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# Examining Boundaries In Health Care – Outline Of A Method For Studying Organizational Boundaries In Interaction

## Summary

The care of patients with many illnesses often appears fragmented by many boundaries in the health care system when the care is provided in several locations of primary and secondary care. In the article, boundaries are examined in an interaction between patients and multiple providers in an effort to develop collaboration in inter-organizational provision in a Change Laboratory intervention. Firstly, it will be traced how the boundaries are expressed in the interaction. Secondly, it will be studied how the boundaries expressed in the interaction relate to health care organizations and patient care practices. Thirdly, the practical activity that was embedded in the interaction between patients and providers will be focused on at the laboratory. The expression of boundaries was examined in activity theoretical terms as discursive actions. In discursive actions the 'lived past' becomes involved in the situational actions that orient towards future activity. The findings suggest that expressing boundaries uses various linguistic means and it seems relevant to propose that boundaries cannot be studied in a formal way; the analysis needs to be related to the organizational context of the specific study. However, the linguistic means may serve as useful "landmarks" or "pointers" of boundaries that are often expressed implicitly in the interaction. The laboratory session provides an opportunity to study boundaries "on the spot", or "in their own right". The realization of the emergent inter-organizational care at the session

created challenges for the provision while contradicting some elements of the prevailing provision. During these kinds of interaction, the boundaries between providers became obvious. Furthermore, challenging the boundaries in the normal flow of interaction may be a potential for boundary crossing and even further, a re-constitution of boundaries. Consequently, a boundary crossing represents an interesting unit of analysis for future studies of boundaries and boundary crossing in interaction and discourse. At the laboratory setting was displayed the ability to control others through an indirect use of power that may reflect a simultaneous value system supported by the prevailing hierarchies. In the studies to come, it will be important to pay attention to these implicit power linkages when monitoring the boundaries in horizontal collaborations.

## 1 Introduction

In the Oxford Dictionary "boundary" is defined as "*that which serves to indicate the bounds or limits of anything whether material or immaterial; also the limit itself*" (<http://dictionary.oed.com>). Boundaries are often understood metaphorically in geographical terms as space that gives order, or separates different areas of

life. Although boundaries are often intrinsic, people refer to them as if they were real. However, besides being useful, boundaries may become barriers to activity. In everyday life, boundaries are often taken for granted until they become problematic or limiting aspects of activity.

In organizational studies, boundaries are considered necessary for the appropriation of levels of differentiation and integration in organizations (Schneider, 1987). Recent technological developments, the globalization of markets, and the transition from mass production to individualized production with demands for seamless production has raised new insights in the study of boundaries in organizational and management studies (Hernes and Paulsen, 2003). Hernes (2003: 41-42) points to the dual properties of organizational boundaries as enabling and constraining devices in organizations.<sup>1</sup> When boundaries enable organization, they provide resources and a space for intentional action by releasing energy, when constraining, they create order by enabling the exercising of control that restricts actions.

In the present study, the focus of interest is on the boundaries between health care providers. The boundaries of health care are often considered to be more restricting than enabling. The need to increase collaboration across organizational boundaries in health care seems to be widely acknowledged, but difficult to achieve. For instance, Rodrigues et al. (2003: 147) note “the managing across the boundaries is nowhere more urgent or more complex than in the health-care field”. I will study the boundaries in the interaction between patients and multiple providers when patients and participants representing primary and secondary care are making an effort to develop

their collaboration in an intervention project. While clear boundaries between multiple providers secure the overall care of the patients, tight or blurry boundaries may cause overlaps or gaps in the care provision (see for instance Engeström, Engeström and Vähäaho, 1999).

Firstly, I will monitor the boundaries in the participants’ verbal interactions in order to find out how the boundaries are expressed in the interaction and how the boundaries expressed in the interaction relate to health-care organizations and patient-care practices. After that, I will study the interaction at the Change Laboratory as a rare encounter that provides insight for the “boundaries on the spot” between the providers. I will use the methodological tools provided by Cultural Historical Activity Theory (CHAT) to outline the effects of the encounter. As to the structure of the article, I will start by describing the organizational context of the study. Then I will outline the theoretical and methodological approach of the study. After that, I will present the research data and methods leading to the findings. Finally, the conclusions of the study will be proposed.

## 2 Intervention in health care as the context of the study

The context of the study is an intervention project with the aim of improving the collaboration between professionals in internal-medicine patient care<sup>2</sup>. Particularly, the care of the patients with multiple diseases is under focus. Multiple providers treat these patients simultaneously in both primary and secondary care and there is a danger that the provision

1 Hernes refers to the discussion of structure in Giddens (1984: 169) by arguing that boundaries are an enabling and constraining structure.

2 The research group from the Center for Activity Theory and Developmental Work Research at the University of Helsinki was in charge of a project called *Developing a Negotiated Way of Working between Primary Care and Specialized Hospital Care in Helsinki* during the years 2000-2002. The members of the research group were Yrjö Engeström, Ritva Engeström, Tarja Vähäaho (until the end of the year 2000), and the author of this paper.

will become fragmented with no-one having the responsibility for the overall care of the patients.<sup>3</sup> The demand to increase collaboration is urgent because the number of these patients is presently increasing. Aging of the population, as well as the new developments in medicine affect this increase.

Separate institutions in Finland organize primary and secondary care. At the beginning of the 1970s, the provision of basic-level care was organized into community-health centers with health-center hospitals in charge of the hospital care on the level of primary care. Specialized hospitals and outpatient clinics provide the secondary level of specialized care in a hospital district. Although the health care is publicly funded, the municipalities of a hospital district carry the primary economic responsibility of the secondary care as its clients.

During the establishment of the prevailing system, the treatment of patients in primary care meant the care of a single health problem during care visits. In the 1980s, this method of treating illnesses was heavily criticized. The critique led to improvements whereby every patient was assigned to a personal physician (GP) and a consultant nurse at the health centers. Consequently, the object of care in the community health center clinics expanded from a single visit to a care relationship. Correspondingly, in secondary care has been a development from the cure of a single disease into integrated care processes or critical pathways of care. "Critical pathways are care plans that detail the essential steps in patient care with a view to describing the expected progress of the patient" (Renholm, Leino-Kilpi, and Suominen, 2002: 196). Renholm et al. review 53 recent studies of critical pathways in their

article. In their results, they report that the use of critical pathways has a primarily positive impact on patient outcomes. However, they reviewed some studies suggesting that the use of the critical pathways has no influence on patient care outcomes. According to our observations during the intervention project, we noticed that the integrated care process does not necessarily improve the care of patients with multiple diseases, because these patients are simultaneously treated in two or more critical pathways. In practice, a patient visits many specialists in several divisions of secondary care leading to a fragmentation of care with many professionals taking part in the provision, often without knowledge of each other's contributions (see for instance Engeström, Engeström and Vähäaho, 1999).

The purpose of the present intervention is to improve the cooperation between multiple providers by implementing a new tool called the care agreement and a new practice called negotiated knotworking. The tool and the practice were created in an earlier project in pediatrics (see Engeström, Engeström and Vähäaho, 1999). According to Engeström et al., the care agreement and the care negotiation include planning, observing and coordinating the care processes in a network of health care professionals. They also increase the levels of communication and clarify the division of care responsibility between various parties in the network of care.

The implementation of the care agreement and negotiated way of working in the present project took place as a series of gatherings arranged by a group of researchers during the year 2000<sup>4</sup>. All sessions were videotaped. The arrangements for the gatherings followed the

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3 These issues have been discussed in many recent works by the research group. See for instance Engeström, Engeström and Vähäaho 1999, Engeström 2001, Kerosuo 2001.

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4 The second phase of the project, during the year 2001, was accomplished by experimenting with the care agreement, and elaborating on negotiated knotworking in a pilot-group of GPs and specialized physicians (see Kerosuo and Engeström, 2003).

concept of the Change Laboratory method (Engeström et al., 1996) that represents a participatory approach for the development and change of work practices. The method is grounded in the theoretical concepts and methodology articulated in CHAT (Engeström, Miettinen and Punamäki, 1999) and Developmental Work Research (DWR) (Engeström, 1987, Engeström and Miettinen, 1999). The Change Laboratories were often called Implementation Laboratories, because we intended to implement new tools and a new practice for health-care provision.

The central idea of the method is to organize workplace discussions in which data gathered from work is discussed and worked upon jointly with the practitioners. In the project, the patients, representatives of the health-care management, as well as the medical doctors and nurses participated in the laboratory sessions. In the normal flow of actions, these parties would not meet each other personally since the communication between primary and secondary care is secured through formal referrals and care-feedback forms. The data related to one Implementation Laboratory session is analyzed in the paper as an example of the interactions in the health care intervention. I will describe the data in more detail in section four. Next, I will introduce the theoretical frame for the analysis of inter-organizational boundaries.

### 3 How to study boundaries in organizational interaction?

Hernes and Paulsen (2003) connect the concept of an organizational boundary to the concept of an organization. Therefore, the conceptualization of an organization includes its boundaries. However, they do not maintain that organizations and their boundaries are unproblematic. Recent discussions in organization theory represent organizations as more or less stable entities and, according to Hernes and Paulsen,

these developments challenge the prevalent theories of organizational boundaries and call for new and multiple perspectives. Moreover, they suggest that boundaries should not only be approached as results of organizing processes, or be given secondary roles in relation to the existing order, but be directly involved in organizational change and transience.

While Hernes and Paulsen outline the concept of boundaries for current approaches, Hannan and Freeman (1989) as well as Scott (1998) emphasize the dynamics between organizational systems, boundaries and environments. Specifically, they examine the types of mechanisms that are used to set and span organizational boundaries. Hannan and Freeman (1989: 54) differentiate between stable institutional frameworks with delimiting borderlines appearing in the segregating processes of organizations, and changing institutional arrangements, giving rise to “blending” processes. The relative strength of these opposing forces has an effect on the continuity of organizations. For Scott (1998) boundaries are a local and collective phenomenon. Collectivity exists when there is: “(1) a *delimited*<sup>5</sup> social structure – that is, a *bounded* network of social relations – (2) a normative order *applicable to the participants* linked by the network” (ibid. p. 183). Collectives are, according to Scott, distinguished from other systems by their boundaries.

Schneider’s (1987) analysis of boundaries on the individual, family, group, and organization level of organizations depicts boundaries as having a nature of their own on each level. In her study, the management (establishment and negotiation) of boundaries is considered necessary for the organization to establish and maintain the boundaries on every level of the organization in order to secure its appropriate functioning. In order to pursue this, a balance

5 Italics are Scott’s.

between certain issues such as autonomy/control, the flexibility/inflexibility of boundaries, integration/separation, facilitation/interference needs to be achieved on organizational levels and between the levels.

However, examining boundaries in organizations is not easy. For instance, Scott (1998: 184) maintains that identifying boundaries in organizations is complicated, because membership, interaction, and activity boundaries may crosscut formal boundaries and each other. Hernes (2003), for his part, conceptualizes boundary properties as physical (material and symbolic markers), social (social relations, social ordering), and mental (sense-making, knowledge, perception). But, finally, he concludes that it is difficult to make distinctions between those properties since organizational boundaries include elements from all three types. Furthermore, he proposes by referring to Law and Hazard (1999) that a richer analysis of boundaries may be completed without predefined categories of boundaries.

My starting point is a Change Laboratory session arranged for the improvement of patient's care in the inter-organizational context of primary and secondary care. In the sessions, the participants discuss the care of a patient they are treating in their own organizations. Furthermore, the providers deal with the boundaries of the present care provision and work practice when they encounter problems in the patient's care provision. The patient himself is present at the session to give feedback from his provision while the researchers also present data from the care processes. However, in spite of the boundaries, the participants are able to interact with each other, although they are representatives of different organizations.

Cultural Historical Activity Theory (CHAT) and Developmental Work Research (DWR) provide methodological tools for studying social interaction as local, historically derived activity. From the perspective of CHAT, an organization such as primary or secondary care

can be represented as an activity system. The elements of an activity system are the subject, the object, the mediating artifacts (signs and tools), the community, the rules and the division of labor (Engeström, 1987). These elements are important when the boundaries of an activity system are examined, although the ways the elements constitute and mediate the boundaries in and through complex dependencies between themselves are not simple or direct, but dynamic. As an unstable system, the activity system including its boundaries is undergoing constant change because of the internal contradictions within and between its elements.

In studies drawing from CHAT and Developmental Work Research (DWR), boundaries have raised interest in the context of change and development. For instance Engeström, Engeström and Kärkkäinen (1995), Engeström, Engeström and Vähäaho (1999) approach boundaries through the analysis of boundary crossings between different contexts of work. Lambert (2003) studies boundary-crossing places as a tool for developmental transfer between school and work. Kerosuo and Engeström (2003), Konkola, Lambert, Tuomi-Gröhn and Ludvigsen (in press) focus on tools promoting learning and transfer across boundaries.

In the present study, I will first find out how the boundaries between primary and secondary care are expressed in interaction. I will approach boundary expressions as discursive actions (Engeström, R., 1999b, Engeström, Engeström and Kerosuo, 2003) since the participants of the laboratory session construct meaningful relationships between each other through expressing boundaries. The boundaries expressed in the interaction are not determined only in situational terms since expressing is subordinated to some historically evolved practical activity. As Engeström (1999: 170) maintains "organizations may emerge through conversations, but they do not emerge for the

sake of conversation”. According to Engeström (1999), discursive actions are often parallel to physical actions in an activity with different types of distance between practical activity and discourse. Therefore, in order to find what the boundaries represent, the connections of the situated expressions need to be related to practical activity systems. In the present study, this means that the expressions of a single care provider are connected to a wider organizational environment and to patient care practices. I will focus on this issue in the second research question of how the boundaries expressed in the discussion relate to health care organizations and patient care practices.

Thirdly, the Change Laboratory method provides an opportunity to gain insight into interactions at the laboratory meetings in which specialists from various locations solve problems within concrete work situations. Because the providers do not interact with each other during their regular routine, it is interesting to note the effects of the encounter from the perspective of practical care provision. Consequently, the laboratory meeting represents “boundaries on the spot” and provides the opportunity to examine a boundary “as such”. It is also possible to cross the boundaries of accustomed work contexts and even re-constitute boundaries. However, crossing boundaries is not easy because it may bring out tensions in relation to the prevailing conduct of practice. According to CHAT, tensions, disruptions, overlaps and gaps often stand for developmental contradictions of activity (Engeström and Mietinen, 1999) and working out these contradictions may trigger development and change. Therefore, if encounters with boundaries and boundary crossing involve tensions, they may represent aspects of development and change as boundary effects. The third research question deals with the developmental problems and challenges affected by the interaction between the patients and the representatives

of health-care organizations. It is asked: what kind of problems and challenges related to development and change of health care provision emerge in the interaction between health care providers.

## 4 Description of the data and the method

The care provision of ten patients was followed in the project and discussed at the Implementation Laboratories during the first phase of the project in the year 2000. The collected data includes interviews with the patients and professionals, videotapes of patients’ consultations with doctors, and patient documents. There was one session arranged for each patient. The professionals at the primary and secondary care selected the patients among internal medicine patients that have diabetes, arthritis, and coronary, lung or renal disease. A few other diseases were also represented.

The videotaped data of one Implementation Laboratory session is analyzed in order to illustrate the boundaries in the interaction. I chose the fifth laboratory session out of ten sessions for the analysis. The criteria for this choice are that it is the first session in which the care agreement was discussed and agreed upon. However, the agreements were not documented on the care agreement document, even though the researchers encouraged it. The patient, here called Mark, took part actively in the discussion, and representatives from nearly all locations of provision participated. The outpatient clinic that is specialized in the treatment of arthritis was not represented.

The data that was gathered for the intervention at the Implementation Laboratory includes three interviews with the patient and nine interviews with the health-care professionals who provided the care in the primary-health care hospital, the occupational-health clinic and the secondary-care hospitals. Moreover, one visit with a renal specialist is included in the

data as well as the patient's documents from all care locations. After the data collection, the researchers analyzed the care provision and provided depictions of the normal flow of the patient's care with tools called a care calendar and a care map. The care calendar and map were developed as additional tools to support the care agreement during the intervention project. The care calendar includes the history of the patient's illnesses, while the care map

contains the locations of care. Furthermore, the challenges and problems of the care provision expressed in the interviews and other data were presented on videotape as a base for reflection, the "mirror", for the patient and the participants in the session. Here, the other data gathered and produced for the intervention is applied as background for the analysis. The care calendar and the care map are presented in Figure 1 and Figure 2.

CARE CALENDAR	
Male, 53	
Illness	Care Provision
Arthritis 1974 (Diagnosis 1990 HLA-B27 positive) Spinal Arthritis (spondylarthritis) <ul style="list-style-type: none"> <li>• Was treated as sciatica at first</li> </ul>	Occupational-health service. Secondary care, a clinic specialized in arthritis.
Diabetes 1987-1988 Diabetes type II <ul style="list-style-type: none"> <li>• Retinopathy, nephropathy (pre-dialysis), neuropathy</li> </ul>	Occupational-health service. Secondary care, a clinic specialized in renal diseases.
Heart Disease 1990 High blood pressure  Heart insufficiency 10/1997 Heart infarct 11/1997 By-pass operation  8/1999 Heart infarct 9/1999 Ventricular fibrillation 10/1999 Artificial pacemaker 11/1999 Follow-up consultation	Occupational-health service. Presently the secondary care, in a clinic specialized to renal diseases.  No provision mentioned? Secondary care, a cardiology clinic. Secondary care, a cardiology clinic. Health-center hospital. Health-center hospital. Secondary care, a cardiology clinic. Outpatient clinic at the health-center hospital.
Overweight	Referred to the outpatient clinic at the health-center hospital. Not settled?
Hyperlipidemia	A clinic specialized in renal diseases.

Figure 1. Care calendar

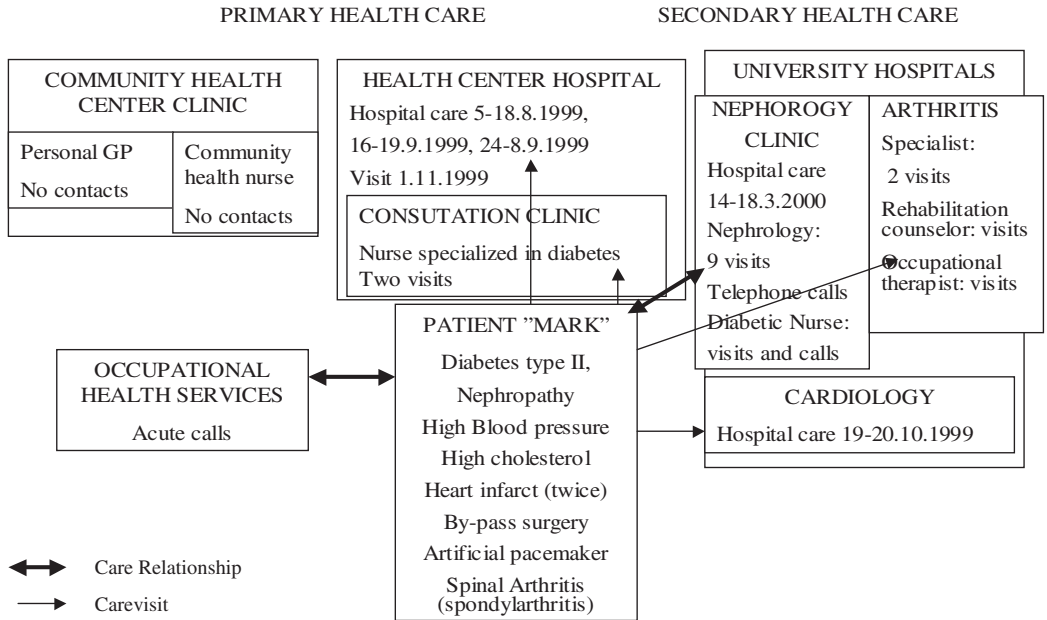


Figure 2. Care Map

As presented in the care map and care calendar (Figure 1 and Figure 2), Mark suffers from many health problems such as diabetes, arthritis, and renal and cardiac problems. He has been treated in several locations of primary and secondary care. The occupational-health services provide the care for acute problems such as flu. Mark obtains the equipment for the care of diabetes from the community-health clinic, and the health-center hospital treats Mark's acute heart pain when needed. A clinic specialized in renal diseases treats his renal insufficiency in secondary care while his arthritis is taken care of in a clinic specialized for that. However, there are some question marks in the care calendar marked by the researchers to represent missing care provision or provision that is unclear to the patient.

The hospital specialized in renal diseases and arthritis hosted the laboratory session attended by the patient, Mark, and most of the professionals participating in his care. In attendance was a senior nephrologist and a nephrologist from the secondary care, a GP from the private occupational-health-services, and a personal doctor from the community-health center. Then there was an intern from the health-center hospital, and a nurse specialized in the care of diabetes. The head nurse from the secondary-care cardiology hospital was also present, as well as a representative of the city health-care administration, and our research group of four researchers from the university.

The phases of the discussion at the Implementation Laboratory on improving Mark's



medical care followed the agenda planned by the researchers. At the beginning, the purpose and the agenda of the meeting were discussed, as well as the Change Laboratory method. Researchers presented the patient's illnesses and locations of care using a care calendar and map. The discussion topics that followed were the main ailment of the patient, the flow of information, the responsibility for care, and the care agreement. At the beginning of each topic, the researcher showed the video clips related to the topic. One of the researchers chaired the session.

Although the researchers encouraged everybody, particularly the patient, to participate in the discussion, it was for the most part quite formal. Some participants, such as those in leading or senior positions, gave long monologues, while participants in minor positions hardly spoke. The speech turns of the "discussion leaders" contained positioning and points that involve the organizational or practice level of the discussion topics, while the participants in minor positions spoke about personal experiences. Moreover, the patient often became an outsider in the professional discussion.

The unit for examining the boundaries in the interaction is a discursive action (Engeström, R. 1999b, Engeström, Engeström and Kerosuo, 2003). In discursive actions the 'lived past' becomes involved in the situational actions that orient towards future activity. Here the discursive actions coincide with the practical activity. The analysis proceeds in three layers. Firstly, I will observe how the participants in the laboratory session express boundaries. In other words, the linguistic means used by the participants to express boundaries will be explored. The boundaries in the interaction are observed in speech turns when dealing with the first research question. The videotaped session is rendered in a transcription that includes 513 speech turns. Every speaker's utterance that can be heard on tape was counted as a speech turn. Short utterances such as "mom", "ohm"

were not counted, whereas short comments like "yes" or "no" were.

Secondly, I will trace how the expressed boundaries relate to the practical activity of the health care provision. The elements of an activity system are applied to outline the connection between the boundaries expressed in speech turns. The elements are the subject, the object, the mediating artifacts (signs and tools), the community, the rules and the division of labor (Engeström, 1987). Thirdly, I will focus on the problems and challenges related to development and change that emerge in the interaction between health care providers. The findings of the research questions one and two are reported in section five. The findings of the research question three are reported in section six.

## 5 Expressions of boundaries at the implementation laboratory

It would be expected that the boundaries between health-care providers is a topic that often arises in the interaction between providers in the inter-organizational context. However, in the present study, the boundaries were usually expressed more indirectly. In the two interviews gathered before the laboratory session, the patient referred only once directly to the boundaries. He described the provision for renal failure at the outpatient clinic specialized in nephrology to be "without boundaries". He said: *"Well, now I forgot to tell that I go there [to the kidney clinic] for a control – well, it is every three months, and if needed whenever. So, there is no boundary, if I need I can contact the clinic"*. (Interview with the patient May 3, 2000.)

In the nine interviews with the professionals before the laboratory sessions, the word 'boundary' was mentioned ten times in five interviews. During four interviews it was not mentioned. The professionals and the researchers both used

the word ‘boundary’ five times. The professionals referred three times to issues related to illness or the care provision for a single ailment. For instance, they called the illness a “*bounded problem*”, or illness may cause “*boundaries in the capability to move*”. Furthermore, “*diabetes or renal disease may not cause boundaries for working ability*”. Twice the professionals mentioned the word ‘boundary’ in connection with the collaboration between primary and secondary care. In the first place, an intern referred to instructions and regulations that define the division of labor between primary and secondary care in the provision of renal patients. Secondly, a cardiologist pointed to the practice of care provision between primary and secondary care, according to which “*cardiology’s provision has to be bounded into those treatments that the primary care asks for*”. The researchers referred to the “*boundary crossing*” between care providers twice as an attempted goal or practice during the project. In the interview with the cardiologist, a researcher pointed to the “*bounded responsibility of care between providers*”, and then she repeated the words of the cardiologists of “*the health problem being a bounded problem*”. Once a researcher asked an interviewee to “*name the boundaries*” that were intended to be crossed during the project. The boundary in the collaboration between primary and secondary care was perceived to be “*a problem of finding time to meet between providers*”.

But instead of direct expressions, the terms “boundary”, and “border”, there seem to be words and expressions in the interaction that hint implicitly at the existence of boundaries. Tracing boundaries appear, therefore, as a search for fragile signals in social interaction. Three types of expressions, in particular, seem to indicate boundaries implicitly in the Implementation Laboratory. These are metaphors, actors’ attributes and definitions of social relations, and references to locations of care. The terms “boundary” and “border” were applied three times during the discussion. Metaphors

were used twice, whereas expressions referring to social relations and locations of care were commonly applied to indicate the boundaries in interaction. Usually, the speakers used more than one type of expression to indicate boundaries in a speech turn. Particularly, the expressions referring to actors’ attributes and social relations as well as to locations of care were simultaneously used. Next, I will present examples from each of the identified types.

### The terms “boundary”, and “border”

The term “*boundary*” and its correspondents “*border*”, “*frontier*”, or “*borderline*” were not as often referred to in the laboratory session concerning Mark’s medical care as expected. Boundaries were explicitly referred to three times during the session with the terms “boundary”, and once with the term “border” in the sense of “limit” or “constraint”<sup>6</sup>.

The first time the term “boundary” was applied was at the time the intern from the health-center hospital pointed at the boundary between the health-center hospital and secondary-care hospital. The boundary concerned the division of care responsibility between the two hospitals of which the scores of creatine in the patient’s blood describing the renal state of the patient indicate the boundary. The example is presented in Excerpt 1. The keyword expressing the boundary is in bold.

#### Excerpt 1

Intern: “*When we get these patients, these patients with less grave [renal] problems, after the consultation with the nephrologist, we get the clear **boundaries** from the nephrologists when the patient is to be returned here [to primary care]*” (Turn 253.)

<sup>6</sup> The term ‘limit’ has the same linguistic root as the word ‘boundary’ in Finnish. The term ‘limit’ is called “*rajoitus*” while the term ‘boundary’ is “*raja*”.

In another turn, the nephrologist from secondary care mentioned the term “boundary” when defining the stage of the renal disease. The stage of the disease serves as a base for determining the division of care responsibility between primary and secondary care. From the intern’s point of view, the follow-ups on the disease are the responsibility of the health-care hospital during the stable stage, while during the stage of pre-dialysis, the care is provided by secondary care. However, in the discussion involving the division of the care responsibility between primary and secondary care, the intern was wondering about the definition of the stage of pre-dialysis. In Excerpt 2, the nephrologist defines the stage of pre-dialysis in more detail.

*Excerpt 2*

Nephrologist: *“For sure one can speak about the stage of pre-dialysis only in an earlier phase. But there has to be a **boundary** set, and perhaps what we will here start to talk about during the phase of pre-dialysis, about the dialysis with patients, is when the scores are lower, in other words the creatine is something like 0.25-0.30. It depends, however, on the patient and the patient’s disease and how it has evolved in earlier stages. Maybe in Mark’s case (...) it has been assessed certainly that because there is this strong secretion of protein in the urine that the situation is difficult. (...) But it is difficult to assess with many patients how it [the renal disease] evolves. Because it can be stable when the patient is here but then suddenly there occurs a breakdown in renal function.”* (Turn 404.)

The intern and also the other participants were satisfied with the nephrologist’s definition. However, it became evident that there was not enough information exchanged between

primary and secondary care about boundary setting.

For the third occurrence of this term, nurse from the health-center hospital used “limit” a correspondent to the term “boundary” in Excerpt 3. The use of the term related to her interaction with the patient in a consultation. During the consultation they discussed dieting. In the laboratory session, the nurse pointed to the consultation when the flow of information was discussed. She took advantage of the nephrologist’s general comment regarding the flow of information in the provision of the patient with multiple illnesses to extend the conversation to a subject that mattered to her (i.e. communication problems between herself and the patient).

*Excerpt 3*

Nephrologist: *But when the situation is like this [many providers], this flow of information becomes important.*

Nurse: *“And when we met for the first time... you [the patient] said it very clearly when I was talking about this **limit** of protein [in your diet], you said that you are well aware of all [the things you can or cannot eat].”*

Patient: *Yes, concerning the proteins.*

Nurse: *We’ve been having this kind of, minor communication [problems], and so -*

Patient: *Yes.*

Nurse: *that do we understand each other or not.* (Turns 304-309.)

In all three excerpts, it is the medical specialty and knowledge that marks the boundary between primary and secondary care. In Excerpts 1 and 2, the boundary defines the division of responsibility of care provision by using the stages of diseases as a criterion for marking the boundary. In Excerpt 3, the professional knowledge of nutrition is applied to distinguish between patients and professionals. Furthermore, in all examples, the knowledge of the professional justifies the boundaries.

7 Three dots in the brackets (...) means that I have left out some speech that seems irrelevant to the analysis.

However, the professionals seem to possess different opportunities for boundary setting depending on their position in the professional hierarchy. For instance, when the intern refers to the boundary indicated by the stage of the renal disease, the boundary is “given” to her. In Excerpt 1, she says “*we get the clear boundaries from the nephrologists*” whereas the nephrologist is in the position to “give” the boundary. For instance, in Excerpt 2, he sets the boundary between primary and secondary care by interpreting the patient’s overall condition and the progression of the renal disease. Consequently, he does not consider the “stage of pre-dialysis” as the only boundary marker in boundary setting.

In the third excerpt presented, the property of boundary setting shows the disproportion and tensions in the relationship between patients and professionals. The nurse is speaking about “*the limit of protein*” as understood in medical practice whereas when she refers to the patient’s expression “*you said that you are well aware of all [the things you can or cannot eat],*” she is describing the patient as a person who does not care about the medical practice (i.e. a limited intake of protein for renal diseases, or dieting). In fact, according to her, the patient is not willing to change his lifestyle as is expected of him (see Engeström, R., 1999a: 199-200). Furthermore, Excerpt 3 suggests that the patient as a “lay expert” of his own illness questions the professional knowledge and position of the nurse; the professional position that in general is targeted by many challenges between medical professionals and patients. However, from the patient’s point of view, as became clear earlier in the session, he described how he studied nutrition during his years of illness, and, in particular, the diets of diabetics and renal patients. Even so, the nurse herself did not consider the interaction between the patient and herself successful at the consultation. Instead, she refers to communication problems between the patient and

herself, while it seems obvious that the discussion is sidetracked. Instead of speaking about dieting and losing weight, the nurse and the patient discuss a less difficult issue; special knowledge related to nutrition.

### Metaphors

The second type of boundary expression is a *metaphor*. According to Lakoff and Johnson (1980), the construction of metaphors represents the very core of conceptual thinking, which is based on metaphorical transitions between concrete bodily experiences and abstract thought. Unlike symbols, metaphors are created over and over again in language use. Similes point at similarities of things to one another, whereas metaphors depict things or concepts by making use of one for the other, and thus give room for new interpretations.

An example of the use of metaphors as boundary markers in interaction is the metaphor “iron curtain” that was applied at the laboratory session by the representative of the city administration, a medical doctor. With the metaphor she indicated the boundary between primary and secondary care in the information exchange in Excerpt 4.

#### Excerpt 4

City administrator: “*We are presently introducing a new electric information system to the health-center hospitals as well as the community-health clinics in the Helsinki Health Office. It provides an opportunity to view the patient’s care and documents in every community health clinic and health-center hospitals. But this **iron curtain** remains between HDHUC and us.*” (Turn 446.)

Her expression relates to the discussion concerning the flow of information between primary and secondary care. It was also one of the main themes of discussion dealt with at the laboratory session. The expression “iron curtain” characterizes the total lack of communi-

cation between the primary and the secondary care in the flow of information.

The 'total' lack of collaboration was referred to in the examples of metaphors applied in other parts of data. For instance, an assistant senior physician from primary health care described the collaboration between primary and secondary specialized care in an interview January 18, 2000 after organizational changes in the division of labor between the primary and specialized care. He said: "*There have always been fences to cross in the cooperation, but now the borderlines seem to be getting even higher*". The reorganization of services was supposed to improve the cooperation between primary and secondary care, but it seemed to make things even worse.

### Actors' Attributes and Social Relations as Means of Distinction in Organizational Interaction

The criterion for determining boundaries in situations includes, according to Scott (1998:184), actors, social relations and activities. When the actors are considered, the focus is on the membership categories and other attributes that are shared by the members, such as interests, training, or ethnicity. Social relations for their part refer to specific types of social relations that are involved in establishing the boundaries of a system. For instance, Scott points to frequency of interaction as a behavioral indicator of boundaries. A third boundary determinant refers to activities conducted by individuals when the boundary is observed in changes of activities. Focusing on actors' attributes gives insight into the normative basis of boundaries, while social relations and activities emphasize behavioral criteria of boundaries. However, Scott stresses the overlapping of the different boundary types in interactions and interdependent activities. In the present section, I will focus on actors' attributes as well as social relations that seem often to coincide in the interaction between

professionals and laymen, as well as between different kinds of professionals. In particular, I will focus on relations suggested by Lotman.

Lotman (1990: 131) maintains that cultural boundaries are defined through distinctions such as "me-and-you" or "us-and-them". Distinctions between different social groups are also often marked by personal pronouns. However, there are varying ways to refer to persons in the laboratory session to mark the boundaries. For instance, the "me-and-you" interaction seems to indicate "me-as-a-professional-and-you" distinctions. Consequently, the second type of implicitly expressed boundaries points to distinctions indicated by persons and groups, whether professions or personal pronouns. In Excerpt 5, the nephrologist differentiates her perspective as a professional from the patient's perspective as a layman in defining the main ailment of the patient.

#### Excerpt 5

Nephrologist: "*Of course for me also, a nephrologist, it is clear that it depends for instance on your rheumatism, what stage it appears to be in. Is it in a calm or reactive stage, of course for you, it can be the most dominant disease*". (Turn 107.)

In Excerpt 6, the GP from the occupational-health services indicates a division of the responsibility of care between general practitioners and specialists.

#### Excerpt 6

GP: "*For me, as a general practitioner, the level of general practice, the level of community health clinics may take the basic responsibility for the population, but in this case, perhaps it is not necessary to say it anymore, but because there are so many illnesses, many difficult situations, the GP is not able to handle it all. Therefore, we have certainly the level of specialists taking part in the care responsibility.*" (Turn 311.)

“Us-and-them” distinctions in boundary setting include “we” talk that is used in descriptions of “our” practice, “our” responsibilities and “our” actions against “them”, the other providers. In particular, the senior nephrologist uses “we” talk. Excerpt 7 is an example of “we” talk that is a part of the discussion concerning the overall care of the patient. In the discussion, the participants consider alternative ways of providing care. In Excerpt 7, the nephrologist suggests that the renal clinic could also take over some parts of the provision of care that were before treated elsewhere.

*Excerpt 7*

Nephrologist: “We do not have a system that covers every possible treatment. (...) But we have, we have nutrition therapists in **our house**. She can help us because she is familiar with nutrition for the renal patients. **We also have a nurse specialized in diabetes.**” (Turn 379)

Often “they” does not point to another person or even a group of people but to an anonymous professional in another health-care organization. In fact, this is a problem for some providers as is presented in Excerpt 8. In the excerpt, a head nurse complains about the problems related to information exchange between primary and secondary care when they do not know whom to contact when a patient is sent to primary care for follow-ups.

*Excerpt 8*

Head Nurse: “When the patient leaves **us at the hospital** to go home as in this case when the patient has not met the personal physician and does not perhaps know his (or her) name. We have a problem when we send the **epicrisis there, to the community health clinic, (...)to which doctor we should send it.**” (Turn 150.)

References to persons as boundary markers do not involve only the participants in the labora-

tory session, but they reflect the anonymous and professionally mediated relationships in particular locations of care. Furthermore, references to persons are often used with the other types of expressing boundaries.

**References to Locations of Care as Boundary Markers**

References to locations of care represent context and situation specific criteria of boundary setting and maintenance in organizations and social collectives. Scott (1998: 184) suggests that spatial and temporal indicators are important criteria for defining behavioral boundaries based on relationships and activities. For instance, spatial barriers such as fences, walls, doors, guards and receptionists, and temporal systems such as working hours and activity schedules are useful indicators of organizational boundaries. Here, however, the boundaries are focused as referring to the intertwined character of locations of care and the actual care provision. In the discussion about the arrangement of Mark’s care, the names referring to places of care are the means of differentiating the locations of care from each other. In Excerpt 9, the patient recounts the current arrangement of his care provision in various organizations.

*Excerpt 9*

Patient: “I visited **the occupational health services here** for all my ailments until 1997. But then I got this renal failure, and went to **the nephrology clinic**, and since then I have been a patient **there at the nephrology clinic**. **Here in the kidney clinic**, they also found the heart disease. And then I went **from the kidney clinic to the cardiac hospital**, and **from cardiology I came back to the kidney hospital**, because they could not treat my diarrhea. Now that they have moved **the rheumatology department here**, it has also been treated here simultaneously. So my treatments are all centered **in this house.**” (Turn 122.)

The professionals refer to care locations in relation to the division of care responsibility. Sometimes even the name of the person who was giving treatment is used instead of the name of the location. For instance, the personal physician from primary care “sends her patients to Ann” for further testing. Furthermore, she also uses the names of the illnesses as ‘locations’ to mark the boundaries. In Excerpt 10, she reflects on her responsibility in the provision. It may sound strange that she is called a personal physician, because she has never met Mark. However, “personal” in this case means that she is a personal physician in the area where Mark lives. According to the division of the population in the health-care system, she is Mark’s potential provider.

#### Excerpt 10

Personal doctor: “If I had a person like Mark in primary care for a longer period of time, and he had diabetes, I would try to attend to his diabetes to a certain point myself and after that I would send him to Ann, or to the **outpatient clinic** for diabetes. (...) And then because there are renal problems and rheumatism as well, I would send him over to **the consultation clinic at the health-center hospital**. (...) And from there consultations are made for **kidneys and rheumatism and the heart also**.” (Turn 113.)

In excerpt 11, Mark’s GP from the private occupational-health services presents his view of the division of care responsibility. In Mark’s provision, he is responsible for the treatment of acute problems such as the flu. He uses the names of care locations to mark the levels of care.

#### Excerpt 11

GP: “This kind of acute care has now been provided **at the occupational health services**. And just these multiple problems have perhaps meant that it has been left to **a more expert level [of treatment] like here, at the**

**outpatient clinic**. And then we have followed the treatments there how they are carried out over **there**.” (Turn 116.)

When the patient and the professionals refer to locations of care as boundary markers, the patient seems to take quite an active role in his care by “visiting”, “going”, and “coming back” to the places of care. The patient has the means to choose the locations of his medical care, which appears odd, because ordinarily access is denied to locations not permitted in the regulations. The professionals, for their part, seem to relate to organizational levels of care in defining boundaries between organizations. They “send” and “hand over” the patient to another level of care. These expressions are interesting, because they do not include rules as only indications for defining the boundaries as in Excerpt 1 in which the intern “got the boundaries” from secondary care. The professionals in Excerpts 10 and 11 reflect upon many aspects of illness before making the decision to “send” the patient to another, more specialized level of care for treatment. All examples show that the boundaries between various care locations, as well as between the patient and the care organizations, are not determined in a solid way, but are a matter of choice.

#### Summary

The indications of boundaries in inter-organizational interaction were identified through the use of (1) the terms “boundary”, and “border”, (2) metaphors, (3) actors’ attributes and definitions of social relations, and (4) and references to locations of care. In the examples presented in Excerpts 1-11, the terms and metaphors for boundaries are not often applied, but applying distinctions referring to actors’ attributes and social relations, as well as to locations of care are typical. Expressing boundaries uses various linguistic means simultaneously, as was monitored in the unit of a speech turn. However, interpretation of the expressions of boundaries is difficult without making sense of the relation between the expressed boundaries and the health care provision. Next, I will summarize the findings from the perspective of this relation.

Monitoring the relationship between the expressed boundaries and the activity of the patient care provision in practice is not easy. In the present data, the elements of an activity system are applied to outline the connection. The elements are the subject, the object, the mediating artifacts (signs and tools), the community, the rules and the division of labor (Engeström, 1987). The inter-organizational context of the

study involves not only one activity system, but also the activity systems of primary and secondary care, as well as the activity system of the patient. The types of boundary expressions in Excerpts 1-11 are summarized together with their connections to the organizational level of multiple activity systems in Table 1.

As reported below in Table 1, the expressed boundaries referred to division of labor in five

Type of Boundary Expression	Content of an Excerpt	Connection between the Health-care Provision and the Expressed Boundaries
1. Terms “boundary”, “border”	Excerpt 1. Care provision of renal patients	Division of labor between the health center hospital and the specialized hospital
	Excerpt 2. Stage of renal disease as a criterion for boundary	Rules in the division of labor between primary and secondary care
	Excerpt 3. Diet consultation of a renal patient	Tools of communication between professionals and laymen
2. Metaphor	Excerpt 4. Flow of information between primary and secondary care	Tools of collaboration between primary and secondary care
3. Actors’ Attributes and Social Relations as Means of Distinction	Excerpt 5. Definition of the main ailment of the patient	Perspective difference between professionals and laymen in definition of the main ailment of the patient
	Excerpt 6. Care processes in the provision of renal patients	Division of labor between general practitioners and specialists
	Excerpt 7. Levels of care provision	Distinctions between providers
	Excerpt 8. Hospital practice of transferring the care provision to primary care	Tools of collaboration between primary and secondary care
4. Locations of care Provision as a Boundary Marker	Excerpt 9. Depiction of a patient’s care provision	Care provision of a patient depicted
	Excerpt 10. Patient’s care provision practices	Division of care provision in care practices
	Excerpt 11. Patient’s care provision practices	Division of care provision in care practices

Table 1. Types of boundary expressions, contents of excerpts and the connection between the health-care provision and the expressed boundaries



excerpts, to tools of communication or collaboration in three excerpts, to rules in one excerpt, and to perspective difference between the patient and professionals in definition of the main ailment of the patient once. In Excerpt 9, the patient describes the care provision of a patient who seeks provision for many illnesses. Obviously, the depiction uncovers the fragmentation of the provision that calls for extended cooperation between providers. However, because of the limited amount of data, the findings are to be considered generally suggestive for the provision of health care. For the interest of the future analysis, it seems important to note that all examples report on tensions related to the boundaries expressed. As outlined in the section 3, tensions may from the perspective of activity theory (Engeström and Miettinen, 1999) often stand for developmental contradictions in activity systems and represent, therefore, challenges in practical activity. In the next section, I will focus on the connections between boundaries, interactions and challenges in practical activity in the interaction between the health-care providers.

## 6 Boundaries, interaction, and challenges of practical activity

Change Laboratories offer a unique opportunity to study the developmental challenges of the practical activity that is embedded in the interaction between patients and providers. In the first place, the relation between the expressed boundaries in the interaction and patient care provision in practice is included in the setting created by the Change Laboratory. As presented in section 4, the data from concretely provided health care was presented as a base for the reflection of problems in care provision. In fact, one of the main purposes of the Change Laboratory method is to provide material for enabling the change and devel-

opment. The care calendar and the care map (recall Figure 1 and 2) are good examples of the information provided from the overall care of the patients. Moreover, the video clips specified the problems found in the outcomes of care provision. For instance, the professionals from primary as well as secondary care reflected on the division of labor between the providers in the interviews that were presented as the “mirror” data at the laboratory. In the discussion that followed the presentation, the problems were further discussed. However, the reflection was not of value just for problem solving in the present patient’s care provision, but the outcomes reviewed at the laboratory session also improve future care provision of patients in general in that new tools for cooperation were discussed and developed during the sessions.

Secondly, the encounter of a patient and the providers makes it possible to study the boundaries “on the spot”, or “in their own right” at the laboratory sessions. Because the providers do not interact with each other during their regular routine, it is interesting to note the effects of the encounter from the perspective of developmental challenges embedded in practical care provision. However, interactions at the laboratory are not to be perceived as situational, but still in relation to their history and future as part of a practical activity. Engeström, Engeström, and Kerosuo (2003) claim that situational actions are “*tension-laden, unstable and open-ended. Instead of just retrospectively asking why an action or an utterance occurred, we should also ask: ‘What dynamics and possibilities of change and development are involved in a given action?’*” When boundaries are approached as future-oriented, historical actions, they appear as potential for change and development.

When the interaction at the laboratory session is studied as discursive actions, there is still a difficulty in identifying the boundaries, since, paradoxically, the interaction might also

include elements that are not expressed. Panteli (2003: 87) insightfully suggests, “what is not said is also as important as what is said” in creating impressions of boundaries. For instance, the expansion of the object (Engeström, Puonti, Seppänen, 2003) involves elements that are beyond the bounds of the known object. Also, when the division of labor directs the care provision of single providers, there may be matters that are excluded from professional interaction if they are no one person’s responsibility. Then, the professionals seem to create boundaries excluding what is irrelevant to them according to the care provision they themselves represent. However, as presented in the following, the encounter at the laboratory session brought about two types of potentials,

or challenges for change and development in the health care provision. The first challenge relates to the emergent object of the overall care. When the participants perceive the care provision as an overall care, a single disease defined by each participant does not direct the provision. The second challenge concerns the possibility to “cross over” the boundary created by the prevalent division of labor between providers.

The discussion of the first challenge dealing with the emergent object of the overall care began at the laboratory session, when the participants defined the main ailment of the patient according to their professional position or division of care responsibility between primary and secondary care. Particularly, this became

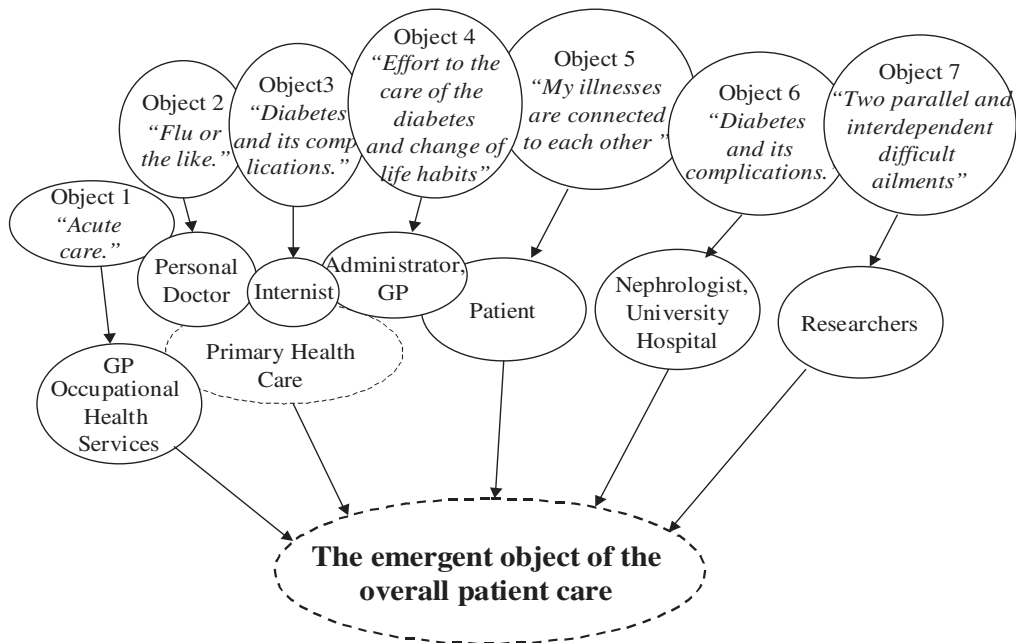


Figure 3. The objects of the representatives and the emergent, shared object of the overall patient care

obvious during the interviews before the laboratory sessions, and later in the video clips presented at the Implementation Laboratory. The other parts of the care provision were not within their responsibility and, therefore, not included in the focus of their interest. It also seemed difficult for a participant to perceive the overall care of the patient until all the components of the provision were presented by the patient or in the data provided by the researchers as presentations of the care calendar, the care map, and the video clips. In Figure 3, the participants' definitions of the main ailment of the patient's care provision are presented as objects of an activity in activity theoretical terms. During the laboratory session the participants were able to perceive the overall pattern of the patient's care when all the dispersed conceptualizations were brought together. In other words, they perceived the joint purpose of their activity, the emergent object of the overall patient care in inter-organizational care provision.

The outline of the new object, the overall patient care, began to emerge during the laboratory session creating challenges for the future care provision that was reflected on at the meeting. For instance, the nephrologist commented on the risks involved in the present provision as presented in Excerpt 12.

*Excerpt 12*

Nephrologist: *"When you are treated by many narrow specialties, at the receptions of internal specialists representing narrow specialties, there is a problem, a risk that everyone focuses only on one ailment (...), on our own specialty and then the overall provision is dismissed."*(Turn 105.)

The nephrologist's reflection was a part of the discussion that followed the participants' definitions of the patient's main ailment. Evidently, the opportunity to catch the overall provision at the laboratory enabled her reflection, because in the interviews before the session, she stuck to the perspective of nephrology.

The second challenge concerning the possibility to "cross over" the boundary created by the prevalent division of labor between providers appeared more implicitly in the interaction. These kinds of challenges are easily overlooked in discussion because they are deeply embedded in the "normal flow of action" or the regular practice (Phillips, Lawrence and Hardy, 2000). Nardi and Engeström (1999) point to invisible disruptions in activity and communication that are not often acknowledged, but which, however, make the normal flow of actions visible. In Excerpt 13, a question by the administrator, GP, (Turn 231 in Excerpt 13) appears to be such a disruption that leads to a discussion in which the present arrangements and boundaries indicating the division of labor between the providers are reconsidered.

*Excerpt 13.*

231 Administrator: *"I would like to pose a question. How do you see it over here; does every visit in this so-called stage of pre-dialysis require that you see the patient?"*

232 Patient: *"I do not wish that this would be...[changed]"*

233 Administrator: *"No. What I am after is that you definitely have to see the patient? Because there are these other components in the care provision, because this is a pattern of many illnesses."*

234 Senior Nephrologist: *"It is not easy to answer this question, but I'll try to some extent at least. I am looking at A. [the nephrologist]"*

235 Nephrologist: *"Yes."*

236 Senior Nephrologist: *"She also has a lot of experience. But we have to remember that we are speaking, that there is about under 20 per cent left..."*

237 Administrator: *"Yes."*

238 Senior Nephrologist: *"of the functioning of the kidneys in our terms. So, we are going downwards, and we have to put an ef-*

*fort into that since we are not able to cure the disease. But it is a goal we all share.(...) And it depends on the progress of the disease, and the patient and us. But there are many things to take into consideration. When this period [of pre-dialysis] begins, there is also a lot of rumba for us all and the patient.”*

239 Administrator: “Okay.”

240 Senior Nephrologist: “*For instance, we have to begin to give information about this stage of disease, what about when the functioning of kidneys is zero.*”

241 Administrator: “Yes.”

242 Senior Nephrologist: “*Or a little earlier than zero. All this information about dialysis, perhaps we speak about the kidney transplant and other [options], various preparations, consultations here and there. One could make a long list, what needs to be accomplished at this stage. Consulting other specialists in order to have the patient be prepared for the situation, that the dialysis can be started at a decent time. And the worse the functioning [of the kidneys] is, the closer we are to the stage of pre-dialysis, the more we have questions in general. And we need to make more precise follow-ups. The stage of pre-dialysis may mean that the patient visits us only once in three or four months. But the closer we are here [to pre-dialysis] the more often the patient visits us, even once a month. When we make the decision that it is the next week we shall start the dialysis. So, when we define this [stage of pre-dialysis], another professional in some other part of Finland might say that the stage of pre-dialysis involves only slightly exceptional functions of the kidneys. But we define it in such a way that we are already near the end [of renal function]. So, in our terms, yes we want to see other things than only the results of the laboratory tests.*”

243 Administrator: “Yes, just that.”

244 Senior Nephrologist. “*After this short line of argument: yes, we want to see the patient.*”

In the normal flow of actions, the administrator’s question (Turn 231 in Excerpt 13) would be unnecessary, or irrelevant, because the specialists that give consultations also specify the plan for the provision that is then received by the other providers and not questioned by them. However, what the administrator, GP, in Turn 233 has in mind is that the provision for the renal disease could be shared between the primary care and the secondary care in order to guarantee the overall care of the diseases. In the “demarcation” that follows, the patient’s reaction to the question is that he wants the nephrology clinic to be the main provider for his renal disease. He does not want any changes in the present provision. The senior nephrologist supports also the prevailing provision by providing points that have to be taken into consideration in the division of labor between providers. Because the senior nephrologist considered it necessary in this case to see the patient every time, the division of labor was settled in such a way that the nephrology clinic would have the main responsibility for the patient’s care. Until then, it had responsibility over only some components of care while the other parts of care were provided in various locations (recall Figure 2 for locations of care). However, the reconsidered division of care provision seemed more sensible when all separate components of the care were assessed. But it may be difficult to provide the agreed overall care in the long run, because the focus of provision is meant to cover problems related to nephrology. Therefore, the solution is to be considered as temporary. When the critical phase of the illness has passed, there would probably be need for a renegotiation. The main points of the discussion in Excerpt 13 are also presented in Figure 4.

Figure 4 depicts a passage in the interaction in which the prevailing forms of the collaboration between primary and secondary care are questioned. Discussing the case at the laboratory session enabled the administrator to

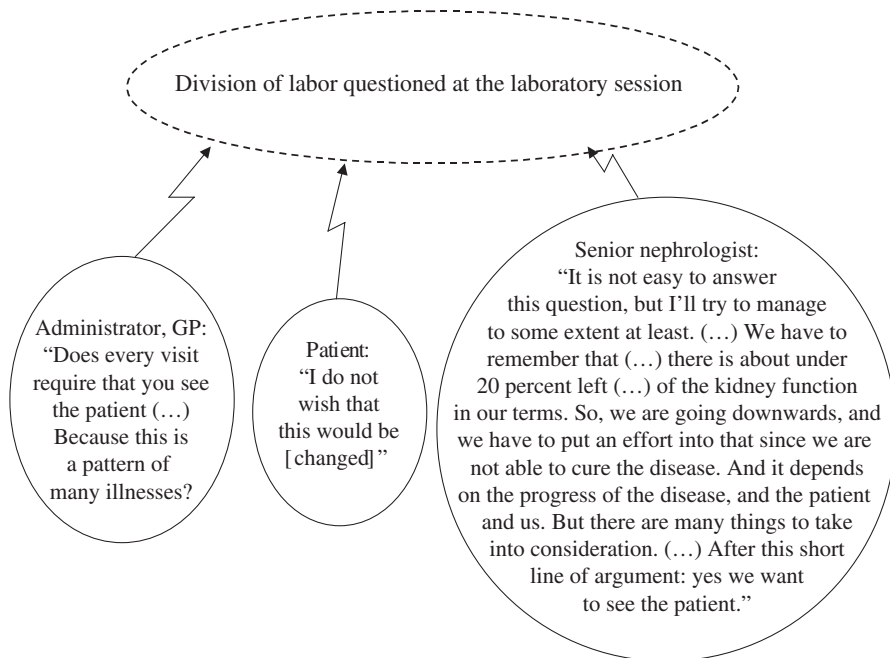


Figure 4. Present division of labor questioned at the laboratory session

perceive the connection between the overall care provision and the division of labor. This realization encouraged her to enter the present boundary between primary and secondary care in the form of questioning the division of labor between the providers. However, the passage shows the difficulties of having negotiations in the context of health care. Schneider (1987: 387) describes a “pull of reporting lines to disciplines” to be stronger than the opportunity to negotiate boundaries between different organizations in health care. The patient also seems to be satisfied to have a minor role in the discussion. But it must be taken into account that nephrology represents a very narrow specialty, and the senior nephrologist appears in that context to be a very respected specialist.

According to Phillips, Lawrence and Hardy (2000), participants of inter-organizational collaboration bring with them organizationally based sets of cultural rules and resources that

structure the behavior in collaborative interactions even if those with legitimate authority do not possess the power to formally direct the actions of others in collaboration. Therefore, the specialists seem to accommodate legitimate authority and the “right to make decisions which are somehow crucial to the collaboration” (Phillips et al. 2000: 33). And moreover, the prevailing hierarchies support a simultaneous value system in health care (Rodrigues, Langley, Béland, and Denis, 2003). This kind of implicit power linkages Rodrigues et al. call mechanisms governed by “clan” (Gray 1989, Phillips et al., 2000). “Clans” as carriers of shared cultural meanings between actors influence power sources horizontally in inter-organizational relations and interactions. Rodrigues et al. emphasize the necessity to pay attention to these “clan” mechanisms along with the formal rules and structures in attempts to interlink organizations. Learning and shared

understanding in inter-organizational relations is achieved when the “clans” are in congruence with formal rules and structures.

The administrator’s question could, however, indicate an attempt at boundary crossing, because she entered a territory that ordinarily is well commanded by specialists. In particular, the administrator challenged the boundary defining the ruling position in the professional hierarchy between the specialist and GP and the autonomy of a medical professional. In the normal flow of actions, a professional from primary care would not challenge the care provision set by a specialist. It is also not a custom to break a professional’s autonomy in treating a patient by interfering with the care provision. Freidson (1970) in particular characterizes the medical profession as a kind of work where it is “the special knowledge of the profession which justifies its autonomy” (ibid. 343).

The passage of the interaction in Excerpt 13 and Figure 4 may also represent another analytical unit, an interpersonal unit of collaboration and boundary crossing for studying boundaries in interaction. This unit of boundary crossing includes a chain of discursive actions that the members of different communities and perspectives take in the interaction. They involve the questioning and negotiation of the boundaries embedded in structures, values, relations and practices of inter-organizational interaction. In Excerpt 13, the administrator questioned the present care provision and the questioning led to a re-negotiated division of labor between providers. The questioning and negotiation began when the problems of the overall care provision became obvious in the discussion between providers. Phillips et al. (2000: 25) point to similar situations where “collaboration involves the negotiation of roles and responsibilities in a context where no legitimate authority sufficient to manage the situation is recognized” (Phillips et al., 2000: 25). Engeström, Engeström, and Vähäaho (1999) call this kind of construction between dif-

ferent kinds of agencies a “knot”. In knots, there is no “center” that holds the organization together; it must be negotiated across the context of multiple historically evolved localities. A boundary crossing action is then a future-oriented, historically derived action that includes questioning as well as negotiation of the prevalent boundaries in the interaction. A boundary crossing action can be observed in the passages of interaction that start with the questioning or challenging of the prevailing practice. A boundary crossing action opens up a space for learning and development. The challenging of the current practice may or may not lead to reconstruction of boundaries in the practice.

## 7 Conclusions and discussion

The focus of interest in the article is on the examining of the boundaries in health care interaction. The boundaries were examined in the participants’ verbal interaction at an intervention meeting called the Implementation Laboratory. Expressing boundaries was examined in activity theoretical terms as discursive actions (Engeström, R., 1999b, Engeström, Engeström and Kerosuo, 2003). Discursive actions that are parallel to physical actions are subordinated to some practical activity. In other words, tracing boundaries in the interaction involved making sense of the relations between boundaries and practical activity.

The observations of the boundaries were made in the first place using the unit of a speech turn. The first research question traced how the boundaries between primary and secondary care are expressed in the interaction at the laboratory session. Boundaries are not expressed directly in interaction, but there are words and expressions that hint implicitly to the existence of boundaries. The findings of the expressed boundaries in inter-organizational interaction were identified through the use of (1) the terms “boundary”, and “border” (2)

metaphors, (3) actors' attributes and definitions of social relations, and (4) references to locations of care. Boundaries are often expressed using various types of expressions simultaneously. The terms "boundary" and "border" and metaphors are not often applied, but applying actors' attributes and definitions of social relations, and references to locations of care are often used. However, in order to make interpretations of the expressed boundaries, the researcher needs to outline the relation between the expressed boundaries and the health care provision. In the process, the four types of boundary expressions may serve as useful "landmarks" or "pointers" of boundaries in the interaction.

The relation between the expressed boundaries and the health care provision was focused on in the second research question of how the boundaries expressed in the interaction relate to health care organizations and patient care practices. The elements of an activity system were applied to outline the connection. In the examples, the connections involved the division of labor, the tools of the inter-organizational collaboration, the rules and, once, a difference in perspective between the patient and professionals in the definition of the main ailment of the patient. In one example, the patient describes the need for an extended cooperation between providers created by the fragmentation of care provision. However, the amount of the data allows only suggestive conclusions for the provision of health care. There is a need for a more extended analysis in order to have more conclusive results. Although the analysis does not provide substantial results, it still serves the methodological elaboration. As a methodological conclusion, it is relevant to suggest that boundaries cannot be studied in a formal way, but their analysis needs to be related to the organizational context (or inter-organizational) of the specific study. "Landmarks" of boundaries are sign-type phenomena that "point" to the boundaries

in verbal interaction, but they are not sufficient in themselves for the analysis of boundaries in interaction.

The analysis of problems and challenges in the interaction led to a suggestion of a second type of unit of analysis called a 'boundary crossing', an interpersonal unit of collaboration. This unit of boundary crossing includes a chain of discursive actions that the members of different communities and perspectives take in the interaction. The third research question directed attention to the developmental problems and challenges of the practical activity that is embedded in the interaction between patients and providers. The laboratory sessions provide a situation in which the boundaries can be studied "on the spot", or "in their own right". However, detecting the boundaries of practical activity is difficult since some boundaries may remain unexpressed in the interaction. As it appeared at the session the encounter at the laboratory session led to two types of challenges for change and development in the health care provision.

The first challenge involves the emergent object of the overall care. In a usual case, the division of labor between the providers representing different activity systems directs the boundaries expressed by the participants leading to the exclusion of what is considered irrelevant for a single provider. At the laboratory session, the providers began to perceive the overall care provision and the realization of the emergent inter-organizational object created new challenges for the provision while contradicting some elements of the present provision.

The second challenge observed at the interaction makes it possible to "cross over" the boundary created by the present division of labor between providers. It includes implicit elements that are not easily noticed in the interaction because they are embedded in regular practices (Phillips, Lawrence and Hardy, 2000), but disruptions can make these

actions visible (Nardi and Engeström 1999). At the laboratory session, statements appeared in which the prevailing forms of the collaboration between primary and secondary care were questioned. These kinds of interactions could indicate a boundary crossing in which the prevailing practice is challenged. Consequently, a boundary crossing may represent an interesting unit of observation for the future study of boundaries and boundary crossing in interaction and discourse.

The interaction at the laboratory sessions depicts health care boundaries as being more flexible than often characterized in public discussions. Consequently, all the professionals in the analyzed data were able to make situational interpretations from the formal rules defining the provision and practices. The patient also took liberties in his choices of seeking care.

Some professionals seem to have more power at their disposal than others, which is not surprising. For instance, they are able to create and give formal rules. These professional superiorities reflect the power structures in organizational hierarchies that seem both direct and indirect. They are direct because the less powerful members of organizations do not oppose the more powerful members in the interaction. For instance, they accept the rules created by the professional specialty. The indirect use of power appears as an ability to control others in the interaction, although it is not agreed upon in the division of labor between organizational hierarchies. In the studies to come, it will be important to pay attention to these implicit power linkages when monitoring boundaries in horizontal collaborations.

## Acknowledgements

I thank the patient Mark for allowing me to intrude into his life which is burdened by illness, and all the participants of the intervention. Many colleagues at the Center for Activity

Theory and Developmental Work Research, as well as the 2<sup>nd</sup> Nordic Baltic Conference of Activity Theory, have contributed to this study in various discussions. Thus I owe my sincere thanks to them all. At the Center for Activity Theory and Developmental Work Research, I especially wish to acknowledge my supervisor professor Yrjö Engeström for his comments and encouragement during the process of writing this article. I also want to acknowledge the valuable comments and suggestions of Ritva Engeström, Vaula Haavisto and Merja Helle. The comments of the two anonymous referees have improved the final version of the article enormously. Julie Uusinarkaus did a marvelous job in improving the intelligibility of the text. Furthermore, I have received a grant, fund number 101436, from the Finnish Work Environment Fund. It is also gratefully acknowledged.

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