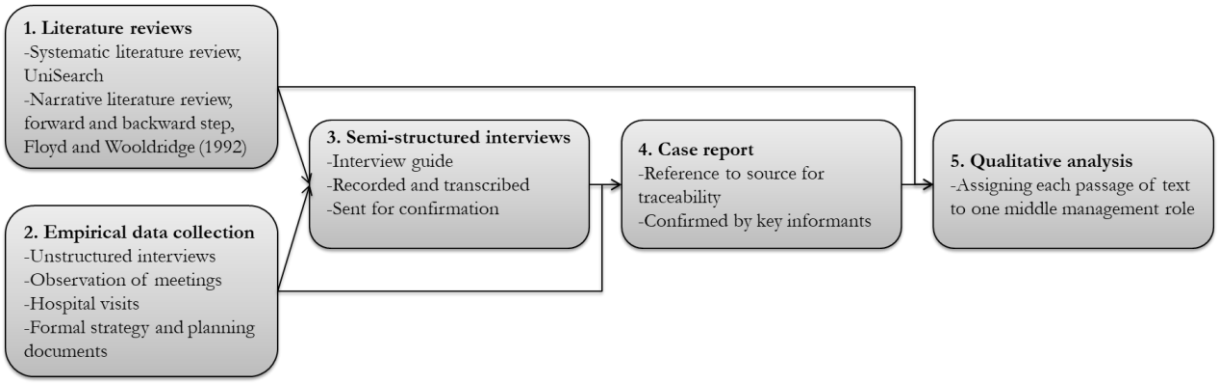

Figure 1: Process of gathering and analyzing the qualitative data.

In the first step, the results from a systematic literature review were used to capture how variable patient flows are managed. The systematic literature review was aimed at identifying causes, effects and possible remedies for overcrowded emergency departments and inpatient wards with high bed occupancy. For this literature review, the search engine UniSearch was used and articles were sourced from Academic Search Premier, Business Source Premier, CINAHL, MEDLINE, and ScienceDirect, among others. A narrative frame of reference concerning middle management strategy involvement was also developed using a forward and backward step in relation to the framework developed by Floyd and Wooldridge (1992): as a backward step, the theoretical basis of the framework was traced and, as a forward step, the usage of the framework in research was identified.

In the second step of the research, unstructured interviews as well as observations of meetings and hospital visits were carried out in order to gain an understanding of the context under study, as well as actors within the system. The observations of meetings and hospital visits was important for the authors to develop their own perception of the decision making and relations between the actors in the organization, instead of only building the understanding on the interviewees opinions. This knowledge was also important in the development of interview questions. During the interviews notes were taken, transcribed and, if applicable, sent to the respondent/-s for confirmation. In addition, the researchers were given access to formal strategy and planning documents from a number of interviewees. For a complete list of the information gathering activities, including organizational level and duration, see Appendix 1.

In the third step, an interview guide for the semi-structured interviews with middle managers was outlined based on constructs from the literature reviews and information gathering activities described above. The interview guide was sent to each respondent in advance and included clarifications of key terms used in the questions. The following subjects were covered:

- Overall strategic direction and aims in managing a variable acute patient flow
- Coordination, integration and collaboration between different actors and hierarchical levels as well as external collaborations
- Operational strategies related to scheduling, staffing, task and responsibility for different actors, patient distribution and transfers, acute versus elective patients, bed management, managing patient inflow and outflow.

The middle managers were chosen with the aim of achieving an even distribution between the different divisions in operation at the hospital. Each semi-structured interview was recorded, transcribed and sent to the respondent for confirmation. The information gathering activities were conducted between October 2012 and June 2013. For a complete list of the information gathering activities, see Appendix 1.

The preliminary results was reported to a working team, which consisted of clinical department chiefs. Thereby, empirical evidence could be verified and activities, relations and strategic development at were missing could be included. All the collected empirical data was also, in the fourth step, added to a draft of the case report comprising of 64 pages, with a reference to the source for traceability. The final case report was sent to three key informants (Yin, 2009), each of whom had in-depth knowledge of the hospital's operations. After they had read the report, their feedback was incorporated into the description. Any conflicting information was discussed with one of the key informants.

In the fifth step, a framework developed by Floyd and Wooldridge (1992) was used to identify examples of the involvement of middle managers in handling variable acute patient flows. The framework was used since it clearly distinguishes between two different types of strategic influences, both upward and downward in the organizational hierarchy, in a two by two matrix, and hence is exhaustive. The framework has also been widely cited and used in both quantitative and qualitative research (e.g. Currie and Procter, 2005; Currie, 2006; Shi et al., 2009). The narrative frame of reference on literature concerning middle management strategy involvement was also used to strengthen the depth in the descriptions of the four roles.

The qualitative analysis was performed by each passage of text in the draft of the case report was, when applicable, assigned to one of the four middle management roles in the framework, comparable to the deductive category application of qualitative content analysis (Mayring, 2000; Seuring and Gold, 2012) and pattern matching technique described by Yin (2009). Both passages that were aligned and not aligned with the management role was assigned. Thus, all strategic activities performed by middle management was categorized into one of the four roles in the framework.

3 Theoretical framework

In a professional bureaucracy such as a hospital organization, a key group of employees that middle managers need to interact with are the operating professionals of the organization (Mintzberg, 1979). Previous research has also shown that competence-based trust between doctors and administrators is essential for successful strategic decision-making (Parayitam, 2010). Traditionally, clinicians and managers work with different sets of ideas and act according to different logics, and therefore have problems decoding and making sense of each other's messages (Llewellyn, 2001).

For middle management, the management of operational professionals therefore often becomes a key challenge. From an organizational point of view, a common way to tackle these potential conflicts is to merge these two roles – i.e. to let the operating professional become middle manager. Doctors that become managers, to some extent, become bureaucratized through their acceptance of the managerial responsibility, but they also protect high levels of medical autonomy and resist attempts to increase the managerial control of clinical practice (Kitchener, 2000; Waring and Currie, 2009). Such "hybrid managers" (e.g. Kitchener 2000; Shi et al., 2009) are very common as middle managers in healthcare. Due to their professional background these hybrid managers can add value by merging knowledge of the external environment and strategic intent of top management with knowledge of the practice on the ground (Burgess and Currie, 2013).

To structure the discussion of the role and involvement of middle managers in strategy formation, a framework by Floyd and Wooldridge (1992) has been applied (Figure 2). The framework is based on the perspective that 'strategy is a pattern in the stream of actions' (Mintzberg and Waters, 1985), which means that the content of the strategy is intertwined with the strategy process (Huff and Reger, 1987). The framework has its origin in the strategy formation literature. Woolridge et al. (2008) also states that the framework has a social learning perspective on strategy. The framework has two dimensions. The first dimension describes the direction of influence, upward or downward, that middle managers have on strategy. The second dimension assesses the extent to which middle managers influence the organization's concept of strategy. An integrative influence has a limited effect on the organization's concept of strategy, whereas a divergent influence has a major effect. This gives rise to four strategic roles of middle management.

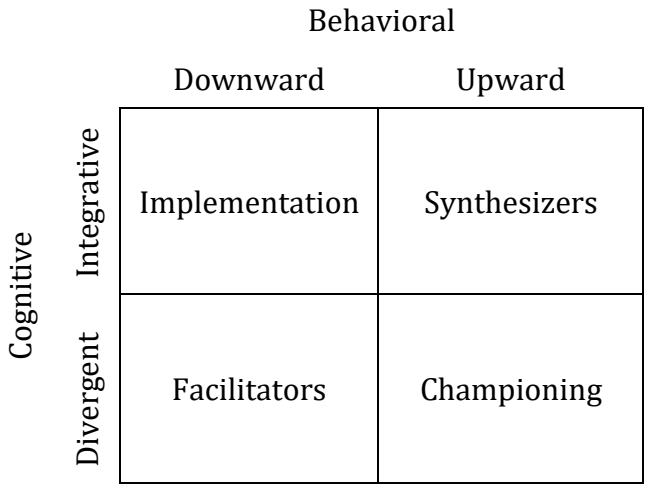

Figure 2: Typology of middle manager strategy involvement (Adapted from Floyd and Wooldridge, 1992, p. 154).

The role of Implementation has been described as the traditional role of middle managers (Wooldridge et al., 2008). As an acknowledged part of an organization's control system, the role of middle management is therefore to translate the strategies defined by top management into actions at operational levels. This involves developing budgets and defining tactics for realizing a strategy, monitoring the performance of individuals and sub-units, as well as arranging corrective action when results are outside expectations (Floyd and Wooldridge, 1994). There are some examples in which the role of Implementation has been the most prominent in healthcare. In a paper on the role of middle managers in the business planning process within the National Health Service (NHS), Currie (1999) concluded that the main influence of middle managers is one of downward implementation of strategic change. Procter et al. (1999), in a study of a community health trust, likewise established that the options for middle managers were limited to making task-orientated decisions rather than strategic changes.

When acting as Synthesizers, middle managers interpret information and channel it upwards to top management. By doing so, information synthesized by middle managers can become a primary basis for deciding how limited resources and attention will be allocated (Pappas et al., 2004; Wooldridge et al., 2008). An effective communication interface is therefore essential to ensuring that top and middle management can share their information efficiently (Raes et al., 2011). In healthcare, middle managers' strategic knowledge is positively related to championing changes and synthesizing new information (Pappas et al., 2004). Their position is also suitable for supporting knowledge sharing and learning, due to their ability to participate in multiple communities and relationships (Waring and Currie, 2009).

Facilitators are middle managers that act as a driver for other players in the organization below and around them to engage in innovative efforts of various kinds (Wooldridge et al., 2008). These efforts often lie outside top management's official expectations (Currie and Procter, 2005). From a top management perspective, this behavior can be seen as risky and somewhat destabilizing, since it implicitly challenges the authority and control of top management (Floyd and Wooldridge, 1994). The traditional view of healthcare

managers is that they often act as diplomats to ensure that doctors' work runs smoothly (Giaimo, 2002), thus facilitating their autonomy.

By channeling strategic initiatives that diverge from the current conception of strategy upwards, middle management has the opportunity to influence the strategic thinking of top management (Wooldridge et al., 2008). This behavior corresponds to the fourth role, that of Championing. When middle managers are involved in generating alternatives and setting goals, Wooldridge and Floyd (1990) demonstrated that there is greater organizational performance, compared to when middle managers are involved purely in the implementation of strategy. Support for this view has also been found in studies of the NHS (Pettigrew et al., 1992). Hospitals thus require organizational champions that are involved in, and committed to, strategy making (Mintzberg, 1997).

4 Empirical data

This section includes the empirical data concerning the hospital and the management of the acute patient flow.

4.1 The hospital and the acute patient flow

The hospital has approximately 570 beds and 5200 employees. Except for organ transplantation, the hospital provides diagnostics, consultation and treatment for every medical specialty. The catchment area for highly specialized care includes one million residents. The hospital is also responsible for part of the local healthcare services in the county. The six divisions with clinical operations at the hospital are further divided into clinical departments.

The emergency department at the hospital is a medical treatment facility which specializes in acute care of patients that arrive at the hospital without prior appointment. The variation in arrival patterns of patients visiting the emergency department (ED) is fairly predictable concerning how it varies during the day, and between days of the week. For clinical departments admitting patients from the ED, the variations are larger and more difficult to predict on a daily basis. There is also considerable variation on a weekly basis, but monthly and yearly variations on patient inflow from the ED are small. Most clinical departments have both acute and elective patient inflows.

4.2 Organizational structure

An organization chart which includes the hierarchical levels, roles and teams that make decisions and manage the flow of acute patients at the hospital is shown in Figure 3. The dashed lines correspond to the information flow between actors, while the thick lines represent the authorities that are delegated from higher to lower levels of the organization. The dashed lines only correspond to information flow related to the acute patient flow. In contrast to the traditional organization chart, the figure includes actors that cannot be considered to belong to a specific hierarchical level. This is because they have certain tasks and responsibilities related to the acute patient flow and are hence considered to be *beside the hierarchy*. The figure also includes working teams that handle strategic development which is directly or indirectly related to the acute patient flow, and therefore have corresponding mandates in accordance with these responsibilities.

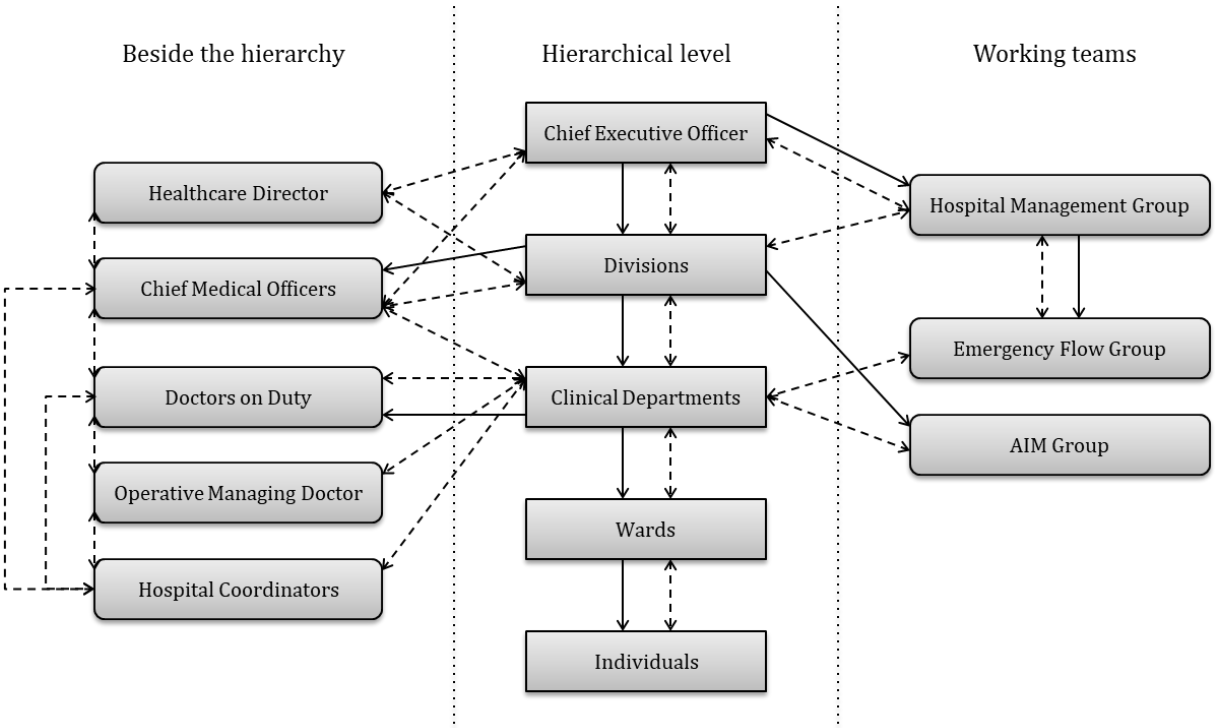

Figure 3: The authorities' delegated (thick lines) and the information flow (dashed lines) between actors concerning the acute patient flow at the hospital.

There are no arrows directly connecting the working teams with actors beside the hierarchy. The reason for this is that several of the actors beside the hierarchy are also included in one or more of the working teams. Thus, communication is created irrespectively.

As discussed in the methodology section, department chiefs correspond to middle management in this study. Since the emergency flow group consists almost exclusively of department chiefs, this working team is also designated as middle management. Top management is entitled to division chiefs as well as the hospital management group, since a majority of the members in that group are division chiefs. The chief executive officer is a manager of the whole county council and is rarely involved in issues concerning the strategies for managing the acute patient flow. At the hospital, many department chiefs have been clinically active within the specialty that is being practiced at their clinical department and most of them are doctors. The same applies for the division chiefs.

4.3 Managing the acute patient flow at the hospital

The 'plan of action during bed shortage' is the only formal strategy document that provides guidance on how to manage a variable acute patient flow at the hospital. It expresses a plan of action to secure the availability of beds for the acute patient flow and includes actions to counteract very high utilization of the hospital's beds and other resources. It includes the responsibility and authority of different actors related to the management of the acute patient flow. A number of actions that aim to counteract bed shortage are also described in the document. When possible, actions that can be taken internally at a clinical department are recommended. If this is not sufficient, actions that involve other clinical departments or the hospital as a whole can be taken. An estimation of the number of available beds needed at 3pm to avoid bed shortage during the following night is also specified in the document.

There are unclear responsibilities and mandates of actors involved in the operational decision-making relating to the variable acute patient flow at the hospital. An example of this is the hospital coordinators' responsibility to choose appropriate actions when bed shortage occurs. Since the actual mandate of the hospital coordinators is limited, and the operative managing doctor having the mandate of deciding between actions do not have the integrity towards doctors on duty and department chiefs, the chief medical officer responsible for the acute patient flow is often contacted when discussions occur. Thus, much time is spent discussing actions to manage the bed shortage.

4.4 Forming strategies at the individual clinical departments

The 'plan of action during bed shortage' specifies the responsibility the department chiefs in relation to the management of the acute patient flow:

"The department chief is responsible for elective and acute patients corresponding to the medical specialty of the department, in addition of having a shared responsibility for acute patients that could be admitted to several different departments, for example the clinical departments within the internal medicine discipline. This responsibility includes planning for, and management of, the quality and capacity as well as medical responsibility and care for the patients." (Author translation)

When deciphering this statement, the department chiefs are responsible for three different types of patient flows at their department:

1. Elective patients that correspond to the medical specialty of the department.
2. Acute patients that correspond to the medical specialty of the department.
3. Acute patients that have vague symptoms and could potentially be admitted to several different departments.

For the first group of patients, it is possible to postpone treatment and care in order to balance the workload. That is, however, not the case for the other two groups, since these need immediate medical attention. There is a shared responsibility for taking care of acute patients. For the second group, the clinical department has the main responsibility, but when there are no beds available it becomes a shared responsibility. The third group is a shared responsibility.

There are responsibilities, performance measurements and results follow-ups for the first two patient groups, something that is lacking for the third group. Hence, the care for and responsibility taken for this patient group by the clinical departments are not considered when division chiefs evaluate performance. This discrepancy can be exemplified by the Department of Surgery, which temporarily allocated 10 beds designated for acute patients to elective patients in order to shorten queues. The action was sanctioned by the division chief, and thereby legitimized. The support that the department chiefs can expect from their division chief in managing the clash between these patient flows are neither specified. The 'plan of action during bed shortage' only stipulates that:

"The division chief, together with the department chiefs, are responsible for develop plans for support within the division when capacity or quality issues occur. If this is not sufficient,

other division chiefs are contacted for establishing agreements, e.g. allocating beds in exchange for economical compensation." (Author translation)

Internally at each department, a managerial group normally helps the department chief with decision-making. The composition of the managerial group differs between clinical departments. Ideas for improvement are decided by the managerial group and tested on the clinical department's operations. The development of the clinical department's operations is therefore not directed by any organization-wide plan, which makes it difficult to assess if the improvement projects initiated are aligned in a single direction.

4.5 Middle management involvement in cross-department planning

Concerning the acute patient flow, the hospital management group is responsible for the development of structures, functions and roles to support coordinated planning at the hospital level. The emergency flow group is a subordinate group to the hospital management group. Its responsibility is to plan, coordinate and develop a well-functioning and secure acute patient flow originating from the ED. Due to the requirement to reach unanimous decisions in both these groups, the decision-making ability is restricted. The fact that issues are sent back and forth between these two groups illustrates the inability of reaching decisions and the impreciseness in terms of which matters that should be resolved by which group.

It is the hospital management group that primarily considers potential hospital improvement projects, to decide which of the projects should be initiated and receive funding. There is no standardized approach for identifying which improvement projects to consider, instead improvement projects are initiated after inspiration from different actors within and outside the organization.

5 Analysis

The structure of the analysis section is based on the four strategic roles of middle management described in the framework by Floyd and Wooldridge (1992) and summarizes the analysis concerning each of these four roles. In Appendix 2 a table with quotes from department chiefs and other actors in the organization illustrate the enactment of these middle management roles. The table also includes an analysis of these quotes.

5.1 Implementation

The target for the number of available beds needed at 3pm to avoid bed shortage, stipulated in the plan of action during bed shortage, is neither realistic nor adhered to. For the internal medicine specialties, bed shortage is almost an everyday occurrence, and hence specific actions are not automatically initiated when it occurs. Although specified, the actions recommended in the document are reactive. The document does not include any guidance on *how* variability in the acute patient flow should be managed proactively, neither how bed shortages can be avoided. Instead, this is considered the responsibility of the department chief. This corresponds to the middle management role of Implementation, where defining tactics for realizing a strategy and arranging corrective action when results are outside expectations is a middle management responsibility (Floyd and Wooldridge, 1994). However, the lack of long-term goals and plans also render difficulties in translating organizational strategy into action plans and individual objectives, as emphasized by the Implementation role (Floyd and Wooldridge, 1994).

The responsibility of the emergency flow group is to plan, coordinate and develop a well-functioning and secure acute patient flow originating from the ED. Thus, it manages the implementation of improvement projects concerning acute patient flow, and has similarities to the Implementation role. The fact that the hospital management group mostly decides between which improvement projects to initiate, a task ordinarily carried out by middle management (Floyd and Wooldridge, 1994), further suggests that the applicability of the Implementation role is limited. These results differ from previous studies by Currie (1999) and Procter et al. (1999), where the main influence of middle managers in healthcare was in downward implementation of strategic change.

5.2 Synthesizers

As members of the emergency flow group, the department chiefs are highly involved in the strategic development of handling the variable acute patient flow. Through communication between individual department chiefs and division chiefs, as well as between the hospital management group and the emergency flow group, alignment between top management and middle management is simplified, as emphasized by Raes et al. (2011). These communication paths are also important to utilize both levels' information, concerning the organization's capabilities and environment, when creating and renewing strategies (Wooldridge et al., 2008). The role of Synthesizers for middle management thus becomes important. As the chief medical officer is a member of both the hospital management group and the emergency flow group, communication between the two groups is simplified, which enables the department chiefs in the emergency flow group to act as Synthesizers.

The close connection between the hospital management group and the emergency flow group creates a good opportunity for middle management to act as Synthesizers. However, with a non-standardized approach to identifying which improvement projects to consider at the hospital management group, and a lack of guidance concerning how the variations in acute patient flow should be managed at the hospital, synthesizing becomes difficult. This role, despite the suitable infrastructure for communication, is therefore executed only to a minor extent. As a result, with limited synthesizing activities, resource allocation between improvement projects by top management becomes more difficult (Pappas et al., 2004; Wooldridge et al., 2008).

5.3 Facilitators

Besides the plan of action during bed shortage, there is an absence of hospital-wide strategies concerning how the variations in acute patient flow should be managed. This contributes to the formation of individualized strategies in the different clinical departments and thus middle management acting as Facilitators, a role often taken by managers with a clinical background, to maintain professional legitimacy and autonomy (Kitchener, 2000; Waring and Currie, 2009). Many of the actions taken by clinical departments to manage a variable acute patient flow are also only applied to one or a few clinical departments, which indicates the role of department chiefs as Facilitators in strategy development. The decision by the Department of Surgery to temporarily allocate 10 beds designated for acute patients to elective patients is another example of the Facilitator role.

The reluctance by many clinical departments with an internal medicine specialty to admit acute internal medicine patients also demonstrates the behavior of "protecting" the

autonomy of doctors' work, as emphasized by Giaimo (2002). Since the responsibility to care for these patients is not specified, and the trust for actors at the ED in managing the acute patient flow are limited among middle management, collaboration is hindered. Thus, the Facilitating role can be adopted without much resistance.

5.4 Championing

When it comes to planning, coordinating and developing a well-functioning and secure acute patient flow originating from the ED, the emergency flow group have the primary responsibility. Hence, it enables decision-making that changes the strategic direction, which is a Championing role of middle management.

There is no standardized approach to identifying which improvement projects to consider in the management of the acute patient flow. The boundary between the emergency flow group and the hospital management group, concerning which matters should be resolved by which group, is also imprecise. This opens up the possibility for department chiefs to act as Champions, by channeling strategic initiatives that diverge from the current conception of strategy upward (Wooldridge et al., 2008). The involvement of middle managers in the generation of alternatives and goal setting has also been connected to improved organizational performance (Wooldridge and Floyd, 1990; Pettigrew et al., 1992). Despite this, many of the actions taken by clinical departments when handling the acute patient flow are only applied to one or a few clinical departments, which indicates that the championing of successful actions from the bottom-up in the organization may be limited and/or unsuccessful. The requirement to reach unanimous decisions in the emergency flow group is probably a contributing factor, as this limits the possibility to implement strategies that are not favorable to all.

6 Discussion and Conclusion

The purpose of this study has been to explore the involvement of middle management in forming strategies to manage a variable acute patient flow at a hospital. Previous sections specifically investigated the department chiefs and their role in managing this variability. In conclusion, concerning the Floyd and Wooldridge (1992) framework, the findings indicate that the Facilitator role is best to describe middle management's involvement in managing the variable acute patient flow. Overall, middle managers tend to focus on the facilitation and support of their own department practices, which results in unique strategies at the departmental level.

Except for the Facilitator role, the findings indicate that only fragments of the other roles in Floyd and Wooldridge's framework were identified. The overall explanation for this is the absence of goal and strategy development at the top management level. Unanimous decision-making, a non-standardized approach to identifying which improvement projects to consider, and a lack of concrete guidance concerning how variations in acute patient flow should be managed at the hospital explains the lack of the Implementation role. The absence of goals and strategies means that the Synthesizing and Championing roles were also weak. Efforts from Synthesizers and Champions towards top management were, due to the lack of strategies and goals, met with little or no response.

The findings indicate that a distinction should be made between top management strategies on the one hand, and communication among hierarchical levels on the other.

Whereas top management goals and strategies rarely exist, there is extensive communication between the management levels. There is also a common understanding of the difficulties in managing the variable acute patient flow, established by the proximity between the acute flow group and the hospital management group. Although communication and joint understanding is present, the findings demonstrate that this is insufficient when it is not followed by actions that are guided by goals and strategies.

The theoretical contribution of this research lies in its exploration of the roles that middle management in a healthcare environment adopt, and the ones not adopted, when managing variable acute patient flows. By using a framework originating from organizational strategy theory existing research on middle management's role in a healthcare context has been extended and improved. For instance, the idea of middle management acting as Facilitators corresponds to previous research and is further developed and detailed in this paper. Regarding other roles, the Implementation role that has previously been observed in other research (Currie, 1999; Procter et al., 1999) was rarely identified in this project. In terms of generalizability, looking beyond the specifics of the healthcare context, the findings presented in this paper also have relevance for other, similar types of organizations. In particular, our conclusions could typically also be valid in other professional organizations such as universities and expert organizations. Another general finding from this research that may also be valid in other contexts concerns the need for alignment between strategy and communication in the strategy formation process. Overall, our research draws attention to the fact that a distinction should be made between the formation of strategies on the one hand, and the communication of these strategies between different hierarchical levels on the other. To bridge the gap between these two processes, it could be argued that middle management plays a fundamental role.

For practitioners, the results of this study emphasize the need for top management to establish long-term goals and a hospital-wide strategy to support middle management in developing successful strategies to manage variable patient flows. Specifically, the issue of conflicting goals and measures needs to be addressed by top management to prevent sub-optimization between, and neglecting of, patient groups. The findings also suggest that a reason for top management's delegation strategy of managing variability in acute patient flows is a general lack of knowledge of how to do this at a hospital level. Previous research has indicated that healthcare managers, unlike managers in other industries such as manufacturing, believe that variability in their patient flows is not possible to control or predict, and that their service production is therefore not possible to plan (Jarret, 1998; Vissers et al., 2001). Many of the actions taken by clinical departments are only observed at one or a few clinical departments. A lack of understanding for the essential components that account for the success of an action could be an explanation for the restricted learning between clinical departments. When an action taken at a clinical department cannot be transferred directly to the next clinical department, the underlying reasons for its effectiveness must be understood. Since evaluating and sharing new knowledge is essential to developing unique capabilities within an organization (Tzortzaki, 2014), understanding the essential components that account for the effectiveness of an action is crucial.

The study opens up possibilities for future research in two particular areas. First, the lack of hospital-wide goals and strategies was identified as a major reason for the limited use

of the Implementation, Championing and Synthesizer roles. How these goals and strategies should be formulated and communicated within the organization, to enable successful handling of variable patient flows, needs further research. For the elective and acute patients that correspond to the medical specialty of the department, there are responsibilities, performance measurements and follow-ups of results. The department chiefs therefore prioritize goals and strategies for these patient groups, which neglects their collective responsibility. It is apparent that there is a difference in how to handle specific and shared goals, but the question is how these should be managed.

Second, this research has identified the role of middle management as an important factor in developing knowledge for managing variable patient flows. To improve the effective management of resources, the interface as well as the division of labor and tasks between top and middle management needs to be further explored. Different types of contingency factors' influence on this interface could be a promising way forward. For instance, based on our own observations during this research, middle management's different professional experiences in medicine, financial budget procedures, and size of the clinics could be variables that may influence how well the interplay and communication between top and middle management works.

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Appendix 1 – Interviews and observations

Type	Position/organizational unit	Organizational unit/level	Duration (h)
Observation, meeting	AIM Group	Local Health Care Service (Division)	1
Unstructured interview	Department Chief	Department of Emergency	2
Observation, meeting	Acute Flow Group	Hospital	2
Unstructured interview/unstructured observation	Coordinator	Department of Cardiology	4
Unstructured interview	Hospital Coordinator	Department of Emergency	0.5
Unstructured interview	Business Developer	Department of Emergency	0.5
Unstructured interview	Chief Medical Officer	Hospital	2
Unstructured interview/unstructured observation	Coordinator	Department of Geriatric Medicine	3
Unstructured interview/unstructured observation	Hospital Coordinator	Department of Emergency	3.5
Unstructured interview/unstructured observation	Doctor on Duty	Department of Emergency Medicine	4
Unstructured interview	Assistance Evaluator	Municipality	1
Observation, meeting	Acute Flow Group	Hospital	2
Semi-structured interview	Division Chief	Cardiology and Speciality Medicine Centre (Division)	1
Observation, meeting	Acute Flow Group	Hospital	2
Semi-structured interview	Healthcare Director	Hospital	1.5
Semi-structured interview	Chief Medical Officer	Hospital	1.5
Semi-structured interview	Division Chief	Local Health Care Service (Division)	1.5
Semi-structured interview	Department Chief	Department of Surgery	1.5
Semi-structured interview	Department Chief	Department of Cardiology	1.5
Observation, meeting	Hospital Management Group	Hospital	2.5
Semi-structured interview	Department Chief	Department of Neurology	1
Semi-structured interview	Department Chief	Department of Emergency Medicine	1.5
Observation, meeting	Acute Flow Group	Hospital	2

Appendix 2 – Quotes illustrating middle management roles

Middle Management role	Quote	Analysis
Implementation	"It would be of great help to clarify every position's responsibilities, rather than letting a lot of questions end up at the chief medical officer's desk, which is how it works today." *Chief medical officer* "Part of the problem could be explained by the hospital being divided into a lot of smaller businesses, without valid contracts amongst them." *Department chief, Department of Surgery* "Since the responsibilities for the acute patient flow, and in particular the internal medicine patients from the ED, are so vague, there is a possibility to "help out" in a larger or smaller extent." *Department chief, Department of Cardiology*	With unclear responsibilities and mandates it becomes difficult to translate organizational strategy into action plans and individual objectives, thus enacting the Implementation role.
Synthesizers	"A holistic approach, and a common view are often lacking regarding how the acute patient flow from the ED should be managed in relation to the other patient flows at the clinics'." *Department chief, Department of Cardiology* "Discussions still arise if for instance a nurse at a ward says that they cannot accept a patient since it is full, or if the doctor on duty thinks that a patient should not be admitted to the ward. Having more clearly defined mandates has been discussed various times within the hospital management group." *Division chief, Local Health Care Service* "The hospital management group have initiated and worked with, and are still working on, a number of strategies and measures related to the general lack of available hospital beds. These measures are launched after inspiration and ideas from different origins. There are however limited directives when deciding which projects that should be initiated." *Healthcare director*	There seem to be different perspectives on the departmental level regarding how the patient flow from the ED should be managed. This, together with the non-standardized approach to identify improvement projects at the hospital management group, indicate that the synthesizing activities from middle management are not adequate to clarify responsibilities and mandates in relation to the acute patient flow from the ED.

Facilitators	"There isn't any documented plan of action for how a variable acute patient flow should be handled in the department of surgery nor centrally at the hospital, because the existing plan really isn't an action plan since there is nothing to alter." *Department chief, Department of Surgery* "The chief financial officer at the department of emergency medicine has seen a transition towards more clinics accepting less and less acute patients from the ED, referring to being busy taking care of their "own" patients." *Department chief, Department of Emergency Medicine* "Internal medicine acute patients are not part of the main responsibility for the department of cardiology. Since a numerous part of these patients are elderly, and thus generally have longer length of stay /…/ the internal medicine acute patient flow interferes with the main responsibility of the clinic to a rather large extent." *Department chief, Department of Cardiology* "Historically, patients with vague symptoms, where stroke might be an explanation, have been admitted to the department of neurology. Nowadays the criteria for admitting patients are stricter, in similarity to other specialist clinics." *Department chief, Department of Neurology*	With different perspectives concerning the shared responsibility for acute patients, department chiefs protect the operations corresponding to their medical specialty, in accordance with the Facilitator role.
Championing	"There are probably different perceptions of what responsibility the division chiefs have, or should have, within the hospital management group. Some probably think of their role as more directly responsible when subordinate department chiefs, due to lack of mandate, have escalated an issue." *Division chief, Local Health Care Service* "The department of neurology, together with other clinics that have both acute and elective patient flows, more often have to reduce the elective intake compared to clinics with elective patient flows only." *Department chief, Department of Neurology* "The hospital management group sometimes act like an advisory function that returns to many question to the department chiefs, rather than making a decision on their own, which would be desirable when a problem cannot be solved on the departmental level." *Department chief, Department of Cardiology*	There appear to be an unclear boundary between the emergency flow group and the hospital management group, regarding which matters should be resolved where. Along with different perceptions of what responsibility the division chiefs have, championing strategic initiatives might appear fruitless for middle management.