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# Collaboration in Healthcare Through Boundary Work and Boundary Objects

**Abstract** This article contributes to our understanding of how boundary work is practiced in healthcare settings. Previous studies have shown how boundaries are constantly changing, multiple, and co-existing, and can also be relatively stable cognitive and social distinctions between individuals and groups. In highly specialized, knowledge-intensive organizations such as healthcare organizations, organizational, professional, and disciplinary boundaries mark the formal structure and division of work. Collaboration and coordination across these boundaries are essential to minimizing gaps in patient care, but also may be challenging to achieve in practice. By drawing on data from an ethnographic study of two hospital wards, this article investigates practices of cross-disciplinary and professional collaboration and adds to our knowledge of how this kind of boundary work is produced in context. Moreover, it adds to existing boundary literature by exploring the fast-paced, situational, micro-interactions in which boundaries are drawn, maintained, and dissolved. These mundane, brief exchanges are essential to the practice of collaboration through boundary work. I consider the implications of these findings for boundary theory and boundaries in healthcare and other related settings.

**Keywords** Boundary Work; Boundary Objects; Micro-Interactions; Relationships; Healthcare

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## Introduction: Why Study Collaboration Across Boundaries in Healthcare?

Healthcare organizations are high reliability organizations; organizations in which errors have a potentially lethal edge (Weick and Roberts 1993). Studies of performance in such organizations point to collaboration and coordination of work across boundaries, as a central component, although this kind of collaboration is challenging to achieve in practice (Gittell, Seidner, and Wimbush 2010; Gittell, Godfrey, and Thistlethwaite 2012). Economic pressures on healthcare organizations result in efforts to optimize resource usage, including accelerated stay from admission to discharge and more services transferred to outpatient treatment or primary care. The need for effective coordination and collaboration increases and must be practiced within narrower time frames. In most modern hospital sectors, facilitating collaboration and creating more coherent and effective patient pathways is a central political and managerial goal that healthcare professionals and managers are expected to achieve. This is also true of Denmark, where this research is carried out (Danish Health and Medicines Authority 2011). This kind of collaboration is not new, but pressure on the conditions under which it must be practiced increases as healthcare delivery becomes more complex and specialized, resulting in potential gaps in coordination and care within and across organizations and professions (Nemeth et al. 2008). Gaps in healthcare work that need to be coordinated across professional or organizational boundaries, for instance, in patient handovers, represent especially vulnerable and critical points for patient safety (Siemsen et al. 2012; Ekstedt and Ödegård 2015). Clearly, boundaries are interfaces of *potential*, important collaboration, but how is such collaboration produced?

To answer the question of how healthcare practitioners collaborate across boundaries in clinical micro-settings, I draw on boundary theory, specifically the concepts of boundary work practices (Gieryn 1983; Pachucki, Pendergrass, and Lamont 2007; Zietsma and Lawrence 2010) and boundary objects (Star and Griesemer 1989; Star 2010), and on cognitive sociology (Zerubavel 1991; 1999).[1] First, I present earlier research on boundaries, boundary work and boundary objects in healthcare settings to carve out the contribution of this article. Then, I present the cases, the methods used for data collection, and the data material I draw on. I explain how data analysis was carried out, and present the findings, which I discuss in relation to theory. Lastly, I discuss the limitations and implications for this research and practice, and suggest further avenues to extend the results of the article.

## Boundary Theory, Boundary Work and Boundary Objects

Although boundaries have been studied across social science disciplines for many years, the vast amount of research into boundaries is not fully integrated and boundaries as multiple, co-existing, and constantly changing represent a less researched aspect of the phenomenon (Lamont and Molnár 2002; Hernes 2004; Mørk et al. 2012). Focusing on how collaboration across boundaries is carried out in context, I draw on both boundary theory and on Zerubavel's (1991; 1999) contributions to cognitive sociology, as this combination provides a framework for understanding how boundaries as cognitive and social constructs are produced.

[1] I focus on how healthcare professionals talk and act according to boundaries *when they successfully collaborate*. The equally important aspect—how do they talk about and act according to boundaries when collaboration is *not* achieved—is beyond the scope of this article.

In their review of boundary theory, Lamont and Molnár (2002) propose a distinction between symbolic and social boundaries. Symbolic boundaries are demarcations of difference on an intersubjective level, and social boundaries mark differences between groupings of individuals. Symbolic boundaries are conceptual distinctions, the medium through which status, resources, and the power to define reality are negotiated and achieved. A symbolic boundary may become a social boundary if its usage becomes accepted and embedded in the social fabric as a demarcation of difference and can be seen in stable behaviour patterns (Lamont and Molnár 2002:168). Boundary work, in their definition, is the work that deals with the dynamics of symbolic and social boundaries. While their review represents an important contribution to boundary theory, Lamont and Molnár's notion of boundaries primarily focuses on how boundaries can be drawn as exclusion or segregation mechanisms, for instance, in issues of race or gender. But, affirmation of difference is not necessarily exclusion (Czarniawska 2008a); it can also be a way to create a "we," a shared identity or context depending on the nature of the situation.

Research into cross-disciplinary boundaries and professional collaboration is not yet fully merged with the vast literature on boundary work. In their review, Pachucki and colleagues (2007) call for a greater integration of the knowledge produced in the different subfields examining boundary processes. Additionally, Zietsma and Lawrence (2010) point to the interdependency between the concepts of boundaries and practice, criticizing current research on boundaries for having neglected to study how and when actors shift between practicing different kinds of boundary work. The disconnected nature of research into the overlapping phenomena of boundaries and practice is particularly problematic if we wish to understand boundaries and boundary work as fundamental social and relational processes of determining and agreeing upon shared notions of how people and things are defined as either different or related.

In healthcare, two main types of boundaries are central: *organizational boundaries* and *professional/disciplinary boundaries*, delineating the boundaries of organizations/departments/units or between members of a discipline or professional group. These boundaries, and particularly the way healthcare professionals coordinate and carry out interdependent work across them, have been subject to much attention from researchers from different fields (Scott 2008; Gittell 2009; Zietsma and Lawrence 2010; Chreim et al. 2013; Long, Cunningham, and Braithwaite 2013). The following recent studies contribute with knowledge of boundary work in practice: Mizrachi and Shuval's (2005) study of boundary work practices in a hospital setting, in which they examine how healthcare practitioners negotiate formal and informal boundaries of what constitutes "scientific" medical practice; the analysis of leadership practices as boundary work by Chreim and colleagues (2013); and the work of Mørk and colleagues (2012), who explored how healthcare practitioners handled reorganization and change of multiple boundaries in a medical context through boundary organizing.

Although boundaries have been a central concern for research into professions, scientific communities, and knowledge work, this work has also primarily focused on boundaries as acts of demarcation. An exception is the work on theories of boundary spanning; the practices by which individuals, often in designated roles, work to tie or broker knowledge between different social worlds (Long et al. 2013). The term boundary object originates from a paper by Star and Griesemer (1989), in which they show how scientists use boundary objects to collaborate across disciplines. Boundary objects can be physical artifacts or concepts. They are adaptable, and, in this common space in the boundary interface, they are not highly structured. Because a boundary object simultaneously has a vague common identity and a more specific local identity, it is useful for connecting and facilitating collaboration in work about which consensus has not been reached. In collaborating through the boundary object, the different groups draw on both forms of the object; the ill-structured general form and the local, specific form (Star 2010).

Boundary work (Gieryn 1983), in contrast, denotes the processes by which people continuously draw, maintain, and dissolve boundaries.[2] Boundary work is an activity carried out by individuals, but can similarly be practiced by groups. We practice boundary work when we define what does and does not belong to a concept / a classification / a group, et cetera, and the lines marking such boundaries are often taken-for-granted and part of the mental and linguistic scaffolding which we continuously draw on, refine, share, and change. As such, boundary work is part of the ongoing social construction of our reality (Zerubavel 1991) and is tied to the social worlds we inhabit. Different social worlds have different "norms of focusing," determining what is relevant, useful, acknowledged, and what is assigned to the background, "out of sight." This is particularly evident in knowledge-intensive and highly specialized settings, such as medicine or other scientific communities, where participants learn to "see" and pay attention to certain things and ignore others (Zerubavel 1999). Such social worlds exist side by side and people negotiate boundaries from several social worlds simultaneously, depending on the situation at hand.

## Boundaries: What Are They and How Are They Made?

In this article, I focus on boundaries as products of simultaneously cognitive and social processes. I operationalize boundaries as dynamic, continuously constructed, and enacted distinctions among people; of who belongs to "them" and "us," explicitly or implicitly expressed. This distinction marks both a cognitive and a social boundary that can be drawn in a multitude of ways in any social situation, depending on the participants' perspectives and experiences. I use the term "social boundary" to demonstrate that while boundary work is a cognitive and linguistic operation, it is also a social mechanism with real and visible consequences for the social worlds individuals engage in, and potentially on a larger, societal scale. This usage is inspired

[2] I acknowledge that boundary work in Gieryn's (1983) definition denotes practices of drawing and redrawing boundaries, thus mostly focusing on creating or maintaining boundaries. Gieryn shows how boundary work is subtle and complex, and he points to the flexible and changing ways in which boundaries are drawn and redrawn. I use the term boundary work to include the drawing, maintaining, *and* dissolving of boundaries, as I understand these aspects of boundary work to be interlinked, potentially a result of my unit of analysis.

by Zerubavel's (1991; 1999) definition: boundaries are social distinctions not only at the point when they are widely accepted but also in the situation when they are produced and reproduced in social interactions. Some cognitive and social boundaries are drawn deliberately and expressed openly, while others surface as "visible," when "crossed," questioned, or ignored (Bowker and Star 1999; Robbins and Ayede 2009). More importantly, boundary drawing always rests on a specific perspective and it is only in relation to this perspective, tied to a specific social world and way of seeing things, that a boundary assigning some people the "them" and others the "us" status makes sense (Zerubavel 1991; 1999). Thus, a practice-oriented focus on the production of boundaries may help to understand and explain the various ways individuals engage in and practice boundary work, both on their own and in different group or team settings.

As indicated by several of the above-mentioned contributions, boundaries are not static: they are multiple, can be changed in social interactions or over time, and may emerge differently depending on a given context. But, our vocabulary surrounding these social and cognitive constructions is indicative of the way we engage with them (Zerubavel 1999), as if they were indeed real structures that can be seen, researched, constructed, crossed, moved, and managed. In a way, they can. They may be both relatively stable and easily observable in people's behavior, and at the same time, they may be changed or dissolved, albeit temporarily, in a single interaction. Some of these efforts either initiate or maintain more lasting and widespread recursive configurations of interactions or practices, suggesting that a more nuanced understanding of boundary work and practice work may help us understand some of the mechanisms of institutional work, and thus institutional change (Lawrence, Suddaby, and Leca 2010; Zietsma and Lawrence 2010).

## Research Design

This article draws on data from an ongoing three-year study examining the effects of organizational interventions aimed at improving leadership and coordination practices in and across hospital wards, specifically to facilitate more coherent patient pathways.[3] This qualitative study consists of two large hospital wards; an Emergency Ward and an Oncology Ward in two large Danish hospitals. The cases were selected to provide data on wards where uncertainty and work pace are high, and where coordination and leadership can be especially challenging: acutely ill and injured patients and patients with life-threatening diseases, often complex conditions with comorbidities (Strauss et al. 1997; Klein et al. 2006). The data material consists of observations of work practices, interviews, and document analysis of policy, organizational and clinical standards documents regulating work. Prior research has pointed to the usefulness of qualitative methods in studies of how people talk, act, and interact, and how this might change over time, particularly in complex contexts such as healthcare settings (Barley and Tolbert 1997; Pawson and Tilley 1997; Dopson and Fitzgerald 2005; Czarniawska 2007; 2008b; Dopson, Fitzgerald, and Ferlie 2008).

[3] The project started April 1st, 2013 and ends April 1st, 2016.

I base this article on data from the first year of the study. To investigate how healthcare practitioners collaborate across boundaries in their everyday work, I examined collaboration practices embedded in and carried out both in clinical and non-clinical work. The data consist of observations of work practices and interviews with a range of hospital staff members in different positions: hospital management team members, chief physicians and head nurses in ward management teams, medical specialist physicians, residents and interns,[4] front line nurses and charge nurses, and nurses in coordinator roles. Based on the first round of data collection, a description of the ward was distributed to a steering group[5] for feedback and member check: this description focused on ward specific data (e.g., number and types of employees, number and types of patients, ward size), and on organization and practice of work.

Table 1 below gives an overview of the data material that this article draws upon.

Table 1. Data material.

| Ward | Interview | Observation | Hours |
|---|---|---|---|
| Emergency Ward | 11 interviews | 5 functions | 41 hours, 30 min |
| Oncology Ward | 15 interviews | 10 functions | 74 hours |
| In total | 26 interviews | 15 functions | 115 hours, 30 min |

*Source: Self-elaboration.*

[4] Residents are physicians who are employed in a hospital, as a part of their medical specialist training. In Denmark, interns are first-year residents in their first clinical basis education position.

[5] The steering groups were formed locally in each ward and consisted of ward managers, members of the hospital/center management team, HR staff, chief physicians, and charge nurses.

## Cases: Emergency Medicine and Oncology

### Around the Clock Cross-Disciplinary Collaboration in the Emergency Ward

The Emergency Ward provides initial diagnosis and treatment for all patients referred to admission at the hospital. It is located in a large, somatic acute hospital with 3800 employees, 15 clinical wards, 6 clinical service wards, and 2 technical/administrative service wards. This hospital services 300,000 citizens, has over 440 inpatient beds, and patients are referred from 180 GPs in the area or through pre-hospital and ambulance services. The Emergency Ward was established in its current form in 2009, with a main reception unit. Here, a staff consisting of physicians and nurses trained in trauma and emergency medicine work in teams to determine initial diagnosis and treatment based on the patient's symptoms. The field of emergency medicine is reorganized in Denmark towards one joint Emergency Ward as the primary entry into the hospitals, receiving almost all types of patients around the clock (Broecker and Bro 2013). This reorganization requires the close collaboration between the Emergency Ward and the other wards in the hospital, especially the Internal Medicine Ward and the Surgical Ward. Here, the Ward Management teams have negotiated formal work agreements specifying collaboration.

The purpose of the Emergency Ward is to provide initial treatment and care for acutely ill and injured patients, based upon a preliminary diagnosis. Patients are triaged upon arrival, and, depending on

how they score on vital parameters such as blood pressure, pulse, or saturation level, they are categorized as green, yellow, or red.[6] The preliminary diagnosis is the determining factor for the next step in the process and grants access to the specialized treatment and care patients receive if admission is necessary. However, because the formal work agreements rest on the assumption that a given patient can be swiftly and precisely diagnosed, collaborations between staff from the Emergency Department and the other departments may become challenging in cases where fast, specific diagnosis is difficult. These cases typically arise around chronic patients with comorbidities, cancer patients with complications/side effects from their treatment, and geriatric patients with unspecific symptoms. Such patients with chronic conditions, often with comorbidities, for example, diabetes and hypertension or heart diseases,[7] are likely to have an increased risk of re-hospitalization and complications, and represent a higher demand for healthcare services, and thus a potentially increased cost (Struijs et al. 2006). Moreover, these types of patients require specialized treatment and care from a broad range of healthcare professionals from several organizational departments, units, professions, and medical specialties, specifically tailored to their situation and conditions.

Cross-disciplinary collaboration becomes potentially more difficult between 4pm and 8am, as the Emergency Ward receives patients 24/7, intake peaking between 10am and 10pm, while the other wards have their primary work hours from 8-4pm, 5 days a week.[8] Disagreement over initial diagnosis is a common cause of delay in patient flows: until a diagnosis is reached or accepted by the emergency physician and the colleagues from the receiving ward, the patient remains in the Emergency Department's temporary observation unit. This unit is particularly sensitive to build-ups of patients and a resulting lack of flow. Thus, organization and practice of work in the Emergency Ward and the other wards are interdependent: if, for instance, the Internal Medicine Ward cannot maintain an equally high patient flow by discharging their patients, they do not have sufficient room for the new internal medicine patients from the Emergency Ward, causing the Emergency Ward to back up and patient flow throughout the hospital to slow down. To address such capacity challenges, Real Time Capacity Demand (RTCD) conferences are held during the day to coordinate work according to the given capacity situation in the hospital.

**Oncology: Collaboration in Distributed Work**

The Oncology Ward is the largest ward in the study, providing specialized non-surgical oncology treatment and care for cancer patients. It is located in a large teaching hospital and is made up of several subunits, responsible for the different kinds of specialized oncological treatment and research. The staff group consists primarily of physician oncologists, oncology nurses, radiation therapists,[9] physicists, administrative staff, orderlies, and health assistants. When patients are referred into this ward, they have been diagnosed with cancer, and this initial part of treatment and care is organized in and carried out according to diagnose-specific clinical "cancer pathways" that are mandatory clinical standards nationwide. Outpatient radiation and chemotherapy treatment is by far the largest part of the clinical work here, and this is organized according to diagnosis, in four main groups. The physicians are organizationally affiliated with a specific group, designating their area of specialization. The nursing staff are affiliated with an organizational subunit (radiation therapy unit, bed units, ambulatories, or the care path unit). The Ward has one main building, but, due to increasing number of patients, also contains three satellite units (one close and two far away). The Ward is responsible for the specialized treatment of patients from the entire region (for a few diagnoses, from the entire country), but due to limited capacity and increasing demands for services, treatment of complications and/or side effects is undertaken in the local hospital a given patient geographically belongs to. If these patients do not require hospitalization, the task of day-to-day care and rehabilitation falls on the municipality in which the patient lives. In the last stages of a patient's illness, the Oncology Ward can offer palliative treatment and care, but only patients in need of highly specialized palliative care are admitted to one of the bed units in the ward. This means that large parts of a given oncological patient process takes place *outside* the Oncology Ward. Collaboration with healthcare practitioners from other wards or other hospitals, the municipality's home care nurses and rehabilitation and care staff, the patients' general practitioners, and the patients and relatives[10] are all central partners in providing treatment and care for the Oncology Ward's patients.

## Pilot study

The empirical investigation was initiated with a pilot study to hone the initial design and data collection plan (Yin 2009). This consisted of observations, interviews, and informal talks with healthcare professionals in different positions, and resulted in a list of the work functions to be studied, for example, emergency physicians in different shifts, residents on "sweeper duty," et cetera. Additionally, in an attempt to get an overview of the typical phases in patient flows in and out of each ward, I asked participants to draw on a piece of paper where patients came from and where they went, after their stay in the ward. Based on these drawings, I asked participants to mark where challenges typically arose, which types of challenges they would experience, who were involved in the situations, and what they felt could be done to foster collaboration. I also asked where collaboration works best in their opinion and why.

## Interviews

The interviews were carried out by a semi-structured interview guide based on the pilot study and

[6] Triage tools are common sorting and prioritization mechanisms in emergency medicine (Robertson-Steel 2006).

[7] WHO estimates that diabetics have an increased risk of heart disease, stroke, kidney failure, damage to the blood vessels, and neuropathy, which can lead to infections and amputations.

[8] Traditionally, in Denmark, work is organized so the majority of admissions to a bed unit, rounds, discharges, exams, and outpatient clinic opening hours are between 8am and 4pm. Outside this period, planned activity and staff are reduced.

[9] Nurses with an extra formal education allowing them to administer radiation therapy treatments.

[10] Prior studies have highlighted the importance of including patients and relatives (Aizer et al. 2013; Ekstedt and Ödegård 2015).

the initial literature review, specifically around research on continuity and coherence.[11] The interviews focused on the following important factors: coordination, relationships, trust, IT systems, knowledge or information-sharing, and shared clinical pathways. The emphasis was on everyday work practices, for example, clinical work procedures, collaborations, standards and formal pathways, and the role of patients and relatives. The interviews were carried out with a practice-oriented approach, asking participants to provide specific examples from their work.

## Observations

The observations were carried out between September 2013 and December 2013. The focus was to explore the everyday work practices and interactions of participants, as they unfolded in context. For each work function, I made arrangements with the individual participant, negotiated terms of access, and shadowed them in their work (Czarniawska 2007).[12] I wore the same type of uniform as the participant, bearing a visible ID, clearly stating my name, title, and affiliation. I wrote down field notes during observations, focusing on sequences of actions and interactions by the participants. In some cases, participants offered their opinions or reflections, typically during brief breaks or after hours, and as the interviews, in most cases, were carried out after the observations, I noted down any issues during the day that I wished to explore in the interview.

### A Reflection on Studying Boundaries in Practice

For this article, I examine practitioners' everyday work, with specific attention to how they collaborate across professional, disciplinary, and organizational boundaries. Boundaries mark social distinctions and people who navigate them act as if they are "really there," and thus they may be explored by studying both practice and the way people talk. As in other studies of issues that participants in social worlds take for granted, the anthropologist's strangeness or "outsider" status can be a valuable position (Star 2010), allowing seeing what other people take for granted. As boundaries are cognitive and social constructs, I only have access to how they are talked about and how people act *as if* they were real. From this, it follows that I can analyze how my participants talk about and carry out their interactions with people belonging to other groupings (professions, specialties, organizations, units, etc.), but participants' unarticulated perceptions and whether or not other people share the participants' view of situations are beyond the scope of this article.

## Analysis

The data analysis in this article is carried out inspired by abductive analysis; an approach to qualitative research and data analysis as a process of theory generation as "meaning-making drawn from empirical data in dialogue with an intellectual community" (Tavory and Timmermans 2014:21). In the following, I explain my analytical methodology.

An initial report on the reorganization of Emergency Medicine in Denmark had pointed to potential areas of conflict or disagreement, and unresolved issues of shared leadership and responsibility in the new, joint Emergency Wards (Broecker and Bro 2013). Additionally, research into distributed work points to the potential for increased rate of conflicts when people need to work across geographically distributed sites (Hinds and Bailey 2003; Hinds and Mortensen 2005), as is the case for staff in the Oncology Ward. Based on this and an initial literature review on collaboration across boundaries in healthcare settings, I expected to observe demarcations of professional and disciplinary boundaries in the everyday practice of work in the two wards. From the pilot studies, I knew that ongoing collaboration was needed across the professional hierarchy, across professions, and across disciplines, every day. However, as I analyzed the data material, I did not recognize the traditional presentation of boundaries in healthcare as relatively stable phenomena demarking professions or disciplines, or as something which boundary spanners could cross or bridge in their efforts to facilitate knowledge sharing across domains. Instead, my analysis of the material pointed to collaboration as two different types of boundary work: 1) dissolving and redrawing boundaries, or 2) maintaining boundaries through reference to difference in profession or discipline.

I coded the interview data material in the software program NVivo and through several rounds of handwritten coding and drawing relationships between codes and initial constructs. Drawing on theoretical concepts from the literature (e.g., boundary object, shared knowledge) and on bottom-up codes that I built based on the material (e.g., "knowing someone," "trust"), I explored what characterized the actions participants carried out when collaborating. I found that the data did not fit into the traditional conceptualization of boundaries in healthcare as relatively stable. Rather, I found references to boundaries in-flux when participants talked about their work, with whom and how they collaborated in practice, or when they gave me descriptions of how patient pathways were organized in their ward or unit. In these cases, reference to boundaries were mostly expressed through the terms "them," "us," or "we," regardless of the types of formal boundaries at stake in a given situation. Moreover, such terminology seemed to denote both temporary and relatively stable identities and groups. I analyzed in detail the kinds of statements and actions that were associated with reference to "them," "us," and "we," and, across the material, found repeated references to relational aspects of work such as shared knowledge, shared responsibility, and goals, as well as to the significance and meaning assigned to trust and familiarity. I then focused the analysis on two elements: firstly, how relational aspects of work were linked to boundary work practices, and thus to the collaboration practices I investigated, and, secondly, how the notion of the "patient" would function as boundary object: objects that allowed healthcare professionals to collaborate although they were not familiar with each other or shared social worlds.

[11] Most of the literature addresses continuity (experienced by patients, over time), whereas the less researched concept of coherence covers how work is organized, managed, and practiced, hopefully leading to increased continuity (Saultz and Lochner 2005).

[12] The research was approved by each participating hospital and follows the Danish Social Science Research Council's ethical guidelines (Danish Social Science Research Council 2002).

## Findings and Discussion: Collaboration Is Boundary Work

By means of two types of boundary work, boundaries were temporarily dissolved or redrawn to facilitate collaboration through shared contexts or trust, or they were maintained but overcome in formal non-consensus collaborations, facilitated by patients as boundary objects. Both types were present in the two cases; however, in the Emergency Ward, boundary work was practiced with an often explicitly relational approach to collaboration with practitioners from other wards. In the Oncology Ward, which is a large ward organized according to subspecialization, the political regulation of practice of work across wards, for instance, through clinical standards for cancer pathways, specified the formal organization of collaboration with external partners. Additionally, the fragmentation and geographical distribution of oncology work set a different frame for collaboration than in the smaller Emergency Ward, where collaboration was either practiced over the phone or on the Emergency Ward's reception unit's main floor. As I will show, both types of boundary work were practiced in mundane, everyday work situations through brief interactions face-to-face, phone, or video.

### Collaboration Through Dissolving and Redrawing Boundaries Around a "We": Examples of a Relational Approach in the Emergency Ward

In the Emergency Ward, work is fast-paced, unpredictable, and carried out through collaboration across hierarchy, organizational units, professions, and disciplines. In the front line, the staff consists of residents, nurses, and emergency physicians. Coordination of work around all patients is managed by a daily "nurse coordinator" and a "coordinating emergency physician."[13] As patients arrive and are prioritized through triage, each patient is assigned to a temporary team consisting of a nurse and an emergency physician. Based on evaluation of the patient's condition and care needs, the resident may perform the initial examination, always in close dialogue with and support from the coordinating emergency physician, and, depending on the results of the initial examination, consultation with specialists from other wards or diagnostic imagining may follow. Upon initial diagnosis, the patient is transferred to the relevant ward, or discharged to primary care or outpatient follow up.

In emergency settings, fast-paced teamwork and dynamic delegation of tasks and responsibility according to the patient's changing needs is essential (Klein et al. 2006). The multidisciplinary nature of work calls for teamwork and communication skills, often trained through simulation (Miller et al. 2012). The importance of teams is also central in this Emergency Ward. Every morning all members of staff on call meet in a quick "time out," where everyone is introduced by name, work function, and affiliation. A chief physician explains the rationale behind this:

> We work in teams, in these ad hoc teams, formed based on who is at work today. And that's why it is so important that we introduce ourselves to each other; because some people work together so rarely, maybe mostly the juniors. I know what everyone's names are, but the juniors don't, and the people who work in the periphery—staff from the laboratory, for instance—we don't know their names. And when you are in a tight spot in a team, then it is really nice to have been introduced to each other, to know: these are the people we are today. (chief physician, Emergency Ward)

The quote illustrates how the staff use the morning meetings to create a fresh cognitive and social boundary of "we;" "these are the people we are today." Staff working in what the emergency physician expresses as the "periphery" are deliberately included, as the coordinator nurse and the coordinator emergency physician dissolve the traditional boundaries of organizational affiliation and profession, and temporarily redraw social boundaries around the day's team. The data material from the Emergency Ward was filled with examples of how participants worked deliberately to dissolve formal boundaries and redraw new temporary boundaries around a "we," thus creating what Kellogg (2009) calls a relational space. Her analysis shows how the creation of relational spaces of inclusion may positively impact implementation of change initiatives, such as the case of the reorganization of Emergency Medicine in Denmark. In the material, I found several such spaces where cross-disciplinary and professional collaboration coincided with a relational approach, deliberate creation of shared contexts, and reference to shared responsibilities through dissolving and redrawing boundaries around a new, sometimes temporary, sometimes more durable, "we." An excerpt from my field notes observing an emergency physician on duty as coordinator reads:

> 10.45: He goes to the clinical logistic whiteboard, looks at the "arriving patients" column, and the patient treatments in progress. He steps back, looks at the board and says out loud: "Where are we now?" He assigns the next round of patients to available residents. 11.15: The phone rings, it's a colleague at another ward. He says: "Then he [a patient] can come to us, if no one else has any available capacity to see him." 11.30: He's back in front of the board: "What do we have now?" he says. He looks at all patients again. (field notes, emergency physician)

Throughout the day, the "we" refers to "the people we are today," and is thus connected to both a shared task (keeping a good flow of patients) and a shared, organizational identity of inclusion that is a deliberate strategy of the Emergency Ward. This was particularly evident in notes from the front line, but could also be seen in morning conferences, such as this excerpt illustrates:

> At the morning conference, a resident presents a case … afterwards she is praised. A senior physician says: "That was a really good case, well done!" Around the table, the other senior physicians nod and agree. She thanks him, and adds, "I would like to say on behalf of us residents: Please do remember to tell us when you have a really exciting patient. We are really eager to learn! Just send us out there!" (field notes, Emergency Ward)

[13] These two functions rotate in the nurse and physician duty roster.

The quote also illustrates how a relational space of inclusion may work, even though participants refer to themselves as belonging to different subgroups (residents-seniors). The different ways staff in the Emergency Ward create and contribute to an inclusive, relational space, exemplified through the "we," can also be seen as a way of recognizing the diverse, yet interdependent work contributions that healthcare consists of, across professions and disciplines (Strauss et al. 1997).

**A Deliberate Relational Approach to Collaboration**

In the data, some participants explained how they deliberately chose to visit colleagues face-to-face in an attempt to create a shared sense of work context or task. Over the years, people's preference for face-to-face interactions in work has been identified in several types of activities and practice that are central to getting tasks accomplished collaboratively; for example, managerial work (Mintzberg 2011), leadership practices (Denis, Langley, and Rouleau 2010), and mutual adjustment or coordination by feedback (March and Simon 1958; Van de Ven, Delbecq, and Koenig 1976). A clinical coordinator in oncology explains how she approached a new demand to diagnose and initiate treatment for all suspected cancer patients within a certain time frame:

> I tried to get a collaboration going with the radiology ward … I went down there and said: "We are doing this differently now and we know it will have consequences for your work. I just want you to know that this is how we will try to handle the situation: Do you want join in, in getting this task done?" (clinical coordinator, oncology)

Here, the clinical coordinator circumvents the official hierarchy, addresses staff in the Radiology Ward directly with an invitation to take part in handling the new demand for treatment of their shared patients. Hinds and Bailey (2003) demonstrated that close proximity fosters informal interaction and familiarity, and that groups who need to collaborate across distances have a harder time establishing a shared context. As seen in a study by Hinds and Mortensen (2005), face-to-face interactions and relational aspects seemed to facilitate collaboration and lower conflict rates across geographical sites, facilitating either a shared context or a shared identity.

A charge nurse in the Emergency Ward explains his experiences with this relational approach:

> I had to talk to the charge nurse in our pediatric unit, which is a 3- 4-minute walk from here. So, instead of emailing her, like we always do and like I have done a thousand times, I got up and walked over there and knocked on her door. And we looked each other in the eyes and we talked about the issue we needed to talk about. And in the end she asks me: "So, are you new here?" And I answer, "No, I have actually worked here for 16 years." And it is just a completely different kind of contact you get, when you meet each other and talk **with** and **to** each other, instead of written words that can be interpreted in any number of ways. So, I am a firm believer of direct contact and direct dialogue, and I think we see the benefits of this approach at our Real Time Capacity Demand conferences. (charge nurse, Emergency Ward)

Creating a shared context around a common task can also be mediated through video technology. In the hospital where the Emergency Ward is located, Real Time Capacity Demand conferences have been initiated as a response to challenges in bed capacity. These conferences are held at 12pm every day to facilitate patient flows and optimal usage of resources. The charge nurse from the Emergency Ward explains:

> We are starting to have a much closer dialogue with the many bed units, where our patients go. Every day at noon we simply meet up and we have a video conference with staff from the other hospital ground. Representatives from their wards and units are gathered in a room and we have all our people gathered here and in this way we provide each other with a collective, shared overview of the current situation in the house: "What are we dealing with today and how can we help each other?" This way, patients belonging to one specialty—internal medicine, for instance—perhaps they can be placed in a bed in a surgical ward, if there is any room left there. We actually have a really effective communication with the other wards, not that we are in constant contact with them, but this conference at noon has created a situation in which we know who each other are and what the wards are doing. And this kind of thing can be developed more. (charge nurse, Emergency Ward)

This quote shows an example of how a formal platform for recurring collaboration can facilitate and potentially build familiarity and work relationships that can be drawn upon in situations outside the platform. Additionally, the quote illustrates how the meetings have made the charge nurse view the group as a "we," with a shared task and responsibility to view problems connected with minimal capacity as a *shared* problem that should be solved in the entire hospital and not within each individual ward. The organizational boundaries demarking the different medical bed units which the charge nurses represent in this meeting are dissolved and redrawn around *all* the bed units, marking a shared responsibility for all non-surgical patients in the hospital, and thus creating a shared task of assigning patients to available beds. Research on the effects of relational coordination in healthcare settings (Gittell 2002; Gittell et al. 2010) has demonstrated that relational aspects of work, such as shared tasks and responsibility, help foster better collaboration. This article extends this research by providing an understanding of how this kind of work is practiced in clinical micro-settings.

**Trust, Knowledge, and Communities of Practice**

Despite deliberate initiatives to dissolve the traditional boundaries and facilitate a shared "we" as basis for collaboration, achieving this in practice sometimes remains a challenge, especially when there is a strain on bed capacity and the economic incentives do not yet fully support cross-departmental collaborations. In these situations, it seems that relational aspects, such as familiarity, trust, and inclusion, become even more important. This

means the combination of healthcare professionals on call on a given day may potentially impact whether collaboration is achieved or not. In an interview, a chief physician explains how, in his view, relationships foster collaboration:

> P: It's much harder to say "No" to someone you know. That's just how it is. You're much more flexible, but also much more precise in what you want, I guess. You are also more precise in what you are uncertain about, and that's why you get a much better and more confidential dialogue.
> I: What do you mean by being more precise in one's uncertainty?
> P: Well, take, for instance, if I want to transfer a patient to a bed unit, and their criteria for accepting patients—their threshold—is so and so, then I will interpret things along those lines, so that they get the picture and it's best for the patient. And if I know the colleagues at that unit, then they also know my work. And if I say: "I think we are looking at X or Y," then they'll say, "OK, we'll take a closer look at it." On the other hand, if I don't know them and it's just one of those days, well, then: all of a sudden it's just, "Well, we don't think so," and then that's that. (chief physician, Emergency Ward)

Here, the chief physician explains how *knowing someone* makes a difference in the collaboration around patient transfers. Here, the impact of familiarity and trust on collaboration and diagnosis is expressed as both the inclination to and actual practice of *being more precise in one's uncertainty*: an approach that would seem highly relevant for the optimal diagnostic process and collaboration around the next step in a patient's pathway. The quote also points to the potentially interwoven nature of trust and knowledge sharing, aspects that have been linked in theories of relational coordination (Gittell 2000; Gittell et al. 2012). Initially, he dissolves the disciplinary boundaries by referring to a "we" collaborating around a patient. But, the quote also shows how this kind of boundary work entails reciprocity: if the temporary dissolving of a boundary is not repeated by the other in the interaction, when a collective "we" and a shared sense of task is not confirmed, then collaboration is hampered and conflicts may arise.

Relationships of mutual trust and respect at the front line are not only a question of creating a common ground for collaboration; they are also a central factor in achieving collaboration in those challenging cases where patients are not easily diagnosed due to complexity, for example, in patients with comorbidities and/or chronic conditions, or when it is "just one of those days," when the pressure on time, bed capacity, and resources is increased, for instance, due to unexpected rises in patient intake. In these cases, relational aspects seemed to facilitate a situation in which traditional boundaries could be dissolved and a new "them"/"us" boundary could be drawn, marking a "we" in a given situation, in spite of the heightened risk of conflict or gaps in coordination in such situations (Ekstedt and Ödegård 2015). In order for collaboration to work in these unexpected situations, relationships seemed to foster respect and trust in the others' professional knowledge and capabilities. An emergency physician explains how he experiences this in his work:

> The professional trust is of great importance. Because you feel it—I don't know about the other emergency physicians—but personally, I can feel that I enjoy a certain amount of respect with the internal medicine physicians. So, when I have a patient that I need transferred, then it often goes smoothly. There is not a lot of discussion, and I tell myself that it is because they know my diagnoses are correct, that they don't have to go any further into it: the plan has been made and it is OK. So, it means a lot, of course it does. It is also important for the flow, because we would have to work harder to get the flow; it wouldn't just happen in the same way. (emergency physician, Emergency Ward)

The relational approach seemed to facilitate collaboration in several ways; through a shared context, an inclusive "we," and as a source of trust and respect that again could result in a more open dialogue and a shared responsibility for and goal of doing "what's best for the patients."

## Collaboration Through Maintenance of Boundaries: Patients as Boundary Objects

Patient stories are an integral part of healthcare work: the narrative structure of medical knowledge has been well established (Hunter 1991; Montgomery 2006). Within and across medical specialties and professions, patient stories are told as apprenticeship learning, peer knowledge sharing, and consultations in formal and informal arrangements. The material from both wards contain instances of referring to patients as means of collaborations and of using reference to a *specific* patient in a certain situation as a boundary object to initiate potential collaboration. I will focus on how healthcare professionals collaborate through patients as boundary objects, as a way to engage in collaboration while maintaining boundaries in the highly specialized treatment and care characteristic of oncology in particular. In common use, the term "patients" would refer to a very broad term (e.g., "cancer patient" or "neurological patient"), while local use would draw on a more specific understanding of the patient's condition based on the professionals' social world. A specific patient would be the reason for collaboration, but the participants drew on their own specialized knowledge and history with the patient when finding the best way to proceed. This is exemplified by the following field note from a Multidisciplinary Team Conference (MDT) in Oncology. Initiated as a way to optimize cancer patients' way from the Surgical Ward to the Oncology Ward, MDTs are recurring meetings in which oncologists, a clinical coordinator, surgeons, radiologist, and pathologists meet face-to-face to discuss specific patients' diagnose and treatment plan. The participants in MDT conferences contribute precisely because of their individual, specialized knowledge of a single part of the totality of work needed to provide specialized cancer treatment and care, and not—as in traditional mono-disciplinary conferences—because they belong to a certain organizational unit or discipline. In this field note, healthcare professionals from four different organizational departments and five different professions/medical specialties collaborated in a formal, recurring arrangement around specific patient cases. Prior to each conference, healthcare professionals may put patient cases that need

to be discussed in this forum on the list for next time, making it a planned version of the traditional, need-based instigation of collaboration around specific patients.

> At the MDT conference for cancer patients, participants gather around a large screen, where the chief radiologist pulls up the scan images and patient records one by one. He starts by giving a brief account of each patient and then presents what they found on each patient's scans, for example, "This patient is a 63-year-old man with ventricle cancer. As you can see on the scans, we found…" Then the pathologist presents the results of biopsies and tests, the surgeon explains the outcome of the surgery, and lastly, the oncologist explains which specific treatment options they can offer for this particular patient. For each patient, they discuss and decide on the next step in the process, based on the overview of the patient that they piece together from everyone's contribution, but for this last patient, it is tricky. The surgeons are ready to transfer him to the oncologists, but the next step for him in the Oncology Ward depends on his lab results. He either needs a more specialized and longer treatment or the standard, shorter version. The clinical coordinator books the first consultation at the Oncology Ward on her laptop right there at the meeting, and the surgeon on the case is now responsible for giving this appointment to the patient when he comes in to get the results of his surgery and imaging examinations. The chief oncologist wraps up the patient case: "So, you'll give him this appointment to see me on Monday when he comes to see you tomorrow, and that's good. What do you say (directed to the pathologist), can Pathology have the final test results done by Friday? We can't book him for a treatment before we have the results from you. And if I have a consultation with him on Monday, then I would like to be able to offer him the treatment on Tuesday." The pathologist reply: "I can't guarantee that, but I will certainly try. But, keep in mind we have a packed program these days, and I haven't promised anything." (field note, Oncology Ward)

Initiatives such as Multidisciplinary Team Conference can serve both as a framework for sequential, isolated situations in which participants collaborate in specific patient cases *and* as recurring platforms for building relationships between oncologists, surgeons, clinical coordinator nurses, pathologists, and radiologists, thus also facilitating future collaborations between the people *outside* the platform, if and when specific situations occur, where this is called for. Thus, such formal frameworks have the potential to support ad hoc collaboration practices that are a central part of the interdependent and fluid type of work that healthcare is. This ad hoc collaboration can be practiced in a variety of ways, often through brief, informal contacts, as when a surgeon calls a fellow surgeon for advice on a specific case, as this surgeon gives an example of:

> When you have a case where you are in doubt and think: What the hell should I do here? Then you just grab your phone and call: "Look, I am sending you something [a patient case]. Can you give me a piece of advice?" (Head of Abdominal Surgery)

Such knowledge sharing and collaboration are facilitated by membership of the same community of practice (Brown and Duguid 2001). Collaborating through specific patient cases as boundary objects can also initiate inter-professional collaboration. This oncologist explains how the cross-disciplinary conferences are occasions for this kind of work:

> When the nurses in the bed unit have a patient that they have a hard time helping or where there is some kind of problem—usually something psychological or social, or, for instance, a problem with compliance that might hamper a successful treatment—then they present the patient case and we all discuss it: what can we do about this patient? How do we plan the best possible process? (chief oncologist)

This kind of collaboration is built on affirmation of difference ("we are different") rather than reference to a shared identity ("we are the same"). Both in the MDT and the cross-disciplinary conference, the combination of different kinds of knowledge is sought in order to collaboratively find the best course of action.

Using a patient as boundary object might also initiate collaboration with GPs who are located outside the hospital and belong to the primary sector, for instance, as an extra precaution in situations where patients are particularly vulnerable. This interface is often identified as a critical point in cancer care pathways (Ekstedt and Ödegård 2015), when the GP officially assumes main responsibility for the patient:

> If I get the impression in a conversation with a patient that there might be a need for this, then I will go out and call the patient's GP right away, after the conversation. This does not happen often, but this need can easily arise. And my experience is that this is always well received—even though they are extremely busy in private practice. In reality, this kind of thing is probably something we could work to optimize even further. (chief oncologist)

In this case, the oncologist will call a patient's GP, someone with whom she does not share a community of practice. She maintains the disciplinary boundaries between them, as they collaborate, precisely because they have a shared responsibility for the patient, yet contribute different things. As research by Hinds and colleagues has shown, conflicts in such geographically distributed work can be mediated through site visits which create a shared work identity or shared work context (Hinds and Mortensen 2005), but this is not the case here. Instead, I propose that invitations to such collaboration may be well received, because the oncologist and the general practitioner share social world and optical socialization as physicians. Moreover, the narrative structure of medicine and the use of patient cases among healthcare practitioners may make patients as boundary objects a strategy that is an integral part of the fabric of healthcare work[14] and a strategy that is linked to institutional norms to provide the best possible treatment and care for patients.

## Conclusion

In this article, I show how healthcare professionals collaborate through two kinds of boundary

[14] Case presentations, morning conferences, cross-disciplinary conferences all draw on sharing knowledge of patients through stories.

work. The first type of boundary work was the dissolving and redrawing of boundaries done through reference to a "we," through shared relational spaces of inclusion, and through a deliberate relational approach to collaboration, recognizing the significance of trust and familiarity. The second kind entailed maintaining boundaries to affirm difference, but without rejection; "we collaborate *because* we are different." Work was still collaboratively accomplished through patients as boundary objects, often in formal arrangements or across networks of practice (Brown and Duguid 2001).

The tendency to research boundaries as stable produces a simplistic image of basic cognitive and social processes. Instead, the results in this article support earlier boundary research by Mørk and colleagues (2012) and by Hernes (2004) that demonstrate how boundaries are multiple, co-existing, fluid, and subject to dynamic change. Additionally, I point to the reciprocal, fast-paced interactions as important building blocks of the boundary work that healthcare professionals carry out, often embedded in core clinical work. This notion of boundary work as cognitive, social processes embedded in a specific context adds to existing cognitive sociology (Zerubavel 1991; 1999; Robbins and Ayede 2009) through empirical studies of how such processes might unfold in two hospital wards. Moreover, the analysis shows how relational aspects of work and a deliberate relational approach to collaboration, the first kind of boundary work, may support both the iterative and unpredictable work of diagnosing complex patients, as well as the coordination needed to create and maintain a good patient flow through the day. The work by Hinds and colleagues (2002; 2014) has demonstrated the significance of recognizing relational aspects of distributed work, such as the potential effects of being able to interact face-to-face and build familiarity and a shared notion of context. Whether participants prioritized face-to-face interactions varied, depending on work function and personal preference; some health care professionals used this strategy often, while others did so rarely. Face-to-face interactions were not a prerequisite, but often a facilitator of collaboration. Recurring face-to-face interactions and formal platforms for non-consensus based collaboration (such as the RTCD and MDT conferences) can facilitate the development of familiarity, relationships, and trust in each other's knowledge over time. Using patient stories, however, did not require face-to-face interaction or relationships of trust, although such elements seemed to support collaboration in general. The notion of "patients" worked as a boundary object allowing collaboration without consensus, supported by a shared task or goal. Here, boundaries of "them"/"us" did not change, and thus did not hamper collaboration; rather, the affirmation of alterity (we are different) through respect and recognition of other healthcare professionals' contribution to a given patient case seemed to be supported by the maintenance of the traditional boundaries.

In this study, boundaries were individually and collectively dissolved, redrawn, and maintained through a relational, inclusive approach or boundary objects. The results speak to the fast-paced, fluid, and dynamic nature of boundary work: it can be carried out by brief, seemingly mundane interactions that are at the core of clinical work practices, such as diagnosis or patients transfers, and embedded in ad hoc coordination practices that keep the core work on track. This should not lead researchers to disregard this kind of work as insignificant or trite. Rather, as this article demonstrates, detailed analysis of such micro-events provides us with a more nuanced understanding of the many types of activities in which boundary work is inherent.

## Future Research

As healthcare systems become more specialized, complex, and fragmented, healthcare professionals will have to practice more collaboration across disciplinary, professional, organizational, and geographical boundaries, often under increased time pressure. The ability to successfully collaborate around treatment and care of patients with an array of actors will be a crucial skill and an important part of everyday clinical work for healthcare professionals in the future. Thus, knowledge of how this collaboration is practiced is important for research and for healthcare regulators, managers, and practitioners alike. If regulators and managers are to support this important collaboration, as research into patient safety, coherence, and coordination of care suggest, then we need to produce a more solid knowledge base of *how* this collaboration is practiced in a variety of settings and under different conditions. This article only offers a piece of this puzzle, and, as all contributions do, it has its limitations: the analysis focuses on boundaries in relation to collaboration that *works*, and further research could constructively add to this with analyses of the micro-interactions of boundary work when collaboration is *not* successfully achieved.

Furthermore, future studies could extend the limited amount and type of cases that this article draws on in order to investigate how boundary work is practiced in other types of clinical settings, extending the scope to non-hospital settings such as GP's offices, rehabilitation facilities, and patients' homes. Such research could investigate the significance of contextual conditions under which healthcare professionals collaborate; for instance, the impact of spatial dimensions, such as physical layout or proximity, or the significance of trust in inter-professional collaboration (IPC) and knowledge sharing in clinical work. A different avenue could explore the role of trust in clinical work and the mechanisms that build and support it, and how these aspects impact the practice of different types of boundary work. This article suggests that a relational approach, trust, and familiarity can facilitate collaboration because these aspects foster positive reciprocal responses. If further research can support and extend this, it would be an important step in further understanding how collaboration through boundary work can be produced.

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