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# Formal meetings as support for cross-boundary coordination in hospitals

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**Purpose:** This research article aims to understand how frontline meetings in hospitals are used for coordination of daily operations across organizational and occupational boundaries.

**Design/methodology/approach:** An in-depth multiple-case study was conducted of four purposefully selected departments from four different hospitals. The selected cases had actively developed and embedded scheduled meetings as structural means to achieve coordination of daily operations.

**Findings:** Health care professionals and managers, in addition to their traditional mono professional meetings (e.g., doctors or nurses), develop additional operational, daily meetings such as work shift meetings, huddles and hand-off meetings to solve concrete care tasks. These common but under-recognized types of meetings are typically short, task focused, led by a chair and often inter-disciplinary. The meetings secure a personal proximity, which the increased dependency on hospital-wide IT solutions cannot. During meetings, objects and representations (e.g., monitors, whiteboards or paper cards) create a needed gathering point to span across occupational and temporal boundaries. In regard to embedding meetings, local engagement helps contextualizing meetings and solving concrete care tasks, thereby making health care professionals more likely to value these daily meeting spaces.

**Practical implications:** This research article shows the importance of daily, operational hospital meetings for frontline coordination. Health care professionals and managers can use formal meeting spaces aided by objects and representations to support solving daily and interdependent health care tasks.

**Originality/value:** The function of particular meetings that are both routine and situational, in the complex, specialized system of the hospital, has received little research attention. Despite the popularity of IT interventions, the short, huddle meetings described here provide the spontaneity and collective responsiveness required of complex health organizations in ways that IT interventions currently do not offer. Implementation requires local engagement and contextualization.

**Article classification:** Research paper

**Keywords:** Meetings; Objects; Coordination; Collaboration; Implementation; Hospitals.

# **Formal meetings as support for cross-boundary coordination in hospitals**

## **INTRODUCTION**

For hospitals to deliver efficient and safe health care, health care professionals and managers must manage complex work tasks, characterized by nonlinear interdependencies (Plsek & Greenhalgh, 2001); and different degrees of patient input uncertainty (Argote, 1982; Gittell, 2002) and process uncertainty (Lillrank & Liukko, 2004). Moreover, hospital complexity is exacerbated by the need to balance care personalization and standardization (Exworthy & Mannion, 2017) with the increasing number of older, chronically-ill and multi-morbidity patients (Barnett et al., 2012). The increasing complexity of hospitals requires ever stronger coordination across departmental and occupational silos (McIntosh et al., 2014; McDonald et al., 2007) to achieve high reliability (Baker et al., 2006; Chassin & Loeb, 2013).

Yet, weak or absent frontline coordination remains a major pitfall in hospitals (Mintzberg & Glouberman, 2001; Ramanujam & Rousseau, 2006) that impedes the delivery of safe and efficient health care (Hofmarcher et al., 2007; Institute of Medicine, 2013). Coordination is hampered by departmental and occupational silos (Powell & Davies, 2012; Garman et al., 2006; Mintzberg & Glouberman, 2001), team temporality (Andreatta, 2010), intergroup conflict (Hewett et al., 2009), role (mis)perceptions (Fried & Leatt, 1986), professional identity threat (Mitchell et al., 2011), and conflicting professional logics (Scott et al., 2000; Batista et al., 2016). These factors in turn incentivize personnel in organizations – contrary to the growing need for coordination – to focus on partitioning work tasks rather than on how to coordinate work across boundaries, and drive a focus on single components than on all the tightly interrelated set of capabilities required to solve a particular task (Heath & Staudenmayer, 2000). Furthermore, contemporary hospitals implement IT-based solutions (e.g., electronic patient records) to support the coordination needs, but typically with little

consideration of the possible 'side-effect' that IT simultaneously changes the enactment of frontline proximity and interactions (Broome & Adams, 2005). Thus, in spite of the increased use of IT tools, identifying ways to strengthen boundary spanning coordination at the frontline remains a central challenge in the health care literature (Bohmer, 2010; Gittel et al., 2008; Chesluk et al., 2015; Mintzberg & Glouberman, 2001).

A recent point of research interest has been the study of scheduled meetings because studies show that meetings foster (relational) coordination (Gittel, 2002; Goldenhar et al., 2013) and increase efficiency and patient safety (Provost et al., 2015; Rodriguez et al., 2015; Azoulay et al., 2009; von Thiele Schwarz et al., 2017). Conceptually, scheduled meetings represent an instance of the type of coordination mechanism that Okhuysen & Bechky (2009) name 'proximity'. Meetings focused especially on daily operations, appear particularly promising for improving coordination. Using short meetings in the form of huddles, for example, creates time and space for task-related conversations (Provost et al, 2015). To provide additional analytical direction to the study of meetings and coordination, we add the layer of the coordination mechanism named 'objects and representations' (Okhuysen & Bechky, 2009; Akkerman & Bakker, 2011) to meetings because '[w]e often ignore the active nature of how we use information artifacts' (Xiao et al., 2007 p.393), despite their potentials and function in practice. For example, a patient protocol helps health care professionals develop 'a common mental model of patient condition and treatment options' (Faraj & Xiao, 2006, p. 116) that foster the common understanding needed to coordinate actions (Okhuysen & Bechky, 2009). Implementing and having meetings, however, is not straightforward because health care professions tend to work in parallel with limited information-sharing and with collaborative teamwork often a form of impression management, rather than deep inter-professional engagement (Lewin & Reeves, 2011). Staff may also react negatively if meetings do not fit the local context or they experience meetings as being ineffective 'bureaucratic'

processes (Prætorius et al., 2018) – that infringe on their clinical autonomy and patient care time: two key features of the hospital as a professional organization (Mintzberg, 1989). Given these gaps and challenges, we aim to expand the present knowledge of hospital meetings to strengthen the possibilities for using meetings to the benefit of patients and efficiency.

Through an in-depth qualitative multiple-case study of four Danish university hospital departments, we contribute to the literature on meetings by showing the function of *operational, daily meetings* such as work shift meetings, huddles and hand-off meetings that health care professionals and managers engage in, in addition to their traditional mono professional meetings (e.g., only doctors or nurses). These types of meetings are typically short, task or topic focused, led by a chair and often inter-disciplinary and in some cases across organizational units. The meetings are usually carried out using and around objects and representations, which play a key role in securing the gathering point.

We furthermore find that these meetings are rarely initiated by top-management. On the contrary, it is the local engagement that secures a close tailoring to the local context that makes the meetings function in daily clinical practice. When context is effectively engaged by stakeholders from various occupations, helping those involved to solve concrete care tasks, we find that health care professionals do value such additional interdisciplinary and boundary-spanning meetings. It is thus possible for local units to design new types of meetings which help remedy coordination challenges, even though the effects of such meetings need further exploration. At a time where hospitals implement organization-wide IT systems such as Enterprise Resource Planning or Electronic Patient Records on the premise that it makes coordination more efficient, our study encourages hospitals to carefully consider when it is more appropriate to supplement IT interventions with “real-life” or “face-to-face” meetings because the proximity they create, develops coordination through accountability, predictability and common understanding (cf. Okhuysen and Bechky, 2009). We find that

such meetings facilitate real-time coordination in the multi-factorial and constantly changing hospital system in ways that IT cannot: at least not today where, where the envisioned potential of virtual or mixed reality has not yet been reached.

The article is structured as follows. We, first, combine the theoretical backdrop of coordination, scheduled meetings and objects and representations, second, describe the case study approach used, third, present the outcome of our within and cross case analysis, and fourth, discuss the theoretical and practical implications of our research findings.

## THEORY

### *Coordination*

The integration of work effort and actions within and across occupational and organizational units in hospitals requires the resolution of cooperation (alignment of motivations) and coordination (alignment of actions) problems (Gittel, 2002; Mintzberg & Glouberman, 2001): two concepts contained in the umbrella term of collaboration (Gulati et al., 2005). For the purpose of this article, we are concerned with how collective work is accomplished within organizations, that is, coordination (Okhuysen & Bechky 2009). Ensuring coordination is crucial when actions are pooled, sequential or interdependent (Thompson, 1967) as is the case in health care work where actions by multiple health care professionals are needed to deliver health care (Young et al., 1997; Ramanujam & Rousseau, 2006). It has long been established that higher degrees of interdependence require more powerful coordination mechanisms (Thompson, 1967; Argote, 1982) such as the mutual adjustment (Mintzberg, 1980) and proximity (Okhuysen & Bechky, 2009) that scheduled meetings appear to offer (Van de Ven et al., 1976).

### *Meetings and coordination*

Meetings mirror interdependent process management mechanisms (Adler et al., 2003), which are structural means to achieve institutionalized dialogue (Adler & Heckscher, 2013). Even though meetings are widely used throughout organizations, and managers and staff spend a considerable part of their work time attending meetings (Allen et al., 2014; Allen et al., 2016; Scott et al., 2012), understanding of the organizational function of meetings in general (Allen, Lehmann-Willenbrock, et al., 2015; Scott et al., 2012) and within health care in specific is limited (Gittell, 2002; Goldenhar et al. 2013; Lewin & Reeves, 2011). The limited study of meetings in health care is surprising since this widespread organizational activity (Cross et al., 2016) addresses topics of key relevance to health care delivery as detailed in the following.

Meetings can integrate work efforts because they offer work-related interactions between people along a work process by providing a purpose and an integrating structure. Within hospitals, team meetings act as an integrating condition for health care professionals to deliver health care more efficiently (Gittell, 2002). Communication in meetings is horizontal (Simpson, 1959), yet often dominated by higher-status individuals (Fiorelli, 1988), and carry high information-processing capability (Galbraith, 1974; Nadler & Tushman, 1997). Meetings refer to what Okhuysen & Bechky (2009) conceptualize as proximity, which helps to develop familiarity (through anticipating, responding and developing trust) and visibility (through monitoring and updating) that creates the accountability, predictability and common understanding required to achieve coordination. Proximity also influences the flow of information and knowledge (Allen, 1977).

Organizations use meetings for either decision-making (an instrumental and explicit view) or maintaining organizational cohesion (a social, symbolic and implicit view) (Peck et al., 2004). The view that meetings are for decision-making draws attention to information-sharing, brainstorming, problem-solving, and making decisions that can facilitate



organizational functioning long after the meeting ends (Allen et al., 2016; Allen et al., 2014).

From an organizational cohesion perspective, meetings:

‘play a large role in employee socialization, relationship building and shaping of the culture. ... (They) reinforce formal and informal reporting structures, and provide clues about organizational values and how power is distributed’ (Rogelberg et al., 2007, p.18).

Especially in hospitals, studies of huddles mirror this decision-making view (Goldenhar et al., 2013; Provost et al., 2015; Rodriguez et al., 2015) which Provost et al (2015) define as focused gatherings of functional groups. Goldenhar et al. (2013) suggest that four mechanisms make huddles work: information sharing, accountability, empowerment and sense of community.

When meetings run “smoothly”, that is, according to their planned agendas, they can lead to higher team productivity (Kauffeld & Lehmann-Willenbrock, 2012) and employee satisfaction (Rogelberg et al., 2010). Having regular hospital meetings can also decrease perceived role conflicts (Azoulay et al., 2009). Formal meeting spaces (such as meetings held in private conference rooms) can also create the relational space needed to make changes in hospitals (Kellogg, 2009). Employees, unfortunately, consider around half of meetings to be inappropriately scheduled, poorly run or excessive in number (Perlow et al., 2017). Bringing people together in a meeting also means that they cannot do other, perhaps more productive activities, thereby incurring efficiency costs (Cross et al., 2016). Meeting lateness (Allen et al., 2018) and inappropriate meeting behaviors such as diverting from the planned topic or criticizing others (Lehmann-Willenbrock et al., 2016; Allen, Yoerger, et al., 2015) can make it more difficult to have efficient and effective meetings.

Hierarchical differences between professions decrease psychological safety and makes collaboration difficult (Edmondson et al., 2001; Edmondson, 2004): something that is at stake when higher status individuals attend meetings. In such circumstances, employees can engage in more surface acting and regulate their emotions, which in turn decreases meeting psychological safety and meeting effectiveness (Shumski Thomas et al., 2018). In hospitals, doctors tend to exert their power and limit shared decision-making (Fiorelli, 1988; Nugus et al., 2010), and health care professionals tend to maintain their professional boundaries, paying lip-service to without authentic engagement in inter-role understanding (Lewin & Reeves, 2011). Studies also find that “lean” activities such as kaizen (improvement activities) in hospitals (Radnor et al., 2012; McCann et al., 2015) can lead to tensions between clinicians and service leaders (Waring & Bishop, 2010) whereas others find that kaizen meetings predict increased job satisfaction and decreased interprofessional and interpersonal discomfort (von Thiele Schwarz et al., 2017).

Even in the face of such drawbacks and challenges, organizations use meetings extensively and hospitals are no exceptions. It is therefore particularly important to understand how meetings can be implemented and used in such a way that the traditional occupational and organizational silos are simultaneously upheld and broken down. Foundational to this ambition is the observation that meetings act not only as a mechanism to coordinate efforts at the middle- and top-management level in hospitals (Laapotti & Mikkola, 2016; Kochan et al., 2008; Peck et al., 2004), but that meetings also represent means to create proximity and institutionalized dialogue at the frontline of care delivery across occupational and organisational silos (Adler & Heckscher, 2013).

### *Objects, representation and coordination in an IT-mediated work environment*

To successfully coordinate interdependent practices and work processes, Star (1989; Star & Griesemer, 1989) coined the concept of a 'boundary object', an artifact, that 'both inhabit[s] several intersecting worlds and satisfy[ies] the informational requirements of each of them. . . . [They are] both plastic enough to adapt to local needs and the constraints of the several parties employing them, yet robust enough to maintain a common identity across sites' (Star & Griesemer, 1989, p. 393). Examples of boundary objects used in hospitals to provide health care include (electronic) patient records or Visual Management (Williamsson et al., 2019) in the form of whiteboards, schedules, and displays, and the like (Holden & Hackbart, 2012; Xiao et al., 2007).

At first glance, objects such as paper forms, printouts, and whiteboards appear mundane. Yet, these information-rich artifacts often directly impact on communication and workflow (Xiao et al., 2007). In other words objects have coordination potential. The fundamental coordination potential of objects is rendered possible because they develop a communicative connection (instrumental potential), translate between different thought worlds (translational potential), span across different roles, practices, time and space (boundary permeability potential), and become part of automatized or operational, yet malleable, practice (routinization potential) (Akkerman & Bakker, 2011). The concept of a boundary object also underlies the coordination mechanism that Okhuysen & Bechky (2009), in their integrative framework of coordination, are characterized by 'objects' and 'representations'. According to this framework, objects and representations achieve coordination through aligning work, creating a common perspective, and sharing information directly. Despite the potential and functions of objects and representations, Xiao et al. (2007) highlight that the way information artifacts are actually used within daily organizational-life tend to be overlooked.

Hospitals implement IT-based solutions, such as enterprise resource planning, electronic patient records or monitors partly based on the premise that technology-driven interactions make coordination more efficient and reduce the need for face-to-face interactions. Yet, little consideration is given to the likely 'side-effect' that an IT intervention simultaneously changes the enactment of proximity at the frontline (Broome & Adams, 2005). For example, replacing traditional whiteboards with electronic tracking systems risks weakening communication if the specific way traditional whiteboards support collaborative work is not fully understood (Xiao et al., 2007). Very little research has focused in detail on the processes and functions of engagement by personnel in health organizational meetings, especially in regard to much-vaunted IT solutions, which are meant to render communication more efficient and effective. Such research is important, especially in hospitals, because hospitals are complex systems which produce effects that are not attributable to single causes, and that increasingly specialized health care personnel are required to combine both different perspectives, and in real-time. Therefore, the aim of this study was to understand the function of frontline meetings in hospitals in terms of coordination of daily operations. We address three research questions: (1) what role do meetings play at the frontline to coordinate across organizational and occupational boundaries? (2) how are these meetings used including the role of objects and representations? and (3) how are they embedded locally?

## **METHODS**

### *Research design and case selection*

We conducted an in-depth, qualitative multiple case study of four Danish hospital departments facing medium or fast response task environments (Faraj & Xiao, 2006) (cf. Table 1): a Children's Emergency Department (CED), a Maternity Admission Unit (MAU), an Intensive Care Unit (ICU), and a Trauma Bed Unit (TBU). The identification of relevant

cases was made possible through an agreement with the Capital Region in Denmark — the public owner of hospitals in the greater Copenhagen area — who provided access to four large university hospitals in which we interviewed key staff (7 persons in total) working with quality, HR or occupational health and safety. We selected cases that had actively developed and embedded scheduled meetings as structural arrangements to learn how they contributed to achieve coordination. Little teamwork, inefficient work routines and low-to-medium staff well-being scores, for instance, were in all selected cases the point of departure for the local management to initiate organisational changes including new meetings. Emphasis was placed on maximizing the diversity of cases involved in the study whilst maintaining a degree of comparability to ensure the robustness of insights developed and to strengthen external validity (Yin, 2009).

#### *Data and data analysis*

We conducted qualitative interviews and observations and collected archival data (Table 1). In the data collection we gave priority to coordination across the sequence of the daily operation both in the interviews and the observations, thereby seeking to understand the role of meetings for sequencing of activities during the whole day. Our study of meetings was part of a larger research project (Prætorius et al., 2018) where the fieldwork and semi-structured interview guide focused on eliciting the mechanisms departments use to ensure efficient coordination of actions. To study this and provide analytical direction in the larger research project, we based the interview and observation guides on Okhuysen & Bechky's (2009) integrated perspective on five types of coordination mechanisms (plans and rules, roles, routines, artefacts, and proximity). The findings reported in this article concern the proximity dimension where the focus is on people's physical proximity to one another in the form of meetings.

**Table 1: Overview of cases and data collection**

	Trauma Bed Unit (case 1)	Intensive Care Unit (case 2)	Maternity Admission Unit (case 3)	Children's Emergency Department (case 4)
Hospital and department affiliation	Department of Orthopaedics, Hospital C	Department of Anaesthesiology, Hospital B	Department of Gynaecology and Obstetrics, Hospital A	Department of Paediatrics, Hospital A
Task characteristics	Slow-to- medium: mostly certain conditions and slow decision-making	Medium-to-fast: Some uncertainty and decision making pressure	Fast-to-medium: Some uncertainty and fast decision-making	Fast: Uncertain conditions; fast decision-making
Health professionals involved in a typical day shift	5 doctors (senior consultant/ staff specialist) 8 nurses 2 nurse assistants 1 nursing head of unit	10 nurses 1 coordinator (nurse) 4 staff specialists/junior doctors 2 senior consultants 1 secretary	3 midwives, including 1 coordinator 1-2 doctors (senior consultant/staff specialist) 1 midwife assistant 1 secretary	4 nurses 1 coordinator (nurse) 2-3 staff specialists/junior doctors 1 senior consultant 1 secretary
Interviewees (times person were interviewed)	Staff specialist (2); Nursing head of unit (2)	Clinical director (1); Nursing head of dept. (1); Consultant (1); Nursing head of unit (1). From the Pulmonary Department: Clinical director (1); Nursing head of dept. (1); Senior consultant (1).	Head midwife of dept. (1); Midwife, project manager (3); Consultant (1); Deputy head midwife (1); Midwife (1).	Clinical director (1); Nursing head of dept. (1); Head nurse (1).
Observations (incl. ad hoc staff interviews)	Two observations of pre-rounding meetings.	Observation of meetings and huddles held throughout one day.	One-day observation of teamwork focusing on huddles and the coordinator room.	One-day observation of meetings/ huddles held throughout a day.
Archival data	Guidelines; photographs; and background documents.	Guidelines; photographs; and background documents.	Guidelines; photographs; and background documents.	Guidelines; photographs; and background documents.

With participants' permission, we completed, recorded and transcribed (verbatim) 21 semi-structured interviews (20-90 minutes) with health professionals with the intention of eliciting respondents' descriptions of the use of meetings (the organizational phenomenon) to analyse their meaning (Brinkmann & Kvale, 2015). The number of respondents we interviewed aligned with the range that is common practice in organization and workplace research (Saunders & Townsend, 2016). Representatives of different hospital roles and professions were selected for invitation to participate in the interviews (typically managers, doctors, nurses and midwives), thereby considering different perspectives and hierarchical relationships. Such diversity also allowed us to take into account interdependent relationships because they are important for investigating how meetings are used and take place. For that reason we also used snowball sampling, when appropriate to, interview relevant respondents outside the focal cases, such as with the pulmonary department in case 2 (the Intensive Care Unit).

We supplemented interviews with non-participant observations aimed at understanding the types of scheduled meetings that took place in the case departments, and understanding the connection between meetings and collaborative activity throughout the day in relation to solving health care tasks. Given this aim, we did not engage in the finer-grained internal meeting dynamics such as power relations or interaction patterns (Fiorelli, 1988; Nugus et al., 2010) – e.g., who talks when, to whom, about what and for how long – that a practice based study enables (e.g., Nicolini, 2012). During one-day observations in all but one case department (where we participated in specific scheduled meetings), we observed meeting activities such as morning meetings, planning and board meetings and bed-rounds, and shadowed staff during. During such shadowing sessions we asked health professionals follow-up questions to gain additional insights about the organizational phenomenon of meetings. We noted our observations in field notes during or after observations. After completing

interviews and observations, we asked for copies of documents or took pictures of material mentioned or used by health care professionals for coordination purposes during meetings (e.g., fixed meeting agendas, guidelines or whiteboard content). We used the observations and archival data to triangulate with the interview data from different respondents, because their espoused theory may differ from theory-in-use (Argyris, 1976), and agency may make actual performance different from their ostensive understanding (e.g., Feldman, 2000) of the meeting routine.

We analysed data using NVivo by initially coding openly to take full advantage of the rich data before we, secondly, focused and categorized open codes into analytical categories. Next, we constructed displays to analyse data from each case to draw conclusions within- and across-cases (Miles & Huberman, 1994). Copies of the interview guide and analytical codes are available from the corresponding author. In the data analysis process, we supplemented our analysis of interview transcripts with observations and documents to better understand how meetings were used and embedded in practice to achieve coordination.

## FINDINGS

To create space and time to coordinate care across occupational and departmental boundaries, local management and staff, in addition to their traditional mono professional meetings (e.g., only doctors or nurses), develop and use additional *operational, daily meetings* such as work shift meetings and huddles (see Table 2). The following elaborates on how these different meeting types facilitate coordination and for which objects and representations – often analogue, tangible means that displays task-related information – establish a gathering point that allows health care professionals to coordinate how care is delivered.



**Table 2: Scheduled, operational meetings used to coordinate across boundaries**

Case	Operational meeting in-use	Mono-professional	Cross-professional	Cross units
<i>Trauma Bed Unit</i>	Huddling in the morning to manage daily operations	-	√	√
	Morning or noon conferences	√	√	-
	Work shift meetings	√	-	-
<i>Intensive Care Unit</i>	Huddling in the morning to manage daily operations	-	√	√
	Morning or noon conferences	√	√	-
	Work shift meetings	√	-	-
	Patient hand-off meetings	-	√	√
<i>Maternity Admission Unit</i>	Huddling throughout the day to manage daily operations	-	√	-
	Morning or noon conferences	√	√	-
	Work shift meetings	√	-	-
<i>Children's Emergency Department</i>	Huddling throughout the day to manage daily operations	-	√	-
	Morning or noon conferences	√	√	-
	Work shift meetings	√	-	-

√ = in-use, - = not in-use

### *Daily, operational meetings*

Generally, departments start the day with a mono- or multi-professional meeting where more than a dozen health care professionals meet before they embark on work-shift meetings where one-to-one or one-to-a-few meet. We witnessed the huddle meetings taking place one or more times during the day depending on the underlying task requirements the case department operates under and must manage.

[TABLE 2 ABOUT HERE]

### Work shift and mono- and multi-professional meetings (case 1-4)

Similar to frontline huddles, both work-shift changeover meetings and scheduled morning or noon meetings serve coordination purposes because they bring people from different functional groups together and align their actions towards a common aim. Work-shift changeover meetings, where information and patient responsibility are handed-off from night to day shifts, day to evening shifts, or evening to night shifts, are important collaborative activities across the case departments as health care professionals (one to one or with many health professionals) are were used in all departments we studied. These planned meetings are intended to share patient information and responsibility from the previous shift to the next, and, as is the case for most huddles, the relevant information is passed on using an object such as a print-out, a whiteboard or monitor that in turn serves as the gathering point for the meeting. All departments use scheduled morning or noon meetings where health care professionals from other units or wards participate and as such take place at a higher organizational level than frontline huddles. These morning or noon meetings serve to support care delivery by providing meeting participants (within or across health care occupations) with an overview of patients, getting updated on the previous work shift (e.g., patient

information or noteworthy events) or being informed about the day ahead (e.g., who are working here today and who will be doing what).

### Huddling in the morning (cases 1 and 2)

The Trauma Bed Unit (case 1) and the Intensive Care Unit (case 2) were found to huddle once in the morning to manage their complex care tasks.

The Trauma Bed Unit had developed and implemented a pre-rounding huddle in the morning to address inefficient work routines and poor teamwork that stemmed from frequent interruptions and little knowledge about each other's whereabouts. Similar to other cases, the Trauma Bed Unit's pre-rounding huddle is a brief scheduled meeting of about 10 minutes, intended to be a standing rather than seated meeting. Both nurses and doctors participate in the huddles, and so do other health care professionals, such as a physiotherapist and pharmacist on a set day each week. During the huddle, held in a separate meeting room, the team – chaired by a meeting leader – looks at an electronic board where patient information and staff responsibilities are visible. Besides feeding information, this board serves as an artefact that bridges occupational boundaries and solves concrete collective tasks such as pending patient treatment. The pre-rounding provides an opportunity for the team to plan, update and help each other:

'It has proved beneficial during a busy weekday as it has eased the workload for many people. It became very clear ...that it was simply because we did not talk together. So I think it is time spend wisely that you meet very briefly, as I think we do. Then it is a small investment' (Nursing head of unit).

Thus, the collaborative work such meetings enabled both different but simultaneous input, whereas IT messages would lack the capacity to respond to colleagues' view and information in the here-and-now.

The Intensive Care Unit aimed to reduce the number of unexpected deaths and emergency returns to intensive care from receiving departments. The ICU's solution was to develop a new procedure which revolved around having cross unit consultant meetings, formulating a paper-based checklist and ensuring a physical patient handoff. In the cross unit consultant meetings, consultants from both the sending and receiving parties (across units) meet each morning on weekdays at the nursing station to jointly discuss patients and complete a hand-off checklist (an artefact). Essentially, the meeting concerns clarifying: 'what should be in order when a patient leaves intensive care and moves to a ward...what things need to be in order, checked and controlled, and who is responsible for what' (Clinical director, Intensive Care Unit). Later in the day of the actual patient transfer, the handoff document is physically handed over by an ICU nurse to a nurse from the receiving party, and they verbally exchange patient information and use the hand-off checklist to make sure it happens. These planned, face-to-face meeting spaces in turn help to 'systematize the flow of information which such a patient carries so it comes to the right place and does not disappear into cyberspace' (Clinical director, Pulmonary Department). This limits misunderstandings in and after the transfer situation in support of patient safety because care decisions are passed on. Moreover, during those meetings participants can also convey informal assessments, which are difficult to formalize on paper or the like. For example, a patient transferring from the ICU may be moved sitting-up, thereby signalling that the patient is in better condition than the receiving department may believe.

### Huddling throughout the day (case 3 and 4)

Fitting to their considerable task requirements, the Maternity Admission Unit (case 3) and the Children's Emergency Department (case 4) coordinate their actions throughout the day using multiple huddles to manage more uncertain patient conditions and make faster decision-making.

In the Maternity Admission Unit, a midwife coordinator calls for huddle meetings three times per day (morning, noon and afternoon), taking place in front of a whiteboard. The coordinator leads the huddles because that role has the “big picture” perspective of incoming and current patients and who is doing what roles, and where and when. Moreover, the meeting structure is pre-specified and follows a set of fixed questions relating to patient progress that the coordinator carries on a printed pocket card that must be answered. The meeting is performed standing and rarely lasts more than 10 minutes. A midwife tells:

Huddles [are] where both assistants, midwives, secretaries and doctors gather, if it is possible, three times per day...and the purpose [is to identify] “which patients I have at this time, who needs to be seen quickly and if we need help”...So you always have a status on where are we, and who is at work. It is really nice to know which of your colleagues are going around [and] which doctor works with us today (midwife, Maternity Admission Unit)

The Children's Emergency Department has also developed a daily huddle to ensure coordinated actions. The implemented huddles are structured and kept short (~5 minutes) and take place at 9am, noon, 4pm and 8pm. Huddles in the Children's Emergency Department are conducted standing in a nursing station while looking at a whiteboard or electronic board where important information about patients and responsibilities is kept for all to see during

the huddle (but also throughout the day). Similar to the other departments studies, which also use boards to solve collective tasks, the nursing head of unit at the Children's Emergency Department illustrates the coordination potential of meeting in front of the monitor because it simply allows 'the coordinating nurse and triage nurses looking after the children [to] talk together.' Similar to the Maternity Admission Unit, the nurse coordinator in the Children's Emergency Department, besides managing the electronic board, also functions as the huddle meeting leader, because that role determines who to see next, and follows up on which doctor and nurse should attend for which child. Both nurses and doctors attend the meeting which has a standardized format. However:

sometimes it may take a little longer if there are many patients... We go through who has reported in, what has happened, how many need to be seen by a doctor... Everybody stands there and the coordinating nurse leads it and [explains the broader priorities and asks who has something to contribute that others should know] (Nursing head of unit, Children's Emergency Department)

### *Implementing hospital meetings*

Participants pointed toward the potential problem of meetings taking time away from patients. Yet, they also reported that meetings can be appropriate means towards delivering health care and coordination across occupational and departmental boundaries, provided the meetings are perceived to have a justifiable purpose and helps solving their daily, core tasks by providing more structure. A senior manager of the Pulmonary Department tells:

‘Nothing can replace seeing one another when discussing things that can be difficult...but I would say that many of our meetings are perfectly well-founded. In addition, if they are short and you are prepared, then it does not matter’.

In terms of the benefit of meetings, a clinical director, speaking about the use of four daily huddles in the Children's Emergency Department, said: ‘the whole purpose has not been bureaucratization...it has been to create the structure so that they can perform optimally’. The same opinion was expressed in the Trauma Bed Unit:

It [the pre-rounding huddle] has proved beneficial during a busy weekday, as it has eased the workload for many people. It became very clear ... that it was [needed] simply because we did not talk together. So I think it is time spent wisely if you meet very briefly, as I think we do. Then it is a small investment.  
(Nursing head of unit)

Implementing meetings in being a daily work practice, however, is not necessarily easily accomplished, even if the change initiative on the surface appears rather simple and with likely coordination benefits. The common feature of the development and application of the meetings is the strength by which they were locally embedded. All the meetings presented above were developed by the local management and staff, without involvement of hospital senior management. It is in this respect a common challenge to persuade doctors to become involved and committed, for example, given that they were perceived to frequently arrive late to or altogether miss meetings. The Nursing head of unit at the Children's Emergency Department says: ‘It is important everyone is present...but, there are some autonomous doctors who do not prioritize the meeting activity even when it is an agreed-upon work

activity'. The departments therefore tried to ensure that the new meeting activities took into account the doctors' clinical tasks and that the meetings did not overlap with their other medical meetings. For example, the Maternity Admission Unit succeeded in organizing the doctors' meetings in close proximity to the midwives, and thereby making it easier to have shared meetings for doctors and midwives. A midwife tells:

The doctors [physically] moved the conference to here, and where we are welcome. We can raise issues if there are certain courses of events we would like to raise, or they would like to raise, [for example,] what can we do to solve this problem when it is such and such (Midwife and project manager, Maternity Admission Unit).

Regarding the pre-rounding meeting in the Trauma Bed Ward, a staff specialist reports that much adjusting was needed to start having this new meeting and to finish by 9 a.m.:

The morning conference [where all doctors meet] at 8 a.m. could not be moved. The X-ray conference [where doctors look at x-rays and other scanning results] was also quite difficult to move around because if that was done...then we would need to move the back/lumbar conference (staff specialist doctor).

Despite the difficulties of implementing daily operational meetings, a senior staff specialist doctor from the Trauma Bed Unit conveyed that the pre-rounding huddle was a success by remarking:

We have some of the senior consultants whom you could fear would have disliked the change. The most autonomous is probably [*named doctor*], but he



loves this pre-bed round meeting. He believes it is fantastic, because he has learned that you can talk to the physiotherapists already at that time, and the nurses know now what he is thinking, does and has in mind. He also likes the change with the pharmacist, as he is happy to get assistance with pharmaceutical questions (staff specialist)

Thus, in each of these diverse cases, health professionals used newly scheduled meetings to facilitate the complex work of hospitals, where differing, and often contradicting professional and organizational perspectives need to be reconciled in real time.

## **DISCUSSION**

The contribution of this study is that structures are needed to facilitate optimal coordination between those in similar and different roles and departments in ways that benefit from the communicative sequencing that meetings provide – even more so than much vaunted technological solutions for communication and coordination challenges. Such coordination cannot be left to chance. Structuring new meetings into clinical routines can balance specialization and coordination, by providing the framework to optimize the specialized contributions to patient care that are made by those in different roles and departments. In the cases we studied, the local management and staff have developed new types of meetings that supplement the traditional mono-professional meetings. The new daily scheduled operational and frontline meetings create space and time for short, task or topic focused planning and coordinating, thereby allowing managers and staff to manage interdependencies and collaborate efficiently about how to solve care tasks daily. These daily operational meetings, supported by objects and representations in-use, represent a frontline answer to the increasing complexity of hospitals which requires new mechanisms to achieve the needed coordination.

The typical contemporary solution to manage problems arising from complex organization is IT-systems such as electronic patient records meaning. This means that health care professionals must rely more and more on IT-mediated coordination, which then also challenge and change the enactment of proximity at the frontline (Broome & Adams, 2005). Our analysis shows that the proximity created through face-to-face meetings is necessary for the health care professionals to manage the daily operations and help secure a clearer division of responsibility and knowledge transfer. Operational meetings also support different health care professionals in a care process to understand each other's intentions and underlying logics: two facets that are difficult to transfer through IT. The meetings we observed, typically took place across occupations and in some cases also across units, thereby holding the potential to develop social relations and common goals across occupational and departmental boundaries.

Local managers and staff initiated the meetings because they experienced deficiencies in the general organizational structure, the traditional occupational hierarchies, and not least the drift of information exchange from inter-personal communication to individual information gathering. For the health care professionals to value meetings, however, a prerequisite is that the meeting helps those involved to solve concrete care tasks – that is, it has to make clinical sense. Doctors, in particular, might not participate if the meetings do not make clinical sense to them: something that might be more likely when other professions participate. The studied cases have, therefore, in their practical development and implementation of the new meeting, worked to adapt the new meetings to the professional needs of the different professions (in particular doctors). For example, if a cross-occupational morning huddle collides with an x-ray conference or similar, the doctors are known to give priority to the latter. The cases, moreover, highlight the feature that the frontline meetings are initiated and developed locally, which fosters contextualization and commitment from the

involved staff. Both the existing, albeit limited, meeting literature (Provost et al., 2015; Rodriguez et al., 2015; Goldenhar et al., 2013) and our findings indicate that health care professionals perceived that huddles and other boundary-spanning meetings have a positive impact on care efficiency and quality.

Since the effects of meetings so far are qualitative, future research could quantify these effects, and further contribute to evidence-based decisions in the health care sector. Future research should also apply a comparative approach because how hospital care is delivered in Denmark differs from other European countries, the US or Canada, for example, because system-specific characteristics such as labour management partnerships, employment contracts, occupational status differences or level of trust could potentially influence the transferability of our Danish findings to hospitals in other countries. Research is also needed about how to implement and contextualize such operational meetings in ways such that they can be embedded and institutionalized as part of the organizational routines in hospitals (LeBaron et al., 2016). Relatedly, it is important to improve the understanding of the relations between the use of IT and face-to-face meetings. One reason for this is the tendency to increasingly depend on digital information at the expense of face-to-face interactions. Our findings suggest, on the contrary, that increasing organizational complexity cannot be solved by digital means alone, but requires appropriate and timely face-to-face interactions to deliver high quality and efficient health care. Bringing the focus back on mundane organizational activities such as meetings and analogue objects is timely because larger proportions of healthcare budgets and research funds are being invested in high-tech innovations with little concern for the relational side-effects such as hampered interpersonal interactions (Broome & Adams, 2005; Xiao et al., 2007). Further research on the negotiation and processes of meetings is also needed because this organizational activity coalesces topics that previous organizational studies of health care coordination have investigated including coordination

mechanisms (Faraj & Xiao, 2006), artefacts-in-use (Nemeth et al., 2006), communication (Liao et al., 2015), organizational routines (LeBaron et al., 2016), teamwork (Valentine & Edmondson, 2015), social networks (Tasselli, 2015; Battilana et al., 2012), boundary roles (Currie & White, 2012; Richter et al., 2006; Hofmann et al., 2009), psychological safety (Edmondson, 2001 & 2004), and team management (Edmondson, 2003), but without studying these topics in the context of the formal structures to engender perspective reconciliation – meetings.

For managers and health care professionals, our study of daily operational meetings give rise to a number of practical recommendations. First, IT information cannot – at least not yet – replace human interaction because efficient care delivery requires engendering health professional commitment to the perspectives on patient needs from various occupational perspectives. Second, local cross disciplinary and cross unit coordination meetings cannot be rolled out hierarchically, despite of the many benefit which our findings indicate, because “top-down” changes risk covert resistance (e.g., McNulty & Ferlie, 2004). Senior management, instead, should offer support by allowing for local decision latitude and resources for the change process in implementing alternative models of face-to-face interaction. Third, meetings need tailoring to the specific local context, make clinical sense for all involved professions and unit, and furthermore, be short, standing, targeted and take place across occupations and department boundaries to increase effectiveness at the frontline of care delivery. Fourth, an important part of the tailoring process is to develop objects and representations to ensure that meeting participants gather around something relevant to the care task, be it in the form of traditional analogue means such as whiteboards and paper checklist, or electronic boards. Thus, in complex health organizations, meetings may increasingly be used as responsive spaces to coordinate care.

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