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Abstract

Considering the vast amounts of resources spent on health care we have surprisingly scarce knowledge of what clinical managers do, when they are at work. Health care organizations are increasingly standardized, and often standardization initiatives and policies point to clinical managers as key figures in implementation processes. Empirical studies of managerial work can give us some indications of parts of clinical managerial practice; we also know that standards are great coordination tools, preferably in stable settings. However, our knowledge of the important relationship between clinical managerial work and standards would benefit greatly from investigations of how clinical managers work with standards in their local, clinical setting. Aspiring to contribute here, this paper compares the relationship between clinical managers' work and standards across four different hospital units; orthopedic surgery, radiology, stroke and pulmonary medicine. The results show that the relationship between coordination performed by standards and coordination performed by clinical managers vary across the units, depending on level of unpredictability; when unpredictability was high making standards work required more clinical managerial work. Although clinical managerial work faced different challenges in each setting, the coordination practice of clinical managers shared characteristics across all four units.

Koordinering i klinisk ledelsespraksis

I betragtning af den store mængde ressourcer, der bruges i vores offentlige sundhedssystem, ved vi overraskende lidt om hvad kliniske ledere laver, når de er på arbejde. Vi ved at standardisering af hospitalsarbejde er stigende: både kliniske standarder og standarder for organisatorisk processer vinder indpas, og i implementeringen af sådanne standarder udpeges kliniske ledere ofte til at have en afgørende rolle. Empiriske studier af ledelsesarbejde kan give os indikationer på nogle af de opgaver og udfordringer, som kliniske ledere kan have i deres dagligdag. Fra klassiske organisationsteoretiske bidrag ved vi at standarder kan virke som koordineringsmekanismer, fortrinsvis i stabile miljøer. Men vores viden om hvordan kliniske ledere arbejder, særligt i forhold til og med standarder, kan øges betragteligt ved undersøgelser af hvordan kliniske ledere arbejder konkret med standarder i den kontekst, som deres daglige arbejde indgår i. Denne artikel ønsker at bidrage her ved hjælp af en sammenligning af hvordan kliniske ledere arbejder med standarder i fire forskellige hospitalsafsnit: et ortopædkirurgisk afsnit, et klinisk service afsnit (røntgen), et apopleksiafsnit og et lungemedicinsk afsnit. Resultaterne af denne sammenligning viser, at koordinering via standarder og koordinering via klinisk ledelsesarbejde varierer på de forskellige afsnit afhængigt af graden af uforudsigelighed i arbejdet. Men resultaterne viser også, at de kliniske lederes koordineringspraksis har fællestræk på alle fire afdelinger.

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Introduction

The aim of this paper is to explore the relationship between planned coordination and ad hoc coordination practices in different hospital units. To do so, the paper analyses the relationship between standards and clinical managerial work; more specifically it explores *how* the fit between planned coordination through standards and the local setting impacts the ad hoc coordination clinical managers have to do in their daily work. An important part of clinical managerial consists of making decisions regarding the practice and organization of work, of coordination. Coordination has been defined as the management of interdependencies among tasks or activities (Malone & Crowston, 1994; Gittel, 2002), and traditionally coordination mechanisms have been divided into formal, planned coordination and informal ad hoc coordination, suitable for different settings (March & Simon, 1958; Mintzberg, 1979). Planned coordination may take the shape of rules, templates for work practice such as scheduled meetings, or standards for best practice (clinical guidelines or pathways). Ad hoc coordination processes, also called coordination by feedback (March & Simon, 1958) or mutual adjustment (Mintzberg, 1979), refers to the unscheduled, real time interactions of actors within an organization, as opposed to planned coordination mechanisms, which are in place to support or replace this interaction. Both types of coordination are central to the organization and practice of health care work.

By focusing on detailed studies of clinical managerial work, I aim to further our understanding of the many ways in which standards are present in clinical practice and what the consequences might be for clinical managers, depending on the difference in local, clinical context. These contexts are complex, *simultaneously* standardized and unpredictable settings, in which the levels of specialization and interdependence between work units are high. Thus, they should offer us excellent cases for studying both types of coordination and the dynamic relationship between them in practice, as they display central features from the coordination literature at the same time; stable and unpredictable settings.

In health care clinical managers are often responsible for introducing new standards and maintaining old standards through their work. At the same time standards perform tasks that can be perceived as managerial; standards can contain medical decisions and allocate types and amounts of resources to activities, spanning boundaries in time and space (Timmermans & Berg, 1997). Most standards in health care are clinical standards and assume some degree of unity; e.g. stroke units are similar and standards for stroke treatment and care can be or should be applicable across sites. Other standards in health care revolve around registration practice, handling of documentation or performance measurements and do not take the context into account. Furthermore; when standards work they tend to go unnoticed and slide into the background, where they can function as infrastructure or templates for work (Star & Bowker, 1995).

Contributions from classic organizational theory have pointed to coordination as different mechanisms that are suited to different types of situations (March & Simon, 1958; Van de Ven, Delbecq & Koenig, 1976; Mintzberg,

1979), or in relation to control mechanisms, as a mean to achieving cooperation in and across organizations (Ouchi, 1979). However, these significant contributions to our understanding of coordination mechanisms can only take us a part of the way; they offer taxonomies of the types of mechanism, the modes by which they are performed and which types of situations they are suited for. More recent research has investigated coordination practices in hospital settings, specifically with regards to how ad hoc coordination is carried out through interaction between participants in relationships (Gittell, 2000; 2002). In this type of work process information is obtained, shared and passed on, tasks are formulated and allocated, and activities are carried out by individuals and in groups, depending on the task. Van de Ven and colleagues (1976) found that these processes may represent embryonic stages of the planned coordination, particularly in hospitals where standards often start as a written account of “what we do in this situation”, but also that when uncertainty increased personal ad hoc coordination seems to be the preferred mode of operation.

This claim was supported by Argote (1982), who noted that emergency units depended mostly on programmed or planned coordination in low uncertainty settings (where some categories of patients and diagnoses could be predicted), and that in settings of high uncertainty planned coordination was less effective, thus relying on unplanned, ad hoc coordination seemed the best solution for the staff. These results were questioned by Gittell (2002), who found that the *nature* of the relationship, through which ad hoc coordination was practiced, could impact the coordination mechanisms effectiveness beyond suitable setting. Although planned coordination mechanisms have been argued to work best in predictable, stable settings, Gittell found that planned coordination mechanisms (routines) were more effective under increasing input uncertainty, to the extent that they facilitated relational coordination.

The overall structure of the paper is as follows: firstly the theoretical framework of the paper is presented and key concepts are discussed. Then a brief account of the research setting and central standardization policies and initiatives influencing Danish public hospitals is given, as this is the national context of the paper. Thirdly, the methods used in the empirical investigation are discussed. Fourth, the findings are presented, starting with an account of coordination through standards and coordination performed by clinical managers in the specific contexts of the paper. This is followed by an analysis of variations across the four hospital units. Lastly, potential limitations and directions for further research are suggested.

Clinical managerial work and standards

This paper draws on several streams of research to investigate the relationship between clinical managerial work and standards in practice, more specifically contributions from the field of managerial work and behavior and contributions from science studies and sociology regarding the contextual, real-time practices of making standards work in their local setting.

Clinical managerial work

Classic contributions to research in the field of managerial work and behavior have demonstrated that managerial work to a large extent is social, diverse, interrupted and fragmented (Mintzberg, 1971; 1973), results that to some extent have been supported by more recent studies (Tengblad, 2006; Mintzberg, 2011). Theories of management and organization have been criticized for drawing primarily on private sector organizations (Dopson, Earl & Snow, 2008), and studies of management have been criticized for being either detached from actual managerial practice or merely descriptive (Noordegraaf & Stewart, 2000; Mintzberg, 2011), even fewer studies have offered explanations to why managers do what they do (Fondas & Stewart, 1994). Furthermore, although health care management has evolved as a field of research, we still lack detailed studies of clinical managerial work (Braithwaite, 2004; Braithwaite, et al., 2004). Based on studies of clinical managerial work, I aim to contribute to these areas of research by setting focus on a large part of the work, which clinical managers do in their daily work practice. An analytical focus on work practice has not been the most predominant approach (Barley & Kunda, 2001), nor has it been a common way to study management of health care.

Perhaps due to the historically strong power base and autonomy connected to the medical profession the subject of health care management has often been researched and discussed in terms of jurisdiction or power conflicts (Freidson, 1984). Prior research into changes in the position and tasks connected to clinical management has focused on the dilemmas of profession vs. management; a key theme in health care management research. This relationship has been articulated as resulting in a hybrid or double position; one leg in each “camp”, with the ability to see issues from both sides (Llewellyn, 2001; Jespersen, 2005), by some researched specifically in relation to management control initiatives, such as accounting practices (Østergren, 2009). Other studies have looked at New Public Management (NPM) reform initiatives in relation to the specific national developments and dynamics in health care fields, highlighting again the important role of context even at a national level (Jespersen, Nielsen & Sognstrup, 2002; Kirkpatrick, Jespersen, Dent & Neogy, 2009). Thus, national NPM initiatives imply a focus on performance measurements, benchmarking and are tied to a push towards standardization.

Braithwaite (2004) proposes an empirically based model of the work routines and behavior of clinical managers, in which their activities are divided into five modes of operating. To some extent the results presented in Braithwaite’s paper support claims from the literature on managerial work and behavior; specifically that social interaction is the *DNA of clinical management behavioral routines* (Braithwaite, 2004:251). Additionally, a major part of the clinical managers’ work revolves around people related activities, such as *staffing*, *assigning work* and *delegating* (Braithwaite, 2004:244). Activities such as these can be seen as forms of coordinating staff resources, work activities and specific tasks

through personal interaction; a certain mode of coordination mechanism (Van de Ven et al., 1976).

Standards in health care

Evidence Based Medicine standards can potentially alter the organization and practice of clinical work (Timmermans & Berg, 2003); when working they often perform multiple functions simultaneously and may have several and often unintended effects beyond the setting they were implemented in. In Europe such standards are often tied to performance measurements, benchmarking and financial reimbursement (Kuhlmann & Saks, 2008); instruments to increase transparency in public services and to promote accountability and manageability (Timmermans, 2005; Blomgren, 2007). These intertwined approaches, aims and initiatives make standardization in health care a difficult and complex topic, but they may also present each initiative and its proposed success with difficult conditions (Pollitt, 1996), as their aims and objectives are not necessarily aligned. Some aspect of the corporate perspective may not fit work in acute hospitals, while aspects related to quality development can built on existing, professionally initiated quality projects. Most standards draw legitimacy from expert knowledge, in practice it can be difficult to distinguish between standards, norms and legal directives (Brunsson & Jacobsson, 2000:12-13), especially when standards are partly politically initiated and governed. In such cases the spheres of medicine and public policy are overlapping, and development, measurement and control of clinical quality have multiple stakeholders; practitioners, patients, politicians, administrators.

Making standards work

Contributions from science studies and sociological research on standardization have investigated the challenges connected with attempts to standardize procedures and processes within the health care field (Timmermans & Berg, 2003; Timmermans & Mauck, 2005). Standards may take many different forms; they can differ in cost, pay off, specificity, scope and flexibility (Timmermans & Epstein, 2010), and are also often linked with or built into other standards (Lampland & Star, 2009). Coordination through standardization in health care is often initiated to promote clinical quality through a unified approach to the treatment and care of a specific type of illness or disorder, as standards promotes knowledge of the best way of doing something (Timmermans, Bowker & Star, 1998). As it is impossible for any standard to fully anticipate and provide a plan for every contingency that may occur during a (patient) process, standards depend on a specific kind of work, carried out by people in the setting they apply to. This work is adjustable to the situation at hand and resolves the unanticipated contingencies and inconsistencies between the standard and the situation (Timmermans & Berg, 1997). This “left over” work is articulation work; work which is carried out “back stage”, in most lines of work (Star & Strauss, 1999). Articulation work is the residual work essential for the implementation process, which

cannot be specified ahead of time (Gerson & Star, 1986). It is essential to getting the job done (Timmermans & Freidin, 2007), and to handle contingencies and keep things on track (Gerson & Star, 1986). Even though the standard coordinates and reaches beyond a single setting, this work is particular to the specific context. It consists of the tasks involved in assembling, scheduling, monitoring and coordinating work to get a task done (Gerson & Star, 1986). Although it is invisible to formal representations of work (Star & Strauss, 1999:10), it is a crucial part of understanding the dynamic relationship between coordination through standards and coordination performed by clinical managers; it is the work clinical managers have to do in order to make standards work in practice.

Standardization of work process and work output

Standards can coordinate work activities in more than one way: standardization of work process, of output and of knowledge or skills (Mintzberg, 1979). Like in most organizations, staff in hospitals faces the challenging task of coordinating activities across members, units, wards and other hospitals. Local standardization implementation is often the responsibility of the clinical manager working in the front line of hospitals, however the context for and thus relationship between clinical managerial work and standards vary a great deal depending on the area of medical specialty and the work conducted in the unit. Clinical managers are often responsible both for introducing new standards and maintaining existing standards through their work. At the same time standards perform tasks that can be perceived as managerial; standards can contain medical decisions and allocate types and amounts of resources to activities, spanning boundaries in time and space. Standards are coordination tools, but they cannot coordinate all tasks or activities, and in many patient processes only parts of the process can be coordinated through standards. When Glouberman and Mintzberg (2001) discussed coordination mechanisms in modern hospitals, they drew on the typologies presented above and noted that most organizations hold all types of coordination mechanisms. In hospitals, these authors claim, mutual adjustment, standardization of skills and knowledge and norms are the most prevailing forms of coordination mechanisms. Additionally, one of the major coordination challenges in hospitals is that any automatic form of coordination – personal or impersonal – may fail due to lack of adaptability in unpredictable situations; adaptability that rests on the articulation work or ad hoc coordination of clinical managers.

Research setting: The Danish Health Care Quality Program

In Denmark, hospitals are politically governed, tax financed and access is universal. Danish health policies revolve around demands for increased efficiency, focus on output results and more attention to competition and patient choice, and there is an increasing amount of political attention to management quality, standardization, and effective organizing of Danish public hospitals (Salomonson, 2004). Pathways for life threatening diseases, such as cancer, are imple-

mented, and quality standards are explicitly seen as a way to achieve better coherency, also across sectors (Ministry of Health and Prevention, 2009). In Denmark, as well as internationally, accreditation initiatives as the Danish HealthCare Quality Program are being implemented, despite the lack of consistent evidence supporting accreditation in health care (Greenfield & Braithwaite, 2008).

Aiming to achieve coherency and cooperation within and between health care institutions, the national accreditation program, The Danish HealthCare Quality Program¹, is a quality development and measurement model that has been under implementation in Danish hospitals since 2009 (Department of Quality Development and Accreditation, 2009). This Program aims to measure and control quality in all health care services nationwide, while attempting to promote quality development through benchmarking of performance on indicators². These indicators are drawn from the Danish National Indicator Project (NIP), which “measures the quality of care provided by the hospitals to groups of patients with specific medical conditions”³. The indicators are based on scientific literature to assure the strongest scientific evidence where possible⁴, in line with Evidence Based Medicine standards. Each diagnose within the National Indicator Project has a set of indicators; the majority of which are process indicators designating a standardized set of actions at specific times within the patient process. The task of implementing standards is primarily located at the clinical level, and the clinical manager is highlighted as the central figure in a successful implementation process (Department of Quality Development and Accreditation, 2009). The key role of clinical managers in the implementation process is recognized in the policies, both as promoters of a general “quality culture “, but also as central in the actual work with the standards (Board of Health, 2002; Department of Quality Development and Accreditation, 2009; Ministry of Health and Prevention, 2009). Potential effects of the Danish HealthCare Quality Program or the National Indicator Project will only be discussed in as much as they are *examples* of standards relevant in relation to the work of the clinical managers.

Method

This section deals with the method by which the topic of the paper was examined. The empirical material consists of qualitative data from eighteen interviews and nine weeks of observations of clinical managers in four different hospital units; five consultants⁵, four charge nurses and a leading physiotherapist. Clinical managers are in charge of the clinical staff of the unit, they are responsible for the quality of procedures and patient processes, and they are overall responsible for the daily work conducted in the unit. The total amount of observations of clinical managers was approximately 315 hours; all observations were made during regular work hours within a week’s work.

Units

Comparative analyses based on qualitative data can be useful, as they can provide empirically grounded contributions to theory and further more nuanced understandings of social phenomenon (Van de Ven, 2007; Yin, 2009). Moreover, as Eisenhardt and Graebner (2007) point to, comparisons explore the phenomenon consistently across multiple cases (contexts) and further more robust theoretical contributions, which are based on empirical data from a variation of settings. In this case the relationship between the two forms of coordination was compared across four hospital units; each unit representing a “*rich, real-world context in which the phenomenon occur*” (Eisenhardt & Graebner, 2007:25). The units were an orthopedic surgery unit with an outpatient clinic, a radiology unit, a stroke unit, and a pulmonary medicine unit with an outpatient clinic.

Table 1: The four units and their patients

Unit	Patients	Length of stay	Number of patients/day
Orthopedic surgery	Mostly planned hip and knee alloplastic surgery patients, fewer acute hip and hand trauma patients	3 to 5 days	Up to 42 patients
Radiology	All kinds of patients (broken finger to severe cancer)	15 – 45 minutes	280 – 340 patients
Stroke	Stroke patients (age 60+, multiple diagnoses)	1 – 4 weeks	Up to 18 patients
Pulmonary medicine	Respiratory diseases (COPD, lung cancer, pneumonia, severe asthma)	2 to 14 days	Up to 22 patients

Table 1 is based on data from observations, interviews and information leaflets.

The units were chosen to provide material on clinical managerial work related to treatment and care for the type of patients that currently represents a significant future challenge and take up a lot of resources in public hospitals: cancer, stroke, chronic obstructive pulmonary disease (COPD), and elderly patients with multiple diagnoses. The units were chosen, as they were expected to differ with regards to the degree in which work in the unit could be planned, as I expected this to represent a central feature of the conditions under which the clinical managers had to work. This important factor, *the level of unpredictability of work*, turned out to be more complex and significant than first assumed, as the analysis of the two types of coordination proceeded. Unpredictability did not only influence the clinical managers’ work regarding their ability to plan ahead, but also the fit between the work procedures and output of the unit and the national performance measurement standards.

Furthermore, the units were chosen to provide material on different types of work; elective surgical work, clinical service work, rehabilitation work, and work in outpatient clinics and in an internal medicine unit. Geographically the units were located in two different hospitals, on three different hospital grounds in Denmark. Politically, the units treat and care for high priority patients and more ordinary, less “politically” visible patients; both pathway- patients, patients with long and intense hospital stays and patients that only have a brief encounter with the hospital are being treated in these units.

Observations

The field studies were carried out between the fall of 2009 and the fall of 2011. The work function of clinical manager was the focus of the study, and the method chosen for gaining such data was a combination of *shadowing*, or following a selection of people in their everyday work for a period of time (Czarniawska, 2007; 2008), and semi structured interviews. This combination was chosen to provide data on the activities and practices of the participants, but also on how the clinical managers experienced their everyday work. The combination allowed for a comparison of data from observations and data from the interviews; a comparison which highlighted parts of work that were taken for granted or not experienced as being “real work”. One week of shadowing was conducted with each clinical manager; the shadowing followed a regular work week from Monday morning to Friday afternoon, depending on the clinical manager’s schedule. As part of the premise for gaining access, the researcher was in uniform all week, simply following the work day of the manager in question; while the participant was attending meetings, receiving patients, reading charts, having formal or informal talks with staff, but also during medical rounds, surgeries, aiding staff, “punching numbers” (watch schedule or pay), or mundane activities as answering phone calls or helping patients get dressed.

Interviews

Two interviews were conducted with each participant. The interviews were semi structured; the process was deliberately open, as to allow for topics and issues which arose through the observations. The questions were primarily descriptive (“could you tell me about your day? What do you do?”), and structural (what are the different kinds of other units you typically cooperate with? What are the stages in sorting and booking patients?) inspired by Spradley’s types of questions (Spradley, 1979). Each participant was asked to talk about their work and daily functions, and to explain how it was carried out in practice. They were invited to present their views on what was currently challenging in their work, and for the unit as organizational department. All interviews were transcribed.

Field notes

Field notes were taken throughout the observations, initially written down along the way and were subsequently transformed into computer documents for a systematic transformation of all hand written jottings into pieces of text (Emerson, Fretz & Shaw, 1995). During this process reflections on the day's content and initial thematic coding were carried out and written down in a different document.

Table 2: overview of data

	Observations	Interviews	Documents
Orthopedic surgery	Consultant: one week Charge nurse: one week	Consultant: two interviews Charge nurse: two interviews	Patient information leaflets, procedures for fast track hip and knee patients, NIP indicators for hip fracture patients
Radiology	Consultant: one week ⁶ Charge nurse: one week	Consultant: two interviews ⁷ Charge nurse: two interviews	National and local standards for procedures, Government Act nr 975, 16/12/1998 regulating radiology, cancer pathways
Stroke	Consultant: one week Charge nurse: one week Leading Physiotherapist: one week	Consultant: two interviews Charge nurse: two interviews Leading Physiotherapist: two interviews	Patient information leaflets, International standards for stroke (Cochrane Review), national guidelines for acute stroke treatment, NIP indicators, local standards for rehabilitation and care
Pulmonary medicine	Consultant: one week Charge nurse: one week	Consultant: two interviews Charge nurse: two interviews	Patient information leaflets, NIP indicators for lung cancer and Chronic Obstructive Pulmonary Disease (COPD)
In Total	9 weeks of observation	18 interviews	

Coding

Transcripts and field notes were coded by a bottom up procedure, producing increasingly specific codes through reading and re-reading of the material. Initial componential analysis of clinical managerial activities were made following Spradley, contrasting all activities related to coordination with all participants in order to get an overview over the activities performed by clinical managers and how these activities varied across the units (Spradley, 1980:133-139). These activities were then analyzed in relation to the two types of coordination; coordination through standards and coordination through clinical managerial work. Planned coordination through standards was not related to specific activities or participants as such; rather standards proved to be an issue the participants talked about or work in relation to, in order to make them work. The planned coordination took place *within* the standards (for instance through forms, schedules or IT systems), while the ad hoc coordination proved to take place in a variety of settings, both through formal activities and informal activities. However, the componential analysis made it clear that the relationship between the standards and the clinical managerial work was highly influenced by how well the standards “worked”. Activities related to standards were primarily performed when the clinical managers struggled to make them work in practice.

Ad hoc coordination performed through clinical managerial work was analyzed in relation types of unpredictability, and the division between activities related to administrative unpredictability and activities related to acute, medical unpredictability was made. On the basis of these initial divisions, a distinction between two types of ad hoc coordination activities was made: moving things around (staff, patients, and tasks) or making things happen (acute procedures or cooperation, and individual patient plans). Moving things around as a category for ad hoc coordination entailed the sub categories “staff”, “patients” and “tasks”. “Making things happen” entailed the following sub categories: “rare procedures” that were not yet coordinated by a standard, “acute traumas” which by their very nature are unpredictable, and “tailor-made patient processes” (related to treatment, discharge, and emotional support of patients or relatives). It additionally entailed the category “projects”, which the clinical managers needed to mobilize support and resources for various reasons.

The findings presented in the next section illustrate how the two types of ad hoc coordination appeared in the four contexts. All units face some level of unpredictability, but in the analysis of each unit we start out with the orthopedic surgery unit that primarily has planned procedures coordinated by standards for work process and output. Then we proceed to the radiology unit, which has an unpredictable patient flow, while being governed by standards for work process, the stroke unit who is governed by standards for work process and output, while experiencing unpredictability on several accounts. And lastly we look at the pulmonary medicine unit, who primarily relies on ad hoc coordination.

Findings

In the four units participating in the study a plethora of standards were present. International Evidence Based Medicine standards in the format for national pathways or treatment procedures coordinated clinical work in all four units (pain management, pathways for lung cancer, hip fractures, stroke treatment, rehabilitation and care, and specific timeframes for CT or MRI scans in a number of cancer diagnoses). National quality indicators, (standards for taking the temperature of food offered to patients, how and how often members of staff ought to wash their hands and mandatory contact cards for patients as a measure of quality of communication) were also present in all four units. Additionally, each unit had a set of written rules or local standards prescribing specific tasks; referral of patients to other hospitals, steps in a discharge procedure, administering IV contrast when performing a CT scan or informing patients prior to surgery. The different types of standards varied in the four units, depending on area of medical specialty, furthermore they differed in scope, specificity, and flexibility.

In the cases where standards worked in practice, they tended to fade into the background and did not represent much work to the clinical managers, as most registration and documentation was performed either by secretary staff or clinical staff. Furthermore, the findings showed that coordination through clinical managerial practice shared characteristics across the units. Some ad hoc coordination was closely linked to acute medical emergencies or procedures, while other ad hoc coordination activities were related to administrative issues such as adjusting the week schedule for clinical staff, when staff members call in sick or reallocating staff resources to accommodate patients with specific needs. Additionally, the findings seemed to support claims that ad hoc coordination practice is carried out through relationships (Gittel, 2002), which could potentially explain why working with local standards among colleagues presented less of a challenge. This is also in line with repeated claims from studies of managerial work that managers intentionally seek out face to face, social interaction as preferred mode of working (Braithwaite, 2004; Mintzberg, 2011).

Coordination mechanisms in the four units

Several kinds of unpredictability seemed to influence the work conducted in the four units and the ad hoc coordination conducted by clinical managers; number of patients, type of patients, number of procedures, types of procedures and outcomes. Variation in the *type* and *amount* of standards influenced the practice of ad hoc coordination through clinical managerial work, and this depended on the level of unpredictability of work, which influenced how well the standards worked in practice. In the standardized, yet highly unpredictable units, such as the stroke unit, standards played a prominent role in the activities of clinical managers, often as a problem that had to be solved. Many of the standards were either national or regional mandatory standards, applying to more than one set-

ting and the clinical managers were obliged to make the standards work. When the fit between standards and practice was problematic, practice had to change to comply with standards. When both work process and work output was standardized *and* unpredictability was high, as in the stroke unit, clinical managers had much ad hoc coordination work in order to make the standards work in practice.

Orthopedic surgery: Standards for work and output

In the orthopedic surgery unit, which had a high degree of elective surgery, the majority of work was coordinated through planned coordination. Standardized programs for the elective patients and acute hip fracture patients were implemented and functioned as infrastructure or templates of work. In this unit standardization of both work process and output faded into the background, as it supported work through a good “fit”. Here the fast track programs and clinical pathways standardized the process of work, while the performance measurement standards (the NIP indicators) regulated work output, and due to the low levels of unpredictability, these standards did not require much effort and work on behalf of the clinical managers, which made allocation of resources to the problematic, acute patient processes possible. The acute patient processes made up a small part of the work in this unit: “Approximately 85 % of our patient processes are standard elective surgery procedures and that is not where we should be using all our resources. In those cases, we should be using the resources that are needed to provide a good patient process for them. But it is important that we move some of our resources on to the remaining patient processes, because these are the problematic procedures” (Consultant, orthopedic surgery). However, even though the standards supported the work and were suited to the relatively predictable setting, the clinical nurse manager coordinated the cooperation between her unit and the other units: “I think I spend about an hour every morning ... giving information to the other units, and getting it back to our unit, so we can say: Let’s go to work! It is about the program, both the program for the elective patients and the acute patients; the problems, issues, bit of information and the prioritization of patients” (Charge nurse, orthopedic surgery). This administrative, informal ad hoc coordination was a central part of making the standards work in practice, and the nurse manager did this on a daily basis, although it was not scheduled or arranged.

Radiology: Standards for work processes and high levels of unpredictability

In the radiology unit all imaging procedures were coordinated through planned coordination. The number and types of patients and the number of procedures were unpredictable, as two thirds of their work was a complex mix of highly standardized work procedures and unpredictable patient flows: “If you look at our production from for instance a Tuesday to a Wednesday, then you will see that approximately two thirds of what we do on Wednesday is not planned on Tuesday” (Consultant, radiology). This mixture was challenging; both in planned and ad hoc staffing issues: “Sometimes when I look in our system in the morning

maybe 80 examinations are booked. And when I go home, maybe 340 examinations have been made, so you never know what will arrive during the day. This makes it difficult to plan how many members of staff I should call in to work”, (Charge nurse, radiology). Furthermore, as radiology is a clinical service unit, many emergency procedures occur and need to be handled immediately, as when patients arrive in the emergency department and need trauma imaging or when already admitted patients suddenly worsen. In these incidents, the clinical managers from radiology have to perform on the spot ad hoc coordination; reallocate staff or waiting patients in order to free the relevant radiologist resources, so the most urgent patient can receive specialized imaging as fast as possible.

Stroke: Standards for work and output and high levels of unpredictability

In the stroke unit treatment, rehabilitation and care for patients was coordinated through Evidence Based Medicine standards that entail specific plans with timeframes, based on international recommendations (Collaboration, 2007). The standardized stroke treatment and care was measured on performance in indicators from the National Indicator Project (NIP), a part of the Danish HealthCare Quality Program. Generally the indicators were accepted as clinically sound: ”NIP is a kind of quality standard. They have taken a lot of indicators that are evidence based... and for stroke patients these are the things that are parts of an optimal patient process; that they are CT scanned as fast as possible, that they are transferred into a specialized stroke unit for rehabilitation and so forth” (Leading Physiotherapist, Stroke). But at the same time the everyday practice was highly unpredictable. Successful patient processes depended on a number of factors: the individual patient and his/her goal for rehabilitation, the damages sustained from the stroke, and the cooperation between relatives, municipality rehabilitation workers, speech therapists, physiotherapists, radiologists, physicians and nurses. To meet the indicators, clinical managers in the stroke unit experienced that they had to coordinate the cooperation within the hospital and externally across sectors, while coping with high levels of unpredictability, especially regarding number of patients, procedures and outcome. The mere presence of the standards was not enough; administrative ad hoc coordination work was needed to make the standards work in practice. When this was not achieved, the clinical managers were frustrated and received negative attention from higher levels of the management hierarchy: “They are admitted to the medical reception unit or they have their stroke while being in another unit, and then, according to NIP, you have to make sure that they are transferred to our unit the next day, at the latest. But this is not always practically possible and then we score badly on the NIP indicators and a lot of time is spent discussing this instead of looking at what is best for the patients” (Consultant, Stroke). The clinical managers had to perform ad hoc coordination within the stroke unit (among staff and relatives), within the hospital (to units like emergency and radiology), and across sectors (to municipality workers and home care centers) to make the work practice of the unit fit the requirements inherent in the standards. Moreover, when unex-

pected situations arose and made compliance with standards difficult, they experienced that they were held responsible for the “bad NIP scores”, which could be highly frustrating.

pulmonary medicine: Few standards and high levels of unpredictability

In the pulmonary medicine unit, both the individual process of treatment and care in each case and the flow of patients were characterized by high degrees of unpredictability: “Our unit may not be an emergency department, but there is a lot that cannot be planned. You can’t plan things you can’t predict. For instance: if a patient, who was to be discharged, gets worse, then she is not discharged after all” (Charge nurse, pulmonary medicine). Cancellation of discharge meant that a bed did not become “free” as expected, and that ad hoc coordination was needed in order to find a solution to this sudden shortage of beds. In this unit the majority of coordination was conducted by ad hoc coordination: “We cooperate with other units in the medical ward, if they have lung patients or cancer patients that we need to move to our unit. And we cooperate with radiology, the hospital’s ear-nose and throat doctors, with the clinical service wards and physiotherapy” (Charge nurse, pulmonary medicine). The level of planned coordination was low; planned coordination through standards mostly regarded national administrative standards, pathways or performance indicators for cancer patients, a minority of patients. Work was primarily coordinated through the ad hoc coordination practice performed by the clinical managers in the various situations, which arose during the day.

Two types of ad hoc coordination in clinical managerial work

The practices of coordination in clinical managerial work seem to fall into two categories across all units, potentially representing an important component of clinical managerial work on a larger scale. Upon analyzing the empirical material two general categories were detected: when engaging in ad hoc, primarily personal and informal activities resembling those called ad hoc coordination or articulation work, the clinical managers in this study were either *moving things around* (administrative coordination) or *making things happen* (acute coordination).

Moving things around primarily regarded administrative issues and seemed to be an essential part of clinical managerial work in all four units. It involved moving patients from one unit to another, from one bed or room to another or from one designated time slot to another. It also included ad hoc moving of staff from one watch to another, from one working station to another or from one team to another. Finally it included moving tasks from one member of staff or team to another, and moving tasks from the responsibility of one’s own unit to other actors either within or outside the hospital. In moving things around, these categories described “pieces” of the larger puzzle that was moved around for three main reasons; 1) to make the best of staff resources, 2) to optimize the placement of patients, and 3) to maintain the work flow of the unit which was

threatened either due to illness, cancellations of patient appointments or unexpected delays in work.

Table 3: two types of ad hoc coordination activities

	Orthopedic surgery	Radiology	Stroke	Pulmonary medicine
Moving things around	1: Staff in watch schedules 2: tasks 3: patients in beds	1: Staff in watch schedules, 2: tasks 3: patients in time slots	1: Staff in watch schedules 2: patients in beds 3: tasks	1: Patients in beds 2: staff in rooms 3: staff in watch schedules 4: tasks
Making things happen	Cooperation between units and between staff	Acute procedures	Acute procedures, cooperation between staff/sectors	Acute procedures

Table 3: The categories in this table are based on data from interviews and observations with clinical managers. They represent a basis division of the ad hoc coordination in clinical managerial work. They do not represent a full account of the work conducted in the unit.

Making things happen seemed to vary: either these activities were primarily concerned with acute procedures or with administrative issues. In the radiology unit and pulmonary medicine unit ad hoc coordination, as making things happen, was primarily concerned with acute procedures, perhaps an aspect of the high level of acute patients referred here. In orthopedic surgery and stroke, making things happen primarily revolved around the organization and coordination between individual or organizational actors involved in the patient processes. As work output in both these units was subject to standardization, the clinical managers seemed to spend a considerable amount of time and energy making the standards work in practice. In doing so, they were integrating or assembling the different parts of the patient process, getting it “back on track” and aligned with the standard when contingencies occurred; they were practicing articulation work (Gerson & Star, 1986; Star & Strauss, 1999).

“Making things happen” resembles what Van de Ven and Walker call “mobilization coordination” (Van de Ven & Walker, 1984), or assembling the resources and ad hoc relationships between members of staff needed to perform at specific task, often but not always acute or patient related in nature. Within the context studied “mobilization coordination” or “making things happen” involved reacting to acute demands from patients, members of staff, cooperating units, clinical manager colleagues or higher levels of the management hierarchy. However, it also involved consistently showing up five minutes early for the cross

disciplinary morning meetings to symbolically demonstrate the level of priority these meetings held with the clinical managers, as a deliberate way of trying to make them a success.

Discussion and conclusion

The aim of this paper was to explore the relationship between planned coordination and ad hoc coordination practices in different hospital units. The two types of coordination were not, as suggested by some of the literature, present in different settings, rather they were both used as coordination mechanisms regardless of setting, but to varying degrees. When standards were used to coordinate work in unpredictable settings, clinical managers had to practice ad hoc coordination extensively to make them work. The mandatory aspect of some of the standards resulted in units with high unpredictability in considerably more efforts on behalf of the clinical managers in order to comply with standards. The low level of unpredictability and acute ad hoc coordination in orthopedic surgery and the high level of unpredictability along with low levels of planned coordination in pulmonary medicine is much in line with the contributions from theory. More interestingly, radiology and stroke were both characterized by high levels of standardization and high levels of unpredictability on several features at the same time, which seemed to require high levels of ad hoc coordination from the clinical managers. In radiology and stroke clinical managers were often occupied with coordinating and reorganizing clinical work in order to meet the standards and to make them work in practice. Standardization of work process was high in both units, but only in the stroke unit was the result or output of work also subject to standardization. Often, standards in these units did not slide into the background or work unnoticed as templates for clinical practice, rather they represented a challenging and time consuming task. Furthermore, this challenge was amplified by the unpredictability of the nature of work performed in the unit. In case of ad hoc coordination activities related to acute, medical emergencies *priority* of tasks was not an issue; these situations had to be resolved at the spot, thus demanding the clinical managers' attention and leaving less work time to other activities, such as administrative ad hoc coordination activities, both planned and acute.

The paper contributed with further knowledge of how the relationship between planned coordination and ad hoc coordination unfolds in the contexts studied here. More specifically the results suggest that in settings such as these, planned coordination, including clinical standards, requires ad hoc coordination to work as coordination tool, and that the fit between planned coordination and local context seems to significantly influence the amount of ad hoc coordination required. The findings support the theoretical claims that high levels of unpredictability call for more ad hoc coordination, while simultaneously presenting unfavorable conditions for coordination through standards. These conditions may result in the need for *more* coordination through clinical managerial work, if standards are implemented regardless of the unsuited setting; both the unpredictable work and the standards required the clinical managers' attention and work

effort in such cases. Furthermore, the paper contributed to our knowledge of clinical managerial work with empirically grounded analyses, demonstrating how an important part of clinical managerial work consist of performing real time, ad hoc coordination or articulation work. In the contexts studied here, this part of clinical managerial work was performed *locally* to make standards work *nationally*, and even though this kind of work was not inherent in the standards, it was essential to how well the standards could function in practice. Thus, the relationship between clinical managerial work and standards in these units pointed to the unexpected consequence that standards implemented to promote equally high quality in all hospital units drew unequally on the clinical managerial resources, leaving units with high levels of unpredictability of work in more challenging situations.

This paper can only provide a closer look at the relationship between clinical managerial work and standards in a small number of hospital units. The findings are limited by the small number of participants, but they can indicate tendencies regarding the relationship between standardization and clinical managerial work, tendencies which must be investigated through further studies if any generally applicable statements can be made. Furthermore, the findings are based on observations and interviews, which are taken from specific contexts. The aspects of standards and clinical managerial work brought forth here may have been investigated before, but the dynamic relationship between them is not yet fully understood. Moreover, the findings presented in this paper point to characteristics of clinical managerial work (ad hoc coordination practices), which are potentially a part of the general practice of managerial work in hospital units, but as research into this field is still scarce, additional studies should be made before drawing general conclusions. Such studies could investigate ad hoc coordination practices in managerial work in alternate settings, to explore whether these practices are parts of managerial work in general. Lastly, the relationship between clinical managerial work and standards is only investigated in four types of units; this relationship may potentially unfold differently in other types of units or in other national settings, with different political structures or standardization policies.

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Notes

¹ <http://www.ikas.dk/English.aspx>

² <http://www.ikas.dk/English.aspx>

³ <http://www.nip.dk/about+the+danish+national+indicator+project/introduction>

⁴ <http://www.nip.dk/about+the+danish+national+indicator+project/methods>

⁵ The term *consultant* is the English term for the Danish word *overlæge*. Employment as a consultant in a Danish hospital includes a formal managerial position by Settlement between the Danish Regions and the Medical Association. The translation can be seen at the Danish Medical Association homepage:

http://www.laeger.dk/portal/page/portal/LAEGERDK/Laegerdk/ServiceMenu/ENGLISH/TITLES_IN_ENGLISH/TITLES

⁶ The function as clinical manager in radiology was formally shared; thus I followed and interviewed two consultants from radiology in one week, in which they shared the managerial responsibility (one consultant had Monday, Thursday and Friday, the other had Tuesday and Wednesday).

⁷ See note 6